

THE PRESIDENT'S REPORT  
FOR THE YEAR 1919-20

## CONTENTS

	Page
The President's Report.....	5-97
General University problems.....	5-9
Administrative changes.....	9-15
Changes in the faculties.....	15-22
Educational developments.....	22-27
Administrative measures.....	27-32
University life.....	32-35
Statistics of registration.....	35-63
A survey of the colleges.....	63-70
Relationships with other universities.....	70-72
Finances.....	72-75
Student fees.....	75-77
Budget plans for 1920-1921.....	77-84
Financial suggestions.....	84-89
Buildings and grounds.....	89-95
Conclusion.....	95-97
Reports of the Deans, etc.....	98-258
College of Science, Literature, and the Arts.....	98-104
College of Engineering and Architecture.....	105-111
Department of Agriculture.....	112-43
Law School.....	144-50
Medical School.....	151-57
College of Dentistry.....	158
School of Mines.....	159-63
College of Pharmacy.....	164-66
School of Chemistry.....	167-72
College of Education.....	173-76
Graduate School.....	177-85
School of Business.....	186-88
Report of the Dean of Women.....	189-92
Report of the Dean of Student Affairs.....	193-98
General Extension Division.....	199-220
Summer Session.....	221-23
Department of Physical Education for Men.....	224-26
Department of Physical Education for Women.....	227-28
Committee on Physical Education and Intramural Sports.....	229-31
Military Department.....	232-33
Geological Survey.....	234-35
Zoological Survey and Museum.....	236-42
University Library.....	243-49
Interfraternity Council.....	250
General Alumni Association.....	251

*CONTENTS*

	Page
Report of the Registrar.....	252-53
University Health Service.....	254-58
Financial report.....	259-61
Publications of the faculties.....	262-90
Index .....	291-300

## THE PRESIDENT'S REPORT

*To the Board of Regents of the University of Minnesota:*

GENTLEMEN: As president of the University, I have the honor of submitting to you my third and last annual report covering the period from July 1, 1919, to June 30, 1920. In my annual report for 1918-19, which, technically speaking, covered the period ending June 30, 1919, I deemed it wise to record certain important events which were officially authorized by the Board of Regents during July, 1919. I refer particularly to the appointment of the first dean, Dr. George W. Dowrie, of the new School of Business, and the coördination of the administration of the School of Chemistry and the College of Engineering and Architecture under Dean Lauder W. Jones (see pages 28-30 and pages 33-35 of the *President's Report for 1918-19*). Under normal circumstances the month of July, 1919 would have been a part of the academic year 1918-19. An act of the last legislature changing the fiscal year requires this report to begin on July 1, 1919.

The year under review is marked by several outstanding features. Like the two preceding years it has been very abnormal in several respects. In the first place, the University has experienced the most phenomenal growth in all its history. Reference to the statistics of registration given in detail elsewhere in this report will amply substantiate this assertion. Prior to this year the largest registration of full-time collegiate and professional students was 6,311 in the year 1916-17. This year the total figures for the same kinds of students are 8,028. In all probability the war is responsible for this growth. Multitudes of young men learned in war the high value of thoro training. Large numbers of those who would have entered the University under normal conditions a year or two ago seized the first opportunity to come after the war. The generous provision by the last legislature of funds to pay the tuition fees of service men no doubt contributed to the result. At any rate, the students came in overwhelming numbers and our entire year has been modified by this fact. Congested classrooms, overworked teachers, inadequate supplies, unsatisfactory residence conditions, inevitably resulted from such abnormal growth. These conditions, however, were by no means peculiar to the University.

of Minnesota. Practically all of the leading state universities have experienced a similar growth and have been struggling with the same types of problems.

In the second place, our financial difficulties have been extremely perplexing. No deficits have been created, but our reserves have been completely exhausted and it is unquestionably impossible to go through the coming year on the existing income of the institution. No word of criticism is implied in these statements. In fact, it is an achievement of no small proportions to say that no deficit has been incurred this year. Great credit is due to the officers of the University for bringing about such a result. Only those who have been intimately associated with the work and have seen the situation in its entirety can appreciate how pressing, immediate, and constant the problems have been. Constructive, progressive development of plans has been out of the question. Our one aim has been to meet the situation day by day and to fulfill as best we could our obligations to the students and the citizens of the state. These financial difficulties arose from three sources: (1) The increasing high cost of living made the general salary situation almost intolerable. Salaries were admittedly low before the war. With the doubling of living costs it became almost impossible to retain our best teachers or to secure well-trained men to take their places. Moreover, the supply of instructors has steadily diminished until the shortage of university teachers threatens seriously the future of our higher institutions of learning. (2) All supplies are costing from two to four times as much as they did before the war. (3) The unexpected growth of the University accentuated the situation at every point. More teachers, more buildings, and more supplies of all kinds were absolutely essential if the students were to be properly taught.

In the third place, there have been several very serious and unanticipated changes among the high administrative officers of the University. A change in the presidency and in three deanships produces unusual conditions and interrupts the continuity of many plans and policies.

Nevertheless, these abnormal situations have only served to focus the attention of the state upon the University. It is no exaggeration to say that to-day, as never before, the citizens of Minnesota are thoroly aroused in regard to the serious needs of

their chief educational institution and are determined that it shall have the support that new conditions demand. The University of Minnesota is suffering only from the penalties of prosperity. There is occasion not for dissatisfaction but for great confidence in the future of this institution.

It is a pleasure to record here that the Board of Regents at its meeting held on December 9, 1919, took an action which can bring only satisfaction to every one interested in the University of Minnesota. The first president was given the title of "President Emeritus." The minutes of the board carry the following record:

In partial recognition of the high service rendered to the University of Minnesota by Dr. William Watts Folwell, who served as its first President from 1869 to 1884, and who, by his keen analysis of educational problems and by his unusual foresight in grasping the possibilities of higher training, laid wisely and securely the foundations upon which this institution has been reared, it was unanimously voted to confer upon Dr. Folwell the title of President Emeritus.

On April 21, 1920, without any prior intimations or warnings, came the sudden and startling news that Maria L. Sanford had died at Washington, D. C., in the home of our honored Senator Knute Nelson. Miss Sanford had gone to Washington to deliver an apostrophe to the flag before the Congress of the Daughters of the American Revolution. With all the sense of loss that her death inevitably brings to innumerable friends, there was something peculiarly fitting and beautiful in the way the end came.

Miss Sanford was born on December 19, 1836, at Saybrook, Connecticut. For ten years she taught in the schools of her native state. Later she was superintendent of schools and principal of the high school at Coatesville, Pennsylvania. She resigned this position to go to Swarthmore College, where she served as professor of history, elocution and rhetoric. Another decade of her life was spent at Swarthmore during which she lectured extensively in Pennsylvania, Maryland, and Ohio. It was at this time that President Folwell found her, and in the fall of 1880 she came to this University as assistant professor of rhetoric and elocution. In 1881 she became a full professor. The details of her remarkable life at this University need not be recited here. They will be set forth in adequate form in other places. Not only the University, but the entire state, has paid high tribute to Miss Sanford. The public press has been unstinted in its praise. On

June 10, 1920, a memorial service was held in the University Armory, at which President Northrop delivered a most fitting and beautiful memorial address. The *Alumni Weekly*, in its issues of April 26 and May 17, 1920, has presented much valuable material in regard to the life of Miss Sanford.

It seems fitting to introduce here the resolution of the faculty of which Miss Sanford was a member for so many years:

The Members of the Faculty of the College of Science, Literature, and Arts of the University of Minnesota, of which Maria L. Sanford was, for nearly thirty years, an honored and efficient member, desire to express their appreciation of the work she wrought and the influence she exerted during her long term of service to the University.

We know how difficult were her problems and how successfully she solved them; how serious the obstacles she encountered and with what courage she overcame them. We know what burdens were laid on her shoulders and how unflinchingly she bore them; what sorrows and disappointments clouded her skies and how she dissipated them with a song. For hers was a peculiarly buoyant and cheery spirit, living in a rare atmosphere of faith and hope and charity and high ideals, which greeted the opening day with a doxology and brightened its close with a Benedicite. None knew as well as her colleagues the spirit of devotion with which she sanctified her daily task; a devotion in which all thought of self was lost; which sought no meretricious praise, paid no sacrifice to popularity, nor took count of remuneration or reward, save as it came in the true culture of those entrusted to her care. To them, the riches of her own personality were offered in unstinted service with which nothing was allowed to interfere. Sickness came, accident came, loss came, injustice came, but steady as a mariner at the wheel in stormy seas she held her course, for continually she saw "a light that never was on land or sea."

She was a true educator; no mere hired instructor serving for a daily wage and counting the reward of her service in material gain. To her the class room was an opportunity, where books were but means to an end, and that end not primarily the impartation of knowledge, but the development of the power of just discrimination, of wise appreciation, of right direction of purpose, and of creative energy. Her class room was a laboratory of life, and with true Socratic zeal she practiced her maieutic art. The fruitfulness of those for whom she labored was her one anxiety, and, when realized, her satisfying recompense. No vanity of self-display tempted her to forget her true function, or blurred the vision of those ideals of thought and conduct which she opened before the eyes of her students; to which by her own enthusiastic self-surrender she sought to win their devotion. Rich indeed is the institution which numbers many such among its teachers, and poor indeed, despite all learning and fame, that in which such teachers are lacking or deemed worthy of only secondary consideration.

It is timely to say, and she would delight to have it said, that she was a true child of the Puritans, the inheritor and eager transmitter of those virtues and graces and of that truly human culture which has made the name of the land she loved with a passionate love a praise in all the earth.

Miss Sanford was the living personification of service. Her boundless energy, her undaunted courage, her charming simplicity, and her utter sincerity combined to produce a person of rare influence and marvelous power. Whatever she touched sprang into newness and richness of life. She was a great teacher, gifted with unusual powers of inspiration. She is another convincing proof that personality is the most potent force in life. Her power found its source in the realities of the spiritual world. She knew that faith, hope, and love are among the abiding verities of life.

She has left a permanent impress upon the University of Minnesota. Her service has elevated the standards of our state and nation. Death can not remove from us the truth for which she stood. In reality she symbolized "the death of death." With her, as with all truly great persons, the path of death has been the path of life. She gave of herself freely, through intelligent service, that others might find the life abundant.

## ADMINISTRATIVE CHANGES

1. *The presidency.*—At the meeting of the Board of Regents held on January 15, 1920, the official resignation of the president was presented in the following letter addressed to the Honorable Fred B. Snyder, president of the Board of Regents:

In accordance with my message to you on December 29, 1919, I am writing to say that I have decided to accept the call to the Presidency of the University of Michigan. I reached this conclusion only after the most careful consideration of all of the principles and interests involved.

I desire, therefore, at this time, officially to present my resignation as President of the University of Minnesota to take effect at the close of the current fiscal year on June 30, 1920.

It is with great reluctance that I anticipate the severing of my official relationships here. The Board of Regents has done everything in its power to make my work delightful and stimulating. I have never been conscious of any strain (other than is inevitably involved in the duties of the President of a large University) in my dealings with the students, the Faculty, the Deans and other administrative officers, the alumni, the Regents or the Legislature.

I have taken this important step for two reasons: (1) The distinct advance in income is significant to me, both from a personal and a professional point of view. (2) I am convinced that the type of service which I shall be called upon to render at Michigan will utilize fully whatever capacities and abilities I may have for my chosen work.

In accepting the resignation the Board of Regents adopted the following resolution:

That the resignation of President Burton be accepted to take effect June 30, 1920; that the Board sincerely regrets the loss of President Burton; that the relations existing between him and the Board have always been characterized by mutual confidence, trust, and uninterrupted harmony of action; that while the Board is of the opinion that no University offers to its President a greater opportunity to serve, and achieve lasting distinction than Minnesota, still it wishes him success and honor in his new sphere of action in Michigan.

At the same meeting of the board, a committee, consisting of Regents Snyder, Butler, Glotfelter, Commissioner McConnell, and Governor Burnquist, was appointed to recommend to the board a candidate for the presidency. This committee attacked its problem with great vigor and decisiveness. At the meeting of the board, held three months later on April 14, 1920, it submitted the following report:

*To the Honorable Board of Regents,*

GENTLEMEN: Your Special Committee appointed to make nominations for the Presidency of the University from and after July 1, 1920, respectfully reports and recommends as follows:

At the outset we met with keen competition. Other institutions such as Yale, Cornell, Pennsylvania, Cincinnati, Illinois, Boston Tech, Kansas, are now on the lookout for presidents. The country is being combed for available men. They are scarce. The position requires men possessing a rare combination of qualifications. The emoluments of the position in the past have not been such as to attract an over supply of the right material. Bearing in mind the pressure from Alumni and others urging the Board to encourage our teaching staff by promotions from within we decided to give preference to a man within if we possessed the right man. Several were considered. Dean Lotus Delta Coffman proved early to have the most support. Search was also made throughout the land for others available. Leading educators were invited by wire and letter to suggest names; these were investigated; prospective nominees were visited and interviewed; the daily press occasionally helped us feel out the public by publishing the names and faces of men likely to be considered; many welcome letters came in unexpectedly with endorsements for one man or another; until finally by a sifting process we unanimously agreed that the

University possesses in Dean Coffman a man in every way, not only qualified for the position, but commanding the confidence of the educational world; endowed with unusual administrative and executive power—and still young, vigorous, foreseeing and of winning personality. We have decided that he is the best man for the place of all those who have come before us for consideration.

Dean Coffman knows the difficulties he must meet and master. He is willing to cope with such problems as an enrollment too large for our buildings and equipment, an overworked and underpaid teaching staff which invites constant attack from the outside by institutions seeking good men at higher salaries than we are at present able to pay; and, by reason of the reduced purchasing power of money, a budget skimped and pinched on every side. He has faith in the people, in the legislature, and in the loyalty of the teaching staff. We assure you that he is confident he can fill the position to the satisfaction of all concerned. He welcomes the task of putting his shoulder to the ten year building plan now reaching out before us; and he will accept the position, if elected by your honorable board, with the intention to do, as did our beloved President Northrop—grow old in the service.

We are glad to report for your consideration Dr. Lotus Delta Coffman; as our unanimous choice, and recommend that he be elected President of the University of Minnesota for an indeterminate term from and after July 1, 1920.

We bespeak for Dr. Coffman the cordial support and coöperation of all members of the teaching and administrative staff, and a hearty welcome by the press and people of the state.

Respectfully submitted for the Committee by

FRED B. SNYDER, *Chairman*

This recommendation of the committee was promptly and unanimously approved by the Board of Regents. President-elect Coffman has met regularly with the regents and all of their committees from the time of his election. As a consequence, there was no serious break in the continuity of the administration of the University. There was the most complete coöperation between the president and the president-elect during the spring months.

President Coffman was born on January 7, 1875, at Salem, Indiana. He graduated from the Indiana State Normal School in 1896. He received the degree of B.A. at the University of Indiana in 1896 and the degree of Ph.D. at Columbia in 1911. For a period of eleven years in his native state he served successively as teacher, principal, and superintendent in the public schools. In 1907 he was made superintendent of the training school at Charleston, Illinois. His term of service here was interrupted by a period of graduate study at Columbia University.

From 1912 to 1915 he occupied the position of professor of education at the University of Illinois. During the last five years (1915-20) he has been dean of the College of Education of this University. His outstanding success in this position made him the logical choice for the presidency of the University. It will be observed that President Coffman's rise has been steady and sound. His training and experience have equipped him for the high position which he now assumes. I should like to claim the privilege of including here the statement which I issued to the press on the day that President Coffman was elected:

I am delighted with the election of Dean Coffman. The right man has been elected to head this great university. I have worked intimately with him for three years, and know a great deal about his methods, his point of view, his spirit and his capacity. He is known in the state and nation. His election will be a great satisfaction to school men generally. By profession and training, he is an educator. He knows the problems. He is fully aware of what is being done in all of our best institutions. He has ideas of his own. He is admittedly one of the constructive, educational leaders of the day.

He is a thoroughly sound, progressive American. He has not hesitated to speak out boldly on the issues of the day.

Speaking both officially and personally, it gives me the greatest satisfaction to know that Dean Coffman is to be the next president of the University of Minnesota. Members of the faculty, alumni, students and citizens may look forward with unqualified confidence to the future growth and progress of this university.

I congratulate most heartily both the university and Dean Coffman.

He has a task worthy of the abilities of any man, and the university has a leader of excellent training and experience, just in the prime of life, who deserves and will receive the hearty coöperation of the entire state.

This university has never faced a brighter future.

Of the truth of these statements there can be no possible doubt. In the months which have since elapsed President Coffman has given much additional evidence to substantiate these beliefs.

There appeared in the *Alumni Weekly* for April 19, 1920, a greeting from the president-elect, which will be of genuine interest to the readers of this report. In addressing the Alumni Association of the University he said:

I am looking forward with pleasure to close and intimate relations with members of the alumni association. We are allies, not associates merely, in a great work. We have common interests and common problems in the University of Minnesota. The problem which surpasses all

others in importance is that of keeping Minnesota in the forefront among the great universities in this country. The solution of this problem during the critical period through which we are now passing depends among other things, first, upon a critical analysis and study of the needs of the University; second, upon a clear presentation of these needs to the citizens of the state; and third, upon loyal and enthusiastic support of the alumni and friends of the institution in finding ways of meeting the needs.

These are important matters. They will soon require the attention of every friend of the University. That they will be considered and disposed of in a manner befitting a great state and a great university, I have not the slightest doubt. I have no fears as to the future of the University of Minnesota; it is secure. The leaders of the University in the past have maintained high standards and sound ideals; it remains for us to preserve these traditions unimpaired, and in addition, to present those constructive policies that the present situation requires. When standards, ideals and policies are right, we have the basis for a program and a philosophy upon which we can all unite.

The coöperation, frank criticism and judgment of the Alumni Association upon all matters pertaining to the welfare of the University will always be welcomed.

2. *The deanship of women.*—As stated in my annual report for last year, Mrs. Jessie S. Ladd was appointed acting dean of women, beginning September 1, 1919. At a meeting of the Board of Regents held on January 15, 1920, Mrs. Ladd was given the full title of dean with an annual salary of \$3,000. This action was taken in recognition of the splendid services which Mrs. Ladd over a long period of years has rendered to this University. On February 17, 1920, the Regents voted to provide a full-time assistant for the dean of women to assume charge of the Housing Bureau. The functions of this bureau have been enlarged and it is the intention of the University to give the most careful scrutiny to the residence conditions for both men and women students.

3. *The deanship of education.*—The election of Dean Coffman to the presidency of the University left vacant the deanship of the College of Education. After a careful consideration of various candidates and upon the recommendation of President-elect Coffman, the Board of Regents at their meeting on May 24, 1920, unanimously elected Professor M. E. Haggerty of our own College of Education to this deanship. His services as dean will begin on July 1, 1920.

Professor Haggerty received the degree of Bachelor of Arts at Indiana University in 1902, and the degree of Master of Arts in 1907. In 1909 he received the degree of Master of Arts from Harvard, and the degree of Doctor of Philosophy in 1910. Prior to 1910 he was a teacher and high-school principal in the public schools of Indiana and Massachusetts. From 1909 to 1915 he was assistant and associate professor of psychology and director of the psychological laboratory in Indiana University. From 1915 to 1920 he has been professor of educational psychology in the College of Education, University of Minnesota. During the war Professor Haggerty held a commission as major in the Sanitary Corps of the United States Army, and was stationed in the office of the Surgeon-General, Washington, D. C., where he had charge of the psychological work in the Division of Physical Reconstruction. During 1919 he had charge of the Division of Tests and Measurements in connection with the survey of the public schools of Virginia. During the first three months of 1920, he was in charge of the Division of Tests and Measurements in connection with the survey of the public schools of North Carolina. Since May, 1920 he has been consulting expert of the war department in connection with the educational program of the United States Army.

4. *The deanship of engineering and chemistry.*—In my annual report for 1918-19 (pages 33-35) I outlined the policy adopted by the Board of Regents on July 17, 1919, for the correlation of the administration of the College of Engineering and Architecture and the School of Chemistry. At that time Dean Lauder W. Jones of the School of Chemistry was appointed dean also of the College of Engineering. The entire policy looking to the ultimate establishment within the University of the Minnesota Institute of Technology is generally conceded to be sound. It does not of course rob the present schools of their separate identity, but it does provide for the economical correlation of administrative duties.

It is therefore with keen regret that we must record the resignation of Dean Jones to accept a professorship of organic chemistry at Princeton University. Dean Jones has shown high skill as an administrator of the first rank. During his term of service, he has clarified many difficult situations and fully justifies

the confidence reposed in him. The very unique and attractive position offered to him by Princeton University affords a rare opportunity for that type of service as a research expert in organic chemistry for which Dean Jones is thoroly trained and in which he has achieved distinction.

At the present writing no one has been selected for this important deanship.

5. *The deanship of law.*—For the past eight years Dean William R. Vance has rendered conspicuous service as professor and dean of the Law School. He has aimed wisely and sanely to maintain and advance the standards of the Law School. He has proved himself at one and the same time a great teacher and a wise leader. He has brought men of the very first rank to the law faculty. It is with a keen sense of the loss which this University has sustained that I record the resignation of Dean Vance on May 24, 1920. He was called to a professorship of law at Yale University. In accepting his resignation the Board of Regents adopted the following resolution:

That the resignation of W. R. Vance, Dean of the Law School, be accepted; that the Board records its appreciation of his work as Professor and Dean, and his helpful attitude in all matters pertaining to the welfare of the University, and extends to him its best wishes for success in his new field of endeavor.

At the present writing a new dean for the Law School has not been selected.

## CHANGES IN THE FACULTIES

*Appointments.*—The following appointments to positions of professorial rank were made during the period under review:

William H. Alderman, chief of the Division of Horticulture.

B.S.A., 1908, Cornell University. Field assistant in pomology, Cornell University, 1908; assistant horticulturist, New York; Agricultural Experiment Station, Geneva, 1909-19; associate horticulturist, 1910-11; professor of horticulture, and horticulturist, West Virginia University and Experiment Station, 1911-19; acting dean, West Virginia University, 1915; acting dean and director, 1918-19.

Clarence W. Alvord, professor of history.

B.A., 1891, Williams College; Ph.D., 1908, University of Illinois. Instructor, Milton Academy, 1891-93; instructor, Preparatory School,

University of Illinois, 1897-1901; instructor, 1901-6; associate. 1906-7; assistant professor, 1907-9; associate professor, 1909-13; professor, 1913-20, University of Illinois.

Leon E. Arnal, professor of architectural design.

Fine Arts School, Marseilles; Architecte Diplôme le Gouvernement Français, 1899-1910; National Fine Arts Schools, Paris.

Lieutenant Colonel Albert G. Goodwyn, professor of military science and tactics.

Graded and public schools, Montgomery and Wetumpka, Ala.; North Alabama Agricultural College; University of Alabama, class of 1898; Army School of the Line, A.E.F. 1918; appointed professor of military science and tactics, October 13, 1919.

Joseph R. Keithley, professor of dairy husbandry

B.S.A., 1908, University of Missouri; M.S.A., 1909, University of Missouri. University of Missouri, 1908-9; U. S. Department of Agriculture, 1909-14; head of department, professor of dairying, North Dakota Agricultural College, 1914-19.

Charles H. Mayo, professor of surgery.

M.A., 1902, Northwestern University; M.D., 1888, Northwestern University. Professor of surgery, Mayo Foundation, 1915-19.

Antonio Heras, professorial lecturer in Spanish.

Bachiller, 1897; Lueneiada en Derecho, 1908, Universidad de Madrid. Ecole des Roches, Vernet sur Aure, France, 1913-16; University of Chicago, 1917.

Mildred W. Loring, professorial lecturer in psychology.

B.A., 1912, University of Washington; M.A., 1913, University of Washington; Ph.D., 1916, Johns Hopkins University. Scholar, Bryn Mawr College, 1913-14; Sarah Berliner research fellow, Johns Hopkins University 1916-17; instructor, University of Washington, 1916-17; medical research laboratory, Mitchel Field, Long Island, N. Y., in collaboration with Captain Percy W. Cobb.

Paul J. Thompson, professorial lecturer in law.

B.A., 1898, Ripon College; L.L.B., 1901, University of Minnesota; M.A., 1901, Ripon College.

Oscar E. Harder, associate professor of metallography.

B.A., 1910, University of Oklahoma; M.A., 1911, University of Oklahoma; Ph.D., 1915, University. Instructor in chemistry, University of Oklahoma, summers of 1910 and 1911 and during year of 1910-11.

- Walter H. Parker, associate professor of mining.  
E.M., 1907, University of Minnesota. Instructor and member of the staff, School of Field Artillery, Fort Sill, Okla., March, 1918, to August, 1918. Overseas September, 1918.
- Robert G. Allison, roentgenologist with rank of assistant professor.  
M.D., 1912, University of Maryland. Instructor, Sorance Lake, N. Y., 1912-14; instructor, Urine Hospital, New York City, 1914-15; instructor, Chicago Municipal Tuberculosis Sanitarium, 1915-16.
- Lee W. Barry, assistant professor of obstetrics.  
M.D., 1911, University of Michigan; Ph.D., 1919, University of Minnesota. Interne, St. Francis Hospital, Pittsburgh, 1911-12; associate in pathology, Indiana University, 1912-13; teaching fellow, University of Minnesota, 1916-19.
- Milton H. Fohrman, assistant professor of dairy husbandry.  
B.S., 1917, University of Missouri; M.A., 1919, University of Missouri.
- E. A. Heilman, assistant professor of accounting.  
B.A., 1905, Northwestern College; B.A., 1906, University of Minnesota; M.A., 1908, University of Wisconsin; Ph.D., 1919, University of Wisconsin. Instructor, Kansas State Agricultural College, 1912-13; instructor, Iowa State University, 1914-18; instructor, University of Michigan, 1918-19; assistant professor, Drake University, 1919-20.
- Pedro Henríquez Ureña, assistant professor of romance languages.  
Bachiller en Ciencias y letras, 1901, Santo Domingo Instituto Profesional; Escuela Superior de Comercio, 1911, 1912-14, Mexico City.
- Robert T. Jones, assistant professor of architecture.  
B.S., 1912, University of Illinois. Instructor, University of Illinois, 1912-19; assistant professor, University of Illinois, 1919-20.
- Raymond E. Kirk, assistant professor of chemistry.  
B.Sc., 1915, University of Nebraska; M.Sc., 1917, Iowa State College. Graduate assistant, University of Nebraska, 1914-15; assistant, Iowa State College, 1915-17; instructor, Iowa State College, 1917-20.
- Harold Macy, assistant dairy bacteriologist with rank of assistant professor.  
Ph.B., 1917, Cornell University. New York Agricultural Experiment Station, 1917; Yale Army Laboratory School, 1918.
- Thomas Byrd Magath, assistant professor in clinical bacteriology and parasitology on Mayo Foundation.  
Ph.B., 1913, Emory University; M.Sc., 1914, James Millikin University; Ph.D., 1917, University of Illinois; M.D., 1919, University of Illinois.

Teaching fellow in biology, Millikin University, 1913-14; instructor in biology, Illinois State Normal University, summer 1914; graduate assistant in zoology, University of Illinois, 1914-16; fellow in zoology, University of Illinois, 1916-17; instructor in anatomy, University of Illinois, College of Medicine, 1918-19.

Grover C. Mathews, assistant professor of bee-keeping.

Superintendent of school, Camp Point, Ill., 1918-19.

G. H. Montillon, assistant professor of chemistry.

B.S., 1912, Iowa State College; M.S., 1918, Iowa State College. Instructor, Iowa State College, 1912-13; teaching fellow, Iowa State College, 1917-18; instructor, University of Wisconsin, 1919-20.

E. F. Parker, assistant professor of romance languages.

B.S., 1907, Norwich University; M.A., 1909, Harvard University; Ph.D., 1920, Harvard University. Instructor, Union College, 1912-16; instructor, University of North Carolina, 1916-17; instructor, Harvard University, 1919-20.

Harold S. Quigley, assistant professor of political science.

B.A., 1911, Hamline University; B.A., 1914, in modern history, Oxford University; Diploma in Economics and Political Science, 1914, Oxford University; Ph.D., 1916, University of Wisconsin. Instructor, Princeton University, 1916-17; professor, Hamline University, 1917-20.

Homer J. Smith, assistant professor of trades and industrial education.

Ph.B., 1915, University of Wisconsin. Rural school, South Wayne, 1905-6; high-school mathematics, Platteville, Wis., 1908-9; principal, Hadfield School, Waukesha, Wis., 1909-12; academic branches, Boys' Technical High School, Milwaukee, 1913-19; vice-principal, Boys' Technical High School, Milwaukee; six years instructor in evening classes, University of Wisconsin, Extension Division, Milwaukee Industrial Teachers' Courses.

Lucy A. Studley, assistant professor of home economics.

B.S., 1911, Simmons College; M.A., 1920, Columbia University. Instructor, high school, Brockton, Mass., 1911-17; extension work in home economics, Mass., 1917-19.

William Thorp Tapley, assistant professor of horticulture.

B.S., 1916, New Hampshire College; M.S., 1920, University of Minnesota. Instructor, University of Minnesota, 1916-17; war service, 1917-19.

Edwin C. Torrey, extension specialist in publicity work, with rank of assistant professor.

Two years, Lawrence University, Appleton, Wis.

Major Laurence T. Walker, assistant professor of military science and tactics.

B.S., 1908, Massachusetts Institute of Technology. Served in U. S. Army from 1909-20.

Lars A. Welo, assistant professor of physics.

B.S., 1911, North Dakota Agricultural College; M.S., 1916, University of Illinois; Ph.D., 1918, University of California. Research assistant in astronomy, University of Illinois, 1915-16; Whiting fellow in physics, University of California, 1916-17; assistant in physics, University of California, 1917-18; engineer in forest products, Forest Products Laboratory, Madison, Wis., 1918-19.

Russell M. Wilder, assistant professor of medicine, Mayo Foundation.

B.S., 1907, University of Chicago; M.D., 1912, Rush Medical College; Ph.D., 1914, University of Chicago.

Holbrook Working, assistant professor of agricultural economics.

B.A., 1915, University of Denver; M.A., 1919, Cornell University; Ph.D., 1920, University of Wisconsin. Instructor in economics, Cornell University, 1916-17; military service, 1917-19; Cornell University 1919 to date.

*Promotions.*—From associate professor to professor: C. H. Bailey, L. L. Bernard, John D. Black, E. S. Judd, M. S. Henderson, W. H. Hunter, J. F. McClendon, William R. Murray, C. A. Mann, F. B. Rowley, A. C. Strachauer, John T. Tate.

From assistant professor to associate professor: William L. Benedict, Raymond W. Brink, Frank E. Burch, George B. Eusterman, J. H. Forsythe, Emil S. Geist, W. L. Hart, A. T. Henrici, J. Hugh Jackson, F. B. Kingsbury, Harold I. Lillie, R. S. Maybury, Gordon B. New, B. L. Newkirk, C. J. V. Pettibone, A. T. Rasmussen, Charles A. Reed, J. P. Schneider, Anthony L. Underhill, F. R. Wright.

From instructor to assistant professor: Arthur L. Anderson, Roy A. Barlow, A. H. Beard, H. J. Burtis, W. H. Condit, W. L. Crenshaw, E. L. Gardner, L. A. Harker, L. M. Henderson, Sigurd B. Hustvedt, Cornelia Kennedy, Elizabeth Jackson, Valeria G. Ladd, A. H. Larson, Willis S. Lemon, A. J. Lobb, E. E. MacGibbon, E. R. Martin, H. W. Myerding, Julia O. Newton, P. S. Parker, Ethel Phelps, George A. Pond, Allan B. Rayburn, James C. Sanderson, Gertrude B. Schill, J. H. Simons,

Leda J. Stacy, J. W. Stehman, Clara F. Sykes, G. J. Thomas, Alice H. Tolg, Margaret Warwick, F. W. Wittich, Henry W. Woltmann.

*Leaves of absence granted during the year.*—Dean G. S. Ford, for the spring quarter of 1920, with salary adjustment; Professor C. D. Allin, sabbatical furlough from May 1 to September, 1920; Professor R. G. Blakey, for ten days to investigate city finances; Professor W. H. Emmons, for October, November, and December, 1919, and from April 1 to 15, 1920, without pay; Assistant Professor Ina Firkins, sabbatical furlough for one year beginning September 1, 1919; Professor O. W. Firkins, leave to be extended for the year 1920-21 without pay; Professor John E. Granrud, for the fall quarter of the year 1919-20, on account of sickness, with pay; Professor John H. Gray, for the first quarter of the year 1920-21, without pay; Professor M. E. Haggerty, without pay for the second quarter of the academic year, 1919-20; Professor W. P. Kirkwood, sabbatical furlough from September 1, 1920, to September 1, 1921; Professor T. H. Sanders, for year 1920-21, without salary; Professor J. T. Stewart, granted leave of absence for the academic year 1919-20, on half salary; Professor F. H. Swift, sabbatical furlough for the year 1920-21; Professor Josephine Tilden, sabbatical furlough from December 23, 1919, to March 31, 1920; Professor A. J. Todd, continuation of leave for the year 1920-21, without salary; Associate Professor W. W. Cumberland, extension of leave until the end of the academic year; Associate Professor Harriet Goldstein, sabbatical furlough for the spring quarter of 1920 and the winter and spring quarters of 1921 for the purpose of studying art and related subjects at various institutions in the United States and abroad; Associate Professor A. C. Krey, sabbatical furlough for the rest of the year 1919-20, beginning with the winter quarter; Associate Professor Raymond Moley, for one year, without pay, beginning September 24, 1919, for survey work in Cleveland, Ohio; Associate Professor F. B. Rowley, for two weeks, beginning January 23, 1920; Associate Professor Herbert Woodrow, sabbatical furlough from July 31, 1920 to September 1, 1921; Assistant Professor Katherine F. Ball, for six weeks beginning February 15, 1920, without pay and summer adjustment of work with pay; Assistant Professor T. M. Broderick, for the year 1920-21, without pay; Assistant Professor G. F. Howard, from January 1 to

March 13, 1920, without salary; Assistant Professor J. Hugh Jackson, for the year 1919-20, without pay; Assistant Professor A. W. Johnston, continuation of leave without pay for the year 1919-20; Assistant Professor May S. Kissock, without pay for the year 1920-21; Assistant Professor A. E. Koenig, for the year 1919-20, without pay to continue americanization work; Assistant Professor Karl S. Lashley, for the year 1919-20, beginning September 24, 1919, without pay; Assistant Professor B. L. Newkirk, sabbatical furlough for the year 1920-21; Assistant Professor N. J. Radder, without pay for the academic year, 1920-21.

*Resignations.*—During the year the following members of professorial rank resigned from the faculty: M. L. Burton, president of the University; L. W. Jones, dean of the College of Engineering and Architecture and of the School of Chemistry; W. R. Vance, dean of the Law School; George N. Bauer, professor of mathematics; C. P. Bull, professor of agronomy; E. Dana Durand, professor of economics; C. W. Gay, professor of animal husbandry; John H. Gray, professor of economics; Thomas B. Hartzell, professor of dentistry; W. E. Hotchkiss, professor of economics; Wallace Notestein, professor of history; E. S. Thurston, professor of law; H. W. Vaughn, professor of animal husbandry; R. M. Washburn, professor of dairy husbandry; Pedro Henríquez Ureña, professorial lecturer in romance languages; Thomas M. Bains, associate professor of mining; Francis G. Blake, associate professor of medicine; J. F. Corbett, associate professor of surgery; J. C. Cort, associate professor of dairy husbandry; W. W. Cumberland, associate professor of agricultural economics; L. W. McKeelian, associate professor of physics; Raymond Moley, associate professor of political science; F. W. Peck, associate professor of farm management; Katherine F. Ball, vocational adviser for women; Jere Baxter, assistant professor of military science and tactics; G. R. Bisby, assistant professor of plant pathology; Frank S. Bissell, assistant professor of roentgenology; Frank W. Bliss, assistant professor of chemistry; W. V. Gousseff, assistant professor of animal and dairy husbandry; E. O. Hanson, assistant professor of dairy husbandry; J. Hugh Jackson, assistant professor of accounting; A. C. James, assistant professor of economics; A. E. Koenig, assistant professor of German; T. B. McCullough, assistant professor of farm and agricultural extension; H. T. Moore, assistant professor of psychology; J. A. Myers,

assistant professor of anatomy; W. R. Myers, assistant professor of German; George N. Northrop, assistant professor of English; T. T. Quirke, assistant professor of geology; May Secrest, state leader of home economics extension work; Elizabeth Vermilye, assistant professor of home management; F. C. Whitmore, assistant professor of chemistry; Helen Whitney, assistant professor of rhetoric.

*Retirement.*—A. W. Rankin, professor of education, retired July 1, 1920.

*Deaths.*—The following deaths were recorded: Maria L. Sanford, Professor Emeritus, April 21, 1920; Cyril A. Herrick, Instructor in rhetoric, December 27, 1919; George D. Allen, Instructor in the Department of Animal Biology, March 11, 1920.

## EDUCATIONAL DEVELOPMENTS

1. *Entrance requirements.*—The whole question of the relationship of the University to the preparatory and high schools has not been answered with complete satisfaction. At the present time, we are in the stage of making minor alterations in entrance requirements, but sooner or later the entire problem will have to be given fundamental consideration. The high schools of the state are obviously not to be regarded merely as preparatory schools for higher institutions of learning. With only 20 to 25 per cent of their graduates going to college, the high schools must shape their curricula to meet the needs of the 75 to 80 per cent who complete their training with the high school. At some points, this situation is already critical. During the past year, upon the recommendation of the Committee on the Relation of the University to Other Institutions of Learning, the senate voted "that General Science be accepted under the Science group as a unit course towards admission to the University."

A special problem of entrance presented itself this year in connection with service men. Under the regulations of the University a student seeking admission must not only be a graduate of an accredited school but must have eleven of his fifteen units for entrance distributed in certain groups of subjects. On September 25, 1919, after a careful study of the facts relating to service men, the Administrative Committee of the senate generously provided "that graduates of accredited preparatory schools

who have been in service should be admitted to the University as regular students, candidates for degrees, without condition." This action in reality meant that for this group of students the technical requirements, such as elementary algebra, plane geometry, English, standard units, etc., were waived.

Similarly, the requirement of two years of collegiate work for admission to the Law School was temporarily modified for service men. This action was taken by the regents at their meeting held on October 13, 1919, in accordance with a recommendation of the dean of the Law School. It was voted :

That any applicant for admission to the Law School who presents credits aggregating not less than forty-five quarter credit hours of academic work of collegiate grade, and also shows that he has been engaged in the military or naval service of the United States for a period not less than six months, may be admitted as a regular student, provided the training received in such service has, in the opinion of the Law Faculty, been of such nature as to provide a reasonable equivalent for the additional training necessary to complete the two years of college training now required for admission as a regular student.

2. *Four-quarter system.*—During the year under review (1919-20) the University actually abandoned the semester plan and followed a schedule which divided the academic year into three terms of twelve, eleven, and eleven weeks. When these plans were formulated, it was definitely understood that the regular fourth quarter would be organized for the first time during the summer of 1920. In my annual report for last year (pages 80-81) I raised several important questions in regard to the four-quarter plan. These questions were the subject of serious discussion at a meeting of the Administrative Committee of the senate held on October 29, 1919. It was impossible at that time or later to arrive at final decisions upon these issues, owing to the increasingly serious financial difficulties under which the University was laboring. It was originally stipulated by the University Senate in adopting the four-quarter system that it should be put into operation only in case there were sufficient funds available adequately to finance it. Accordingly, the deans at a meeting held on November 26, 1919, voted to recommend to the senate that no fourth quarter be organized during the summer of 1920. The senate ratified this recommendation on December 18, 1919. This modification of the four-quarter plan should not be interpreted as any change of

judgment in regard to the wisdom of the original adoption of the four-quarter schedule, but as due to very unusual and extremely critical financial conditions arising out of unprecedented growth of the University and the abnormal economic situation of the country.

3. *Reorganization in the College of Science, Literature, and the Arts.*—A serious and carefully planned effort has been made this year in the Arts College to give more adequate attention to the students. The rapid growth of the college made it quite obvious that no one person could be expected to deal intelligently with all the students. The enrolment of the Arts College this year has been 3,746. Some years ago the plan of dividing the college into a Junior and a Senior College was adopted, and the experience has justified the wisdom of that decision. A systematic plan for dealing with this whole problem was submitted to the regents on February 17, 1920, and its general outlines were approved. Finally, after passing through various stages of discussion, on April 29, 1920, the Executive Committee of the Board of Regents, to whom the subject had been referred with power, gave its approval to the plan.

Since this plan is intended to increase the educational efficiency of the Arts College, to clarify the relationships between existing officers and committees, to establish two new assistant deanships and an executive committee, and to assign the proper function to each, it seems wise to quote here in full the outline of the plan, as submitted by Dean J. B. Johnston, and as it appears in the official minutes of the Board of Regents (pages 190-91):

- A. Dean of college:
  - a. Standards of teaching and scholarship—*per se* in relation to (b)
  - b. Appointments and promotions
  - c. Budgets
  - d. General University relations; especially Administrative Committee of senate
- B. Assistant dean for the Senior College:
  - a. Work of major advisers
  - b. Relation of the Senior College instruction to that of the Graduate School
  - c. Combined arts and professional courses; oversight of curriculum, program, scholarship requirements, etc.
  - d. Member Students' Work Committee and Executive Committee.

## C. Assistant dean for the Junior College:

- a. Junior College work preparatory to professional schools or courses not leading to degree in Science, Literature, and the Arts
- b. Adjustment of curriculum to high-school work
- c. Advanced standing in Junior College
- d. Work of class officers (advisers) for freshmen and sophomores
- e. Member Students' Work Committee and Executive Committee

## D. Assistant dean for students' work:

- a. Chairman Students' Work Committee
- b. Member of Executive Committee
- c. Active charge of petitions and student irregularities
- d. Certification of completion of work for graduation
- e. Member Senate Committee on Relations with Other Institutions of Learning

## E. Students' Work Committee:

Composed of: Assistant dean, chairman

Assistant dean for the Senior College

Assistant dean for the Junior College

Dean of student affairs (ex officio)

Class officers (in cases of students in their charge)

Functions: Usual disciplinary work. Chairman and two others to act on all cases of dismissal. Student petitions. To be acted on by the chairman in conjunction with the assistant dean of the college concerned. Difficult cases of appeals to be decided by the committee

## F. Class officers in the Junior College:

Composed of: Assistant dean for the Junior College, chairman

One class officer for each 300 freshmen

One class officer for the sophomores

Each class officer to give the major part of his time to his administrative duties

Functions: To carry on registration in Junior College

To advise regarding courses of study, preparation for vocations, and any matter pertaining to the students' University work

To serve as members of the Students' Work Committee, with reference to their advisees

## G. Executive Committee:

Members: Dean of college

Assistant dean for the Senior College

Assistant dean for the Junior College

Assistant dean for students' work

Secretary of faculty and editor of bulletin and programs

This committee would consider any administrative matters which concern the whole college; e.g., registration, bulletins, programs, etc.

H. Advisory Committee:

Nothing in the above statement is intended to change in any way the status or functions of the Advisory Committee

In authorizing this plan of reorganization, the regents approved the nomination of Professor J. M. Thomas as assistant dean of the Senior College, and of Associate Professor William H. Bussey as assistant dean of the Junior College.

It is important to record here that "this entire plan is ratified with the understanding that it is subject to revision and is regarded as experimental and tentative." (Regents' Minutes 1919-20, page 189.)

4. *Agreement with Dunwoody Institute.*—The College of Education of this University is charged with the duty of the training of teachers in all fields. The unification of teacher-training and its recognition as a University function were wise policies adopted during the administration of President Vincent. The Smith-Hughes bill makes it necessary for our College of Education to put emphasis upon the training of teachers in the trades and industries. Accordingly, a plan was presented to the regents on April 14, 1920, looking toward wise coöperation with the Dunwoody Institute in the training of these teachers.

Since this action represents an important principle the agreement is here quoted in full:

It is hereby agreed by and between the University of Minnesota, and the William Hood Dunwoody Industrial Institute, both subscribing to this agreement and plan of coöperation, as follows:

1. That the special field of the University department of Trade and Industrial Education is the training of trade and industrial teachers for the types of schools and classes under the Smith-Hughes Act; also, the training of teachers of manual training, industrial arts, and prevocational education.

That the special field of Dunwoody Institute is the training of mechanics and technicians of various kinds.

2. That it is desirable, whenever possible, that there be an exchange of teachers between the two institutions.

3. That all students taking teacher training courses shall be registered in the College of Education of the University of Minnesota and all fees paid to the University.

4. That arrangements shall be made whereby the University students in Methods of Teaching Trade Subjects, Methods of Teaching Related Subjects, and other similar courses may spend a portion of their class time at Dunwoody Institute.

5. That so far as possible, Dunwoody Institute shall be used as the observation and practice teaching school for practice students in the department of Trade and Industrial Education of the University. This includes day, evening and special classes.

6. That a certain number of scholarships at the discretion of the University shall be awarded the faculty of Dunwoody Institute, good only for regular courses offered by the College of Education.

7. That any classes given at any time at Dunwoody Institute in teacher training under the Smith-Hughes Act by regular or special members of the faculty of the College of Education shall be considered as regular College of Education classes and the members of these classes shall be registered as such.

8. That the purpose and spirit of this agreement is that both institutions may cooperate in every possible way in the development of all forms of trade and industrial education in this part of the country.

9. That either party may terminate this agreement by notice in writing to the other at any time. The notice shall specify the time when the cut off shall take place, and thereafter no new work shall be undertaken but all obligations then outstanding shall be met and fulfilled.

It should be pointed out that this agreement is one more illustration of the principle of cooperation between state-supported institutions and private enterprises. It is becoming more and more obvious that educational institutions can not provide all of the equipment necessary for the widely varying types of work now so essential to a well-rounded system of education. The experience of the University of Cincinnati, the new plans of the Massachusetts Institute of Technology, and similar movements elsewhere, are rapidly confirming the wisdom of the policy of cooperation between educational institutions of various types as well as between tax-supported schools and private enterprises.

#### ADMINISTRATIVE MEASURES

1. *Survey Commission.*—At the meeting of the Board of Regents held on January 15, 1920, provision was made for a careful study of the primary problems of the University. The minutes of the board carry the following record:

The President of the Board appointed a committee consisting of Dean Coffman, chairman; Regent McConnell, President Burton, and Deans Ford, Johnston, Jones, Lyon, Thatcher, and Vance, to make a survey of

University and State Educational activities, and investigate and report its findings and recommendation upon the following illustrative questions and upon such other questions as may seem advisable, to-wit:

1. What may be considered the growth of the University in the next twenty-five years?

2. What in the nature of extension of grounds, construction of buildings, in the various departments and sub-stations of the institution, if no change is made in the present four-year period, will be required to meet the growth?

3. Should the situation be relieved by the adoption of the principle of junior colleges to take over the work of the freshman and sophomore classes in the University?

4. Should agricultural schools such as the schools at Crookston and Morris be multiplied?

5. Should certain technical work now done in the Department of Engineering and in the School of Chemistry, be also taught in the junior colleges and agricultural schools?

6. Are our professional courses too long?

7. May not requirements for higher mathematics and other cultural things be somewhat lessened in preparation for medical degrees?

8. What internal administrative adjustments could be made to improve and increase the amount of instruction?

This Commission, under the leadership of President-elect Coffman, has approached its large tasks with great wisdom and statesmanship. It submitted its first report to the regents on February 17, 1920, and an important report on the growth of the University at the meeting held on May 24, 1920. The work of the commission has been outlined with great thoroughness, and several persons have been giving their entire time to various studies.

It is not possible to exaggerate the importance of this survey. Our state institutions are confronted with problems whose magnitude few people appreciate. Only those who are intimately identified with the administration as a whole can sense, even partially and inadequately, the complexity of the problems of our large state universities. Unless drastic measures are adopted, we shall drift rapidly toward chaos and disorganization. Such statements must not be attributed in any sense to pessimism. The marvelous confidence of the people in higher education must be matched by statesmanship of a high order in university administration. The outstanding facts must be anticipated and the citizens of the state compelled to face squarely and honestly, as they will, the full obligations involved in offering the opportunities of higher education, practically free of charge, to every son and daughter.

of the state. The present salary situation is almost intolerable. The supply of well-trained teachers of vital personality has almost vanished. The teacher shortage is a national menace. The present high cost of labor, supplies, and buildings is almost prohibitive. Consequently, the necessity of this Survey Commission is obvious. Its published reports should be studied with care by every friend of education. Its recommendations must be heeded if the University of Minnesota is to be true to her past and worthy of her present achievements.

It is of even greater importance that our state universities, as a group, should engage in a comprehensive survey of all of our common problems. If surveys of our state universities could produce comparable data, it would be extremely helpful in dealing with the situation in any particular state. We ought to bring to bear upon our huge problems the combined judgment and experience of all the tax-supported universities.

2. *Organization of all-University conference committees.*—In January, 1918, the president appointed a committee to make a study of the committee organization of the colleges. On October 15, 1919, this committee made the following report to the Administrative Committee of the senate:

It is recommended

First: That there be created an *All-University Schedule Committee* to consist of one representative from each of the schedule committees of the several colleges and a representative from the office of the University registrar. The function of this committee would be to study schedules of the several colleges with the view to harmonizing them in such a way as to make more easily possible election of courses between colleges or departments of the University and to present recommendations concerning these matters to the schedule committees of the several colleges for action.

Second: That there be created a *University Curriculum Committee* consisting of the chairmen of the curriculum committees of the several colleges, this committee to serve as a conference body for the purpose of harmonizing curriculum differences or of developing general University standards of curriculum requirements.

Third: That there be organized a *University Students' Work Committee* consisting of the chairmen of the students' work committees of the several colleges with the dean of student affairs as ex-officio chairman. The function of this committee should be to deal with scholastic delinquencies, absences and general matters of discipline and such other functions as it may outline after its organization for work.

It was voted "that the report be adopted with the understanding that the committees referred to are conference committees, and will not have the status of senate committees." The University Senate approved this action on December 18, 1919.

A similar decision was reached in regard to an All-University Military Committee on May 5, 1920, when Colonel F. J. Morrow, representing the R.O.T.C. met with the Administrative Committee of the senate. In keeping with the policy of full coöperation with the military officers, it was voted on November 26, 1919, to ask the commandant to sit regularly with the Administrative Committee.

3. *Relationship of the General Extension Division to other units.*—Upon the recommendation of the University Senate, the Board of Regents on November 13, 1919, voted to approve the following memorandum:

1. All extension work undertaken by the University, with the exception of Agricultural Extension, shall be done through the General Extension Division. In general, Extension work shall be the administration of all extra-mural teaching or service functions of the University, particularly when directed toward those persons who are not regular, resident students. It is understood, however, that this does not include work that is customarily and regularly carried on by other departments or schools. Typical of these extra-mural functions may be enumerated correspondence courses, evening classes, short courses on the campus and elsewhere, institutes, conferences, and other similar activities. To these may be added such services as municipal reference, visual instruction, community organization, University lyceum and drama advice. It is understood that in the administration of these teaching and service functions, the General Extension Division is entitled to the advice and sympathetic assistance of all departments of the University. Differences of opinion as to what constitutes extension work in any particular instance may properly be referred to the President of the University for decision.

2. The larger general policies shall be decided upon by the Director of University Extension with the coöperation and advice of the Senate Committee on University Extension. The work representing any University department shall be outlined after consultation with that department. The Extension Division shall have administrative control of the work.

3. Extension teachers shall be recommended for appointment only when, in each case, the appointee has been approved by the head or chairman of the department or departments under whose jurisdiction the subject to be taught falls and by the Director of the University Extension. Rank, title, as well as salary and promotion, of regular extension teachers shall be agreed upon by the interested departments and the Director of

the University Extension. The name of each regular Extension teacher shall appear on the Extension Division staff and may also appear on the staff of the department chiefly represented by him.

4. The technical subject-matter and content of any Extension credit course shall be in harmony with the teachings of the department or departments interested.

4. *Extension of Health Service.*—The University Health Service has made for itself a permanent place in the life of the University. The epidemic of influenza again this year taxed severely the facilities of the service. Ultimately, adequate quarters must be provided for this important branch of the University.

On January 15, 1920, the regents voted to extend the health service to the schools of agriculture at Crookston and Morris. On April 14, 1920, upon the recommendation of Dr. Sundwall, the board adopted the following regulations for this purpose:

1. A fee of two dollars per quarter shall be collected from each student and employee for the purpose of maintaining the Students' Health Service.

2. The full time services of a nurse shall be engaged during the school year. She shall be directly in charge of the Students' Hospital and Dispensary. She shall be responsible for the care of the equipment of the Health Service. She shall perform all those duties as may be prescribed by the Superintendent of the School and Director of the Health Service.

3. The Director shall arrange for the physical examination of all entering students, new members of the faculty, and new employees. These examinations shall be conducted at least once each year and at the earliest possible date of the beginning of the school year.

4. Correction of defects, physical reconstruction and reclamation of subnormal students, shall be done under the supervision of the director at the earliest possible date of each school year.

5. The sanitary regulations, now in force at the University and Farm, relative to the campus shall be adopted for the Northwest School of Agriculture.

6. The Director shall visit the school at least once each month and as often as is deemed necessary. During these visits he shall address the student assemblies on important health topics. He shall consult with students in need of medical attention and make the necessary sanitary inspections.

7. A local physician shall be employed to treat serious cases that may develop during the absence of the Director.

8. All supplies and equipment shall be purchased at the beginning of the school year.

9. The Director shall have the closest coöperation of the department of physical education. The latter shall follow out the recommendations of the former in regard to the physical exercises of subnormal students.

10. The Students' Health Service budget for the Northwest School of Agriculture shall be conjointly prepared by the Superintendent of the School and the Director of the Health Service.

11. The Superintendent of the School and the Director of the Health Service may formulate and enforce any and all regulations pertaining to the health and physical welfare of the students. These regulations shall first be approved by the Dean of the Department of Agriculture, the President of the University, and the Board of Regents.

It is interesting to observe here that the faculty of the College of Science, Literature, and the Arts has requested that the privileges of the health service be made available for members of the faculty. This request raises interesting and complicated questions. The present limited facilities made it necessary in any case to deny the request. In these days of inadequate salaries, it may be well to observe that the adoption of such a policy would help both to lessen the financial strain upon members of the faculty and to increase their teaching efficiency. Likewise, it would make it possible more completely to maintain hygienic conditions in every classroom.

5. *Per diem plan at Elliot Hospital.*—As stated in the annual report for 1918-19 (pages 38-39), the Board of Regents at a meeting held on July 17, 1919, approved the plan of setting aside fifty beds in the Elliot Memorial Hospital to be used under the per diem plan. Experience during the year did not appear to produce the results which were originally contemplated. Accordingly, on April 14, 1920, the regents voted to modify the regulations to the extent of making it possible for per diem patients to be admitted to the hospital without physicians' certificates.

6. *Intercampus trolley.*—On July 28, 1919, the regents authorized free transportation for both instructors and students on the intercampus trolley. This decision represents a wise and economical policy. It makes more readily available the educational opportunities of both campuses for all the students. It is one more influence making for the unity and cohesion of the entire University.

## UNIVERSITY LIFE

1. *Concert course.*—The all-University concert course, inaugurated this year with the coöperation of the Faculty Women's Club, proved to be a remarkable success, both from the standpoint of

attendance and financial returns. The experiment has demonstrated beyond all doubt that the University desires and will support a concert course of the highest grade.

On February 17, 1920, the regents decided to put the course on a permanent basis and appointed Mrs. Carlyle Scott manager with a regular annual stipend. An excellent list of artists has been announced for the year 1920-21. It goes without saying that a course affording opportunities to the students to hear the finest artists of the world can not fail to enrich the life of the University.

2. *Convocations.*—The year under review has been marked by another unusual series of highly valuable convocations. The plans for three special convocations were carried out with great success. State Day was celebrated on December 4, 1919. His Excellency, Governor J. A. A. Burnquist, delivered the address, which was published later in pamphlet form and distributed throughout the state. After his address the entire audience arose and repeated together the following pledge:

As members of this University, we desire publicly to acknowledge our obligations to the State of Minnesota. We know that this institution has been established and maintained by the people of this state for the higher training of its youth. We pledge ourselves to do everything in our power to promote the welfare of Minnesota. We shall support its government, obey its laws, and defend its constitution. We purpose to coöperate with our fellow citizens in opposing all forms of injustice and in achieving social progress for all people through wise and timely legislation. We offer our loyalty to Minnesota as an evidence of our unswerving allegiance to the United States Government and our undying devotion to the fundamental principles of American democracy.

Charter Day convocation occurred on February 11, 1920, when former President George E. Vincent delivered a brilliant address upon the subject, "The University and Public Health."

Cap and Gown Day convocation was held on May 13, 1920. This occasion attracts a large and extremely interested audience of students. On this day the scholastic honors of the year are announced. It is the time when we publicly recognize the achievements of those students who have been strikingly successful in the real work of the University.

The report of the Committee on University Functions submitted to the senate on May 13, 1920, was as follows:

Your Committee on University Functions reports the holding of the following convocations during the year:

## THE PRESIDENT'S REPORT

- October 2: President M. L. Burton, "What Must the Universities Do?"  
 October 9: President M. L. Burton, "First Things for Freshmen"  
 October 30: The Reverend Harry Pineo Dewey, "Theodore Roosevelt"  
 December 4, State Day: The Honorable J. A. A. Burnquist, "The University and the State"  
 December 11: The Reverend Charles W. Gordon (Ralph Connor)  
 December 18: President M. L. Burton, "Life's Surprises"  
 January 8: Dean W. R. Vance, "The Peace Treaty and the Proposed Reservations"  
 January 22: President M. L. Burton, "The Function of Friendship"  
 January 29: Lynn H. Hough, President of Northwestern University  
 February 11, Charter Day: George Edgar Vincent, "The University and Public Health"  
 April 8: G. Sherwood Eddy, Associate General Secretary, International Committee, Y.M.C.A., "The Present World Situation—A Challenge to America"  
 April 15: President M. L. Burton, "How to Study"  
 April 22: George Edward Woodberry, "Shelley"  
 May 6: Charles W. Farnham, "Theodore Roosevelt, the Man"  
 May 13, Cap and Gown Day: President M. L. Burton, Announcement of Honors and Prizes  
 The convocations ahead are  
 May 20: J. F. Coar, Alberta, Canada  
 June 3: The Reverend C. W. Gilkey, "Education and Religion"  
 June 10: Maria Sanford Memorial Services: President Emeritus Cyrus Northrop  
 June 13: Baccalaureate Exercises  
 June 17: Commencement Exercises: President-elect L. D. Coffman

The convocations of December 4, February 11, and May 13 necessitated especial care and effort on the part of the committee, inasmuch as the formalities of these occasions were somewhat elaborate, involving academic dress, procession, and unusual stage setting.

Two of the convocations still to come, Baccalaureate Service, June 13, and Commencement, June 17, are occasions which depend to a large extent upon the hearty coöperation of the faculty for their success. The committee wishes to express its gratification to the members of the staff for their generous response on these occasions last year, and hopes that even a larger participation may be had this year.

Again attention is called to the wofully inadequate facilities of the Armory for convocation purposes. The maximum seating capacity of the Armory is 2,475, and of these only 2,100 have seats where they can well hear and see the speaker. When it is realized that the College of Liberal Arts alone has an enrollment of over 3,300 and that the total collegiate enrollment in the University this year is 8,120, the committee's despair

in attempting to handle the problem adequately may be understood. Less than one third of the students now in attendance can get into the Armory at one time.

Despite all the other pressing needs of the institution, which your committee fully recognizes, it nevertheless urges most vigorously that steps be taken promptly to insure for the University an auditorium that will seat comfortably at least the major portion of the student body under conditions of esthetic value and inspirational environment in keeping with the size, dignity, and purpose of the foremost character-building institution of the state.

3. *Relationship of faculty and students.*—One of the constant problems of a large university is the establishment and maintenance of the right relationship between teachers and students. On February 18, 1920, a group of students, upon their own initiative, appeared before the Administrative Committee of the senate to present their convictions upon this subject. Their point of view was extremely interesting and valuable. From their own personal experiences, they recognized and conceded that it was always possible to enjoy the most helpful relationships with the faculty. Nevertheless, they were disturbed with the prevalence of the feeling among large numbers of students that it was quite impossible to know personally the teachers of the University. The subject was discussed at length by the deans and later a most valuable and illuminating gathering was held at the Minnesota Union. This group consisted of all the members of the Administrative Committee and the Student Council, with the addition of various representative students. It was generally agreed that better relationships between students and faculty were possible and desirable. The most definite and constructive suggestion growing out of these discussions was that here, as at other universities, it would be wise to have an officially recognized council or conference committee, where faculty members and students meet regularly to discuss their common problems and to arrive at a mutual understanding of many subjects which are frequently misunderstood through lack of knowledge.

## STATISTICS OF REGISTRATION

*Collegiate students.*—Table I records the attendance of students of collegiate grade, i.e., those in courses leading to degrees. All students in this group must present for admission evidence

of at least the completion of a four-year high-school course. It is this group that must be kept most in mind in comparing the University of Minnesota with other colleges and universities.

The net gain of 1,648 students over the year 1918-19 represents an increase of 22 per cent, but it should be remembered that 1918-19 was the year of the Students' Army Training Corps. During that year 3,252 students were enrolled in the S.A.T.C. Upon demobilization 1,233 of these left college, and therefore, in one sense may be counted as an extraneous group. Omitting the count of that part of the soldier group that left college November 11 upon the signing of the armistice, we have 6,146 for the total collegiate enrolment of 1918-19, and comparing the 1920 registration with this figure we find a net gain of 46 per cent which more really indicates the actual working conditions. Distinct gains are shown in all departments, except where the enrolment has been arbitrarily limited as in Medicine, Dentistry, and Pharmacy.

This unusual attendance may be attributed to the following causes:

1. The University is now getting the cumulative effect of what would have been the normal increase in the past few years, had not the World War interrupted the natural course of events.

2. An impetus has been given to higher education by the war itself. The young men have not been slow to note that those who most readily won preferment were fellows with college training.

3. The educational bonus of \$200 offered to all service men who were residents of Minnesota at the time of enlistment.

TABLE I. COLLEGIATE STUDENTS BY SCHOOLS AND COLLEGES,  
1918-1920

COLLEGE OR SCHOOL	YEAR 1918-19			YEAR 1919-20			GAIN	LOSS
	Men	Women	Total	Men	Women	Total		
SCIENCE, LITERATURE, AND THE ARTS:								
Seniors .....	48	261	309	81	234	315	6	.....
Juniors .....	94	233	327	162	191	353	26	.....
Sophomores .....	211	303	514	555	406	961	447	.....
Freshmen .....	452	428	880	1238	684	1922	1042	.....
Unclassed .....	34	84	118	75	120	195	77	.....
Total .....	839	1309	2148	2111	1635	3746	1598	.....

TABLE I—Continued

COLLEGE OR SCHOOL	YEAR 1918-19			YEAR 1919-20			GAIN	LOSS
	Men	Women	Total	Men	Women	Total		
<b>ENGINEERING AND ARCHITECTURE:</b>								
Post-seniors	3		3	10		10	7	
Seniors	55		55	108		108	53	
Juniors	86		86	153	3	156	70	
Sophomores	151	4	155	204	1	205	110	
Freshmen	647	2	*649	646	2	648		1
Unclassed	8	1	9	18	8	26	17	
Total	950	7	957	1199	14	1213	256	
<b>AGRICULTURE, FORESTRY, AND HOME ECONOMICS:</b>								
Seniors	24	51	75	64	59	123	48	
Juniors	39	68	107	79	67	146	39	
Sophomores	40	49	89	77	70	147	58	
Freshmen	52	70	122	183	99	282	160	
Unclassed	9	13	22	9	17	26	4	
Total	164	251	415	412	312	724	309	
<b>LAW:</b>								
Third-year	21		21	51	2	53	32	
Second-year	38	3	41	65	1	66	25	
First-year	79	4	83	142	5	147	64	
Unclassed	1	1	2	1		1		1
Total	139	8	147	259	8	267	120	
<b>MEDICAL:</b>								
Seventh-year	38	2	40	53		53	13	
Sixth-year	61	1	62	87	6	93	31	
Fifth-year	60	6	66	54	2	56		10
Fourth-year	72	2	74	76	7	83	9	
Third-year	75	8	83	86	4	84	1	
Unclassed	12	3	15	2	1	3		12
Special				11	2	13	13	
Total	318	22	340	363	22	385	45	
<b>NURSING</b>		126	126		156	156	30	
<b>DENTISTRY:</b>								
Seniors	60		60	79	3	82	22	
Juniors	74	1	75	90	4	94	19	
Sophomores	86	3	89	132	2	134	45	
Freshmen	116	2	118	87	2	89		29
Unclassed	5		5	1		1		4
Total	341	6	347	389	11	400	53	
<b>MINES:</b>								
Seniors	7		7	16		16	9	
Juniors	13		13	20		20	7	
Sophomores	17		17	36		36	19	
Freshmen	43		43	86		86	43	
First-year	26		26					26
Unclassed	1		1					1
Total	107		107	158		158	51	
<b>PHARMACY:</b>								
Fourth-year	2	1	3		2	2		1
Third-year	10	3	13	15	12	27	14	
Second-year	11	10	21	19	8	27	6	
First-year	59	17	76	52	9	61		15
Total	82	31	113	86	31	117	4	

TABLE I—Continued

COLLEGE OR SCHOOL	YEAR 1918-19			YEAR 1919-20			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
<b>CHEMISTRY:</b>								
Post-seniors	3	.....	3	7	.....	7	4	.....
Seniors	11	1	12	19	1	20	8	.....
Juniors	20	.....	20	26	.....	26	6	.....
Sophomores	35	3	38	38	6	44	6	.....
Freshmen	65	7	72	78	.....	78	6	.....
Unclassed	5	1	6	.....	1	1	.....	5
Total	139	12	151	168	8	176	25	.....
<b>EDUCATION:</b>								
Seniors	13	26	39	16	45	61	22	.....
Juniors	8	36	44	13	140	153	109	.....
Sophomores	.....	10	10	.....	21	21	11	.....
Freshmen	.....	19	19	.....	37	37	18	.....
Unclassed	25	149	174	81	143	224	50	.....
Total	46	240	286	110	386	496	210	.....
<b>BUSINESS:</b>								
Seniors	.....	.....	.....	20	1	21	21	.....
Juniors	.....	.....	.....	45	12	57	57	.....
Unclassed	.....	.....	.....	9	1	10	10	.....
Total	.....	.....	.....	74	14	88	88	.....
GRADUATE	206	110	316	422	135	557	241	.....
WAR SPECIALS	.....	.....	.....	31	.....	31	31	.....
SUMMER SESSION	453	806	1259	787	809	1596	337	.....
STUDENTS' ARMY TRAINING CORPS, collegiate section	3252	.....	3252	.....	.....	.....	.....	3252
Grand total	7036	2928	9964	6569	3541	10110	146	.....
Less duplicates	2352	233	2585	680	403	1083	-1502	.....
Net grand total	4684	2695	7379	5889	3138	9027	1648	.....

\* Of this number 387 were registered in the Students' Army Training Corps only.

† Of this number 43 are students *in absentia*, completing the internship requirement for the Doctor of Medicine degree.

‡ Students pursuing approved war programs under the direction of the United States War Department during the fall quarter.

§ This total comprises 239 transfers between the various schools and colleges and 844 students registered for the summer session of 1919 who were enrolled during the fall, winter, or spring quarters of 1919-20.

*Collegiate enrolment by quarters.*—Table II merely records the totals of Table I by quarters, showing the peak load of attendance in the fall quarter. Very few opportunities for beginning students were offered during the second and third quarters.

TABLE II. COLLEGIATE ENROLMENT BY QUARTERS, 1919-1920

	MEN	WOMEN	TOTAL
Summer Session, 1919 .....	787	809	1,596
Fall quarter .....	5,221	2,419	7,640
Winter quarter .....	4,981	2,228	7,209
Spring quarter .....	4,368	2,082	6,450
Total (individual) registrations.....	5,889	3,138	9,027

*Subcollegiate students.*—Table III records the enrolment in departments which do not require high-school graduation for admission. The loss of 2,287 for this group is explained by the disappearance of the S.A.T.C. which had 2,931 students enrolled in the vocational section during 1918-19. The thresherman's short course and the boy scout short course were offered in 1919-20 for the first time.

No special comment concerning the subcollegiate group appears necessary, except perhaps for the following divisions:

1. Discharged wounded soldiers: These students were registered in a special course during 1918-19, but during 1919-20 were included with the regular students in the School of Agriculture. The number has actually increased to something over 200, altho it appears at a loss of 34 in the tabular statement.

2. Journalism: The short course in journalism no longer appears in the Annual Register figures, since no fee is charged by the University for this course. The short course is held at the same time as the conference of editors.

3. Teachers' training school: The marked losses in registration in the teachers' training school held at the Central School, the Northwest School, and the West Central School are due to the fact that only students who have had one year of previous work at one of these schools were permitted to register during the summer of 1919. The others were sent to one of the normal schools where the work was entirely transferred during the summer of 1920. All of the teachers' training school work in the University has been discontinued.

TABLE III. SUBCOLLEGIATE STUDENTS, 1918-1920

SCHOOL OR COURSE	YEAR 1918-19			YEAR 1919-20			GAIN	LOSS
	Men	Women	Total	Men	Women	Total		
CENTRAL SCHOOL OF AGRICULTURE:								
Three-year course:								
Seniors .....	57	34	91	85	28	113	22	.....
Juniors .....	100	37	137	134	47	181	44	.....
Freshmen .....	190	47	237	382	91	473	236	.....
Unclassed .....	26	2	28	238	.....	238	210	.....
Total .....	373	120	493	839	166	1005	512	.....
Discharged wounded soldiers .....	34	.....	34	.....	.....	.....	.....	34
Intermediate course.....	.....	.....	.....	10	3	13	13	.....
Normal course.....	.....	7	7	.....	9	9	2	.....
Total .....	407	127	534	849	178	1027	493	.....
NORTHWESTERN SCHOOL OF AGRICULTURE, CROOKSTON:								
School enrolment.....	147	51	198	229	72	301	103	.....
WEST CENTRAL SCHOOL OF AGRICULTURE, MORRIS:								
School enrolment.....	142	85	227	179	79	258	31	.....
UNIVERSITY HIGH SCHOOL								
Total, schools.....	789	381	1170	1349	462	1811	641	.....
SHORT COURSES:								
Embalming .....	15	4	19	34	1	35	16	.....
Dairy school.....	34	2	36	120	.....	120	84	.....
Gymnasium extension classes .....	84	30	114	102	23	125	11	.....
Consolidated school principals .....	42	29	71	69	18	87	16	.....
Grain elevator accounting and management..	15	.....	15	7	.....	7	.....	8
Journalism .....	3	3	6	.....	.....	.....	.....	6
Home nursing.....	.....	110	110	.....	85	85	.....	25
Thresherman's short course .....	.....	.....	.....	39	.....	39	39	.....
Forestry short course, Itasca Park.....	.....	.....	.....	12	.....	12	12	.....
Traction engineering.....	.....	.....	.....	21	.....	21	21	.....
Boy scout short course, Itasca Park.....	.....	.....	.....	19	.....	19	19	.....
Teachers' training school:								
Central .....	2	346	348	5	232	237	.....	111
Crookston.....	3	103	106	.....	.....	.....	.....	106
Morris .....	.....	70	70	2	47	49	.....	21
Junior short course:								
Crookston.....	69	54	123	93	89	182	59	.....
Morris .....	99	171	270	127	145	272	2	.....
Farm women's short course:								
Morris .....	.....	71	71	.....	74	74	3	.....
Total, short courses...	366	993	1359	650	714	1364	5	.....
Less duplicates.....	2	.....	2	1	.....	1	.....	.....
Net total, short courses	364	993	1357	649	714	1363	6	.....
STUDENTS' ARMY TRAINING CORPS, VOCATIONAL SECTIONS	2931	.....	2931	.....	.....	.....	.....	2931
Grand total.....	4084	1374	5458	1998	1176	3174	.....	2284
Less duplicates.....	.....	2	2	1	4	5	.....	3
Net grand total.....	4084	1372	5456	1997	1172	3169	.....	2287

*Extension students.*—Table IV shows two types of students (a) general, those who pursue courses in classrooms under the personal direction of instructors, and (b) correspondence, those who take study courses through the medium of written directions sent by mail.

The very noticeable gain of 112 per cent in this department is very likely due to the widespread interest in education following the war. Many persons in business and other callings are eagerly seizing the opportunities offered by the Extension Division to increase their capacity for effective work and advancement.

TABLE IV. EXTENSION STUDENTS, 1918-1920

COURSE	YEAR 1918-19			YEAR 1919-20			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
General .....	1130	976	2106	2526	2103	4629	2523	.....
Correspondence .....	190	210	400	451	301	752	352	.....
Total .....	1320	1186	2506	2977	2404	5381	2875	.....
Less duplicates.....	.....	.....	.....	16	34	50	50	.....
Net total.....	1320	1186	2506	2961	2370	5331	2825	.....

*Summary.*—Table V summarizes Tables I, III, and IV under the headings: collegiate, subcollegiate, and extension students. When it is remembered that of the subcollegiate students of 1918-19, 2,931 were in the vocational section of the S.A.T.C., and under normal conditions would not have attended the University at all, it makes the increase of the past year all the more striking. The figure of 17,326 actually registers the number of

TABLE V. SUMMARY, 1918-1920

DIVISION	YEAR 1918-19			YEAR 1919-20			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
Collegiate students .....	4684	2695	7379	5889	3138	9027	1648	.....
Subcollegiate students.....	4084	1372	5456	1997	1172	3169	.....	2287
Total .....	8768	4067	12835	7886	4310	12196	.....	639
Less duplicates.....	13	16	29	12	4	16	.....	13
Net total.....	8755	4051	12806	7874	4306	12180	.....	626
Extension students.....	1320	1186	2506	2961	2370	5331	2825	.....
Grand total.....	10075	5237	15312	10835	6676	17511	2202	.....
Less duplicates.....	19	50	69	80	105	185	116	.....
Net grand total.....	10056	5187	15243	10755	6571	17326	2083	.....

men and women who during the past year received instruction at the hands of members of the University teaching staff. It is by far the largest enrolment in the history of the institution.

Table VI is another summary giving the registration by departments. Agriculture in this table includes college, school, and short courses. By resident students is meant those who were in day classes in the University building as differentiated from those who attended evening classes in the Twin Cities or who took work by correspondence.

TABLE VI. COMPARATIVE REGISTRATION FIGURES, 1918-1920

COLLEGE OR SCHOOL	YEAR 1918-1919			YEAR 1919-1920			GAIN		Loss....	
	Men	Women	Total	Men	Women	Total	Men	Women	Men	Women
Science, Literature, and the Arts.....	839	1309	2148	2111	1635	3746	1272	326	.....	.....
Engineering and Architecture .....	950	7	957	1199	14	1213	249	7	.....	.....
Agriculture .....	1213	1572	2785	2299	1402	3701	1086	.....	.....	170
Law .....	139	8	147	259	8	267	120	.....	.....	.....
Medical (including Nursing and Embalming) .....	333	152	485	396	179	575	63	27	.....	.....
Dentistry .....	341	6	347	389	11	400	48	5	.....	.....
Mines .....	107	.....	107	158	.....	158	51	.....	.....	.....
Pharmacy .....	82	31	113	86	31	117	4	.....	.....	.....
Chemistry .....	139	12	151	168	8	176	29	.....	.....	4
Education (including University High School)....	139	358	497	202	519	721	63	161	.....	.....
Graduate .....	206	110	316	422	135	557	216	25	.....	.....
Business .....	.....	.....	.....	74	14	88	74	14	.....	.....
War specials.....	.....	.....	.....	22	.....	22	22	.....	.....	.....
Summer session, Minneapolis campus (net)....	182	516	698	259	420	679	77	.....	.....	96
S. A. T. C. (net)....	4164	.....	4164	.....	.....	.....	.....	.....	4164	.....
Total .....	8834	4081	12915	8044	4376	12420	.....	295	790	.....
Less duplicates.....	79	30	109	170	70	240	.....	40	-91	.....
Net total.....	8755	4051	12806	7874	4306	12180	.....	255	881	.....
Extension:										
General .....	1130	976	2106	2526	2103	4629	1396	1127	.....	.....
Correspondence .....	190	210	400	451	301	752	261	91	.....	.....
Total .....	1320	1186	2506	2977	2404	5381	1657	1218	.....	.....
Less duplicates.....	.....	.....	.....	16	34	50	16	34	.....	.....
Net total.....	1320	1186	2506	2961	2370	5331	1641	1184	.....	.....
<b>SUMMARY:</b>										
Total, residence students .....	8755	4051	12806	7874	4306	12180	.....	255	881	.....
Total, extension students .....	1320	1186	2506	2961	2370	5331	1641	1184	.....	.....
Grand total....	10075	5237	15312	10835	6676	17511	760	1439	.....	.....
Less duplicates.....	19	50	69	80	105	185	61	55	.....	.....
Net grand total	10056	5187	15243	10755	6571	17326	699	1384	.....	.....

Degrees conferred.—Table VII registers what might be called the University's "output" or "finished product." No marked changes appear. The School of Business, with its degree

TABLE VII. DEGREES CONFERRED, 1918-1920

COLLEGES AND DEGREES	YEAR 1918-1919*			YEAR 1919-1920†		
	Men	Women	Total	Men	Women	Total
SCIENCE, LITERATURE, AND THE ARTS:						
B.A.	45	208	253	83	146	229
B.A. in Music	18	18	36	5	5	10
B.S. (Medicine)	60	1	61	42	1	43
ENGINEERING AND ARCHITECTURE:						
C.E.				1		1
E.E.						
M.E.	3		3	4		4
B.S. in Engineering	44		44	78		78
B.S. in Architecture	9		9	5		5
AGRICULTURE:						
B.S. (Agriculture)	23		23	48		48
B.S. (Forestry)	1		1	5		5
B.S. (Home Economics)		45	45		50	50
LAW:						
LL.B.	13		13	46	2	48
MEDICINE:						
M.D.	38	2	40	55		55
M.B.	64		64	54	5	59
Graduates in Nursing		20	20		17	17
DENTISTRY:						
D.D.S.	58		58	60	1	61
MINES:						
E.M.	4		4	13		13
E.M. in Geology	1		1	2		2
Met.E.	1		1			
PHARMACY:						
D.S. in Phm.						
B.S. in Phm.		1	1		1	1
Phm. C.	6	3	9	8	8	16
G. Phm.	1		1	3		3
CHEMISTRY:						
Chem. Eng.	3		3	3		3
B.S. in Neurology	6		6	14		14
B.S. in Chem.	5		5	4		4
EDUCATION:						
B.A. in Educ.	26	11	37	11	32	43
BUSINESS:						
B.S. in Bus.				14		14
GRADUATE:						
M.A.	13	18	31	18	17	35
M.S.	3		3	17	5	22
M.S. in Medicine				1		1
M.S. in Neurology	1		1			
M.S. in Obstetrics and Gynecology				1		1
M.S. in Ophthalmology				1		1
M.S. in Oto-Laryngology				1		1
M.S. in Pediatrics	1		1			
M.S. in Surgery	6		6	4		4
M.S. in Experimental Surgery	1		1			
Ph.D.	9	5	14	5	1	6
Ph.D. in Surgery	1		1	1		1
Ph.D. in Obstetrics and Gynecology	1		1			
Totals	447	332	779	602	291	893

\* Degrees conferred from June 19, 1919, to December 31, 1919. Of the total number 109 were conferred after June 19, 1919.

† Degrees conferred June 17, 1920.

"Bachelor of Science in Business," appears on the commencement program for the first time. The increase in degrees awarded is greater than the table would indicate, as explained by the footnotes.

*Geographical distribution.*—Table VIII enumerates the preparatory schools from which *freshman* students from the various colleges and schools were received during the year 1919-20 and shows the number from each school. No changes of importance are noted. Attention is called to the fact that over 80 per cent of the entrants are from Minnesota schools, and 51.4 per cent come from schools outside of the Twin Cities. Twenty-nine states are represented this year as compared with 23 last year. Four hundred and sixty-three students came from states outside of Minnesota, and 9 came from foreign countries.

TABLE VIII. SCHOOLS FROM WHICH ENTRANTS WERE ACCEPTED,  
1919-1920

	Science, Literature and the Arts	Agriculture	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nursing	Education	Total
MINNESOTA HIGH SCHOOLS										
Ada	1							1		2
Adrian	1									1
Aitkin			1							1
Akeley										1
Albert Lea	13	3	7	1			1			25
Alden		1								1
Alexandria	6	3	2							11
Amboy			1							1
Annandale	2		1							3
Anoka	7	2	1					1		11
Appleton	2		1							3
Argyle										1
Arlington	1		1							2
Ashby	1									1
Atwater										1
Aurora	1		1							2
Austin	10									10
Bagley	1		1							2
Balaton	1		1							2
Barnesville	3									3
Barnum	1									1
Battle Lake							1			1
Baudette			2							2
Beardsley	1									1
Belle Plaine										1
Bellingham			1							1
Bemidji	6		4			1				11
Benson										1
Bird Island	1	1	1							3
Biwabik	1		1	1						3
Blackduck	1		2							3
Blooming Prairie	2	1	2							5
Blue Earth	1									1
Brainerd	6	3	2							11



TABLE VIII—Continued

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nursing	Education	Total
Graceville										1
Grand Meadow			1							7
Grand Rapids	7									7
Granite Falls	4	1	1				1			7
Grove City	1	1	1							2
Hallock	3	1								4
Halstad			1							1
Hancock		2	1	1						4
Harmony										1
Hastings	4		3							7
Hawley	2		1							3
Hayfield	1									1
Hector		1								1
Henderson	1						1			2
Hendricks	2		1							3
Herman	3	1								4
Heron Lake	1									1
Hibbing	1		1	1						3
Hinckley		1								1
Hopkins	2	1								2
Houston										1
Howard Lake										1
Hutchinson	7	1				3				14
International Falls	2	1	2				1			6
Ivanhoe	1									1
Jackson	1			1						2
Janesville			1	1						2
Jasper	1			1						2
Jordan	1					1				2
Kasota										2
Kasson						1				2
Kenyon	4	1	3				1			9
Kerkhoven	2									2
Lake Benton	2	1								3
Lake City	1									1
Lake Crystal	1	1								2
Lake Park	2		1							3
Lakefield	2		1							3
Lamberton			1							1
Lanesboro	1		2				1			4
Le Roy					1					1
Le Sueur	2		2			1	1			6
Le Sueur Center	1	1								2
Lewiston	2			1						3
Lindstrom-Center City	2									2
Litchfield	7	1			1					9
Little Falls	9	3			1		1			14
Long Prairie	4		2	1						7
Luverne	4	3								7
Lyle	1									1
Mabel	2		1		1					4
McIntosh	2									2
Madelia	1	1	1							3
Madison	1		1				1			3
Mahnomen										1
Mankato	8	4	3	1		1				17
Mantorville										1
Maple Lake	1									1
Mapleton	4	2	1							7
Marshall	5									5
Mazeppa	2	1	1							4
Melrose	5									5
Milaca	5		1					1		7



TABLE VIII—Continued

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nursing	Education	Total
St. Paul										
Central .....	82	7	18	3	5	1	1		1	118
Cretin .....	1		2							3
Humboldt .....	24	8		2	1					35
John A. Johnson .....	18		2							20
Mechanic Arts .....	33	7	17	2	1	1	1		1	63
St. Paul Park .....	3									3
St. Peter .....	1									1
Sanborn .....	2									2
Sandstone .....	2	1								3
Sauk Center .....	4	1	2							7
Sauk Rapids .....		1					1			2
Shakopee .....	1		2							3
Sherburn .....			1							1
Slayton .....	4	1	2	1						8
Sleepy Eye .....	4	1	1							6
South St. Paul .....										
Spring Grove .....	1		1							2
Spring Valley .....	3									3
Springfield .....										
Staples .....	2									2
Starbuck .....		1								1
Stephen .....	2									2
Stewart .....	1		1							2
Stewartville .....	3	1	1							5
Stillwater .....	8		3			1				12
Taylor's Falls .....			1							1
Thief River Falls .....	2		1							3
Tracy .....	3				1					4
Twin Valley .....			1							1
Two Harbors .....	5		3	1	1		1			11
Tyler .....			2					1		3
Verndale .....		1								1
Villard .....										
Virginia .....	7	1								8
Wabasha .....	3		1		2					6
Wadena .....	8	1								9
Walker .....	1									1
Walnut Grove .....	1									1
Warren .....	1									1
Waseca .....	3	1								4
Watertown .....	1		1							2
Waterville .....	1									1
Wayzata .....	3	1	3							7
Welcome .....										
Wells .....	1									1
West Concord .....										
Wheaton .....	4		2							6
White Bear .....			1							1
Willmar .....	7	1	10				1			19
Windom .....	1	2								3
Winnebago .....			4							4
Winona .....	5		2	1	1					9
Winthrop .....	1									1
Worthington .....	3	1	1							5
Wykoff .....	2	1								3
Zumbrota .....	1									1
Total .....	1,229	175	388	39	40	27	31	7	17	1,953

TABLE VIII—Continued

	Science, Literature and the Arts	Agriculture	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nursing	Education	Total
OTHER SECONDARY SCHOOLS:										
Collegeville										
St. John's University	1		1							2
Crookston										
N. W. School of Agri.	1	1								2
Duluth										
Cathedral High School for Boys	4				1					5
Villa Sancta Scholastica	2									2
Faribault										
St. Mary's Hall	3	1								4
Shattuck Mil. Acad.	3		1							4
Fergus Falls										
Park Region Luth. Col.							1			1
Frontenac										
Villa Maria	1									1
Minneapolis										
Blake School	1				1					2
Northrop Collegiate Institute	5	1								6
Minnehaha Academy	2	1								3
Minnesota College	10		1							11
St. Margaret's Acad.	7						1		1	9
Stanley Hall	5									5
Montevideo										
Windom Institute	1									1
Moorhead										
Concordia College			2							2
State Normal School						1				1
Owatonna										
Pillsbury Academy	9	2		1						12
Red Wing										
Academy of the Red Wing Seminary				1						1
Luth. Ladies' Sem.	1									1
St. Cloud										
State Normal School						1				1
St. Joseph										
Convent of St. Benedict	1						1			2
St. Paul										
Bethel Academy	1	1	1							3
Central Sch. of Agri. College of		7								7
St. Catherine	4	1								5
Oak Hall	1									1
St. Joseph's Academy	2									2
St. Thomas College	9	1	3		3		1			17
Summit School	3									3
Visitation Convent	2							1		3
St. Paul Park										
St. Paul College	1	1								2
Winona										
Cotter High School	2									2
St. Mary's College	3	1								4
<b>Total</b>	<b>85</b>	<b>18</b>	<b>9</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>127</b>
BY EXAMINATION:										
State Board Exams	7									7
Entrance Examinations		1								1
<b>Total</b>	<b>7</b>	<b>1</b>								<b>8</b>
<b>Total for Minnesota</b>	<b>1,321</b>	<b>194</b>	<b>397</b>	<b>41</b>	<b>45</b>	<b>29</b>	<b>35</b>	<b>7</b>	<b>19</b>	<b>2,088</b>













TABLE VIII—Continued

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nursing	Education	Total
Rice Lake .....	2	.....	.....	.....	.....	.....	.....	.....	.....	2
St. Croix Falls.....	3	.....	1	.....	.....	.....	.....	.....	.....	4
Sheboygan .....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Sparta .....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Superior .....	1	1	.....	.....	.....	.....	1	.....	.....	3
Tomah .....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Unity .....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Walworth .....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Washburn .....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
Whitewater .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Normal School .....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Wyoming .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Douglas .....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Total for U. S. (Ex- cept Minnesota) ..	286	33	114	15	4	13	7	6	5	483
FOREIGN COUNTRIES										
Canada .....	2	1	.....	.....	.....	.....	.....	.....	.....	3
Denmark .....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
England .....	.....	.....	.....	.....	1	1	.....	.....	.....	2
Norway .....	1	.....	.....	.....	.....	1	.....	.....	.....	2
Russia .....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Total .....	4	1	.....	.....	1	2	1	.....	.....	9

## SUMMARY

Iowa .....	99	Missouri .....	8	Idaho .....	1
North Dakota.....	92	Pennsylvania .....	8	Kentucky .....	1
Wisconsin .....	79	New York .....	7	Mississippi .....	1
South Dakota .....	73	Kansas .....	4	New Hampshire .....	1
Montana .....	33	Nebraska .....	3	New Jersey .....	1
Illinois .....	20	Washington, D. C. ....	3	Ohio .....	1
Washington .....	11	Colorado .....	2	Oregon .....	1
California .....	9	Florida .....	2	Virginia .....	1
Michigan .....	9	Massachusetts .....	2	Wyoming .....	1
Indiana .....	8	Texas .....	2		
Total number of entrants for Minnesota.....	2,088				
Total number for the United States outside Minnesota.....	483				
Total number for foreign countries.....	9				
Grand total .....	2,580				

*Advanced standing.*—Table IX shows the extent of the migration of students from other colleges and universities to Minnesota. During the past year 704 students have come from 170 different institutions. It is, of course, impossible to estimate the reciprocal number, i.e., students who have left Minnesota to attend other institutions. The work of evaluating the credentials of advanced standing students is difficult and exacting and requires the care of a thoro and highly efficient examiner.



## THE PRESIDENT'S REPORT

TABLE IX—Continued

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dentistry	Mines	Pharmacy	Chemistry	Education	Business	Total
George Washington University.....	4	..	..	..	..	..	..	..	..	..	..	..	4
Georgetown University.....	4	..	..	..	..	..	..	..	..	..	..	..	4
Grand View College.....	2	..	..	1	..	..	..	..	..	..	..	1	2
Grinnell College.....	4	..	..	..	..	..	..	..	..	..	..	..	4
Huron College.....	4	..	..	..	..	..	..	..	..	..	..	..	4
Illinois, University of.....	3	2	..	..	..	..	..	..	1	..	..	..	6
Indiana, University of.....	3	1	1	1	..	..	..	..	..	..	..	..	6
Iowa State College.....	6	5	3	1	..	..	..	..	..	..	..	..	15
Iowa State Teacher's College.....	7	1	1	1	..	..	..	..	..	..	1	..	12
Iowa, University of.....	3	1	..	..	..	..	..	..	1	..	1	..	6
Jamestown College (N.D.).....	1	..	..	..	..	..	..	..	..	..	..	..	1
Joliet Junior College.....	1	1	..	..	..	..	..	..	..	..	..	..	1
John B Stetson University.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Kalamazoo College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Kansas Manual Training Normal	..	..	..	..	..	..	..	..	..	..	7	..	7
Kansas State College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Kansas, University of.....	..	..	..	..	..	..	..	..	..	1	..	..	1
Knox College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Lake Forest College.....	1	..	..	..	..	..	..	1	..	..	..	..	2
Lawrence College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Leland Stanford University.....	3	..	..	..	..	..	..	..	..	..	..	..	3
Lewis Institute.....	1	..	..	..	..	..	..	1	..	..	..	..	2
Lincoln University.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Lindenwood College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Los Angeles Junior College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Luther College (Iowa).....	3	..	..	2	..	..	..	..	..	..	1	2	8
Madison State Normal School	..	..	..	..	..	..	..	..	..	..	..	..	..
(S.D.).....	1	..	..	..	..	..	..	..	..	..	1	..	2
Marquette University (Wis.).....	1	..	1	..	..	..	1	..	..	..	..	2	5
Michigan, University of.....	..	1	..	1	..	..	..	..	..	..	..	..	2
Milwaukee-Downer College.....	6	..	..	..	..	..	..	..	..	..	1	..	7
Mississippi, University of.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Missouri, University of.....	1	..	1	1	1	..	..	..	..	..	..	..	4
Monmouth College.....	..	..	..	1	..	..	..	..	..	..	..	..	1
Montana, University of.....	7	..	..	..	1	..	1	..	..	..	..	..	11
Morningside College.....	3	1	..	..	..	..	1	..	1	..	1	..	4
Mount St. Joseph College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Nebraska, University of.....	2	1	1	2	1	..	..	..	..	..	..	..	7
Newcomb College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
North Dakota Agricultural Col-	..	..	..	..	..	..	..	..	..	..	..	..	..
lege.....	2	1	1	..	1	..	..	..	..	..	..	..	5
North Dakota State Normal and	..	..	..	..	..	..	..	..	..	..	..	..	..
Industrial School.....	1	..	..	..	..	..	..	..	..	..	..	..	1
North Dakota, University of.....	8	2	..	2	2	..	2	2	..	..	1	2	21
Northern Normal and Industrial	..	..	..	..	..	..	..	..	..	..	..	..	..
School.....	6	1	..	..	..	..	..	..	..	..	3	..	10
Northland College.....	..	..	..	1	..	..	..	..	..	..	..	..	1
Northwestern College (Ill.).....	2	..	..	..	..	..	1	..	..	..	..	..	3
Northwestern University.....	7	1	..	..	..	..	..	..	..	..	2	..	10
Norwegian-Danish Theological	..	..	..	..	..	..	..	..	..	..	..	..	..
Seminary.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Notre Dame, University of.....	2	..	..	..	..	..	..	..	..	..	..	..	2
Oberlin College.....	5	..	1	..	..	..	..	..	..	..	..	..	6
Ohio, University of.....	1	1	..	..	..	..	..	1	..	..	..	..	2
Ohio Wesleyan University.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Oklahoma, University of.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Oregon, University of.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Parson's College.....	..	..	..	..	..	..	..	..	..	..	..	..	..
Park College.....	1	..	..	..	1	..	..	..	..	..	1	..	2
Pittsburgh College.....	..	..	..	..	..	..	1	..	..	..	..	..	1
Potomac University.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Reed College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Ripon College.....	2	1	..	..	..	..	..	..	..	1	..	..	4
Riverside Junior College.....	1	..	..	..	..	..	..	..	..	..	..	..	1
Rockford College (Ill.).....	2	..	..	..	..	..	..	..	..	..	1	..	3



TABLE IX—Continued

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dentistry	Mines	Pharmacy	Chemistry	Education	Business	Total
Manitoba, University of (Canada)	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	3
Philippines, University of.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	3
Statens Tandlaegeinstitut (Norway) .....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2
Stockholm University (Sweden)	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
University of Toulouse (France)	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Total .....	2	4	.....	.....	.....	.....	3	.....	.....	.....	1	.....	12
Grand total.....	385	74	42	46	39	5	33	10	8	9	105	19	764
Repetitions .....	32	1	2	3	6	.....	2	1	.....	.....	13	1	60
Net grand total.....	353	73	40	33	33	5	31	9	8	9	92	18	704

Table X shows the geographic origin of the entire group of students of collegiate grade, not counting the summer session, (a) by counties, (b) by states, (c) by foreign countries. This table includes the figures of Table VIII. Only one county of the state is not represented this year. Hennepin and Ramsey counties furnished 59.5 per cent of the students. Forty-four states sent students this year as compared with 39 last year. As expected, the great majority came from adjacent states. The first five in the following order are North Dakota, South Dakota, Iowa, Wisconsin, and Montana. Last year the order was South Dakota, North Dakota, Wisconsin, Iowa, and Montana. Note that 1,161 students came from states outside of Minnesota. Seventy-two students came from 18 foreign countries, counting the Philippines and Porto Rico in this group.

TABLE X. GEOGRAPHICAL DISTRIBUTION OF UNIVERSITY STUDENTS OF COLLEGIATE GRADE (OTHER THAN SUMMER SESSION), 1918-1920

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Total
COUNTIES:															
Aitkin .....	3	1	1	2	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	9
Anoka .....	12	3	6	.....	1	1	.....	.....	.....	.....	2	.....	1	.....	28
Becker .....	13	7	6	4	1	1	4	2	.....	.....	2	2	.....	.....	41
Beltrami .....	8	9	2	.....	.....	.....	3	2	.....	.....	2	2	.....	.....	27
Benton .....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	2	2	.....	.....	5
Bigstone .....	3	2	2	.....	.....	1	1	.....	1	.....	1	.....	.....	.....	14
Blue Earth.....	30	8	11	3	2	2	4	.....	.....	6	6	1	2	.....	71
Brown .....	13	4	4	1	5	1	2	.....	1	.....	.....	1	.....	.....	34
Carlton .....	12	4	1	1	.....	2	1	.....	.....	.....	1	.....	.....	.....	22

STATISTICS OF REGISTRATION

TABLE X—Continued

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Total
Carver	6	4	1		1	1									13
Cass	2												1		3
Chippewa	18	9	4		2	4	1				1				39
Chisago	14	8			2					1	1				28
Clay	13	2	2		1	6	2	1			3		2		32
Clearwater	1	1	1								1				4
Cook											1				
Cottonwood	10	3	3	1	1						1			1	20
Crow Wing	20	10	4	1	1	3	3	5	1	1	2	2			52
Dakota	18	4	3		2	1	1				2	4		1	36
Dodge	8		3			1	3			1	1	1			18
Douglas	14	6	8	4			3	1	1		4				41
Faribault	19	11	2	2	2	3	1				2	2	1		43
Fillmore	34	7	6	2	1	1	1	2	2	2	2	1			60
Freeborn	29	10	6	1	1						1	2			50
Goodhue	40	11	11	1	3	2	4		4	3	2	5	1		87
Grant	9	3	4	1	1		2				1	2			21
Hennepin	1540	383	197	107	89	23	128	64	29	63	237	181	33	9	3082
Houston	13	4					1		1			1			20
Hubbard	6	1	4				3					1			15
Isanti	5	3			1	1	1	1							12
Itasca	11	5	2		1		2		1	1	2		1		26
Jackson	12	1	5	2			4			2		1		1	28
Kanabec	3		6	1			2		1						14
Kandiyohi	14	17	5	3			5		1		3	1			49
Kittson	5	4	2	1								1	1		13
Koochiching	2	3	4	2					2			1			14
Lac qui Parle	9	4	5		5	1			4						28
Lake	8	3	1	2	1		1	1	1	1		1	1		21
Le Sueur	15	9	6		2	3	6		1	1	1				44
Lincoln	8	5	4				1		1		2				21
Lyon	16	3	4	1	1	2	2	2	1	4				2	39
McLeod	25	8	13	2	3	1	7	2	1	1		2			65
Mahnomen	4						1								5
Marshall	2	1	5		1	1	1				3				14
Martin	12	7	2	5			1		1	1		1			30
Meeke	18	2	5		1		1	1		1	4				33
Mille Lacs	4	4	1	1	2	2	1		1	1					17
Morrison	13	1	5				1	1	2	1	3				27
Mower	21	11	7	3	1		3				3				50
Murray	9	3	3		1	1			1			1	1	1	21
Nicollet	5	2	2		3		1								13
Nobles	16	4	4		1			1		1					27
Norman	4	2	1			1	1				2		2		13
Olmsted	43	9	6	2	6	1	2	1	1	1	1	5			125
Otter Tail	23	3	4	6	3		8	1	2		5	2	1	1	59
Pennington	5	1	1		1						1				10
Pine	7	1	5	2			2								17
Pipestone	11	4	3	1			2			1					22
Polk	15	8	5	3					1	3	1	3			39
Pope	10	3	5	1		4	2	1					2		28
Ramsey	491	151	102	18	54	15	44	19	7	26	63	90	7	4	1082
Red Lake		1						1			1				3
Redwood	23	7	5	4	1	1			1		4		1		47
Renville	13	8	6	4	1		5		2	2	3	1			45
Rice	11	6	8	1	7	3	1	2	4	1	3	1			48
Rock	11		4					1			3				19
Roseau	6	1	1				1								9
St. Louis	141	64	22	14	10	5	13	21	1	12	15	5	3	2	329
Scott	9	2	2	1	1		5								21
Sherburne	11		4												15
Sibley	10	4	4				2		1	1	1	3			26
Stearns	37	9	9	6	3	5	2	1	1	2	7	1			88
Steele	12	5	8	1			8		4						32
Stevens	1	3	2							1	1				8
Swift	13	4	1	2	1		3	1	1				1	1	28

TABLE X—Continued

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Total
Todd .....	2	5	3	1	2	2	2	1	1	1	1	3	...	...	29
Traverse .....	8	6	3	...	...	...	...	...	...	...	...	3	...	...	23
Wabasha .....	11	2	5	...	1	...	3	1	1	1	4	...	1	...	30
Wadena .....	8	1	4	...	...	...	2	...	...	...	...	...	...	...	17
Waseca .....	10	6	2	...	...	2	...	...	3	1	...	1	1	...	28
Washington .....	27	13	8	1	1	2	5	...	...	...	...	...	2	...	59
Watonswan .....	12	8	8	2	3	1	2	...	1	...	1	...	...	...	38
Wilkin .....	4	2	1	...	...	...	...	...	...	...	...	...	...	...	9
Winona .....	19	3	2	...	3	2	1	3	1	2	2	2	1	...	40
Wright .....	19	10	5	1	...	3	8	...	1	...	4	1	1	...	53
Yellow Medicine...	7	6	2	...	2	...	...	...	1	...	1	...	...	1	20
Totals .....	3184	973	635	226	239	112	341	140	96	150	421	384	68	27	6996
UNITED STATES:															
Alabama .....	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Arizona .....	1	...	...	...	...	...	...	...	...	...	...	1	...	...	2
Arkansas .....	...	...	...	...	1	...	...	...	1	...	...	...	...	...	1
California .....	5	1	2	...	1	...	...	...	...	...	...	2	...	...	11
Colorado .....	...	1	1	...	2	...	...	...	...	...	...	...	...	...	3
Connecticut .....	...	1	...	...	...	...	...	...	...	...	...	1	...	...	2
District of Columbia	1	...	1	...	...	...	...	...	...	...	...	8	...	...	10
Florida .....	1	1	...	...	...	...	...	...	...	1	...	...	...	...	3
Georgia .....	1	...	1	...	...	...	...	...	...	...	...	1	...	...	3
Idaho .....	...	4	...	...	1	1	...	...	...	...	...	...	...	...	7
Illinois .....	13	5	5	1	2	3	1	...	2	...	...	16	1	2	51
Indiana .....	...	2	2	1	1	3	...	...	...	...	...	5	...	...	14
Iowa .....	103	28	10	4	4	5	5	2	...	5	7	7	4	...	184
Kansas .....	4	...	...	...	...	...	...	...	...	...	3	2	...	...	9
Kentucky .....	1	1	2	...	...	...	...	...	...	...	...	2	...	...	6
Louisiana .....	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2
Maine .....	...	1	...	...	...	...	...	...	...	...	...	4	...	...	5
Maryland .....	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2
Massachusetts .....	1	1	...	...	1	...	...	...	...	...	2	7	...	...	11
Michigan .....	1	7	2	1	1	3	1	2	...	1	5	8	...	...	32
Mississippi .....	...	1	...	...	...	...	...	...	...	...	...	1	...	...	2
Missouri .....	4	2	4	...	2	2	...	...	...	...	8	...	...	...	22
Montana .....	43	17	3	1	7	3	3	...	2	1	5	2	...	2	89
Nebraska .....	3	2	2	2	...	1	...	...	...	...	6	...	1	...	17
Nevada .....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
New Hampshire...	...	...	...	...	...	...	...	3	...	...	1	...	...	...	3
New Jersey...	...	1	...	...	...	...	...	...	...	...	2	...	...	...	3
New York...	2	2	1	...	2	...	1	...	...	...	6	...	...	...	15
North Carolina .....	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2
North Dakota...	98	28	14	13	11	7	22	2	2	1	6	3	2	...	209
Ohio .....	4	1	1	...	...	1	...	...	...	...	6	...	...	...	14
Oklahoma .....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Oregon .....	1	...	...	...	3	1	...	...	...	...	1	...	...	...	13
Pennsylvania .....	...	1	...	...	...	1	1	...	1	1	8	...	...	...	1
Rhode Island...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	5
South Carolina .....	...	...	...	...	...	...	...	...	...	...	5	...	...	...	205
South Dakota...	95	43	12	3	14	4	6	...	8	2	11	6	1	...	205
Tennessee .....	...	...	...	...	...	...	...	...	...	...	4	...	...	...	4
Texas .....	2	1	...	...	...	...	...	...	...	...	5	...	...	...	8
Virginia .....	...	...	...	...	1	...	...	...	...	...	1	...	...	...	2
Washington .....	5	3	...	...	6	...	1	...	...	...	3	...	1	...	19
West Virginia .....	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1
Wisconsin .....	43	28	13	4	18	7	8	2	1	2	18	11	1	1	157
Wyoming .....	1	...	...	...	2	...	...	...	...	...	...	...	...	...	3
Totals .....	435	182	76	30	78	47	49	9	16	14	61	154	10	6	1161

TABLE X—Continued

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Total
FOREIGN COUNTRIES:															
Africa .....			1									2			3
Canada .....	11	6	1	1	2	1	1					10			33
China .....		2						4							6
Cuba .....												1			1
Denmark .....					1										1
Egypt .....				1											1
England .....							1								1
France .....										1			1		2
India .....	1				2							1			4
Japan .....	1						1					1			3
Mexico .....												1			1
Norway .....		1													6
Philippine Islands .....	1			1	2										4
Porto Rico .....							1					1			1
Russia .....										1					1
Spain .....								1				1			2
Sweden .....							1								1
Syria .....						1									1
Totals .....	14	9	2	3	7	2	9	5	...	2	...	18	1	...	72
Grand totals...	3633	1164	713	259	324	156	399	154	112	167	482	556	79	31	8229

A SURVEY OF THE COLLEGES

*College of Science, Literature, and the Arts.*—(1) Faculty members on leave for war service returned to academic duties; (2) student enrolment 3,746—this exceeded all estimates; (3) great increase in professional students who receive instruction in this college; (4) University unable to pay for the number of teachers needed; (5) registration limited as classes overcrowded; (6) 600 students compelled to postpone freshman English to sophomore year; (7) no students denied opportunity to register; (8) total teaching staff of 183½ full-time teachers; (9) more students in proportion to the faculty than ever before; (10) changes in the professorial ranks of the faculty; (11) student enrolment; (12) amount of teaching done for other departments; (13) created offices of assistant dean for the Senior College and assistant dean for the Junior College; (14) Administrative Board abolished and duties assigned to Students' Work Committee and the Executive Committee; (15) spring registration established; (16) requirements of the Junior and Senior Colleges.

*College of Engineering and Architecture.*—(1) Combination for administrative purposes of the College of Engineering and

Architecture and the School of Chemistry; (2) resignation of Dean J. R. Allen; (3) appointment of Dean Lauder W. Jones; (4) enrolment of 1,150; (5) changes in the faculty; (6) registration statistics; (7) Association of Engineering Students organized; (8) changes in departments and curriculum; (9) equipment needs as the result of the great increase in enrolment; (10) need of industrial research; (11) coöperation with the State Highway Commission.

*Department of Agriculture.*—(1) Greater centralization of administration supervision in Agricultural Extension; (2) two new series of publications (a) miscellaneous contributions from the Department of Agriculture of the University of Minnesota (b) circulars of information in reply to inquiries; (3) total registration for College of Agriculture, 806; Central School of Agriculture, 1,027; short courses, 772; Northwest School of Agriculture, including short courses, 483; West Central School of Agriculture, including short courses, 653; (4) committee under the Survey Commission appointed to study the future development of the Schools of Agriculture; (5) group elective system established in the curriculum in agriculture; (6) Central School of Agriculture had largest enrolment and showing results among the rural communities; (7) the usual short courses were held with the exception of the farmers' week at Crookston omitted on account of the influenza epidemic; (8) Agricultural Extension funds for year were \$421,398; (9) many extension bulletins were printed as usual; (10) county agent and farm bureau work has progressed greatly as shown by (a) Farm Bureau Law passed by 1919 Legislature (b) membership increased from 26,136 to 30,516 (c) program of work of each bureau submitted (d) 81 livestock breeders' associations organized and numerous other coöperative projects carried out; (11) 10 demonstration farms supervised but permanently discontinued on April 1, 1920; (12) demonstration teams in farmers' clubs were organized; (13) extension work for women carried on at club meetings, county fairs, etc.; (14) demonstration projects include the line of food, health, clothing, household management, boys' and girls' club work and community activities; (15) the promotion of livestock and dairy industry strongly supported, coöperative associations formed; (16) coöperative creameries visited and promoted; (17) poultry conservation and production thoroly organized and associations

formed; (18) various projects in soils extension work have been continued; (19) land-clearing demonstration train sent through northern Minnesota with financial support of various organizations and companies; (20) experimental work at Central Station and substations continued as in previous years; (21) summary of distribution of expenditures of Department of Agriculture shown in tabular form.

*Law School.*—(1) First-year class of 147; (2) total registration of 266; (3) 89 pre-legal students registered in the academic college; (4) provisions for ex-service men; (5) summer session; (6) faculty changes; (7) Legal Aid Bureau; (8) library lacks sufficient shelf and reading room; (9) a new fire-proof reading-room urgently needed; (10) *Minnesota Law Review*, published without a deficit; (11) scholarship records and preliminary training of students reviewed.

*Medical School.*—(1) Clinical instruction upon a four-quarter basis; (2) student internship given a year of trial; (3) attendance statistics; (4) Bachelor of Medicine degree reinstated; (5) changes in the faculty; (6) research for Interdepartmental Social Hygiene Board; (7) research provided for by National Dental Association; (8) statistical statement of hospital service; (9) increase in per capita cost in hospital; (10) abuse of charity service discussed; (11) statistics of the School of Nursing; (12) public-health course meets a real need; (13) hospital social-service statistics; (14) plans for extension of work.

*College of Dentistry.*—(1) Complete establishment of the pre-dental year; (2) voted to establish a six-year course not later than 1926; (3) course for dental nurses established; (4) inaugurated extension course for dental mechanics; (5) extension course for practicing dentists well attended; (6) new building needed.

*School of Mines.*—(1) State mining experiment station equipment; (2) list of activities; (3) 11,141 assays made; (4) publications; (5) Lake Superior Station of the United States Bureau of Mines; (6) services to the State Tax Commission; (7) registration and distribution of students; (8) changes in the faculty.

*College of Pharmacy.*—(1) Total registration for the year was 118; 20 students graduated; (2) instruction has returned to a normal basis; (3) the free dispensary filled 25,585 prescriptions;

(4) demands upon the college for medicinal preparations are constantly increasing; (5) faculty members took a prominent part in all pharmaceutical matters and meetings.

*School of Chemistry.*—(1) Correlation of the School of Chemistry and the College of Engineering and Architecture; (2) laboratories overcrowded by reason of increased enrolment; (3) inadequate and insufficient instruction for large classes; (4) faculty changes; (5) difficulty of maintaining the present staff; (6) statistics of registration; (7) curriculum changes; (8) equipment for graduate students engaged in research needed.

*College of Education.*—(1) Enrolment greatly increased, being 336 in the third quarter as compared with 183 in 1918-19; (2) students formed a self-government council; (3) Bachelor of Arts in Education conferred upon 58 candidates, in addition 98 certificates granted to graduates of other colleges of the University; (4) 31 graduate students took education as a major, facilities for study great needed; (5) agreement with Dunwoody Institute for promotion of work in trade and industrial education; (6) Committee on Appointments placed 181 teachers at salaries totaling \$229,233, requests for teachers reached a total of 2,239; (7) facilities needed for: (a) training of teachers for commercial subjects, (b) training of librarians for the public schools, (c) reestablishment of the Bureau of Coöperative Research, (d) building for the establishment of an elementary school, (e) more space for college classes in education; (8) the addition to the University High School should be built as soon as possible.

*Graduate School.*—(1) Registration of 608 students, the largest in its history; (2) medical graduate work our most significant contribution to higher learning; (3) steady increase in graduate students for the summer session; (4) striking decline in the number who took the Doctor's degree; (5) graduate students acting as assistants overburdened; (6) wisdom of maintaining a graduate school on the surplus energy of the undergraduate colleges questioned; (7) complete statistics of registration; (8) publications; (9) appropriations for research.

*School of Business.*—(1) The first year of its existence chiefly devoted to economics instruction in the other colleges; (2) few persons had completed the two-year pre-business course prescribed for entrance; (3) important changes in staff; (4) geographical distribution of students; (5) pre-business courses in

the College of Agriculture, Forestry, and Home Economics provided; (6) need of larger quarters; (7) Bureau of Business Research recommended.

*Dean of Women.*—(1) Total registration of women for 1919-20 was 3,360; (2) housing facilities very inadequate the past year; (3) director of the housing bureau appointed for 1920-21; (4) two coöperative cottages still maintained, recommends a Sanford coöperative cottage; (5) W.S.G.A. active in all University matters and is proving very valuable in its work; (6) Woman's University Club organized consisting of women on the teaching faculty of the University; (7) much financial aid given to students from loan funds; (8) scholarships amounting to \$2,750 were also awarded.

*Dean of Student Affairs.*—(1) New problems arose because of various conditions such as the large enrolment, general spirit of unrest, overcrowding of classes, rising cost of living; (2) Student Council proved active and progressive in handling student activities, elections and regulations; (3) the three student publications, *Daily*, *Gopher*, and *Foolscep*, had successful years, altho the *Daily* had a slight deficit; the *Foolscep* will not continue next year; (4) social activities closely supervised on the campus and efforts made to restrict them so as not to interfere with university work; (5) dramatic clubs were this year coached by an instructor employed by the university; (6) total membership of professional and academic fraternities and sororities is 2,151, high scholarship maintained; (7) method of checking absences of students has proved successful; (8) 316 disabled service men placed here by the Federal Board for Vocational Education.

*General Extension Division.*—(1) Considerable increase in evening extension enrolment, more than double the preceding year; (2) 5,216 registrations by 3,335 individuals; (3) correspondence study classes also doubled in attendance; (4) community organizer and adviser Judge Frank F. Wilson appointed; (5) Bureau of Visual Education organized with J. V. Ankeney as secretary; (6) rapid growth of short courses; (7) drama service meeting ready acceptance among school people; (8) Municipal Reference Bureau very active; (9) resignation of E. L. Bennett; (10) new schedule of payments to evening extension instructors; (11) increase in fees for collegiate subjects; (12) total number

of student semester registrations, collegiate subjects, 1,952; business, 2,337; engineering, 927. Total 5,216. Total fees for the year \$30,571.75.

*Summer Session.*—(1) 1,990 students enrolled—largest registration in the history of the Summer School; (2) 190 members on faculty; (3) appropriation for session \$50,049.30; (4) course of lectures, entertainments, and sight-seeing trips arranged; (5) continuation courses in chemistry, political science, animal biology, rhetoric, law, and medicine; (6) report on registration, absences, scholarships, and recommendations for next year.

*Department of Physical Education for Men.*—(1) Physical examinations of all men students and special examinations totaling 3,871; (2) special lectures on sex hygiene and personal hygiene; (3) 1,026 students in regular gymnasium classes and 150 in corrective gymnastic classes; (4) intramural and all-University sports promoted in basket-ball, baseball, tennis, etc.; (5) 3 senior-grade Sigma Delta Psi certificates granted and 1 junior-grade; (6) new gymnasium and more ground absolutely necessary.

*Department of Physical Education for Women.*—(1) Requirement of organized exercise for all sophomore women in the College of Science, Literature, and the Arts; (2) four-year course for teachers and supervisors of physical education; (3) technic of the teaching of swimming reorganized; (4) 1,160 examinations of newly entering students; (5) health consultations with 279 juniors and seniors; (6) changes in the staff; (7) summer and extension work; (8) classes too large; (9) equipment and offices needed.

*Committee on Physical Education and Intramural Sports.*—(1) Intramural sports for women included field-hockey, swimming, basket-ball, gymnastic contests, ice-hockey, baseball, horse-back riding, archery, tennis, field-day contests; (2) sports for men included bowling, basket-ball, hockey, wrestling, boxing, handball, swimming, baseball, relay races; (3) more than 1,600 men participated; (4) intramural "M" given at the annual banquet; (5) conservation of health, symmetrical and harmonious development are the objects sought; (6) an increase in the budget needed.

*Military Department.*—(1) R.O.T.C. organized during the first week of the fall quarter; (2) 8 students registered in the

advanced course, 2,287 in the basic course; (3) a junior unit was established at the University Farm School of Agriculture with 525 enrolled; (4) two students recommended to the War Department as second lieutenants in the Infantry Section of the Officers' Reserve Corps; (5) equipment issued amounted to \$185,798.13, uniforms were turned in by students at the end of the year.

*Geological Survey.*—(1) The following problems were investigated: (a) detailed survey of a portion of the east part of the Mesabi Range; (b) report of said survey completed and available for distribution; (c) investigation of Minnesota clays and shales; (d) stratigraphic investigation on Mesabi Range; (e) survey of an area of metamorphic rocks; (f) Gunflint Range mapped in detail.

*Zoological Survey and Museum.*—(1) Heron Lake bird group nearly completed; (2) double-crested cormorant group placed on exhibition; (3) donations received; (4) pamphlet published on water birds of Minnesota; (5) moving-picture films and slides acquired; (6) attendance at museum increased; (7) contributions to museum subscription fund listed.

*University Library.*—(1) Large enrolment made present library facilities very unsatisfactory; (2) construction of new library building absolutely essential; (3) increase of books used by students is 71.8 per cent over the average of previous five years; (4) \$38,886.43 expended for books, periodicals, and binding; (5) great number of duplicate copies of books purchased to provide for large enrolment; (6) collection of English newspapers of the mid-seventeenth century donated by Mr. H. V. Jones, of Minneapolis; (7) program of library development set forth.

*Academic fraternities.*—(1) Great increase in number of men pledged; (2) rule for initiation of pledges changed to admit those men who are below grade in one third of their work instead of one fourth; (3) percentage of men eligible for initiation better than in previous years.

*General Alumni Association.*—(1) Improvement of *Weekly*; (2) publication of *Reminiscences* of President Northrop; (3) resignation of Secretary E. B. Johnson; (4) E. B. Pierce elected as secretary; (5) strong sentiment against an increase in tuition fees.

*Students' Health Service.*—(1) Statistics of the service; (2) pandemic of influenza; (3) coöperation of Medical School and

staff of the University Hospital; (4) each student given all care that modern medicine provides; (5) death rate at University Farm; (6) need of adequate dormitories; (7) statistics of influenza epidemic; (8) unlimited service to students; (9) fellowships; (10) quarters inadequate; (11) University health center planned; (12) budget derived from student fees; (13) charge of one dollar a day for hospital service recommended; (14) work in sanitation to begin in 1920-21; (15) full-time visiting nurse for rooming-houses.

*Report of the Registrar.*—(1) Mr. H. G. Arnsdorf elected assistant registrar; (2) general science accepted for entrance; (3) service men, graduates of accredited schools, admitted without conditions; (4) correspondence courses of the General Extension Division accepted for entrance; (5) accredited schools and colleges.

## RELATIONSHIPS WITH OTHER UNIVERSITIES

1. *American Council on Education.*—This organization has grown out of the emergency measures adopted during the war for mobilizing the educational forces of the country. It has now been put on a permanent basis. Many of the leading colleges and universities of the country are giving it both moral and financial support. An annual budget of something over \$20,000 has been provided, and Dr. S. P. Capen, formerly specialist in higher education for the United States Bureau of Education, has become the director. President Harry Pratt Judson of the University of Chicago is president of the council. The *Educational Record*, published by the council, has contained much information, particularly regarding federal legislation, of the highest value to educators. Some fifteen or more of the large national organizations, such as the National Association of State Universities, the Association of American Universities, and the Association of American Colleges, have assumed constituent membership in the council. On September 26, 1919, the Board of Regents of this University voted to assume institutional membership in the American council.

2. *American University Union in Europe.*—This organization also began as a war enterprise. It was designed primarily to serve university men who were fighting in Europe. It rendered invaluable service in a wide variety of ways and fully justified the time

and money which were put into it. More recently it has been somewhat reorganized and put upon a permanent basis. Its relationships with the American Council on Education and the International Institute have been clearly defined. It has established headquarters in Paris, London, and Rome. It stands ready to serve American universities at home, and their graduates and faculties while in Europe. The war has greatly emphasized the importance of our international relationships along educational lines. The fact that our government thus far has made no adequate provision for these matters accentuates the necessity for some organization which will protect and advance American educational interests abroad. The bearing of cordial and satisfactory relationships among higher institutions of learning in all countries upon international affairs and general world conditions needs no emphasis.

It is a pleasure to record, therefore, that the Administrative Committee of the University Senate on April 17, 1920, recommended to the Board of Regents that we assume institutional membership in the American University Union in Europe. This recommendation was approved by the Board of Regents at their meeting held on May 24, 1920.

3. *Exchange professorship with the University of London.*—The visit of the British Educational Mission to this University in the autumn of 1918 focused attention upon the possibilities of exchange professorships with foreign universities. At that time, the regents informally expressed the opinion that they would look with favor upon such a plan. The proposal was again brought forward by the brief visit this year of Professor Arthur P. Newton of the University of London. At that time, the possibility of an exchange with his university was definitely discussed. The minutes of the Board of Regents for February 17, 1920, contain the following statement:

The plan of exchange of professors with the University of London was discussed at length and the general policy was approved by the Board.

It is a pleasure to state this general policy has taken definite form in an official overture to the University of London. This action was based on a decision of the Board of Regents at its

meeting held on April 14, 1920, when it was voted "to grant Professor Roy G. Blakey a leave of absence on full pay for the academic year beginning September, 1921, and ending June, 1922, in an exchange arrangement whereby Professor Blakey gives instruction in the University of London and a professor from the University of London, under pay of the University of London, gives instruction in the University of Minnesota."

It becomes evident that the year under review has witnessed a marked improvement in our relationships with the educational world as a whole. Any influence which brings us into wider contacts and world relationships can not fail to strengthen and enrich the life of the University, and enable it to render even more valuable service to the state. Upon the worth of its standards and the richness of its culture largely depends the quality of our civilization as a state.

### FINANCES

As I have already suggested in the introduction to this report, the financial situation during the entire year has been critical. It has been the subject of frequent press reports and considerable misunderstanding. I wish, therefore, at this juncture, to make certain emphatic and official statements which may be of service in clarifying any false impressions which still prevail.

1. First of all, it must be reaffirmed with all possible clearness and emphasis that the legislature is in no way responsible for the emergency situation which has developed this year. The last legislature made the most generous and statesmanlike response to our requests that any legislature has ever made. All of our biennial estimates were granted in full. The comprehensive building plan for ten years was authorized. In a word, including everything, the last legislature appropriated \$10,876,000 for the University of Minnesota. Anyone interested in the details will find them set forth in my annual report for 1918-19, pages 7-11.

2. Again, it ought to be pointed out that neither the Board of Regents nor university officers are in any sense responsible for the financial crisis. The biennial estimates submitted to the last legislature were prepared in the fall of 1918. The armistice was signed in November, 1918. Everyone looked for a speedy reduction in prices. I can recall when I was pleading with legislative

committees for a full million dollar *increase* for the biennium in our maintenance fund that some parties stoutly insisted that living costs would speedily decline. When we recall that our total maintenance fund until this year had been \$1,365,000 annually, and that our request (which was granted) increased it to \$1,865,000, it will become apparent that the University was not lacking in vision nor in an appreciation of its needs.

3. Furthermore, it seems wise vigorously to reiterate here what has been stated repeatedly during the year under review, that our financial situation has arisen from three main causes:

(1) Our salaries have been utterly inadequate in view of the continued and increasing high cost of living. It was generally conceded in 1914 that salaries were low. During the war the members of the faculty loyally carried their burdens without complaint. Many of them would have liked to be in the war. The Students' Army Training Corps in the fall of 1918 gave them the consciousness of being in the service of their country. But since the armistice, prices, instead of receding, have steadily increased. It is no exaggeration to say that we are dealing with fifty or forty-five cent dollars. In reality our teachers have experienced a sharp reduction in income. The real purchasing value of their salaries is hopelessly inadequate. The faculty has been at the breaking point. Their morale has been seriously impaired. Other universities are attracting our stronger men. The shortage of teachers is appalling. To maintain a staff under these conditions has tested to the extreme the financial resources of the University.

(2) In the second place, all of those requirements of a university which we classify as supplies have greatly increased in cost. Our supply funds have again and again been exhausted and we have repeatedly been called upon to find funds in our general reserve or elsewhere by means of which absolutely necessary supplies could be purchased. Under normal conditions these funds make a total of approximately \$475,000 annually. Our reserve fund, as provided in our budget, is \$15,000. With supplies costing from two to four times as much as usual, it becomes evident that almost impossible requirements were made of university officials to handle the problem wisely.

(3) In the third place, this entire situation has been intensified by an overwhelming growth in student enrolment. For example, the College of Engineering more than doubled any prior registration. It requires money to educate students. With our usual enrolment the problem would have been critical, but over and above a constantly changing economic situation we have been asked this year to train fully two thousand more full-time collegiate students than we have ever had before.

(4) Finally, it is a satisfaction to record that we have finished the year without a deficit. It has been the most difficult administrative problem the University has ever had. To keep eight thousand students and a staff of a thousand or more satisfied under the conditions we have struggled against this year is a fascinating challenge for any administration. The finances of a large university are complicated. Few persons see the situation as a whole. Some have clearly misunderstood. Many more have cooperated generously and wholeheartedly. It is interesting now to study, in retrospect, the minutes of our various committees and boards. Day by day, it is evident that new problems arose. Departments failed to grasp their situations as a whole. Again and again they returned for additional appropriations. Prices continued to mount and supply funds were inadequate. Salaries for the present staff had to be increased to retain strong men. New teachers had to be secured to care for unexpected classes. For example, on October 17, 1919, the Salaries Committee of the Board of Regents approved requests amounting to \$55,770 simply to provide teachers for the large number of new students. On December 9, 1919, the regents authorized the president and comptroller to make a survey of the departments and to report every possible curtailment of expenditures. On January 7, 1920, all of the deans were asked to make detailed reports for their respective departments indicating their financial necessities for the balance of the year. These reports were carefully scrutinized, modified, and finally approved. They involved an additional expenditure of over \$100,000. In spite of this procedure, some of the colleges found it necessary to make additional requests in the spring. No one is to be criticized for these conditions. The University was not the cause of the European war, nor is it responsible for existing economic conditions! These facts are readily recognized as simply one part of a general world situation. That no deficit exists is an

occasion for genuine satisfaction. That the reserves of the University are exhausted is apparent. That the people of Minnesota expect their servants to use good judgment in maintaining the University is certain. Later statements in this report regarding the budget for next year must be viewed in the light of the facts here presented.

## STUDENT FEES

Closely related to this general financial situation has been the problem of increasing student fees for the year 1920-21. The subject has occasioned considerable discussion, notably in the *Alumni Weekly*.

On November 4, 1919, the Administrative Committee of the University Senate approved the recommendation of a committee, which had given careful study to this problem. The recommendations were as follows:

	OLD		NEW	
	RESIDENT	RESIDENT	RESIDENT	RESIDENT
Medicine .....	\$50	\$50	\$60	\$70
Dentistry, first year.....	33	33	60	70
Dentistry, later years.....	60	60	60	70
Engineering and Architecture....	20	20	30	40
Chemistry .....	18	18	30	40
Mines .....	18	18	30	40
Pharmacy .....	18	18	30	40
Law .....	22	22	30	40
Business .....	20	20	30	40
Science, Literature, and the Arts..	14	28	20	30
Agriculture, Forestry, and Home Economics .....	14	28	20	30
Education .....	14	28	20	30
Graduate .....	10	10	10	10

The University Senate at its meeting on December 18, 1919, approved this report of its Administrative Committee. In so doing it incorporated in its records the following statement:

This advance in fee charges was deemed absolutely necessary to meet the tremendous demands made upon the budget in attempting adequately to take care of an unprecedented increase in enrolment. The appropriations made by the Legislature for the biennium were sufficient for the status quo, but not for the extraordinary situation which developed with this year's attendance. The precipitous rise of prices for supplies and equipment only served to augment the seriousness of the problem.

A noticeable feature of the new schedule is the additional charge in all colleges, except the Graduate School, of ten dollars a quarter for students who are not residents of Minnesota. Heretofore the fees for resident and non-resident students have been the same except in the Colleges of Liberal Arts, Agriculture, Forestry, and Home Economics, and Education.

The Board of Regents at its meeting on November 13, 1919, approved finally and officially the new schedule of student fees, but in so doing made provision for having the subject definitely presented to the next legislature. The minutes contain the following record:

Voted further, that the University in presenting its biennial budget to the next Legislature, explain the increase of fees that had been made and the necessity for doing this in order to meet the expenses of the biennium; that the University express its willingness to reduce the fees again to the present level and refund the increase to the students provided the Legislature will furnish special appropriations for such purposes.

That the Board of Regents in taking this action sensed fully the feeling of the state upon this subject is confirmed by the fact that at the meeting of the board held on January 15, 1920, a committee of the Alumni Association appeared to express its convictions upon this subject. The following resolution was presented:

The Emergency deficit which necessitated an increase in student fees voted at the November meeting of your Board, has called our attention to the whole question of tuition at the University, and we respectfully ask that you consider the advisability of requesting the next Legislature to provide free tuition in the University, except for instruction in the strictly professional departments. We believe such action would benefit both the University and the State for the following reasons:

1. The University will thus afford every child in the State equal opportunity for an education, dependent on ability instead of money.
2. The founders and early administrators of the University intended tuition to be free; and your own records show that every increase has been voted with regret, as an emergency measure, never as a matter of principle.
3. The Agricultural Department established at Glencoe (later moved to St. Anthony Park) specifically provided in its charter that tuition should forever be free in that department.
4. The University is supported by general taxes of the State. It is therefore unfair to tax again the student who seeks entrance—especially as many of these applicants are poor.
5. It is to the advantage of the State to give as many of her children as desire it and are prepared to accept it, a University education without

any barrier. As Dr. Folwell so well put it, "The students of the State University, beneficiaries, should be regarded as engaged in the public service."

6. The records of the present enrolment, and of past years show that a very large percentage of the students earn in whole or in part their expenses while in the University. The State can well afford to lighten their burdens by foregoing the amount which such fees produce.

7. The present, when the finances of the University demand radical adjustment, is a propitious time for this change.

8. Many alumni, several of whom are members of the last legislature, offer their assistance to this end.

It will be of interest to record that a committee, appointed for the purpose, made a careful study of the probable additional income that would accrue to the University from these increased fees. The subject involved not only the simple gathering of the actual figures, but an accurate estimate of the probable number of students in each unit next year. On March 10, 1920, this committee reported that in its judgment the student fees next year would amount to \$520,000, being an approximate increase of \$180,000 over the fees for the year 1919-20.

#### BUDGET PLANS FOR 1920-21

From the foregoing statements in regard to the general financial situation, it will not be difficult to imagine that the preparation of the budget for the year 1920-21 has been an extremely difficult task. The problem from one point of view has presented mutually exclusive requirements. On the one hand, it is expected that the administration will at least maintain, if not advance, the standards of the University, will strengthen the morale of the faculty, and will provide for the education of all the students who come. On the other hand, the Board of Regents by law is compelled to avoid the incurring of any deficit. These two duties this year were incompatible. More boldly, the University could not be operated next year on its present income. The critical fact which we faced was that in the usual meaning of the term it was impossible to make a budget.

As early as December 17, 1919, the president submitted to the deans a plan for the preparation of the budget. This plan, which was approved, made certain specific stipulations. (1) That rigid economy was absolutely necessary. The usual assumption that

funds will be found somewhere was emphatically denied. Moreover, it was agreed that, wherever possible, funds would be released for those essential expenditures inevitably involved in properly caring for the large numbers of new students in certain units. (2) That it would be useless and confusing to propose any expansions in the work of the University for the year 1920-21. (3) That owing to present economic conditions, it would be necessary to establish a larger reserve fund, increasing it from \$15,000 to at least \$50,000. (4) That no storehouse charges would be made against department or college supply funds, and that therefore approximately \$20,000 would be set aside for this purpose. (5) That in order to enable departments to estimate with accuracy their needs for supplies, all repairs on buildings, including minor alterations and improvements, would be charged to the general repair fund.

The deans proceeded at once to prepare their new budgets. Unusual difficulties immediately arose. The regular allotments were seriously inadequate. The salary situation daily grew more perplexing. By February 1, 1920, many of the departmental budgets were in hand and certain difficulties requiring special consideration were unescapable.

Accordingly, the president proposed a confidential salary study for the purpose of ascertaining as accurately as possible what the salary situation demanded. It was suggested that a normal minimum schedule be adopted and that it be ascertained, (1) what sum would be required to put it into operation, and (2) what amount would be required if proper increases were made. This study revealed an extremely interesting and serious situation. For the first time, it focused our attention upon the abnormal magnitude of our problem and the utter impossibility of proceeding to the preparation of the budget along normal lines. After prolonged and discriminating consideration of the subject, it finally seemed necessary to the deans to suggest to the regents the seriousness of the situation and the wisdom of requesting a special session of the legislature. Accordingly, on March 13, 1920, the Administrative Committee of the University Senate adopted the following memorandum to be presented to the Board of Regents:

1. The great increase in the cost of supplies needed for the work of the University, and the necessity of procuring additional instructors to care for the normal anticipated growth in the student body, who can

be had only at salary rates materially higher than those now prevailing in the University, render it impossible to make a budget for the year 1920-21 with the resources available.

2. The unprecedented increase in the cost of living has, in effect, reduced the compensation paid to members of the faculty, when measured in purchasing power, to about one-half of the amount received in 1914, then admitted to be inadequate. This fact has caused much hardship and real distress among many members of the faculty, caused some to accept calls to other institutions paying higher salaries, induced others to renounce the profession of teaching for which they were specially trained to seek more lucrative employment in the various fields of business, and affected all with a feeling of unrest. The members of the faculty have stood, and yet stand, loyally to their work, but are unquestionably in great need of assurance that relief will be provided. If such relief is not soon found, there must inevitably result a serious impairment of faculty morale, and a lowering of institutional efficiency.

3. The members of the Administrative Committee, both severally and in joint conference, have given long and anxious consideration to the problem of maintaining the University on its present basis and without expansion of its activities during the next fiscal year the resources now available, and are of opinion that it can not be done. They have maturely considered every suggested measure of possible relief from the serious dangers of lowered morale, weakened organization, and decreased efficiency consequent upon the reduction of faculty pay below a fair living wage, and from inability to retain the services of the strong men, and find none adequate or practicable save an appeal to the legislature for additional funds.

4. Therefore, the members of the Administrative Committee, respectfully ask that the Board of Regents urgently request the Governor to call a special session of the Legislature to grant the needed relief to the University.

It is obvious that facts other than the needs of the University must be taken into consideration in calling a special session of the legislature. While fully appreciating the extreme and critical character of the problem, the regents finally concluded that it was unwise to request the governor to call a special session.

Finally, at their meeting on April 7, 1920, the deans arrived at certain conclusions which were recommended to the Board of Regents on April 14, 1920. That meeting is historic, both because it marks the election of a new president and because positive, constructive, statesmanlike action was taken in meeting the financial problem.

The president had prepared and submitted by mail to the Board of Regents on March 30 a document setting forth the situation as

a whole. In this communication three possible solutions of our difficulties were suggested. (1) It was pointed out that one natural method would be to go directly to the representatives of the people and present the facts. This method required a special session of the legislature and for reasons which need not be detailed here was deemed inadvisable. (2) Again it was suggested as a conceivable possibility that the regents might authorize what was designated as a "radical budget." That is to say, it was evident without incurring an actual deficit the regents might plan definitely and officially to expend all of the income of the University by March 1, 1921, and if by that time new appropriations were not available to close the University. This proposal, while seriously considered by other state institutions, did not commend itself as sane and sound. Actually to raise salaries and to pay out all the funds of the University before the fiscal year ended, with the possibility of no salaries for the faculties after March 1, did not seem like a wise method for strengthening the morale of our teachers. Moreover, such a plan seemed too high-handed and defiant. It surely would not strengthen the present cordial relations between the University and the legislature. (3) The third suggestion was that we proceed to the preparation of a "conservative budget," aiming just so far as possible to live within our income and to reach the first of January without any actual deficit. This plan required that there should be no general increase in salaries for the present, that a large reserve fund should be established for the purpose of making it possible to retain our strong men, and especially that there should be prepared a supplementary salary list indicating the proposed salary increases only in case the legislature, immediately after it convenes, provides an emergency appropriation by means of which these increases could be paid. This plan also provided that for supply items the funds available for the entire year could be expended, where it was absolutely necessary, by February 1, 1921. In other words, it will be seen that this plan is based upon the confident hope that a clear presentation of the facts to the next legislature immediately after it convenes will result in an emergency appropriation.

Prior to the meeting of the regents on April 14, 1920, the president had prepared two documents,—one a suggested vote to

be considered by the board, and the other an official announcement to the faculty in case the proposed vote was adopted. It is with great satisfaction that I record the adoption of these documents with slight modifications. Accordingly, I made the following official announcement through the *Official Bulletin* on the morning of April 15, 1920:

*To the Members of the Faculty and Staff:*

At a meeting of the Board of Regents held on April 14, 1920, most careful and prolonged consideration was given to the problem of the Budget for 1920-21. The following action was approved:

*"Voted:* That the President and Comptroller be and hereby are directed to prepare a budget for the fiscal year beginning July 1, 1920, in accordance with the following plan:

I. The budget shall be prepared as nearly as possible in keeping with the usual procedure. Just so far as practicable the aim shall be to provide for expenditures within existing appropriations and income.

II. Recognizing the unavoidable exigencies of the existing situation arising out of the inadequacy of present salaries, the high cost of supplies, and the unprecedented growth of the University, it is to be understood that the Board of Regents officially recognizes the necessity of applying to the next Legislature immediately after it convenes for an *Emergency Appropriation* to meet the extraordinary needs of the year 1920-21. *This appropriation shall in no way be confused with the requests for the next biennium.*

III. The request for an Emergency Appropriation shall include the following items:

1. The sum of approximately \$265,000 immediately available to provide additional teachers to care for the large numbers of new students. It is understood that the necessary new teachers will be appointed at once for the next academic year and that their salaries during the fall will be paid out of existing appropriations.

2. The sum of approximately \$845,000 immediately available to be used for increasing the salaries of the present staff for the year 1920-21, and if legally possible to be retroactive in effect and applicable from the beginning of the fiscal year.

3. The sum of approximately \$500,000 immediately available for supplies, thus releasing the entire present supply funds for expenditure during the first half of the fiscal year.

4. Other items may be added. The above three items make a total request of \$1,610,000, but changes in prices, in number of students, and other needs may make it necessary to vary the amounts of the aforesaid requests.

IV. The budget for 1920-21 shall provide a *Reserve Fund* of not less than \$50,000 to be used chiefly for the purpose of adjusting salary difficulties in critical cases.

V. For the purpose of securing accurate estimates, there shall be prepared a detailed supplemental salary list indicating the proposed salary of each member of the present staff when and if the Emergency Appropriation is made by the Legislature.

VI. Without committing the Board of Regents to any official obligations beyond the earnest assurance that every possible effort will be made to secure the Emergency Appropriation from the Legislature, a general announcement to the faculty and staff shall be made through the *Daily Official Bulletin* setting forth the plans which have been adopted, and speaking specifically of the items, which have been included in the proposed Emergency Appropriation. This announcement shall indicate also the normal minimum schedule and the approximate average percentage increase of salaries which will prevail in case the Legislature grants an adequate "Emergency Appropriation." Since this vote is intended only to set forth the general policies in accordance with which the budget is to be prepared, it may be of value to point out as specifically as it is possible at this juncture its bearing upon the three main features of our situation.

I. *Salaries of the present staff.* Concerning this subject three definite statements can now be made. (1) No general increase in salaries is now possible. No change can be anticipated prior to the meeting of the Legislature next January. A special session of the Legislature is out of the question. This statement may not be encouraging but it is at least definite, clarifying and final. (2) It is the aim of the Board of Regents to do everything in its power to retain on our staff the men whose services are of high value to the University. It should be recognized frankly that the *Reserve Fund* of \$50,000 is provided for this purpose. It will be used in critical cases of emergency to maintain the interests of the University regardless of how chaotic our salary schedules become *for the time being*. (3) The Board of Regents has now officially committed itself to the necessity of requesting an *Emergency Appropriation* when the Legislature convenes. No increased salaries will be actually paid during the fall. No promises are now made that salaries will be increased. No verbal statements, rumors, or hopes should be interpreted as qualifying or altering this emphatic official announcement. All that is said is simply that the next Legislature will be asked for an emergency appropriation and that *if* an adequate emergency appropriation is made the following *normal* minimum schedule of salaries will be put into operation at that time:

Full Professors.....	\$4,000
Associate Professors.....	3,300
Assistant Professors.....	2,400
Instructors .....	1,800
Full-time Assistants.....	1,500
Half-time Assistants and Teaching Fellows.....	750
Scholars .....	300

While this schedule is adopted as the normal minimum the rule is not inflexible and exceptions may be made in proper cases. The funds requested, *if granted in full*, will make possible a 30% *average* increase, figured on the basis of the entire present payroll. This statement does not mean that there will be a blanket increase of 30%. It does mean that an adequate general increase will be possible and that some members of the staff will receive distinctly more and some distinctly less than a 30% increase. Some will receive no increase. It should be clearly understood that both the minimum schedule and the percentage increase represent an emergency plan for the one year 1920-21. These emergency requests must not, under any circumstances, be confused with the biennial estimates.

II. *Supplies*. The plan provides adequate relief in the supply situation beginning July 1st. It is understood that the normal allotments for supplies, if absolutely necessary, may be expended in full during the first half of the fiscal year, and that the Emergency Fund will be available by February 1, 1921.

III. *Additional Teachers*. It is recognized that the present staff simply can not carry the teaching load produced by our increased enrolment. If available, teachers will be appointed this spring for service next year, their salaries being paid out of existing appropriations. It is planned that about 125 new teachers in the lower rankings may be secured.

It only remains to express the hope that these plans will commend themselves to all concerned as sane and sound. It will require great patience and a willingness to endure obvious injustice temporarily. We shall proceed now (1) to the preparation of the budget for 1920-21 which will break down in actual operation *without* the emergency appropriation, and (2) to the detailed supplemental salary list which will provide accurate estimates and become effective upon the favorable action of the Legislature. The Board of Regents bespeaks the active, hearty coöperation of the members of the staff during this extremely unusual economic period. We have good reason to believe that the people of Minnesota, through their representatives, will provide generously for this University. They will not permit its standards to be lowered, nor its welfare to be neglected. It is suffering only temporarily from its success. Its future is secure. The very fortunate election at this time of Dean L. D. Coffman to the Presidency of the University emphatically confirms this point of view.

Certain features of this announcement are worthy of further comment. First of all, it is based upon the belief that the legislature may be trusted to provide adequately for the state's highest educational institution. It does not go too far in assuming responsibility for the financial condition of the University. It puts the responsibility squarely where it belongs.

In the second place, it faces candidly the astounding magnitude of the problem. When it is remembered that our present annual maintenance fund, as increased by the Legislature of 1919, is \$1,865,000, an emergency request of \$1,610,000 may seem visionary, but, in reality, it is a conservative and sound estimate of our overwhelming needs. One single fact is an adequate explanation—we are dealing with fifty-cent dollars.

In the third place, if we may base our judgment upon the facts as they exist in other leading state universities, we have very wisely provided to appoint teachers in the lower rankings to care for our large number of new students. That is to say, as compared with other large state universities, we can legitimately increase the relative proportion of instructors as compared with the number of teachers in the professorial rankings.

In the fourth place, the establishment of a *normal minimum schedule* of salaries is an epoch-making decision. This question has been discussed at this University for a decade. We have now faced the issue squarely and arrived at a result in keeping with the best practice in American universities. In reality, it provides a living wage for our teachers. It puts a solid foundation under our whole salary situation. We have wisely established no maximum nor average scale. We have simply said that when, and if, the next legislature grants the emergency appropriation, the normal minimum schedule of salaries will be established.

### FINANCIAL SUGGESTIONS

There are three suggestions bearing in a general way upon our financial problems which, in barest outline, I should like to record here.

1. *Reduction of work.*—One method for removing the severe strain upon our financial resources would be to reduce the amount of work which the University is attempting. This suggestion is not born of a desire to escape responsibility, nor is it due to any lack of courage in attacking our difficulties. If the truth is to be spoken boldly, this suggestion probably arises from the intense conviction that our state institutions of higher learning should gradually and wisely be made to conform more strictly to the ideals of a real university.

There are various forms which this suggestion might take, any one or all of which might produce desirable results. (a) The multitude of varied activities in which the University now engages should be carefully scrutinized for the purpose of eliminating non-essential projects. Constantly new courses and departments are being added to meet the new needs of the state as they arise. Possibly some of the earlier plans should be modified or abandoned. There is no doubt that as time goes on our state universities will curtail many of their present activities. The ramifications of the University at present are so numerous and complex that the real, essential aims of a true university are liable to be overshadowed. The present status of the University has resulted as a perfectly natural development from the varied demands which have been made upon it by the state. Is not the time at hand when the University should be relieved of all police, regulatory, and executive functions, and these affairs turned over to properly constituted agencies of the state government? Ought we not more and more to draw a sharp line of demarcation between educational and research activities on the one hand, and the almost overwhelming variety of activities on the other hand, which are not strictly speaking of a university character? It is to be conceded at once that while this general principle seems sound, it is extremely difficult of application.

(b) Again, has not the time arrived for deciding definitely where secondary work ends and university work begins? At our present rate of growth, it is quite obvious that more adequate provision will have to be made by the state for the training of students in what is now regarded as the freshman and sophomore years. If junior colleges could be established in Minneapolis, St. Paul, and Duluth, the situation would be wisely met for the present. We ought to look forward to the day when junior colleges will be established in various strategic centers throughout the state. Then the University could limit its junior college to those students whose places of residence did not make available satisfactory opportunities. This plan would keep the younger students at home for two years longer. The present residence conditions at the University strongly argue for such a result. This idea is not a new one. President Emeritus Folwell advocated the "people's college" idea fifty years ago.

(c) A further suggestion in the effort to set out clearly the outlines of a true university would lead to the establishment of entirely new types of schools differentiated to meet the varying needs of students. Multitudes of boys and girls now come to the University because it is the best available place, and not because it provides just the type of training they need or want. They do not expect to take a degree. They have come because they want training beyond the high school in this or that field. It will be very easy for critical people to misinterpret this suggestion. There is no desire to be rid of these students. Our only purpose is to make sure that our youths have the very best opportunities that can be afforded. At present we are not in a position to serve these groups as they should be served. Moreover, it could probably be done much better in institutions organized specifically for the purpose. The striking success of the Dunwoody Institute shows something of the needs which exist in this general field.

(d) A device to which privately endowed institutions resort is the limitation of enrolment. I do not believe that a state university should ever entertain seriously such a plan. The glory of America is that she aims to offer equal opportunities to all. On the other hand, the citizens of the state should face seriously the clear-cut, sharply defined alternative: either a limitation will have to be placed upon our enrolment, or larger appropriations must be made.

(e) The whole problem of economy of time in education deserves decisive consideration. Possibly we could wisely curtail our work by shortening some of our courses. The ramifications of this problem are infinite, but one frequently hears the assertion made by authoritative experts that we are wasting from two to three years in the training of American youth.

At any rate, here is one horn of our present dilemma. Can we wisely, by any of the methods suggested or otherwise, curtail the present work of the University?

2. *Increase the resources.*—Obviously, the other horn of the dilemma relates to the resources of the University. If the activities of the institution can be wisely curtailed its growth will largely counteract any relief which is thus found. Consequently, at all times it will be necessary to plan vigorously for increasing the income of the University. Here, also, the suggestion may take varied forms.

(a) The most natural method is to seek for increased legislative appropriations. The present economic situation requires it. The purchasing value of the dollar to-day demands it. Such a result will depend first upon our ability to marshall our facts and cogently to present our necessities. Intensive education of the public is essential. Few citizens realize how rapidly conditions have changed.

(b) It is strange that the University of Minnesota has not been the recipient of more private benefactions. Only words of the highest praise are due those who have already wisely set their fellow citizens noble examples of benevolence. It is natural to ask why the state's chief educational institution should not benefit by private gifts when other colleges in the state receive millions of dollars? It is no adequate response to say that the state is rich and can provide what is necessary. A state university sorely needs many things which can scarcely be provided out of public funds. Many things are essential which can not be classed as necessities. I am of the impression that state universities would be justified in organizing campaigns for large funds, just as Harvard, Yale, Princeton, Cornell, and many other universities have done. The public should be educated to think of caring more adequately and in finer ways for its state university. Just now the University has appalling needs in many lines. The endowment of a few outstanding professorships would be tremendously stimulating to the faculty. An adequate meeting place for the University, the expansion of our hospital facilities, suitable quarters for the health service, residence halls, a students' union—these are among some of the outstanding necessities at the present moment. The alumni here, as at other state universities, must more and more accept their obligations for increasing, through private gifts, the resources of their Alma Mater.

(c) The increasing of student fees has frequently been resorted to as a panacea for financial difficulties. At best, this plan produces small results and violates our ideals of free education. Elsewhere in this report the fee question has been discussed. Would it be possible for state universities to offer students the privilege of voluntarily paying their full tuition costs? The plan of "voluntary full tuition" has been discussed for years by private institutions. Could we wisely keep before the state the cost of higher education by saying to our students officially, "Your fees

are only \$60 or \$175 per year, but in reality it is costing the state \$300 to \$500 to offer you this training. If you desire to meet the full expense of your education the state will be glad to receive it."? While certain taxpayers might object to such a statement, the essential justice of it rests back upon the whole problem of the distribution of wealth, and especially upon the improved facilities for education which would follow.

(d) An educational principle, destined to much wider application than it enjoys at present, is that of coöperation with private enterprises. By this method our incomes can be increased by making available the equipment of private plants for educational purposes. The University of Cincinnati, municipally supported, has demonstrated the truth of this principle. The Massachusetts Institute of Technology is now giving it even wider application. Our affiliation with the Mayo Clinic and our agreement with the Dunwoody Institute illustrate the same practise. More and more our universities, instead of attempting to maintain expensive and modern equipment in their laboratories, will avail themselves of the opportunities to use the shops, factories, and laboratories of private parties and institutions.

3. *Emergency fund.*—I am convinced that the State of Minnesota should have an emergency fund, controlled by a state board, out of which allotments could be made to meet unexpected emergencies, which inevitably arise in the conduct of the state's business. Surely no private corporation would have expected its officers to meet demands such as the University has had made upon it this year, without further financial aid. At the meeting of the Board of Regents, held on December 9, 1919, this subject was brought up for discussion, and it was voted "that the President of the University ask the Dean of the Law School to investigate existing legislation in other states with reference to such a plan." This was done and a report submitted to the regents at its meeting on January 15, 1920. It was voted by the board that "the material be placed with papers for presentation to the next legislature." Experience in other states shows the wisdom of such an organization. Until the economic situation of the country becomes more normal and stable it will be almost impossible for any individual or group to determine more than two years in advance what the financial needs of a large institution are going to be. Without

the necessity of calling a special session of the legislature, it ought to be possible to introduce some flexibility into our plans. I confidently believe that the establishment of an emergency board for the state would be in the interests of economy and efficient government.

### BUILDINGS AND GROUNDS

1. *General statement.*—The building situation during the year under review has presented many perplexing difficulties. On the one hand, the rapid growth of the University has created very serious building needs. Moreover, owing to the war, these needs have been allowed to accumulate until the situation has become very acute. For example, on October 13, 1919, the regents approved the plan of renting several recitation rooms and the large chapel in the International Christian Bible College Building, which is located just across University Avenue at Fifteenth Avenue. It was simply impossible to accommodate all of the classes in University buildings. On December 2, 1919, the Buildings and Grounds Committee held an all-day meeting, at which various officers of the University presented their most pressing needs. Beyond these conditions calling for immediate action lay the fact that building costs were very uncertain, constantly shifting and steadily rising. Expert opinions differed widely as to the true course of procedure and judgments were constantly changing. No committee of the board this year has given more continuous and careful consideration to its problems than the Committee on Buildings and Grounds.

2. *Funds available.*—To avoid any possible confusion, it should be stated here that the Legislature of 1919 made available the following funds for buildings and grounds: (1) To be immediately available, that is, even prior to June 30, 1919, the sum of \$175,000, of which \$100,000 was the first half of the appropriation for the business building, storehouse and shops, and \$75,000 was for the new boys' dormitory at Morris.

(2) For the year under review, that is, July 1, 1919 to June 30, 1920, the sum of \$377,000, of which \$328,000 was for buildings and \$49,000 for lands and roads. The \$328,000 was distributed as follows:

## THE PRESIDENT'S REPORT

(a) Balance for business building, storehouse and shops.....	\$100,000
(b) Preparation of General Library plans.....	3,000
(c) Addition to Shevlin Hall dining-room.....	35,000
(d) Addition to high-school building.....	50,000
(e) Completion of veterinary barns.....	25,000
(f) Dining-hall at Crookston.....	100,000
(g) Superintendent's house, Waseca.....	6,000
(h) Replacing burned buildings, Duluth.....	9,000
	<hr/>
	\$328,000

The \$49,000 was for land at the Fruit Breeding Farm at Zumbra Heights \$14,000; a forty-acre tract of land between the campuses \$25,000; and paving at Crookston \$10,000.

(3) For the comprehensive building plan the sum of \$560,000 annually for ten years, beginning July 1, 1920.

## SUMMARY

Available prior to June 30, 1919.....	\$175,000.00
Available July 1, 1919 to June 30, 1920.....	377,000.00
Available July 1, 1920 to June 30, 1930.....	5,600,000.00
	<hr/>
	\$6,152,000.00

3. *Decisions regarding funds available prior to July 1, 1920.*— Of the funds made immediately available, it is a pleasure to report that the boys' dormitory at Morris has been completed and has been occupied during a part of this year.

While the original plans contemplated the immediate erection of the business building, storehouse and shops, beginning in the spring of 1919, various difficulties counseled postponement. It has finally been decided to separate the business offices from the storehouse and shops, and to proceed at once to the erection of the Central Administration Building, to be located on the east side of the Mall, at an expense of \$550,000 and include the business offices in it. The storehouse will also be erected at once just back of the Central Administration Building and connected with it by a tunnel. By this method, the entire business organization of the University will be centralized without uniting the chief administrative offices of the University with the storehouse.

Of the funds available during the year under review (July 1, 1919 to June 30, 1920) item b has been utilized for making a

careful survey of libraries and library plans; item c has been used for an addition to the Shevlin Hall dining-room, which is now under actual construction, and, barring delays from labor troubles and difficulties in securing supplies, should be available for use when the University opens this fall; item d has proved to be entirely inadequate for the purpose so that the addition to the University High School has been postponed until a larger appropriation can be secured; item e has been used to complete the veterinary barns at the farm; item f has provided a most satisfactory building at the Northwest School of Agriculture; item g, like item d, has been found inadequate and owing to the probable development of a School of Agriculture at the Waseca substation, the superintendent's cottage has not been built; and item h is still unexpended, owing to the need of a larger fund.

The item of \$49,000 for lands and roads has all been expended for the specific purposes for which it was designated.

It will be seen, therefore, that not only has rapid progress been made in carrying out these plans, but also that wise caution has been exercised in making sure that economical and valuable results are secured when the funds of the state are actually expended.

4. *Decisions regarding the comprehensive building plan.*—It should be remembered that the funds for this plan become available July 1, 1920 and that, according to the provisions of the act, it is possible to anticipate the funds by one year through the issuance of certificates.

One of the most difficult tasks of the administration this year has been to arrive at sound conclusions regarding the comprehensive building plan in view of all of the new facts which have developed. First of all, the high cost of building has been almost prohibitive. At times during the year it seemed wise just to await developments. At other times, we were on the point of concluding that it was unwise until there was a sharp decline in building costs to attempt any new buildings. Finally, the Buildings and Grounds Committee met at the Capitol with the State Board of Control and it was definitely decided, in view of all considerations, that it was wise to proceed with our building plans.

In regard to the decisions which have been reached, certain statements will not be out of place. It must be kept in mind constantly that the building needs of the University accumulated seriously during the war. Extremely unsatisfactory conditions prevail at several points. It is natural for those most intimately identified with these difficult situations profoundly and honestly to be convinced that their requests should be given first and favorable consideration. Here, as everywhere in life, the special interests have had very ardent advocates. It has been easy to respond to this or that college or departmental interest and it has been difficult to protect wisely the interests of the University as a whole.

Again it must not be forgotten that the Board of Regents has certain outstanding obligations which can not with honor be disregarded. The agreement with the United States Bureau of Mines to erect the Mines Experiment Station is a case in point.

Furthermore, a general principle which we have been compelled to adopt has required certain decisions. I refer to the necessity of relieving as rapidly as possible the congested teaching conditions which have developed in certain units, owing to the rapid growth of the institution. This principle applies particularly to the work in engineering, chemistry, and arts.

At any rate, after the most careful survey of all the facts, the Board of Regents has officially authorized the following building operations:

1. Preparation of plans for the new General Library.....	
2. Completion of the Chemistry Building and construction of the roofhouse .....	\$300,000
3. Additions to Sanford Hall (women's dormitory).....	206,000
4. Remodeling of the Botany, Chemistry and Horticultural build- ings at the University Farm.....	95,000
5. Recitation hall at Morris.....	85,000
6. Cottage at Crookston.....	16,500
7. General Central Administration Building.....	550,000
8. Music hall.....	250,000
9. Replacing roofhouse on University Hospital with fire-proof construction .....	56,000

In addition to this list it has been agreed with the United States Bureau of Mines that during July, 1921, the Mines Experiment Station will be started.

The minutes of the Buildings and Grounds Committee for April 29, 1920, approved by the full board on May 24, 1920, contain this record :

It was also the opinion of the Committee that provisions should be made for the construction of the Electrical Engineering Building and for the expansion of hospital facilities immediately after the present plans are realized.

Special comments are needed in regard to item one (1), which authorized the preparation of plans for the new central library. It will be observed that no definite sum has been specified for this purpose nor has any date been determined for the beginning of the construction work. Nevertheless, this action represents the most important decision regarding our building plans.

The central library, which serves the entire University, is the one building concerning which there has been almost unanimous opinion. There was only one member of the Administrative Committee of the senate who would not place it as the first building need of the entire University. The general faculty of the University, at a meeting held on January 15, 1920, expressed its conviction in the following terms :

That it is the sense of this meeting that the immediate construction of a central library would meet the most pressing educational demand of the entire University at the present time and would form the greatest single contribution to the well-being and comfort of the student body as a whole.

It is contemplated that the new library will cost approximately \$1,500,000 and will be located on the east side of the Mall.

In regard to the comprehensive building plan two observations should be made: (1) There has developed this year a tendency to expect the comprehensive building fund to provide for many minor needs, including building repairs, alterations, and additions. With the present high cost of building, a distinct danger exists that serious inroads will be made upon the integrity of this fund. No implications should be drawn from this statement that any effort has been put forth to make extra-legal use of the fund. But a vigorous warning must be sounded against any attempt or even tendency to dissipate these funds with the consequent sacrifice of the real vision which it represents.

(2) A far more serious fact arises out of the increasing cost of labor and building materials. It is simply impossible now to construct the buildings with the funds provided. The estimates,

made by experts, upon which our proposals to the legislature were based, have been found to be entirely too low. Probably the most satisfactory solution of the difficulty will be to ask the next legislature for the privilege of using the entire appropriation of \$5,600,000 in five or six years, instead of in ten years, as now stipulated.

5. *Location of auditorium.*—At the meeting of the Board of Regents held on September 4, 1919, it was finally decided to reserve the site at the head of the Mall for the auditorium. The consulting architect reported that unless the auditorium were given this location, it would have to be placed off the campus. Ultimately this institution must have a dignified meeting place, properly equipped and sufficiently large to serve the entire University.

6. *Northern Pacific tracks.*—Distinct progress has been made this year in dealing with this difficult problem, which has been under consideration for more than a decade. President Fred B. Snyder of the Board of Regents has done everything in his power to bring about a satisfactory conclusion. At the meeting of the board on December 9, 1919, he presented a contract drawn up with officials of the Northern Pacific Railway Company for the covering of the tracks through the campus. After discussion, it was voted that the president of the board consult with the officials of the railway company regarding the possibility of removing the tracks from the campus.

As a counsel of perfection, everyone concedes that the removal of the tracks is the wise solution of this problem. In the interests of accurate and precise scientific experiments, it is absolutely essential. Serious financial difficulties arise, however, when estimates of the costs involved in removing the tracks and locating them elsewhere are presented. It is confidently to be anticipated that a final solution of this troublesome question will be reached at an early date. It is quite impossible to exaggerate the importance of this decision. It will unite the campus, facilitate the circulation of persons and traffic, and greatly improve the general appearance of the entire campus.

7. *Landscape engineer.*—The development of the campus, under the comprehensive building plan, involves technical questions of the highest importance to the entire future of the University. Accordingly, at its meeting on November 12, 1919, the Buildings and Grounds Committee voted "to authorize the employment of a landscape engineer to make an accurate topographical

survey of the campus, and, in collaboration with the consulting architect and other officials of the University, to prepare a revised plan for the Mall and the development of the campus." At the meeting of the Board of Regents held on January 15, 1920, in approving the contract with the firm of Morell and Nichols to serve the University as landscape engineers, it was specifically stipulated that no vital changes in the Cass Gilbert plans were contemplated.

8. *Consulting architect.*—After conference with the State Board of Control and the state architect, it seemed wise, in view of the extensive building operations, involved in the comprehensive building plan, to appoint a consulting architect. This action was taken for the purpose of avoiding any confusion in regard to plans and the authorization of changes in contracts. If a large number of persons, representing the University, deal in turn with the State Board of Control misunderstandings are liable to arise. In adopting this measure, the Board of Regents, at its meeting on December 9, 1919, appointed Associate Professor J. H. Forsythe as consulting architect and assigned to him the following functions:

1. To assist the Board of Regents, the President, the Comptroller, and the Faculty in collecting and correlating information concerning all buildings to be erected under the ten year comprehensive building plan.

2. To have charge of all matters dealing with general campus development on the main campus and elsewhere, and to recommend to the Board of Regents locations for new buildings on such property.

3. To act as the official representative of the Board of Regents, the office of the Comptroller, and the Faculty in their relations with the Architect of the Board of Control.

The record of the year, as here presented, indicates clearly that the Board of Regents has devoted itself with great concern to the consideration of every phase of the building program. The next few years, as these plans are actually consummated, will show remarkable improvement in the physical equipment of the University.

## CONCLUSION

In conclusion, I desire to call attention to the reports of the deans and other officers which appear in this volume. They present much valuable information worthy of the careful study of any one who seeks an accurate understanding of the University.

The three years during which I have been president of the University have been most unusual and exacting. In January, 1917, I accepted the presidency and assumed the duties of the office on July 1, 1917. In the meantime, the United States entered the great war and the draft went into effect. The first year was a real war year. The enrolment of the University very properly declined. All able-bodied men were eager to enter the army. The president was called upon to render very heavy service as a public speaker at gatherings throughout the state, intended to inculcate a correct understanding of America's part in the war. The second year was entirely occupied with war-time duties. It was probably the most unique year in the entire history of the University. In fact, the institution was suddenly and almost completely transformed into a military post. In place of a university we had a Students' Army Training Corps. It was among the largest, if not the largest, in the country. It required a complete reorganization of all courses, programs, and schedules. Our difficulties were seriously accentuated by the epidemic of influenza. We had just begun to solve our chief administrative problems when the armistice was signed on November 11, and the S.A.T.C. was demobilized in December. Then came another complete reorganization with a student body strangely disorganized and in a very unusual frame of mind. This last year has been equally unique, because of the overwhelming numbers of students who have come to us and the extreme financial situation which has arisen.

In short, the period which now closes could very properly be characterized as the war administration. Merely to have brought this great university through this trying period is an achievement in itself. The period has witnessed the actual establishment of a building plan involving the expenditure of more than six million dollars. The general maintenance fund has been increased from \$1,365,000 to \$1,865,000. The organization of the University Health Service and the establishment of the new School of Business have commended themselves highly to our constituency. The students, as a whole through "The Better-Minnesota Movement," have assumed a most worthy and prophetic attitude toward the University. It is within the bounds of accuracy to state that, during a most disorganizing and disrupting period, the student morale has actually been strengthened. The establishment of the regular

weekly convocation, and the three special convocations, the organization of the University concert course and the publication of the *Official Daily Bulletin* have all tended to enrich university life and to unify a very large, if not amorphous institution. The holding of unofficial general faculty meetings may have paved the way for a more democratic faculty organization. A study of the official documents will show that a vigorous emphasis has been placed upon the necessity of improving in a marked degree the general salary situation. A significant general administrative policy, looking toward the correlation of the administration of logically related units, has been successfully inaugurated. The four-quarter system has been adopted, making more available the facilities of the University. Several new courses have been organized, including the course in the training of americanization workers. The musical interests of the University have been greatly strengthened and the office of University director of music created. These statements, in merest outline, indicate something of the policies and ideals which have lured us on during three most stimulating and challenging years.

I can not conclude without saying again that none of these results would have been possible without the happy and cordial relationships which at all times have prevailed between the administration and the various elements of our large constituency.

I must express my profound appreciation of the very unusual harmony which has prevailed in the Administrative Committee of the senate and in the Board of Regents. I lay down these engrossing duties with great satisfaction that Dr. Lotus Delta Coffman becomes the president of the University. As I have stated elsewhere in this report and have frequently said in public, he is a man in whom the state may place its unquestioned confidence and in whom the students, faculty, alumni, and regents will find a leader of vigorous initiative and striking resourcefulness.

Very respectfully submitted,

M. L. BURTON, *President*

June 30, 1920

## THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

*To the President of the University:*

SIR: I submit herewith my report on the work of the College of Science, Literature, and the Arts for the year 1919-20.

In the year following the close of the war most of the members of the faculty of this college who were on leave for war services returned to their academic duties, and provision was made for a return to normal conditions as to the number of students. The number of students who came, however, far exceeded our most liberal estimates. In the year before the European war the college enrolment was nearly 1,600, in 1916-17 it had risen to 2,481; the year just past opened with an enrolment of 3,368 and reached a total of 3,746. Each three-year period (1914-15-16 and 1917-18-19) showed a 50 per cent increase.

The enrolment in the fall quarter was a half greater than was expected, and the work of the college was further augmented by the great increase in professional-school students who receive instruction in this college. The freshman English classes were especially affected by the large enrolment in engineering; and both English and animal biology by the appearance of a full class in the pre-dental course a year earlier than was anticipated.

During the war the cost of living had nearly doubled, business opportunities had multiplied, the interests of some faculty men had been diverted by their war experience, and with the opening of the college year the great enrolment of students all over the country created suddenly a demand for many more teachers than were ever before enrolled in university and college faculties. Salaries had not been raised in proportion to the higher cost of living, the University had not resources to pay the number of teachers needed, and every institution in the country was competing for the services of a very inadequate body of available teachers.

A large number of instructors and assistants were appointed in the most crowded departments. In many fields additional teachers could not be found and the classes became necessarily much larger than desirable. During the registration period, as classes became overcrowded, we were compelled to limit registration in one subject after another. This compelled a great many students in the last days of registration to postpone certain subjects or to rearrange their electives. In all cases preference was given to those students for whom certain courses of study were required either in this college or in a professional school. In this way the engineering, pre-dental, and professional students were cared for in freshman English, animal biology, and other subjects to the exclusion of students seeking a degree in this college. More than six hundred arts students had to postpone freshman English to the sophomore year on this account.

Altho no students were denied the opportunity to register, a small number of students returned home because they could not get the subjects they desired.

The number of students actually taught this year has been much larger in proportion to the number of the faculty than at any time in the history of the college. The college has had much more difficult problems of adjustment in this year following the war than at any time during the war.

A. FACULTY

The total teaching staff this year included 199 persons, equivalent to the full time of 183½, distributed among the various ranks as shown in the following table:

	1917-18	1918-19	1919-20
Professors .....	42	39	41½
Associate professors.....	8½	11	16½
Assistant professors.....	35	32	39½
Professorial lecturers.....	2	4	3
Instructors .....	43	39	54
Lecturers .....	..	..	½
Assistants and teaching fellows equal to full time..	19	34	39½
	<hr/>	<hr/>	<hr/>
	151½	174	194½
Absent on leave.....	17½	32	11
	<hr/>	<hr/>	<hr/>
Teaching staff actually in residence.....	134	142	183½

The following changes occurred in the professorial ranks of the faculty during the year.

*Deaths.*—Maria L. Sanford, professor emeritus of rhetoric and public speaking; John E. Granrud, professor of Latin; and Cyril A. Herrick, assistant professor of rhetoric.

*Resignation.*—Wallace Notestein, professor of history, to accept appointment as professor at Cornell University; George N. Bauer, professor of mathematics, to continue in savings and thrift organization work; Louis W. McKeehan, associate professor of physics, to accept appointment in the research laboratory of the Ordnance Bureau of the Navy Department; Raymond B. Moley, associate professor of political science, to continue as director of the Cleveland Foundation; George N. Northrop, assistant professor of English, to accept appointment as principal of the Brierly School in New York City; A. W. Johnston, assistant professor of geology, to continue as an expert in oil development; Terence T. Quirke, assistant professor of geology, to accept appointment as professor of geology in the University of Illinois; Alfred E. Koenig, assistant professor of German, to continue as secretary for americanization in the Y.M.C.A. of Minneapolis; Walter R. Myers, assistant professor of German, to accept appointment in the School of Business; Helen, A. Whitney, assistant professor of rhetoric because of illness.

*Leaves of absence.*—The following were absent on sabbatical furlough: Carleton Brown, professor of English, for the year; Josephine E. Tilden,

professor of botany, and Cephas D. Allin, professor of political science, for one quarter each; August C. Krey, associate professor of history, for the winter and spring quarters.

The following were on leave without pay: Oscar W. Firkins, professor of comparative literature; Arthur J. Todd, professor of sociology; Guy Stanton Ford, professor of history (for the spring quarter); Raymond B. Moley, associate professor of political science; A. W. Johnston, assistant professor of geology; Alfred E. Koenig, assistant professor of German; Raymond Brink, assistant professor of mathematics; Karl S. Lashley, assistant professor of psycho'ogy.

*Promotions.*—The following were promoted from the rank of instructor to that of assistant professor: Thomas M. Broderick in geology; Raymond Brink in mathematics; Albert J. Lobb in political science; Karl S. Lashley in psychology; Martin B. Ruud and Cyril A. Herrick in rhetoric.

The following were promoted from the rank of assistant professor to that of associate professor: Herbert Woodrow in psychology; Anthony L. Underhill in mathematics.

The following were promoted from the rank of associate professor to that of professor: William H. Bussey in mathematics; John T. Tate in physics; and Luther L. Bernard in sociology.

*New appointments.*—To begin service during the year 1919-20: Lars A. Welo, assistant professor of physics; to begin service with the year 1920-21: Clarence W. Alvord, professor of history; Pedro Henríquez-Ureña, assistant professor of romance languages; E. F. Parker, assistant professor of romance languages; Harold Quigley, assistant professor of political science; Mildred W. Loring, professorial lecturer in psychology.

## B. STUDENT BODY

*Enrolment.*—The following table shows the attendance during the last two years:

	1918-19			1919-20		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
Seniors .....	53	257	310	81	234	315
Juniors .....	97	245	342	162	191	353
Sophomores .....	195	336	531	555	406	961
Freshmen .....	439	464	903	1,238	684	1,922
Unclassed .....	29	81	110	75	120	195
	813	1,383	2,196	2,111	1,635	3,746

The total number of men and women registered in the college for the past five years:

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS 101

	1915-16	1916-17	1917-18	1918-19	1919-20
Men .....	1,089	1,192	934	813	2,111
Women .....	1,260	1,289	1,381	1,383	1,635
Total .....	2,349	2,481	2,315	2,196	3,746

The number of students from other states for the past five years:

	1915-16	1916-17	1917-18	1918-19	1919-20
Percentage of total.....	10	16	11	10.4	11.9

The following table shows the amount of teaching done by each department during the fall quarter in comparison with the winter quarter of last year and the first semester of the preceding year:

	1917-18 FIRST SEMESTER	1918-19 WINTER QUARTER*	1919-20 FALL QUARTER
Animal Biology.....	2,049	2,028	4,097
Anthropology and Americanization Training.....	....	....	973
Astronomy .....	225	321	237
Botany .....	1,461	976	2,274
Comparative Philology.....	191	156	20
Economics .....	2,568	1,561	....
English .....	1,999	1,632	2,359
Geology and Mineralogy.....	1,770	1,053	1,630
German .....	2,196	938	2,012
Greek .....	86	153	150
History .....	3,604	3,595	7,427
Journalism .....	....	....	102
Latin .....	354	189	359
Mathematics .....	2,126	2,150	3,839
Music .....	628	641	761
Philosophy .....	585	414	417
Psychology .....	1,642	1,227	2,355
Physics .....	1,501	1,245	3,091
Political Science.....	1,185	1,344	1,738
Rhetoric and Public Speaking.....	4,850	3,935	8,764
Romance .....	5,834	5,152	8,271
Scandinavian .....	314	192	379
Sociology and Anthropology.....	413	710	....
Social and Civic Work.....	1,074	589	....
Sociology and Social and Civic Work.....	....	....	1,712
Total .....	36,655	30,201	52,417

\*The winter quarter is given as being a period of normal work. The fall quarter was the period of the S.A.T.C. During this quarter the total credit hours of teaching was 39,326.

## C. ADMINISTRATIVE ORGANIZATION

Because of the growth in enrolment during the last six years from 1,600 to 3,700 and because of the development of new courses of study and new relations with other colleges, the administrative work has grown very greatly in volume and complexity. Additional officers have therefore been appointed: as assistant dean for the Senior College, Professor Joseph M. Thomas; as assistant dean for the Junior College, Professor William H. Bussey; and as Junior College advisers a number of faculty members who devote a definite part of their time to advising students, whose teaching duties are correspondingly reduced, and a proportionate part of whose salaries is charged to the cost of administration.

The faculty has abolished the Administrative Board and assigned its duties to two committees; a Students' Work Committee made up of the assistant deans and advisers with the former chairman of the Administrative Board, Assistant Dean Royal R. Shumway, as chairman; and an Executive Committee consisting of the dean, the assistant deans, and the secretary of the faculty. The secretary has immediate charge of bulletins and programs. Miss Elizabeth Jackson has been elected to this office.

*Spring registration.*—The change to the quarter system has brought many problems and difficulties. Not least among these is the additional work required for the registration of students for each quarter. As a measure of relief the faculty determined to require prospective senior and junior students to register before commencement for the entire year's work of the following year; and to reduce the number of registrations for freshmen and sophomores each year from three to two. The program of studies was prepared and the bulletin published in May instead of July as heretofore, and the registration of present freshmen for their next fall quarter and of present sophomores and juniors for all three quarters of next year was carried out during the first two weeks of June.

It is expected that this will greatly simplify the registration of new students in the fall and will enable the college to adjust its work much more accurately and promptly to the emergency needs which usually arise at the opening of the academic year.

There is a further advantage of a strictly educational character which may be expected to follow from this spring registration. When the registration for a full year in advance becomes an established custom, students will learn to plan more carefully and look farther ahead in choosing their studies. The lack of intelligent planning and foresight on the part of students has been one of the most discouraging features of university education. It is hoped that the annual spring registration will lead to an improvement in this regard.

## D. CURRICULUM

Following the instructions given by the faculty a year ago, the Advisory Committee during the fall quarter made a thoro study of the requirements for the Bachelor of Arts degree, comparing them with the requirements

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS 103

for this degree in other institutions, and studying changes and tendencies in these institutions so far as they could be ascertained by correspondence.

After full discussion of the committee's report the following new statement of the requirements was adopted:

JUNIOR COLLEGE

Departments offering Junior College courses are grouped as follows:

Group A English, Rhetoric, Public Speaking

Group B Foreign languages: German, Greek, Latin, Romance Languages, Scandinavian

Group C Social sciences: Anthropology, Economics, History, Political Science, Sociology

Group D Natural sciences: Animal Biology, Astronomy, Bacteriology and Immunology, Botany, Chemistry, Geology and Mineralogy, Human Physiology, Physics, Psychology

Group E Mathematics, Philosophy

REQUIREMENTS FOR THE JUNIOR COLLEGE

1. Group A 15 credits in English-Rhetoric

Group B The student must present for entrance four years of one foreign language, or he must complete 20 credits in one language in college, or he must continue a language, which he presented for entrance, according to the following schedule:

AMOUNT PRESENTED FOR ENTRANCE	AMOUNT REQUIRED IN JUNIOR COLLEGE
Four years of one language	None
Three years of one language	5 credits in same language
Two years of one language	10 credits in same language
Less than two years of one language	20 credits in one language

Group C 10 credits in one subject

Group D 10 credits in one subject (courses in physiography and geography do not meet this requirement)

Group E No requirement

2. Two of these required subjects must be begun the first quarter and the others not later than the fourth quarter of a student's course. A subject taken to meet one of these requirements must be continued for at least two quarters.

3. The student must earn 15 additional credits in each of two of the five groups, A, B, C, D, E.

4. The student must earn a total of 90 credits and 90 honor points.

SENIOR COLLEGE

*Admission.*—For admission to the Senior College a student must have satisfied the requirements of the Junior College.

*Requirements.*—1. A major sequence, 27 to 36 credits. Each student must complete a coherent and progressive sequence of courses, known as major sequence, which shall include, as specified by the department which offers it, from 27 to 36 credits in Senior College courses. Such major sequences are offered by the following departments: Animal Biology, Astronomy, Bacteriology, Botany, Chemistry, Economics, English, Rhetoric and Public Speaking, Geology and Mineralogy, German, Greek, History, Human Anatomy, Human Physiology, Latin, Mathematics, Philosophy,

*THE PRESIDENT'S REPORT*

Physics, Political Science, Psychology, Romance Languages, Sociology. The courses constituting a major sequence in any department are announced in the departmental statement.

2. A minor sequence, 9 credits. A student must secure in some department other than his major department and in addition to his major sequence, 9 credits in Senior College courses.

Respectfully submitted,

J. B. JOHNSTON, *Dean*

## COLLEGE OF ENGINEERING AND ARCHITECTURE

*To the President of the University:*

SIR: I hereby submit my report for the College of Engineering and Architecture for the college year 1919-20.

During the past year a decided change in the policies of the University with respect to the relation of the College of Engineering and Architecture to other units which serve the University in the capacity of technical schools was inaugurated. In the summer of 1919 the Board of Regents voted to combine the administration of the College of Engineering and Architecture and the School of Chemistry with the intention of establishing at the University of Minnesota what has been called an institute of technology. At the close of last year Dean J. R. Allen resigned from the deanship of the College of Engineering and Architecture, to accept a position as director of the research laboratory of the American Society of Heating and Ventilating Engineers, United States Bureau of Mines, at Pittsburgh, Pennsylvania. Shortly after his resignation was accepted, Lauder W. Jones, dean of the School of Chemistry, was appointed to serve as dean of the school and college for the purpose of putting into effect the plan decided upon by the Board of Regents concerning the coördination of the two schools to form a closer correlation of the technical courses which are offered by them. This plan does not contemplate the merging of the two schools into one, but it is the intention of the Board of Regents that each school and college will retain its identity as a unit of the University.

The past year has been a very eventful one for the College of Engineering and Architecture. Predictions based upon the enrolment in the college prior to the war indicated that some 550 students might be expected to enroll last fall. When the college opened, however, and the classes were formed, we discovered that the enrolment amounted to 1,150 students. It will be apparent that ample provision had not been made to take care of this large body of students. The teaching force, especially for elementary classes, was entirely inadequate and with great difficulty was brought to a point of comparative efficiency in the course of two or three months. The same thing may be said of the equipment, which was entirely insufficient to take care of the needs of the students in the various departments in which they worked. This difficulty was a serious handicap during the early months of the year and diminished the efficiency of the departments in a very great degree during that time.

### FACULTY

During the past year the following new appointments have been made: Lauder W. Jones, dean, College of Engineering and Architecture; Leon Arnal, professor, Department of Architecture; Arthur R. Nichols, instructor,

Department of Architecture; George Prudden, instructor, Department of Architecture; Paul W. Rhame, instructor, Department of Mechanical Engineering; C. Moreau Jansky, Jr., instructor, Department of Electrical Engineering; H. D. Myers, instructor, Department of Drawing and Descriptive Geometry; J. E. Finley, instructor, Department of Drawing and Descriptive Geometry; Carroll E. Lewis, instructor, Department of Drawing and Descriptive Geometry; Orrin W. Potter, instructor, Department of Drawing and Descriptive Geometry; William S. Williams, instructor, Department of Drawing and Descriptive Geometry; Henry E. Hartig, instructor, Department of Drawing and Descriptive Geometry; Henry D. T. Eggers, instructor, Department of Drawing and Descriptive Geometry; Robert F. Schuck, instructor, Department of Drawing and Descriptive Geometry; B. J. Robertson, instructor, Department of Experimental Engineering; R. R. Herrmann, instructor, Department of Mathematics and Mechanics; John J. Craig, instructor, Department of Mathematics and Mechanics; Charles Boehnlein, instructor, Department of Mathematics and Mechanics; Edwin E. Clark, instructor, Department of Mathematics and Mechanics; John G. Frayne, instructor, Department of Mathematics and Mechanics.

The following promotions have been made during the past year: A. V. Cutler, from assistant professor to associate professor; W. T. Holman, from assistant professor to associate professor; J. V. Martenis, from assistant professor to associate professor; J. I. Parcel, from associate professor to professor; F. B. Rowley, from assistant professor to associate professor; W. T. Ryan, from assistant professor to associate professor; S. C. Shipley, from assistant professor to associate professor; C. F. Shoop, from assistant professor to associate professor; G. A. Maney, from instructor to assistant professor.

During the past year only one member of the staff, Mr. A. F. Moyer, instructor in mechanical engineering, has been absent on leave.

The following resignations have been accepted during the year 1919-20: J. R. Allen, dean, College of Engineering and Architecture; F. R. McMillan, assistant professor, Department of Experimental Engineering; J. E. Finley, instructor, Department of Drawing and Descriptive Geometry.

Since July 1 several members of the staff have resigned and the large increase of students expected for next year has made it necessary to ask for the appointment of additional members to the staff. Great difficulty is being encountered in our efforts to secure desirable men to fill these vacancies and positions even at this date. Very few of the positions have actually been filled. Desirable men can scarcely be secured for \$1,800 or \$2,000 to serve as instructors in the departments in which they are needed.

#### STUDENT BODY

The large number of students enrolled last fall brought a very difficult problem of administration upon the college. By readjustments of program it was possible last year to find room in the College of Engineering and Architecture to house practically all the classes. It became necessary, however, to use one or two rooms in the experimental laboratories, and to

hold certain classes in rooms in the School of Mines building. The following tables give a summary of the enrolment during the three quarters of the year and show the distribution of students in classes and departments.

REGISTRATION FALL QUARTER, 1919-20

	ARCH.	CIVIL	ELECT.	MECH.	GEN.	MISC.	TOTAL
Freshman .....	67	87	164	83	46	171	618
Sophomore .....	18	67	97	51	21	...	254
Junior .....	14	37	52	27	19	...	149
Senior .....	10	27	38	21	14	...	110
Post-senior .....	...	...	3	5	...	...	8
Miscellaneous .....	10	...	...	...	...	...	10
	119	218	354	187	100	171	1,149

REGISTRATION WINTER QUARTER, 1919-20

	ARCH.	CIVIL	ELECT.	MECH.	GEN.	UND.	SPEC.	TOTAL
Freshman .....	64	55	120	68	38	220	..	565
Sophomore .....	14	68	93	44	20	..	..	239
Junior .....	16	38	45	26	19	..	..	144
Senior .....	8	28	39	21	9	..	..	105
Post-senior .....	..	1	3	3	..	..	..	7
Unclassed, etc.....	13	1	1	..	..	..	..	15
	114	191	301	162	86	220	..	1,075

REGISTRATION SPRING QUARTER, 1919-20

	ARCH.	CIVIL	ELECT.	MECH.	GEN.	UND.	SPEC.	TOTAL
Freshman .....	51	75	132	73	43	97	..	471
Sophomore .....	11	51	77	36	23	..	..	198
Junior .....	14	35	38	23	17	..	..	127
Senior .....	8	24	38	22	7	..	..	99
Post-senior .....	..	1	1	2	..	..	..	4
Unclassed, etc.....	..	..	..	..	..	..	18	18
	84	186	284	156	90	97	18	917

Through the efforts of certain upper-class men a large group of the student body was finally welded together into an organization known as the Association of Engineering Students. Coöperation of the College of Engineering and School of Chemistry through the common administration of the two has brought the student body of the two schools closer together. As a result of this, chemical engineers for the first time have been included in the student affairs of the College of Engineering and Architecture, and are members of this joint association and are active in its affairs. This furnishes a very hopeful sign of a real coördination of the two colleges and

promises to be beneficial to the students of both schools. The enrolment in this student organization at the close of last year amounted to some 1,200 students.

The officials of this society have been very active in taking over the control of certain functions of the student body of the two colleges. They have organized a coöperative bookstore which is to be a student affair entirely, except for the fact that members of the two faculties will be appointed to act in an advisory capacity only. It is the intention of this society to publish a bulletin or journal. Also, through the officials of the society, all the affairs which relate to the celebration of St. Patrick's day will be directed, a hopeful sign that a more serious aspect may be given to this celebration next year. It is evident from the discussions of students that some real engineering features will be incorporated as a part of this celebration in the future.

### CHANGES IN DEPARTMENTS AND CURRICULUM

1. *Changes in departments.*—Perhaps the most important change in departmental policies has to do with the reorganization of the Department of Experimental Engineering. The tentative policy which has been adopted for this department and which has been in operation for a short time did not seem to be the most successful method from an administrative point of view. One of the main features of this policy was the necessity of transferring members of the various departments of engineering to the staff of the Department of Experimental Engineering. This was done in the case of certain professors and instructors who had charge of experimental work coördinated with the regular work in the Departments of Mechanical and Civil Engineering or the Departments of Mathematics and Mechanics. In this way a professor would have his responsibility divided between his major department and that of Experimental Engineering.

The new policy adopted by vote of the Board of Regents consists especially in abandoning the Department of Experimental Engineering, and creating merely a group of Experimental Engineering Laboratories which were placed under Professor F. B. Rowley as director. The staff of the Experimental Engineering Laboratories was diminished by transferring professors and instructors who had been appointed on this staff back to the departments in which their major interests lay. The control of the Experimental Engineering Laboratories was placed in the hands of a committee composed of the dean, the director of laboratories, and the heads of the various departments which offer experimental work on the floors of the laboratory. All matters pertaining to the administration of the laboratories were decided on by this committee and were put into execution by the director. This scheme was worked very successfully during the past year and has obviated some difficulties which the old scheme possessed.

2. *Changes in curriculum.*—The curriculum of the College of Engineering and Architecture has been entirely reorganized during the past year. One of the chief difficulties met with in the old curriculum was to be found in the fact that students may enter the college without higher algebra or solid

geometry. A few years ago this was required of all students entering the college, but was abandoned because of certain agreements entered into by the University. Students who come to the University without these subjects must take them in the University before they can commence certain studies for which they are prerequisites. As a result of this delay, it became necessary to introduce many repeat courses so that many departments, the Department of Mathematics and Mechanics particularly, were duplicating all the courses of the first two years; some of them were given three times over. In the present curriculum, altho students may still enter the University without algebra or solid geometry, it is necessary for such students to register for six weeks during the summer session at the close of the freshman year if they intend to enter the sophomore class in the fall. In this way the repeat courses which were required on the old basis have been dropped.

Another change in curriculum is to be found in the first year which is given to all departments of engineering. The number of hours included in this curriculum has been too great for the student's good. These have been diminished. At the same time small changes have been made so that the first year offered in the College of Engineering and Architecture is practically identical with that in the School of Chemistry for chemical engineers with one exception, namely that chemical engineers must take a course in German. This will enable an engineering student in the University to postpone a decision as to his special province until the beginning of the second year if he so desires. During the later years of the course changes have been made to enable students to make a choice of certain options in the various departments of engineering and to choose certain electives. These options and electives have been more definitely outlined and will be supervised more diligently than in the past.

After some experience with the course known as General Engineering, we have found that the original intention of the course can not be carried out because of the great difficulty in its administration. Freedom of choice on the part of students has led to great abuse of the principles which guided those who first proposed the introduction of a general course. It was found that students who were not successful in the other departments of engineering sought to enter the General Course by transfer, and were usually no more successful in this course than they had been in the others. At a meeting of the faculty held late in the spring it was decided to abandon this course for the coming years. Students who are now in the courses as juniors will be continued during the coming year as seniors, sophomores will be urged to transfer to one of the other departments of engineering, and freshmen will not be permitted to register in this course. It is thought that the introduction of greater freedom in the choice of options and the privilege of electives will satisfy the requirements of freedom on the part of students in respect to the subjects which they wish to take, and at the same time will place them in some department in engineering where they will be in contact with a head of a department which could not be the case in the same sense with a course of General Engineering.

## EQUIPMENT

The College of Engineering and Architecture is in a very serious condition at the present time with respect to equipment. The funds in the past have not been adequate to take care of replacements, not to speak of the new needs in equipment. The great burden of students which came to us last fall made it necessary for us to spend considerable sums of money upon different items of equipment which represent service in the elementary classes only, and which include duplication of equipment already in our possession; such things, for example, as drawing tables, drawing boards, chairs, and equipment for elementary classes in the mechanical engineering shops and in electrical engineering.

On the other hand the equipment installed in the Experimental Engineering Laboratories to take care of the teaching of students in the upper years has certainly depreciated and must be replaced, and at the same time a very large amount of new and modern equipment must be obtained if any success is to be met with in teaching important branches of engineering.

At the present time the large engineering colleges in the country are laying great emphasis upon the development of industrial research. It must be admitted that the University of Minnesota has made scarcely a beginning along this important line. The laboratories are not equipped in any definite way to undertake important problems in which members of the staff might wish to engage, and finances are not adequate to carry out projects of this kind.

All over the country the important question concerning the coöperation of the technical schools of the University with industry is one which is receiving great consideration. I may mention the recent agreements which have been entered into by the Massachusetts Institute of Technology, the University of Michigan, and those which have been established for some time in the past at various places such as the University of Cincinnati, the College of the City of New York, etc. If the University of Minnesota is to develop the College of Engineering and Architecture, serious consideration must be given to the question of coördination between the University, certain state departments, and the various industries throughout the state, whereby satisfactory agreements may be made for the purpose of stimulating research in the University laboratories. This will probably involve the introduction of a plan of fellowships or scholarships, and possibly an arrangement whereby some kind of bureau of research may be established at the University.

In connection with state service I can not bring my report to a close without mention of a coöperation which the Civil Department of this college has been carrying on with the Highway Department of the state. During the past year very important service has been rendered by this station to the problem of good roads. It is hoped that next year this will develop into a very much more satisfactory relationship, and that the interest which now centers about the building of roads in this state, as well as in other states,

will lead to the establishment of courses in the Civil Department for the purpose of training engineers in this very important branch of civil engineering.

Shortly before the close of the school year I accepted the position as Hepburn professor of organic chemistry at Princeton University, which made it necessary for me to resign my position as dean of the College of Engineering and Architecture and of the School of Chemistry. It is with regret that I leave the University at this time, because the plan which the Board of Regents has inaugurated here concerning the association of technical interests of the University is one which I believe in thoroly. In my opinion it is one of the very important steps taken by the University toward coördination of separate and isolated units which exist in the University, and can not fail to bring about increased efficiency in the teaching work and greater success for those who are associated with the important task of training students in the various engineering branches.

Respectfully submitted,  
LAUDER W. JONES, *Dean*

# THE DEPARTMENT OF AGRICULTURE

*To the President of the University:*

SIR: I beg leave to submit the following report of the work of the Department of Agriculture for the fiscal year ending June 30, 1920.

## ORGANIZATION

No significant change in the administrative organization of the department was made during the year. The most significant development along this line was in the Agricultural Extension work where, as a result of the change from the war-time emergency work to the normal peace-time basis, it was possible to provide for more definite centralization of administration supervision than existed prior to the war. Contributory to this work, there was organized a State Federation of Farm Bureaus. This federation is in no way responsible to the University authorities, but maintains an office at University Farm and its officers work in closest harmony with the officials of our Agricultural Extension Service in developing the coöperative extension work in agriculture and home economics in the several counties of the state.

In this connection, it might also be mentioned that, during the past year, the offices of the State Horticultural Society were removed from Minneapolis to University Farm, and a member of the Agricultural Extension Service was elected as assistant secretary of the society, thereby providing for a closer correlation of the activities of these two agencies.

*Subject-matter groups.*—Early in the year, it was determined to postpone for a year, at least, the formal establishment of the Agricultural Engineering Group, mentioned in last year's report, and to continue the instruction, research, and extension work in this field as the Division of Farm Engineering. No other groups will be organized until the question of the organization of certain professional courses in science related to agriculture has been definitely settled.

*Administrative assignments.*—Because of the continued leave of absence of Dr. W. W. Cumberland, Dr. Black was continued as acting chief of the Division of Research in Agricultural Economics until January 1, when he was elected to the position of chief of that division. Later in the year the name of the division was changed to Division of Agricultural Economics, as more correctly representing the field of work covered. During the absence of Professor A. V. Storm on sabbatical furlough, Professor A. M. Field served as acting chief of the Department of Agricultural Education and Professor W. P. Dyer, as acting director of short courses.

*Changes in personnel.*—The following changes in the membership of the teaching and research staff of professorial rank occurred during the year.

*Resignations.*—C. P. Bull, professor of agronomy; R. O. Westley, assistant professor of agronomy at Crookston; Elizabeth Vermilye, assistant professor of home management; J. C. Cort, associate professor of dairy

husbandry; R. M. Washburn, professor of dairy husbandry; F. W. Peck, associate professor of farm management; H. W. Vaughan, professor of animal husbandry; G. R. Bisby, assistant professor of plant pathology; W. V. Gousseff, assistant professor of animal husbandry and dairying at Crookston; C. W. Gay, professor of animal husbandry and chairman of the animal industry group; E. O. Hanson, assistant professor of dairy husbandry; May Secrest, associate professor of home economics extension work.

*Leaves of absence granted during the year.*—Associate Professor W. W. Cumberland was continued on leave of absence for service with the War Trade Board until the end of the academic year, at which time he tendered his resignation from the University; Professor J. T. Stewart returned from service in the Engineering Corps of the United States Army on October 1, and was granted leave of absence for the remainder of the academic year, with the understanding that his connection with the University terminates at the close of the year; Professor A. V. Storm was on sabbatical furlough from March 1 to August 1, 1920, and Associate Professor Harriet Goldstein was on sabbatical furlough for graduate study during the third quarter.

*Appointments.*—

George Augustus Pond, assistant professor of farm management

B.Sc., 1918, University of Minnesota; Sanitary Corps, U. S. Army, 1918-19.

Grover Cleveland Matthews, assistant professor of beekeeping

Extension work in beekeeping, United States Department of Agriculture, 1917-18; instructor in public schools, Illinois, 1918-19.

William Horace Alderman, professor of horticulture

B.S.A., 1908, Cornell University; associate horticulturist, New York Experiment Station, 1908-11; professor of horticulture and horticulturist, 1911-19, director of research, 1918-19, acting dean of Agricultural College, 1919, University of West Virginia.

Harold Macy, assistant professor of dairy bacteriology

B.Sc., 1917, Cornell University; United States Army Laboratory School, Yale University, 1918; bacteriologist and chief inspector American Red Cross Sanitary Service, 1918-19.

Allan Barnes Rayburn, assistant professor of dairy husbandry

B.S., 1915, University of Illinois; extension specialist in dairy husbandry, University of Minnesota, 1918-19.

Joseph Rayburn Keithley, professor of dairy husbandry

B.S.A., 1908, M.S., 1911, University of Missouri; assistant in dairying, 1909, University of Missouri; junior dairyman, 1909-13, dairyman, 1913-14, Division of Dairying, United States Department of Agriculture; professor of dairying, 1914-20, North Dakota Agricultural College.

Holbrook Working, assistant professor of agricultural economics

B.A., 1915, University of Denver; M.A., 1919, Cornell University; Ph.D., University of Wisconsin; fellow in economics, 1919-20, University of Wisconsin.

Milton Henry Fohrman, assistant professor of dairy husbandry

B.S.A., 1917, M.A., 1919, University of Missouri.

Lucy Adelaide Studley, assistant professor of home management

B.S., 1911, Simmons College, M.A., 1920, Columbia University; instructor in home economics, Brockton, Mass. high school, 1911-17; extension work in home economics, Mass., 1917-19.

William Thorpe Tapley, assistant professor of horticulture

B.S., 1916, New Hampshire Agricultural College, M.S., 1920, University of Minnesota; graduate assistant in horticulture, 1917-20, University of Minnesota; Motor Corps, United States Army A. E. F., 1918-19.

*Promotions.*—John D. Black, from associate professor to professor and chief of the Division of Agricultural Economics; Clyde H. Bailey, from associate professor to professor of agricultural biochemistry; Julia O. Newton, from assistant state leader to state leader of home economics extension work, with the rank of associate professor; Harry J. Burtis, from instructor to assistant professor of rhetoric; Arthur L. Anderson, from instructor to assistant professor of animal husbandry; Cornelia Kennedy, from instructor to assistant professor of agricultural biochemistry; Ethel L. Phelps, from instructor to assistant professor of home economics; A. H. Larson, from instructor to assistant professor in agricultural botany.

### PUBLICATIONS

Two changes have been made in the method of publishing the results of the "productive scholarship" of the department, during the past year.

The first of these was the establishment of the series of papers known as the *Miscellaneous Contributions* from the Department of Agriculture of the University of Minnesota, in which are included all those articles which are prepared by members of the department and approved by the dean for publication in journals other than those of a technical scientific character which comprise the *Journal Series* of the experimental station. In this new series there are included all the more formal articles which are intended to be a contribution to knowledge of technic of teaching in the several fields of instruction covered by the work of the department; while the *Journal Series* includes the results of experiment station investigations, which are published in technical research journals.

The second innovation was the beginning of the publication of a series of circulars, giving in brief, condensed form information which is sought by large numbers of letters of inquiry which can be answered by a printed circular as satisfactorily and much more economically than by a long personal letter. The use of such circulars saves a considerable volume of personal correspondence.

During the year, members of the experimental-station staff submitted for approval for publication in the *Journal Series* a total of thirty-five articles which serve as reports of progress upon projects of investigation in the station. Sixty-two articles were approved for publication in the series of miscellaneous contributions. These journal articles constitute a large volume of publications from the department, in addition to the bulletins, reports, etc., listed below.

*Experiment Station Bulletins* nos. 183 to 192, comprising a total of 344 pages and 74,000 copies, were published during the year; and two bulletins, 112 pages and 20,000 copies were reprinted. Seven annual and special reports of progress of the work at the several stations and substations were also issued, comprising 324 pages and 13,500 copies.

No new *Farmer's Library* bulletins were printed; but two numbers were reprinted, 16 pages and 20,000 copies.

In the *Special Series*, five new bulletins (nos. 44 to 48, inclusive) were printed, a total of 84 pages and 65,000 copies; while four were reprinted, 72 pages and 40,000 copies.

*Circulars* 1 to 6 inclusive (20 pages, 78,000 copies), ten *Short Course* bulletins (110 pages, 72,900 copies), miscellaneous extension circulars (74 pages, 128,000 copies), and the *Farm Press News* (33 issues, 85,200 copies), comprise the miscellaneous extension publications dealing with agricultural and home-management problems, which were issued during the year.

REGISTRATION OF STUDENTS

The following table shows the registration of students in the Department of Agriculture for the year 1919-20, as compared with that for 1918-19:

	MEN		WOMEN		TOTAL	
	1919-20	1918-19	1919-20	1918-19	1919-20	1918-19
<b>I. COLLEGE OF AGRICULTURE</b>						
<b>Agriculture</b>						
Seniors .....	58	21	....	1	58	22
Juniors .....	72	34	1	....	73	34
Sophomores .....	67	37	....	1	67	38
Freshmen .....	145	45	....	....	145	45
Unclassed .....	8	9	....	....	8	9
<b>Total .....</b>	<b>350</b>	<b>146</b>	<b>1</b>	<b>2</b>	<b>351</b>	<b>148</b>
<b>Forestry</b>						
Seniors .....	3	3	....	....	6	3
Juniors .....	7	5	....	....	7	5
Sophomores .....	9	3	....	....	9	3
Freshmen .....	39	7	....	....	39	7
Unclassed .....	1	....	....	....	1	....
<b>Total .....</b>	<b>62</b>	<b>18</b>	<b>....</b>	<b>....</b>	<b>62</b>	<b>18</b>
<b>Home Economics</b>						
Seniors .....	....	....	59	50	59	50
Juniors .....	....	....	66	68	66	68
Sophomore .....	....	....	70	48	70	48
Freshmen .....	....	....	99	70	99	70
Unclassed .....	....	....	17	13	17	13
<b>Total .....</b>	<b>....</b>	<b>....</b>	<b>311</b>	<b>249</b>	<b>311</b>	<b>249</b>
War specials.....	9	....	....	....	9	....
Total college year.....	421	164	312	251	733	415
Summer session.....	34	21	94	115	128	136
<b>Total collegiate registration</b>	<b>455</b>	<b>185</b>	<b>406</b>	<b>366</b>	<b>861</b>	<b>551</b>
Duplicates .....	17	4	38	28	55	32
<b>Net total.....</b>	<b>438</b>	<b>181</b>	<b>368</b>	<b>338</b>	<b>806</b>	<b>519</b>

## II. SCHOOL OF AGRICULTURE

## Three-year course

Seniors .....	85	57	28	34	113	91
Juniors .....	134	100	47	37	181	137
Freshmen .....	382	190	91	47	473	237
Unclassed .....	238	26	....	2	238	28
Total .....	839	373	166	120	1005	493
Intermediate .....	10	....	3	....	13	....
Normal .....	....	....	9	7	9	7
*Discharged and wounded soldiers .....	....	34	....	....	....	34
Total of school registra- tion .....	849	407	178	127	1027	534

\* Included in regular school registration for 1919-20.

	MEN		WOMEN		TOTAL	
	1919-20	1918-19	1919-20	1918-19	1919-20	1918-19
III. SHORT COURSES						
Dairy School						
Adv. factory cheese- makers .....	3	....	....	....	3	....
Adv. creamery butter- makers .....	26	....	....	....	26	....
Creamery butter-makers..	59	15	....	....	59	15
Ice-cream makers.....	39	8	....	....	39	8
Milk-plant operators.....	7	....	....	....	7	....
Dairy short course.....	....	14	....	2	....	16
Total Dairy School....	134	37	....	2	134	39
Duplicates .....	14	3	....	....	14	3
Net total.....	120	34	....	2	120	36
Extension gymnasium						
Luther seminary.....	67	....	....	....	67	....
Extension swimming....	....	....	13	....	13	....
Extension swimming....	15	....	....	....	15	....
Gymnasium for St. An- thony Park boys.....	27	....	....	....	27	....
Gymnasium for station clerks and women of St. Anthony Park.....	....	....	10	....	10	....
Total extension gym... Duplicates .....	109	87	23	30	132	117
Net total.....	84	87	23	30	107	117

Vocational section S. A. T. C.						
First contingent.....	504	....	....	....	....	504
Second contingent.....	554	....	....	....	....	554
Third contingent.....	570	....	....	....	....	570
Total .....	1628	....	....	....	....	1628
Teachers' training school..	5	2	232	346	237	348
Consolidated school prin...	69	42	18	29	87	71
Grain elevator accounting and mgt. short course.....	7	15	....	....	7	15
Home nursing short course	....	....	85	110	85	110
Thresherman's short course...	39	....	....	....	39	....
Forestry short course at Itasca Park.....	12	....	....	....	12	....
Traction engineering.....	21	....	....	....	21	....
Boy scout short course at Itasca Park.....	19	....	....	....	19	....
Journalism short course....	....	3	....	3	....	6
*Total short courses.....	415	1814	358	520	773	2334
Duplicates .....	1	8	....	....	1	8
Net total.....	414	1806	358	520	772	2326
Total at University Farm	1719	2406	942	1013	2661	3419
Duplicates .....	50	25	46	44	96	69
Net total.....	1669	2371	896	969	2565	3350

\* It should be noted that only those short courses are included for which registrants pay fees to the University. This excludes a number of courses such as boys' and girls' week, editors' short course, and farmers' and home-makers' week.

	MEN		WOMEN		TOTAL	
	1919-20	1918-19	1919-20	1918-19	1919-20	1918-19
IV. NORTHWEST SCHOOL OF AGRICULTURE AT CROOKSTON						
Three-year course						
Seniors .....	18	7	10	5	28	12
Juniors .....	67	30	19	9	86	39
Freshmen .....	144	110	41	22	185	132
Total .....	229	147	70	36	299	183
Normal .....	....	....	....	15	....	15
Intermediate .....	....	....	2	....	2	....
Total School of Agriculture .....	229	147	72	51	301	198
Short courses						
Junior short course.....	93	69	89	54	182	123
Teachers' training.....	....	3	....	103	....	106
Total short courses....	93	72	89	157	182	229
Total Northwest School of Agriculture.....	322	219	161	208	483	427
Duplicates .....	....	....	....	2	....	2
Net total.....	322	219	161	206	483	425

## V. WEST CENTRAL SCHOOL OF AGRICULTURE AT MORRIS

Three-year course						
Seniors .....	13	8	10	6	23	14
Juniors .....	28	15	28	17	56	32
Freshmen .....	136	115	39	62	175	177
Unclassed (specials).....	....	....	2	....	2	....
Total .....	177	138	79	85	256	223
Intermediate .....	2	4	....	....	2	4
Total school.....	179	142	79	85	258	227
Short courses						
Junior short course.....	127	99	145	171	272	270
Teachers' training.....	2	....	47	70	49	70
Farm women's short course .....	....	....	74	71	74	71
Total short courses....	129	99	266	312	395	411
Total West Central School of Agriculture.....	308	241	345	397	653	638
TOTAL REGISTRATION						
Department of Agriculture	2349	2863	1448	1615	3797	4478
Duplicates .....	50	25	46	46	96	71
Net total registration.....	2299	2838	1402	1569	3701	4407

THE COLLEGE OF AGRICULTURE, FORESTRY, AND  
HOME ECONOMICS

*Administration.*—By agreement with the dean of the College of Education the plan outlined in the last annual report for registering all juniors who expect to obtain the University State Teacher's Certificate in that college, was postponed for one year becoming effective with the junior class of 1922-23.

During the past year the four and eight weeks' reports on all students have been replaced by one mid-term report at the close of the first six weeks of each quarter. This change was made to conform to the practice which has been generally adopted in the other colleges of the University.

The college has attempted to make courses at University Farm more available as electives for students in other colleges of the University. Special attention has been given to this with respect to courses in home economics. A brief and concise statement with reference to prerequisites to courses in agriculture, forestry, and home economics was prepared and printed and made available for students in other colleges who contemplate electing work at the University Farm campus.

The committee organization has remained unchanged with the exception of the Committee on Appointments. In view of the fact that applicants for teaching positions are amply provided for by the University Committee on Appointments, it seems desirable to abolish the college Appointment Committee with the provision that copies of recommendations for applicants will be filed with the dean's office. It is planned to supplement this record of applicants for teaching positions by obtaining from their major advisers

and others estimates of ability and qualifications of all graduates of the college. These will serve as a basis for recommendations for other positions than teaching.

*Curriculum, agriculture.*—The lines of specialization in agriculture have been replaced by a group elective system. The general requirements for all students, consisting of approximately half of the curriculum have been retained, with minor modifications. At the close of the sophomore year each student is required to select a major group, a minor group, and an adviser under whose direction he is expected to outline the balance of his course in accordance with the regulations adopted providing for the proper distribution of work between the major, minor, and other elective courses. It is expected that this plan will permit a greater opportunity to prepare for special lines of work.

In addition to the course in agriculture, an agricultural pre-business course has been arranged. This course provides for registration of students during their first two years in the College of Agriculture, Forestry, and Home Economics. During this period their course is practically prescribed and corresponds very closely with the general requirements for students in the agricultural course. Beginning with the junior year these students register in the School of Business; but with their preliminary work in agriculture they will be equipped to take such advanced work in agriculture as will be of special value in preparation for agricultural business.

Courses have been established in agricultural extension in affiliation with the Division of Agricultural Education. These courses provide for methods of organization of extension work and for actual field experience under the supervision of county agents. It is planned in this way to prepare men definitely for work as county agents and other lines of extension work.

*Curriculum, forestry.*—The forestry curriculum has been modified and reorganized along lines similar to the curriculum in agriculture. Four groups of courses have been established from which students may select their major field of work. The plans for the administration of this curriculum and for the curriculum in agriculture are identical.

*Curriculum, home economics.*—The home economics curriculum has not been materially altered altho it is definitely understood, and the bulletin for 1920-21 will carry an announcement to the effect that students desiring to prepare for special fields of work in home economics will be permitted to arrange for modification of the outlined curricula. This is in effect the opening of an elective system to those students who can outline a definite curriculum for any special purpose.

*Scholarships.*—A scholarship of \$500 per year has been provided by the Sharples Separator Company of West Chester, Pennsylvania, and has been accepted by the University. This is open to young women who have completed the work of the junior class. Its purpose is to encourage young women to make a study of the production of dairy products and their value as food and to equip them to engage in public service after graduation. There have also been established during the year, in accordance with the bequest of Caleb Dorr, the Caleb Dorr College Scholarships. These scholar-

ships, which will vary according to the income, will be offered to the students of the College of Agriculture, Forestry, and Home Economics and will be awarded on the basis of competition. The administration of these scholarships will be in charge of a special committee of the faculty, for recommendation to the dean of the department.

### THE SCHOOLS OF AGRICULTURE

The general problem of the future development of the secondary schools of agriculture, under the supervision of the University, which was discussed at some length in last year's report, continued to receive active consideration during this year. This question is one of those which the Board of Regents desired to have a report upon from the Survey Commission. Accordingly, a subcommittee of that commission has been appointed to consider this matter in all its aspects, and it is hoped that the commission may later be in a position to make a definite recommendation upon which the University may base its future policies in regard to the extension of the work of the schools of agriculture.

The following brief statements describe the more outstanding features of the work at the three schools during the past year.

#### THE CENTRAL SCHOOL AT UNIVERSITY FARM

The Central School of Agriculture has had the largest enrolment of students in its history. The total enrolment for the year is 1,027. A part of the increased enrolment is due to the return of students who left school to enter military service, or to work on farms to relieve others for such service. Another large part of the increase is due to the training of disabled soldiers under assignment from the Federal Board for Vocational Education. Nearly all of these men are residents of Minnesota, and are in regular school courses. They are planning to finish the regular curriculum and to receive the diploma of the school. Some of them would have taken the school work if the Federal Board for Vocational Education had not assigned them to it.

The work of all departments of the school was carried forward with greater efficiency than usual, hampered only by the serious epidemic of influenza during the winter term.

The presence of a number of adults in the school, as well as the re-application of the seventeen-year age limit for entrance, has had the effect of increasing the average age of students in the school. The average age at time of registration is twenty-one years. In some departments this increase in maturity of students has enabled instructors to give a higher grade of work.

The alumni and former students of the School of Agriculture are showing a commendable interest in the progress and welfare of the state by specializing in their farm operations and by engaging in community service. Reports from the work in the state show a large proportion of those engaged in general farming are specializing in one or more departments of livestock, or of pure-seed production. The community work done by the

graduates and former students, in the aggregate, is very great. They are leaders in coöperative enterprises, in organizing farmers' clubs and farm bureaus, and in church and general social work. The fact that service of this kind is expected of them when they go out into the state and that reports on it are made periodically, give an added impetus to the desire that is awakened and the inspiration given while the students are in attendance at the school.

The home project work is increasing in quantity, and through coöperation of class instructors, is becoming more closely related to the work taken in the school. At least four supervisors should be employed during the six months that projects are carried out on the farms, to give supervision. The work of a competent corps of supervisors visiting students in their homes, giving information, encouragement, and direction has great possibilities in making the school a still greater influence in the state.

#### THE NORTHWEST SCHOOL AT CROOKSTON

*Enrolment.*—The largest enrolment in the history of the school was reached during the present year with 301 in attendance, 229 men and 72 women. The problem of providing dormitory quarters was a very serious one even from the beginning of the fall term. After the first term it was necessary to have four students occupy one room, twenty rooms being thus used. A large number of rooms were occupied by three students. The completion of the new dining hall, which releases the first floor of Stephens Hall for dormitory purposes, will provide rooms for 44 additional boys, but it is obvious that additional dormitory quarters will have to be provided unless there is a limitation placed upon the resident enrolment.

The junior class numbered 86. Of this number, 80 have definitely signified their intention of taking up work as seniors. This number, a junior class next year of 120, and an average freshman class will increase the enrolment for next year to over 350. The junior short course enrolled 182,—89 boys and 93 girls.

*Work.*—As a whole the year that has just passed showed the best attendance, the most regular work, the best work and the best spirit in the history of the school. There was an enforced eight-day vacation on account of the influenza, but this period was made up again on the following Mondays and holidays. The normal training department was not continued on account of lack of funds. There is no summer session this year on account of change of policy of the state department with respect to summer sessions at Crookston and Morris. The home project work was successful, excepting that the heavy flood of last July interfered seriously with the grain, corn, and potato projects in the flooded areas. The Northwest School Farmers' Week meetings came at the time when the influenza epidemic was at its height and were therefore called off. The well arranged program had been prepared with the prospect of a record breaking attendance. The junior short course work was very successful from every standpoint.

The superintendent as president and the livestock man as secretary of the Red River Valley Livestock Association have been instrumental in securing funds for a \$60,000 livestock sales pavilion and exhibit barns, at Crookston. Through coöperation with county associations, with the farm bureaus, and with the various state associations, the livestock industry is increasing by leaps and bounds in the northwestern corner of the state. The members of the school staff met the usual number of extension appointments at meetings, picnics, and farmers' club programs. There is an increasing demand for this service.

*Improvements.*—The new dining hall will be completed during the summer months. The alterations in Stephens Hall providing additional dormitory rooms and health-service headquarters are eighty per cent completed. The contractor will complete the paved road from the school to the city by about September 1. Additional curbing has been installed in the campus streets and better drainage has been provided. New flower beds have been laid out and much necessary repair and betterment work which has been delayed on account of lack of funds is being done.

*Recommendations.*—A new addition to the boys' dormitory (Senior Hall) is needed.

The school and station needs additional funds to pay additional salaries and to secure at least two new instructors on full-time basis who will help meet the calls for extension work that come to this institution. A part-time instructor in farm marketing, land settlement and colonization, and rural aspects of taxation should be provided for this school. It is suggested that he divide his time between the schools at Crookston and Morris.

#### THE WEST CENTRAL SCHOOL AT MORRIS

The enrolment in the general session for 1919-1920 was 258 students. The largest previous attendance was 232. Including the short courses, 659 students were enrolled during the year. The following data from the enrolment statistics are of interest. Of the enrolment of 258 in the general session, 232 students came from farm homes; 78 students were girls and 180 were boys; the average age of all students was 18.4 years; 26 counties were represented in the enrolment; 138 students lived a distance of more than ten miles from a state high school, 60 students lived a distance of from five to ten miles from a state high school, and 60 students lived less than five miles from such a school.

Two new buildings were begun during the year, a dormitory for boys to accommodate 74 students and a classroom and laboratory building for the agricultural departments. Both buildings are of fire-proof construction with identical exterior architecture and will complete that group of buildings on the east side of the quadrangle. The dormitory will be ready for occupancy October 1, 1920 and the agricultural hall, January 1, 1921. These buildings will add much to the efficiency of the work of the school and greatly relieve the congestion in classrooms and laboratories. The school will have a dormitory capacity of 225 students when the new dormitory is completed. Last year the enrolment was

258 and an enrolment of 300 is anticipated for 1920-1921. The housing problem will continue to limit the number of students applying for admission. During the past year many students were unable to find desirable accommodations in the city of Morris and the enrolment was restricted because of this condition.

Of the Short Courses held during the year the Boys' and Girls' Club Week continues to draw the largest attendance with 281 enrolled this year. The Short Course for Farm Women held during the month of June is becoming more popular each year and more and more women are availing themselves of this opportunity of spending a few days in the form of a delightful vacation on the school campus.

The activities of the school off the campus were largely confined to home-project work with students on their farms and in their homes and to Boys' and Girls' Club Work. The home-project work is proving to be a very valuable adjunct to the classroom instruction and it should be extended as rapidly as possible. The Boys' and Girls' Club Work has been very effectively organized during the past year and with a club leader located at the school most gratifying results have been obtained. During the year many calls for speakers at farmers' gatherings have been filled and much Station correspondence has been cared for.

### SHORT COURSES

The usual program of short courses for the year was followed at University Farm, Crookston, and Morris except that the influenza epidemic made it necessary to omit the farmers' and home-makers' week at Crookston. The statistics of registration in these several short courses appear in a preceding section of this report.

There was a very noticeable increase in the interest and serious intent to make the best possible use of the opportunities for study and instruction offered at these short courses, on the part of the men and women who were in attendance this year, especially at the farmers' and home-makers' week meetings.

The following short courses were held at University Farm during the year:

Forestry for boys, at Itasca Park, four weeks in July; elevator accounting, one week in July; creamery butter-makers, two weeks in December; cheese-makers, three weeks in December; ice-cream makers, one week in December; dairy short course, eight weeks in January and February; farmers' and home-makers' week, December 29 to January 3; junior short course, the first week in April; home nursing, two lectures per week during April; editor's short course, one week in May.

The traction engineer's short course was abandoned, in order to permit the members of the staff to participate in the work of the land-clearing demonstration train, described in the report of Agricultural Extension work below. It appears that the instruction provided in the past by this particular short course can be better done by regular classes in the School of Agriculture, and it is probable that it will not be revived in the future.

## AGRICULTURAL EXTENSION WORK

During the year ending June 30, 1920, the Agricultural Extension Service had on its staff 25 men and 8 women for full time and 4 men for part time during the winter. From 80 to 82 county agricultural agents, 11 home demonstration agents, and 4 full-time and part-time club leaders were employed in the field. Eleven men and one woman, as well as the regular office force, were employed by the week during the winter for farmers' institute work.

*Sources of revenue.*—The following sources of revenue were available for the year 1919-20:

State appropriations for extension work in agriculture and home economics, to be expended only for agricultural extension work under the supervision of the Board of Regents of the University of Minnesota.....	\$ 30,000.00
State appropriation for farmers' institutes.....	20,000.00
State appropriation for county extension work in agriculture and home economics, to be expended under the supervision of the dean of the Department of Agriculture in sums not to exceed \$1,000 per county in any one year, and only in counties that have raised a like amount	86,000.00
Appropriations by county commissioners for county extension work in agriculture and home economics.....	156,089.00
Federal Smith-Lever funds to be expended under projects submitted by the director of Agricultural Extension approved by the States Relations Service of the United States Department of Agriculture.....	74,562.00
Supplementary Federal Smith-Lever funds to be expended under same conditions as regular Smith-Lever funds.....	37,247.00
Federal funds appropriated to the United States Department of Agriculture and used for coöperative extension work in Minnesota under the following projects:	
County agent and county-agent leader.....	\$7,500.00
Boys' and girls' club work.....	4,700.00
Farm management demonstrations.....	2,000.00
Cow-testing associations.....	1,800.00
Home economics extension work.....	1,500.00
	<hr/>
	17,500.00
	<hr/>
	\$421,398.00

*Publications.*—The extension division endeavors to carry its educational work to all the people of the state by the printed word. In this effort, it prints three series of bulletins, publishes and distributes the *Farmers' Institute Annual*, and maintains an active news service the aim of which is to distribute educational and news matter pertaining to agriculture in Minnesota through the newspapers, the farm journals, and all other periodicals reaching persons or organizations either intimately or remotely concerned with agriculture.

*Extension bulletins.*—Three series of extension bulletins are issued, the *Farmers' Library* series, the *Special* series and the *Circular* series. The *Farmers' Library* bulletins, usually from 8 to 10 pages in length, are published in editions of 75,000 and are sent immediately to a farmers' mailing list of about 53,000 names. The remainder of each edition is held to meet special requests. The *Special* series bulletins are not sent to persons on any regular list but each is distributed in order to meet some special demand. The *Circular* series bulletins are handled in much the same way as the

*Special* series, but are briefer in their discussions and used more for the purpose of answering questions such as are frequently received by the department.

The following bulletins in these various series were printed in the year 1919-1920:

*Farmers' Library* series, reprinted:

- No. 39. The Minnesota Seed Law, by E. M. Freeman and W. L. Oswald, 8 pp., 15,000 edition.  
 No. 63. Milk, a Cheap Food (a reprint of a Cornell bulletin), by Flora Rose, 8 pp., 5,000 edition.  
 No new *Farmers' Library* bulletins were printed.

*Special* series, new:

- No. 44. Cafeteria Standards and How To Attain Them, by Nola Treat and Lenore Richards, 8 pp., 5,000 edition.  
 No. 45. The Bread-Making Project for 1919-1920, by Mildred Weigley and Mrs. M. B. Baker, 16 pp., 15,000 edition.  
 No. 46. The Garment-Making Project, by Clara M. Brown and Edna R. Gray, 48 pp., 10,000 edition.  
 No. 47. The Pig Club Project, by L. H. Fudge and H. W. Vaughan, 4 pp., 10,000 edition.  
 No. 48. How To Fight the Dangerous House Fly, by W. A. Riley, 8 pp., 25,000 edition.

*Special* series, reprinted:

- No. 7. Quack Grass Eradication, by A. C. Arny, 16 pp., 15,000 edition.  
 No. 37. Belgian Hares as Meat Producers, by F. L. Washburn, 16 pp., 10,000 edition.  
 No. 39. Computing Food for an Average American Family, by Lucy Cordiner, 8 pp., 5,000 edition.  
 No. 29. Garden and Small-Fruit Insects and Their Control, by A. G. Ruggles and S. A. Graham, 32 pp., 10,000 edition.  
 No. 28. Contagious Abortion of Cattle, by C. P. Fitch and W. L. Boyd, 20 pp., 3,000 edition.

*Circular* series, new:

- No. 1. Perennial Sow Thistle, by Andrew Boss and R. C. Dahlberg, 4 pp., 50,000 edition.  
 No. 2. Valuable Bulletins and Circulars for the Dairy Farmer and the Manufacturer of Dairy Products, by C. H. Eckles, 4 pp., 5,000 edition.  
 No. 3. Fumigation of Greenhouses with Hydrocyanic Acid Gas, by William Moore, 4 pp., 3,000 edition.  
 No. 4. Seed Wheat for 1920, by A. C. Arny, 4 pp., 10,000 edition.  
 No. 5. Transplanting Evergreens, by G. H. Wiggin, 2 pp., 5,000 edition.  
 No. 6. Use of Vinegar Bee, by Lavinia Stinson, 2 pp., 5,000 edition.

Miscellaneous, new:

- Smut Treatment for Grain, by E. C. Stakman, 4 pp., 20,000 edition.  
 Treatment of Seed Potatoes, by Frank Frolik, 4 pp., 25,000 edition.  
 Seed Corn circular, 50,000 edition.  
 Seed Corn poster, 10,000 edition.  
 Soy-bean circular, 8,000 edition.  
 Land Clearing circular, 20,000 edition.  
 Land Clearing poster, 6,300 edition.

Miscellaneous, reprinted:

- Back to the Farm, a rural drama, by Merline H. Shumway, 48 pp., 5,000 edition.

Of the various bulletins, 64,314 were distributed during the year. Most of these were sent out in answer to special requests from farmers in Minnesota. Large numbers were used also by county agents and by high-school agriculturalists.

*Farmers' Institute Annual.*—*Farmers' Institute Annual* no. 32, dealing with the subject "Potatoes," was published in an edition of 40,000 copies and distributed at farmers' institutes and other farmers' meetings throughout the state. This annual is a book of 256 pages, 6 x 9 inches, profusely illustrated, and contains discussions of various problems of potato-growing, storing, and marketing.

*News service.*—The news service includes the publication of the *University Farm Press News*, the circulation of the *Weekly News Letter*, and the distribution of a large number of special news items. The *University Farm Press News* is a one-page, five-column sheet, issued semi-monthly, and sent to all newspapers published in the state, to libraries, county agents, high-school agriculturalists, and others who may aid in distributing the information it contains. This information is in the form of notes and short articles of timely agricultural interest, designed to be reprinted by the various periodicals which receive it. The *Weekly News Letter* is a mimeographed sheet giving that news of the University Department of Agriculture which the public will be interested in reading. This also contains matter which it is intended shall be reprinted by the newspapers. The special news items, in addition, are sent to publications to whose use they may be particularly adapted. An effort is made through this service to supply the demand of class or local publications for accurate information about problems worked out or results obtained by the University Department of Agriculture.

The extent to which the items distributed through the news service are used is almost incredible. The city dailies, country weeklies, farm journals, and other publications give the items sent out wide circulation. For example, in December 1919, something like fifty items were sent out through the *University Farm Press News*, through the *Weekly News Letter*, and by miscellaneous distribution. Each of these items was given a distribution through various publications to about 200,000 subscribers, or at a very low estimate, 600,000 readers. This means that if one item had been sent out and received a distribution equivalent to the sum of the distributions of the 50 different items, it would have gone to a total of 10,000,000 subscribers or 30,000,000 readers. That this is not an exaggerated estimate is clear when it is known that one farm journal with a circulation of about 120,000 printed in one issue 20 items sent out, giving the equivalent of a circulation of 2,400,000 for one item, or 7,200,000 readers.

*County-agent and farm-bureau work.*—Farmers of Minnesota are finding the county-agent and farm-bureau movement an institution of growing usefulness. This is most evident as the results achieved in 1919 greatly eclipse the accomplishments of 1918. The year of 1918 was a strenuous year of war activity, and the movement applied itself energetically to whatever agricultural activities were most important in their relation to the successful prosecution of the war. The year 1919 has been a year of

transition in which effort has been made to relate activities increasingly to what is most important in permanent agricultural methods.

It was hardly expected that the popularity of the movement and the demands upon it for service would have increased to such an extent in one year, but because a better understanding of the movement now obtains than existed when first introduced in so many counties, the fact that the results achieved in 1919 so greatly exceed those achieved in 1918 is not altogether so surprising.

The annual reports of the county agents of Minnesota when summarized cover in a broad way the general scope of activities of the movement for the year. It is especially interesting to make a comparison of corresponding results on the same project for the years of 1918 and 1919. The outline following in general makes such a comparison. Because of the somewhat changed character of work in 1919 as compared to 1918, data are not available in every case for the subject in question. The outstanding accomplishments of the year may be summarized as follows:

During the year a permanent plan of organization was perfected replacing the emergency organization established during the war. In particular the Farm Bureau Law passed by the 1919 session of the legislature created the basis of permanent financing and improved the administration of the movement. Every county, save three, readjusted the emergency organization and placed the movement on a permanent basis. Boards of county commissioners increased this support from \$1,000 per county to an average of approximately \$1,700 per year.

Farm-bureau membership in the state increased from 26,136 to 30,516 during the year. The Minnesota Farm Bureau Federation was perfected, with more than a majority of the counties affiliated at the outset. Practically all others express a desire to be affiliated at an early date. The state federation took part in developing the American Farm Bureau Federation.

Every county farm bureau is required by law to submit a program of work annually, which is an element of strength of the movement. These programs, when combined, are a valuable contribution upon which to base plans of action for the permanent betterment of farming and farm living in Minnesota.

Pursuant to the importance of livestock production in a system of more permanent agricultural development, livestock improvement activities have occupied a prominent place in farm-bureau effort.

During 1919: Eighty-one livestock breeders' associations were organized in 69 counties with a total membership of 2,331 breeders. Seventy-four county bureaus were active in various phases of livestock improvement with results as follows (1919 and 1918 compared):

	1919	1918
Registered bulls secured.....	1,234	674
Registered cows secured.....	1,979	2,479
Registered rams secured.....	169	105
Registered boars secured.....	896	562
Sires transferred from one locality to another.....	2,027	743
Balanced rations figured.....	1,049	379
Animals tested for tuberculosis (farm bureau cooperating).....	15,508	5,825
Animals treated for black leg.....	3,257	2,569

Hogs vaccinated for cholera by farmers or veterinarians (farm bureau coöperating)..... 81,694 21,473  
 Hogs vaccinated for cholera by county agents..... 4,807 11,282  
 Eighteen farm bureaus aided in conducting coöperative sales of pure-bred stock resulting in sale of \$413,454 worth of stock.  
 Drainage systems numbering 134, including 23,798 acres, were planned and adopted.  
 In 72 counties 1,462 farmers coöperated in planting 6,183 acres of alfalfa.  
 In 52 counties 384 farmers coöperated in planting 7,621 acres of sweet clover.  
 In 47 counties 3,478 farmers coöperated in planting 98,959 acres of other clovers.

Crop rotation systems planned numbered 267.

Soil tests for acidity numbered 650.

Limestone to correct soil acidity was applied to the extent of 1,122 tons.

The acreage of oats treated for smut control grew from 49,503 acres in 1918 to 208,831 acres in 1919, the number of farmers coöperating increasing from 1,542 in 1918 to 7,368 in 1919.

General office and field activities:

The acreage of potatoes planted with treated seed for disease control grew from 9,854 acres in 1918 to 44,837 acres in 1919, the number of farmers coöperating increasing from 1,503 in 1918 to 5,198 in 1919.

Soy-bean growing was introduced on 1,108 farms, 9,137 acres being planted.

Spraying, pruning, or planting demonstrations were conducted in 305 orchards.

Sixty-two counties promoted farm accounting, 12,349 account books being placed in the hands of farmers, 2,219 being assisted in summarizing their records.

The farmers of the state were furnished with 8,006 farm laborers through the labor service of 72 county farm-bureau offices.

Eighteen national farm-loan associations were organized and put in active operation.

Twenty-one new coöperative livestock shipping associations were organized by 12 farm bureaus.

Forty-eight counties issue a monthly exchange list carrying items wanted and for sale within the county.

The volume of business done for the year by all coöperative agencies organized during the year or fostered previously by farm bureaus totals 8,925,500 in which a saving was affected amounting to \$380,462.

The farm bureaus report organizing 547 boys' and girls' clubs with a membership of 6,197.

General office and field activities:

	Results in 1919	Results in 1918
Different farmers visited on their farms.....	22,411	19,257
Total farm visits made.....	39,570	33,668
Office calls relating to work.....	96,404	71,671
Meetings held under farm-bureau auspices.....	4,746	3,161
Attendance at such meetings.....	225,902	
Agricultural articles written by agents.....	8,480	5,401
Letters mailed.....	137,081	114,354
Total circulation circular letters.....	523,160	280,120

The demonstration work covers a broad field of effort including seed-corn selection, testing, growing corn for silage, variety tests of grain; smut control of grain; potato selection; potato-disease control; and clover-growing; orchard and garden improvement; cow-testing organization; feeding; hog pasturing; silo construction; hog cholera and black-leg control; poultry-culling; drainage; fertilizer tests; liming; weed control; sunflower silage; insect control; rodent and animal-pest control; and purchasing and marketing. The county agents report a sum total profit from demonstration

work of all kinds in 1919, amounting to \$1,302,658, which in itself is a benefit three times greater than the annual cost of the entire farm-bureau movement in the state.

*Demonstration farms.*—The division continued its supervision over 10 demonstration farms until April 1, 1920, when the work was permanently discontinued. The reason for dropping the work was largely a feeling that not enough people were reached by the work to justify the expense. The work has been eminently successful in demonstrating beyond any question that the better farming methods advocated by the Minnesota agricultural college and experiment station can be applied under actual farm conditions, and that when applied reasonable profits may be secured.

A careful inventory is taken at the beginning and close of each year, an accurate account is kept of the transactions of each farm, and an annual report covering the business of each farm is made each year. These reports are published locally and are discussed at local farmers' club meetings.

The following table shows the investments and labor income made on each farm for the year 1919.

LABOR INCOMES OF MINNESOTA DEMONSTRATION FARMS, 1919

	ACRES	LAND VALUE	WORKING CAPITAL	TOTAL CAPITAL	INTEREST AT 5 PER CENT	LABOR INCOME
Bagley .....	155	\$ 4,800.00	\$ 4,199.35	\$ 8,000.35	\$ 449.97	\$ 3,097.73
Carver .....	268	18,000.00	11,832.00	29,832.00	1,491.60	4,853.91
Dawson .....	160	16,200.00	10,440.00	26,640.00	1,332.00	3,333.12
Fairmont .....	200	29,500.00	9,784.75	39,284.75	1,964.24	3,407.05
Fergus Falls.....	310	27,950.00	29,944.00	57,894.00	2,894.70	5,765.31
Little Falls.....	120	11,000.00	5,581.88	16,581.88	829.09	2,181.58
New Prague.....	117½	20,606.25	9,122.25	29,728.50	1,486.43	1,908.01
Park Rapids.....	400	18,000.00	10,223.25	28,223.25	1,411.16	3,374.89
Thief River Falls	160	7,200.00	6,808.75	14,008.75	700.09	1,336.37
Wadena .....	160	8,600.00	6,177.10	14,777.10	738.86	2,117.19

*Farm-management demonstrations* have been continued, but with some modification. Farm-management surveys have received very little attention because of the present abnormal conditions as to prices and costs. Effort has been directed rather toward farm accounting, better systems of leasing farms, aid to farmers in making income-tax returns, educational work in farm management through short courses, farmers' institutes, farmers' clubs, and other meetings. A particular study has been made of the seasonal trend of prices for farm products, and also of the cost of operating farm tractors. Coöperative wool-marketing has been encouraged.

All of this work has been promoted in coöperation with county agents and county farm bureaus, and effort is constantly made to keep county agents informed along all farm-management lines so that their efforts may be most effective.

*Local demonstration material.*—We feel that in the future a large part of the farm-management program of county farm bureaus should consist of an effort to gather and disseminate figures that show the financial results on several well-managed farms and the methods that produced the results. In addition to figures showing the financial results as a whole, it is desirable to have feed records or estimates for each class of livestock and also detailed estimates or records as to the cost of producing important cash crops. The following counties are making a beginning in this line of work: Hubbard, Wadena, Otter Tail, Clay, Koochiching, and Becker.

STATISTICS OF FARM-MANAGEMENT DEMONSTRATION WORK CONDUCTED DURING THE YEAR

Short courses:	
Number of sessions.....	103
Attendance .....	5,323
One-day farm-management schools:	
Number of sessions.....	23
Attendance .....	574
Farmers' club meetings:	
Number attended.....	10
Attendance .....	941
Distribution of extension division farm record books:	
Books sold to banks and farm bureaus by private printer.....	23,000
Books sold by University Farm Bookstore at 25 cents per copy.....	500
Price trends:	
Circular letters to county agents, giving information as to the seasonal trends of leading products.....	6
Farm papers published foregoing letters.....	2
Cost of operating tractors:	
Number of general farms upon which cost of tractor operation was summarized .....	34
Number of farms upon which cost of breaking popple land with tractors was summarized.....	8
Circular letter to county agents relative to cost of operating tractors....	2
Farm papers publishing foregoing letters.....	1
Better farm-lease methods:	
County meetings of landlords.....	1
Attendance .....	21
Rented farms represented.....	100
Circular letters to county agents on leasing.....	1
Farm papers publishing same.....	2
Letters giving assistance on lease problems (estimate).....	20
Fair-judging:	
Number of fairs attended.....	12
Income-tax work:	
Circular letters to county agents.....	4
County agents met in conference or individually (estimate).....	70
Local demonstration material:	
Number of counties coöperating.....	7
Wool-marketing:	
Assisted in organizing coöperative wool-marketing associations.....	20
Attendance at such meetings.....	320
Circular letters to county agents in connection with wool-marketing.....	6

*Boys' and girls club work.*—During 1919 and 1920 boys' and girls' club work was part of the agricultural extension program in every county of Minnesota.

*Short courses, educational trips, etc.*—Three special short courses were held for club members and club leaders at University Farm, Morris, and Crookston with a total enrolment of nearly 800.

Six hundred and seventy-five club members, county champions in the different projects, were given free educational trips to the State Fair or to the State Horticultural meeting.

A new event and one of the most important of the year, was the Junior Livestock Show at South St. Paul in November, to which 224 winners in the calf, lamb, and pig contests were given free trips by the Minnesota Livestock Breeders' Association.

*Demonstration work.*—The individual and team demonstrations have been emphasized as they were last year. The training of at least one demonstration team for every club has been urged by club leaders. As a result of this effort 350 canning demonstration teams were organized and trained with more than 700 public demonstrations in canning fruits, vegetables, and meats by the members of canning clubs. Three hundred bread demonstration teams gave 650 demonstrations in the making of yeast breads and quick breads. Many teams have been trained for demonstration work with corn, poultry, and potatoes. The majority of county fairs had these live demonstrations by club teams. They have also been features at poultry shows, district fairs, and club-achievement days. At the State Fair 54 teams gave demonstrations the entire week in canning, bread-making, corn and poultry work. Several teams and individuals demonstrated these kinds of club work at the State Horticultural Society's annual meeting at St. Paul. The State Educational Association devoted parts of several sectional programs to these club demonstrations. The state champion canning team represented Minnesota at the interstate contest at Sioux City, Iowa.

Boys' and girls' club work in Minnesota has been carried on under eleven different home and farm projects as indicated below.

Corn club project, potato club project, home-garden club project, home-canning club project, poultry club project, baby-beef club project, pig club project, dairy-calf club project, sheep club project, bread club project, sewing club project.

## SUMMARY OF WORK FOR 1919

Clubs organized.....	1,273
Total state enrolment.....	20,437
Total members reporting.....	13,034
Value of all products by members reporting.....	\$365,869.63
Cost of production.....	\$135,512.68
Net profit to members reporting.....	\$230,356.95
Demonstrations given by club members.....	4,818
Attendance .....	143,039
Demonstrations given by leaders.....	863
Attendance .....	69,234
Number demonstration teams trained.....	617
Number of standard clubs.....	145

*Coöperating agencies.*—In Minnesota, club leaders generally feel that the successful reports secured in boys' and girls' club work are largely due to the close coöperation of organizations, public institutions, and individuals interested in young people. Among the agencies coöperating are the public

schools, farm bureaus, county agents, home-demonstration agents, state and county-fair associations, the Minnesota Livestock Breeders' Association, the State Horticultural Society, farmers' clubs, commercial clubs, and many individuals.

*Extension work with women.*—During the first part of the year, the work of the state specialists was carried on as in previous years. This consisted of assisting at county fairs and in speaking and demonstrating at farmers' clubs, women's clubs, and similar organizations. When called upon, the state specialists coöperated with county agents—either agricultural or home demonstration—in putting on definite programs of work. The desire of the specialists to carry on specific projects with certain groups of women for a certain length of time resulted in a change of policy. Instead of being entirely subject to calls from any place, at any time, for any subject, each state worker headed up the project or projects for which she was best equipped. The following were the major projects: food, health, clothing, household management and organization. In addition to the assistance given the county- and urban-home demonstration agents, arrangements were made with six county farm bureaus having agricultural agents but not home-demonstration agents, so that one project has been carried on in from three to six communities in each of these counties. The selection of projects was as follows: clothing in Koochiching and Clearwater counties; health in Cass; food in Meeker; home conveniences in Waseca and Wadena. Plans were laid for the carrying on of the work in Beltrami County, but they had to be deferred on account of the prolonged absence, and later the resignation, of the agricultural agent, and the considerable lapse of time before a new agent could be secured. The work will be taken up in July. As a clothing specialist could not be secured for year-round work, two part-time workers were secured, one of whom carried the work in Koochiching and Clearwater counties, and the other assisted the home-demonstration agents in clothing classes. The state leader resigned March 1, and was succeeded by the assistant state leader. The household-management specialist was granted a year's leave of absence beginning January 1, 1919.

In addition to this organized work, there has been sufficient time to fill all the miscellaneous calls for assistance at single meetings. On account of the depletion of the state staff, an extra worker was employed during short course and farmers' institute season.

*Home-demonstration agents.*—During the year, home-demonstration agents have been employed in the following eight counties and three cities: Anoka, Clay, Dakota, Hennepin, Morrison, Olmsted, St. Louis, Stearns, Duluth, Minneapolis, and St. Paul. In accordance with the Farm Bureau Law enacted by the Minnesota legislature, April 24, 1919, the home-demonstration work was taken over by the farm bureau in each county. This step put the work on the right basis and is helping to effect more permanent organization. The coöperating bodies in two of the three cities where work is being carried on are the peace-time organizations which succeeded the Woman's Committee of the National Council of Defense. In the third city, the recreational department and the school board coöperate in carrying on the work.

The agents are giving more and more time to organizing community groups for carrying on specific projects. Points of contact were made in the early months of the work, and now organization for securing permanent positive results is realized to be fundamental. The general public is coming to realize that the home-demonstration work is more than a war-time food-saving movement. The knowledge is spreading that home problems are as vital to the development of better agriculture as any of its more commonly recognized phases. In another year, the agents will be able to show some of the value of the work in facts and figures, dollars and cents. The fact must always be emphasized that the best things of home can not be reckoned in cold facts and figures.

*Projects.*—*Food:* The main phases emphasized during the year were food production, food preservation, nutrition, and the rural hot lunch. Three hundred and seventy meetings were devoted to this project with an approximate number of people reached of about 18,484.

*Health:* Simple home nursing, the handling of emergencies, home-made devices for the care of the sick and of the baby were given special attention. There were 179 meetings with a total attendance of 7,713.

*Clothing:* This project covered the following main points: renovation and remodeling, simple standards for judging clothing and household fabrics, alteration of commercial patterns, short cuts in sewing and millinery. In 233 demonstrations 11,233 women were reached.

*Household management:* Strong interest was shown in these phases of this project: home conveniences ranging from simple home-made devices to water and sewage systems, arrangement of the working area, planning and scheduling the house work, household accounts and the budget. Home-study automobile tours in different communities have proved a splendid way to get both men and women interested in home improvements. In 268 meetings 11,223 people have been helped.

*Organization:* The need of a permanent organization starting with the community and working up to the county farm bureau, which in its best sense means the development of farm home and community, has made the organization project a vital one. In 119 meetings, discussions were held with 6,121. More important than meetings, however, have been the conferences with one or more local or county leaders whose development is so necessary to real success.

*Community activities:* Community sings, recreation, organization of clubs, farm-bureau and community picnics have helped show the value of the work by linking the home more closely with the community interests. In 212 meetings an attendance of 14,684 is shown.

*Boys' and girls' club work:* Where club agents have not been possible in counties, the agents have assisted in organizing, supervising, presenting subject-matter, training demonstration teams, and checking up the bread, canning, and sewing projects. In several instances, help has also been given in those projects which primarily include the boys' work, as pig, corn, etc. One hundred and sixty-six meetings show 5,465 reached.

Miscellaneous: Many other related subjects have called for the attention of both state workers and home-demonstration agents. As these were either minor projects or cases of individual calls for information, they are grouped under a common head. In 164 meetings or conferences 6,674 people were reached.

*Livestock and dairy extension work* has developed during the past year along several lines, the work being carried on in connection with the United States Department of Agriculture, the Minnesota Livestock Breeders' Association, the Minnesota Dairy Council, the Minnesota Central Coöperative Shippers' Association, boys' and girls' club work, and various other agencies such as farm bureaus, state breed and breeders' associations, and county organizations.

The animal-husbandry work has included the development of boys' and girls' livestock clubs, particularly baby-beef calf club organizations, which started in the year 1918 in coöperation with the Minnesota Livestock Breeders' Association and boys' and girls' club work. In 1919 the second annual baby-beef show was held where the three highest winners from each county contest were exhibited. About 600 calves were on feed in the various counties and approximately 90 of the choicest calves in the state were on exhibition, where \$6,000 was expended for prizes and expense to stimulate interest in better feeding and care on the part of the contestants.

The boys' and girls' livestock-judging work was promoted in 25 counties, and dairy-judging work in 15 counties, with a total of approximately 700 contestants. The winners attended state contests, financed by the State Livestock Breeders' Association, but under the supervision of this office. Dairy-calf club work is now being promoted by the various agencies mentioned. The state show will be held under the direction of the livestock section of the Extension Service. The junior livestock show will also include an exhibition of hogs and sheep fed by juniors throughout the state.

The state breed and breeders' associations are given special assistance in developing the livestock industry. Nine such associations lined up to hold their annual meetings at University Farm during the home-makers' week. Programs are arranged quite largely by this office. This assists in keeping thousands of farmers in close touch with the activities of the agricultural college.

Judges of livestock have been supplied for nearly all county fairs in the state through the Extension Service, with the assistance given by the dairy and animal husbandmen of the college.

Minnesota is the leading coöperative shipping association state in the Union, with approximately 500 associations, which represents about 70 per cent of the livestock in Minnesota marketed at South St. Paul. This work was organized and has been promoted by the extension division, which was responsible for the organization of a state association that acts as a clearing house for the local organizations of the state. The officers of this association were responsible in putting the stockyards at South St. Paul and other

agencies there under the supervision of the Railroad and Warehouse Commission, which makes this the only market in the world where such regulations are found. Assistance is also given to the organization of new associations and the rebuilding of old ones.

Coöperative wool-marketing has been receiving considerable attention through the efforts of county agents and the assistance given by this office. It is estimated that there should be a saving of approximately 5 to 8 cents per pound by marketing through these organizations.

The introduction of more efficient and better livestock, including pure-bred sires, has been a leading feature in livestock extension work by assisting the county agents in organizing county breeders' associations and developing plans for a pure-bred sire campaign in the various counties. A livestock specialist is now devoting his time to the problems of more economical feeding and the introduction of pure-bred sires.

In coöperation with the United States Department of Agriculture, Dairy Division, a dairy specialist has been employed to organize and stimulate the growth of cow-testing associations in the state of Minnesota. Due to war conditions and the inevitable shortage of testers, the number of associations decreased from 25 to 13. Altho satisfactory testers are still hard to procure, the list of cow-testing associations is nearly normal. We feel that this project is well worth while, as it is possible to instruct small groups of men in practical and profitable dairy feeding and herd management under ordinary farm conditions. A booth setting forth results of the cow-testing associations in the state was maintained at the State Fair. This work has been greatly hindered because of the lack of testers, but this could be remedied by making it possible for a college man to work after his junior year in an association for one year, keep records, etc., and procure a reasonable number of college credits for his work. This would give the student practical experience in dairying and coöperation, and at the same time introduce the more intensive methods of dairying on farms which might not otherwise be reached. We recommend that some such system be worked out.

In coöperation with the Minnesota Forest Fires Relief Commission, pure-bred dairy sires have been introduced into northeastern Minnesota. Over 50 sires were placed in this section the past year, and these communities have since been organized into breeding blocks and bull associations. This office has also extended this work to much of the surrounding territory and assistance has been given to the breeding associations which were previously organized.

Dairying is one of the most important industries of Minnesota and, therefore, marketing problems are of great importance. The Minnesota Dairy Council has been organized through the efforts of the Livestock Extension Service for the purpose of putting on advertising and educational campaigns for the greater use of dairy products. The dairymen are raising a fund to employ special talent to put on educational campaigns and to place a liberal amount of advertising before the consumers.

*Coöperative creameries.*—The work of the coöperative creameries and cheese factories during the past year has been directed with the purpose of bringing about greater local coöperation. The work begun last year of organizing county coöperative creameries associations has met with much favor. Seven counties now have county associations and many more are preparing to organize. Two of the leading counties in the manufacture of cheese have organized.

This work promises splendid results by bringing about the manufacture of a more uniform product. It will also make possible the shipment of butter and cheese to eastern markets in car-load lots.

During the year, 50 coöperative creameries were visited to assist in improving local conditions. Fewer coöperative creameries in the state are seriously in need of help at the present time than ever before, due to the growing prosperity and success of this system. Four associations were assisted in organizing.

Monthly communication by letter has been carried on with all the coöperative creameries and cheese factories in the state. Data on the business of the coöperative creameries and cheese factories, dealing with the amount of butter-fat received, price received for butter and cheese, and price paid patrons for butter-fat, have been compiled and distributed monthly. These monthly statements give information to the secretary of every coöperative creamery and cheese factory in the state, which makes it possible to compare the business of the local creamery or cheese factory with the best in the state and the average of the state.

During the past year the coöperative creameries received the highest price for butter that they have ever received and paid the farmers the highest price for butter-fat they have ever paid. The average net price received for butter during the year was between 55 and 58 cents a pound. The average net price paid the farmers for butter-fat during the year was 65 cents a pound; the best coöperative creameries paying as high as 70 cents as an average price for the year. It is estimated that the 643 coöperative creameries in the state sold between fifty-five and sixty million dollars worth of butter during the past year.

The coöperative cheese factories received an average price of between 27 and 29 cents a pound for cheese and paid the farmers an average price of 75 cents a pound for butter-fat in milk; the best cheese factories paying as high as 80 cents, or \$2.80 per 100 pounds for milk.

The work with the coöperative creameries and cheese factories shows that a much wider field of activity along this line could result in great value. Methods of manufacture and marketing are changing and there are new avenues opening for dairy products. The coöperative creameries and cheese factories welcome and desire assistance on the part of the state to meet the new situation.

*Short courses.*—During the winter of 1919-20, 27 three-day short courses were held in coöperation with the county agents in the counties interested.

The special topics considered related principally to home conveniences and home nursing for the women, and farm management and livestock work for the men.

The total attendance was 12,313, of which 7,696 were men and 4,617 were women. The influenza epidemic caused the cancelling of two courses and lessened the attendance greatly at several others.

This year less advertising material was sent from this office. The county agents are taking the leadership in advertising and arranging for the courses. This office furnishes the leaders and speakers requested in so far as it is possible to do so.

During the last eight years over 245,000 persons have attended the 239 courses that have been held.

*Horticulture.*—The specialist in horticulture has been holding pruning and spraying demonstrations in coöperation with several county agents, judging fruits and vegetables at state and county fairs, and endeavoring to get more people interested in home gardening through-out the state. During the winter he acted as secretary of the State Horticultural Society and edited the monthly magazine, *The Minnesota Horticulturist*.

*Poultry extension work* for the past year has been conducted along five lines; conservation of poultry products, production, improvement, organization, and education.

*Conservation.*—The effort has been made to maintain the quality of Minnesota eggs and prevent breakage in transportation. The "good egg law" passed at the special session of the legislature requires that dealers in eggs shall buy on a quality basis. Bulletins and posters have been sent to merchants over the state and talks have been given before merchants and produce dealers as to the intent and purpose of the law. Conferences have been held with officials of railroad systems as to the best method of handling eggs to prevent breakage.

The creameries are becoming more and more interested in handling the eggs for their patrons, and at present over thirty are successfully handling products. Instructions have been sent as to the best manner of conducting the business. Creameries have been visited and conferences held with the boards of managers.

*Production.*—The aim has been to increase the average yearly egg production per hen in Minnesota by better breeding, feeding, housing, and selection of stock.

Farmers' clubs have been visited and these subjects have been presented at short courses and farmers' institutes.

State and government bulletins and circulars have been sent as requested, to the number of 25,000.

An average of twenty letters per week has been answered touching all phases of the poultry culture. Timely articles have been furnished the press.

*Demonstration community.*—Progress has been made in the poultry demonstration at Barnum. Facilities for hatching and brooding have been greatly increased, many new poultry houses have been constructed, and a farmers' coöperative produce company organized. This company is handling poultry feed for a large area in northern Minnesota. The prosperity has attracted the attention of many other communities in the state. As a result,

other communities have purchased Barnum stock and are aiming to attain the same degree of success. Weekly articles have been furnished the local paper.

Visits to Barnum .....	12
Visits to Walker .....	4
Visits to Pine River .....	3

Poultry culture as practiced at Barnum is spreading over the country, and poultry meetings were recently held in fifteen communities in Carlton County.

Culling demonstrations were given in coöperation with county agents and officers of poultry associations. Twenty-one counties were visited.

*Improvement.*—The liberal appropriations by the state to pay premiums at poultry shows have resulted in great improvement of the farm flocks in standard-bred qualities. Seventy-five associations are now receiving aid to the limit of \$400 per county. Circulars of instructions regarding arrangement and care of poultry exhibits have been sent to officers of poultry associations and officers of county fairs.

*Organization.*—Five new poultry associations have been organized. *Monthly Poultry Association News* has been sent to all poultry associations, county agents, and farm and county publications.

*Farm-club report.*—During the war many clubs became more or less inactive, but the last year finds a revival of many old clubs and the organization of a large number of new ones.

Many counties have been visited and from four to ten days given with the county agent to club work. A farm-club paper has been printed monthly, carrying news to the clubs. More and better farm-club exhibits were put on at county fairs than ever before, several counties exhibiting for the first time. Wadena, Stevens, Isanti, Martin counties each put on thirteen club exhibits at the county fair last year, the largest number ever put on by one club at one time. This year Martin County clubs will put on the county exhibit at the State Fair.

One hundred ten pennants have been given to University Farm for use in decoration by 110 farmers' clubs. These will be used to decorate the farmers' club booth at the State Fair.

Most of the clubs bought liberty bonds and contributed largely to Red Cross work. One club gave over five thousand dollars to the Red Cross.

The clubs have assisted very much in the organization of the farm bureaus. They are the means through which many of the best projects have been carried on, and afford an excellent opportunity for the county agent to reach its people in groups.

The clubs are gradually developing leadership among the people—a thing so much needed.

The clubs are making progress in many ways and a very much worthwhile work is being done.

*Plant pests.*—Work in plant pathology has been enlarged to include all plant pests. One man has devoted full time to the work. Special effort toward the control of grain smuts has continued. This work has been the

foundation of the present potato-seed certification, and naturally has been conducted in close coöperation with the potato-seed certification board.

All of this work has been done in close coöperation with county agents and county farm bureaus. Every effort has been made to reduce the loss to Minnesota's crops from diseases and pests, by means of demonstrations on farms before groups, by farmers' clubs and short-course meetings, and by means of general publicity.

*Soils.*—Extension work in soils has been continued throughout the year under the following heads.

1. Conclusion of the phosphate project in southeastern Minnesota.
2. Phosphate project on mineral soils in Pennington County.
3. Use of fertilizers, manure, and legumes on sandy soils at Nickerson.
4. Use of phosphate in Chippewa and Kandiyohi counties, in coöperation with county agents.
5. Peat-demonstration plots, including use of manure and phosphate with different crops in northwestern part of the state.
6. Continued observation of the effect of lime on alfalfa in southeastern counties.
7. Use of fertilizers with sugar beets at Chaska, Arlington, and Glencoe.
8. Use of fertilizers on potatoes in Clay, Wadena, Kanabec, Mille Lacs, Sherburne, Isanti, Anoka, Ramsey, and Hennepin counties.
9. Short courses, institutes, and farmers' clubs.
10. Correspondence.

The work in Nickerson has continued to show the necessity of liming for both alfalfa and sweet clover, good yields of the former being secured with lime and no winter killing experienced. Without liming it has been a complete failure.

The demonstration work on peat soils conducted in coöperation with the county agents of Kittson, Roseau, Beltrami, Marshall, Pennington, Pope, Clearwater, and Becker counties was greatly interfered with by the July floods which destroyed most of the crops. In most cases, however, the difference in growth up to that time was sufficient to show that the initial chemical requirement of these peat soils is in general phosphate only, and that this may be supplied either in the form of stable manure or of acid phosphate. Several car loads of phosphate are this season being used by the co-operators of 1919 and their neighbors.

*Land-clearing demonstrations.*—The St. Paul Association and the Minneapolis Civic and Commerce Association appropriated \$5,000 to the Agricultural Extension Service to provide for the operation of land-clearing demonstration in Minnesota. The Minneapolis, St. Paul and Sault Ste. Marie, the Great Northern, Northern Pacific, and Minnesota and International Railway Companies, furnished the train and moved the train and equipment from place to place free of charge. The La Plante Choate Manufacturing Company, Cedar Rapids, Iowa, the A. J. Kirstin Company, Escanaba, Michigan, the Martinson Stump Puller Company, Wrenshall, Minnesota, the Cleveland Tractor Company, Duluth, Minnesota, the Hercules Powder Company, Newark, New Jersey, the E. I. Dupont de Nemours

Company, Wilmington, Delaware, furnished the explosives and stump-pulling equipment and also an expert demonstrator to operate each outfit. The University, with the funds contributed by St. Paul and Minneapolis, furnished meals for a full crew, paid railway fares, and paid men to serve as helpers with all outfits.

Professor William Boss of the engineering division devoted a great deal of time to getting the equipment ready and in directing the operations of the train for part of the time. Mr. M. J. Thompson of the Duluth Substation relieved Professor Boss by taking charge of the train part of the time.

The train made 24 stops in northern Minnesota as follows:

Milaca .....	Tuesday .....	May 18
Ogilvie .....	Thursday .....	May 20
Hinckley .....	Saturday .....	May 22
Wrenshall .....	Monday .....	May 24
Floodwood .....	Tuesday .....	May 25
Grand Rapids.....	Wednesday .....	May 26
Deer River.....	Thursday .....	May 27
Cass Lake.....	Friday .....	May 28
Solway .....	Saturday .....	May 29
Blackduck .....	Monday .....	May 31
Northome .....	Tuesday .....	June 1
Little Fork.....	Thursday .....	June 3
Guthrie .....	Saturday .....	June 5
Leonard .....	Monday .....	June 7
Hackensack .....	Wednesday .....	June 9
Pequot .....	Friday .....	June 11
Aitkin .....	Saturday .....	June 12
McGregor .....	Monday .....	June 14
Federal Dam.....	Wednesday .....	June 16
Swatara .....	Thursday .....	June 17
Moose Lake.....	Saturday .....	June 19
McGrath .....	Tuesday .....	June 22
Wahkon .....	Wednesday .....	June 23
Hillman .....	Friday .....	June 25

The train was well advertised and well patronized. About ten thousand people saw the demonstrations. In addition to the educational features which were very much worth while, the train gave opportunity for a great deal of publicity to land-clearing, and furnished an inspiration for greater effort in land-clearing.

### THE EXPERIMENT STATION

*The Central Station.*—The best comparison of the activities of the experiment station can be made by a brief statement concerning the projects on which work is being done. Investigations on 114 projects are actively in progress. Of these, 64 may be classed as research projects, 31 as experimental, 12 as demonstrational, and 7 as survey. In some cases the objective of the project leads into two or more fields so that the classification is only approximate. The above classification, however, will give a fairly accurate idea of the quality and the quantity of the work in progress. The number

of projects is approximately the same as has been carried for the last four or five years. Eighteen have been completed and 25 have been initiated. Increased expense for supplies and materials, and high wages and poor quality of labor, have in some instances been a severe handicap in the investigational work. The work on the most important projects, however, has been continued and where limitation has been necessary on account of lack of funds or shortage of labor, restrictions have been placed on the minor projects.

An effort is being made to concentrate the energies of staff members on a limited number of projects with a view to completing them within a reasonable time and to publishing the results as rapidly as accumulated. The columns of research journals and scientific periodicals are being used for the publication of special studies and reports bearing on investigational work. Completed projects are being published in the form of experiment-station bulletins. During the year just closed 6 *Experimental Station Bulletins* have been prepared and published by members of the staff, 37 articles have been published in the *Journal Series*, and numerous articles and treatises have been prepared for the public press.

A total of \$205,500 was expended for experiment-station work. Of this the federal government provides under the Hatch Act \$15,000, and under the Adams Act \$15,000. The balance is furnished from general University support, and certain revolving funds. The *Annual Report of the Experiment Station* covers fully the progress on the various projects and states briefly the important findings made. For that reason extracts are omitted from this report.

*The substations.*—The investigational work at each of the substations has been developed with a view to meeting the needs of the regions in which the stations are located. The substations also serve as supplementary trial stations for much of the work originated at the central station. An effort has been made to secure close coöperation between the workers at the central station and at the substations, and most of the investigational projects of importance are conducted coöperatively. Plans have been perfected for the coöperative testing of the field and garden crops, for the distribution of important seed stocks, and for livestock investigations. Special trial stations for a study of the management of peat land have been established and considerable information of value in farming these types of land is becoming available. At each of the substations special problems of a local nature are being handled by the superintendent in charge. All work of more than a local nature is being conducted in coöperation with the Central Station and an attempt has been made to improve and standardize the methods of investigation so that the publications of the substations and the Central Station may agree in their general features.

## DISTRIBUTION OF EXPENDITURES AT UNIVERSITY FARM

The foregoing report indicates the progress which has been made during the past year in each of the five major lines of work of the department. These lines of work are collegiate instruction, secondary instruction, short courses, agricultural extension work, and experiment-station work. The proportionate expenditure of the funds allotted to the Department of Agriculture for the work which is administered at University Farm is shown in the following table. This shows that 20 per cent of our funds were expended for collegiate instruction, 12.2 per cent for instruction in the School of Agriculture, 26 per cent for experiment-station work, 39 per cent for Agricultural Extension work, and 2.3 per cent for short courses, and gives a general idea of the relative volume and importance of the different types of work as they have been developed during the past year.

Respectfully submitted,

R. W. THATCHER, *Dean and Director*

SUMMARY OF DISTRIBUTION OF 1919-20 BUDGET  
SECTION V—DEPARTMENT OF AGRICULTURE\*

Budget or pay roll	Names	Budget amount	Transferred†	Total expend. and distrib.	College	School	Station	Extension	Short courses	Miscellaneous
I	Administration .....	\$ 23,680	+\$1,574	\$ 25,254	7,521 (29.8)	\$ 5,491 (21.7)	\$ 3,945 (15.6)	\$ 6,349 (25.1)	\$ 822 (3.3)	\$ 1,126 (4.5)
II	Agriculture, general...	36,990	+658	37,648	8,303 (22.0)	8,722 (23.2)	9,154 (24.3)	10,745 (28.6)	688 (1.8)	36 (0.1)
III	Publications .....	9,690	+449	10,139	3,668 (36.2)	12 (0.1)	4,209 (41.5)	1,472 (14.5)	778 (7.7)	.....
IV	Agr. Extension.....	227,809	+15,900	243,709	.....	.....	79 (—)	243,275 (99.9)	355 (0.1)	.....
V	College, general.....	5,775	—700	5,075	5,075 (100.0)	.....	.....	.....	.....	.....
VI	School, general.....	15,775	+1,407	17,182	66 (0.4)	16,571 (96.4)	.....	355 (2.1)	190 (1.1)	.....
VII	Exper. station gen'l...	1,200	.....	1,200	.....	.....	1,200 (100.0)	.....	.....	.....
VIII	Short courses gen'l....	7,810	+1,295	9,105	.....	77 (0.8)	.....	396 (4.4)	8,632 (94.8)	.....
IX	Agr. Biochemistry.....	26,570	+1,540	28,110	9,673 (34.4)	354 (1.3)	17,603 (62.6)	323 (1.1)	157 (0.6)	.....
X	Agr. Economics .....	10,580	+1,452	12,032	4,777 (39.7)	.....	6,254 (52.0)	1,001 (8.3)	.....	.....
XI	Farm Engineering.....	31,690	+1,855	33,545	10,199 (30.4)	15,577 (46.4)	1,802 (5.4)	4,731 (14.1)	1,236 (3.7)	.....
XII	Agron. & Farm Mgt....	46,660	—4,050	42,610	6,648 (15.6)	5,003 (11.7)	24,318 (57.1)	6,351 (14.9)	290 (0.7)	.....
XIII	Animal Industry.....	136,730	—6,633	130,097‡	39,630 (30.5)	29,172 (22.4)	40,946 (31.4)	17,414 (13.4)	2,929 (2.3)	6 (—)
XIV	Beekeeping .....	7,940	—62	7,878	1,395 (17.7)	1,323 (16.8)	3,275 (41.6)	1,648 (20.9)	237 (3.0)	.....
XV	Entomology & Ec. Zool.	22,670	+395	23,065	4,814 (20.9)	791 (3.4)	15,006 (65.1)	2,454 (10.6)	.....	.....
XVI	Forestry .....	21,510	+4,532	26,042	7,244 (27.8)	.....	15,809 (60.7)	2,557 (9.8)	432 (1.7)	.....
XVII	Home Economics.....	39,340	—95	39,245	30,594 (77.9)	6,509 (16.6)	.....	1,057 (2.7)	778 (2.0)	307 (0.8)
XVIII	Horticulture .....	28,395	+749	29,144	5,007 (17.2)	1,965 (6.7)	19,546 (67.1)	2,481 (8.5)	145 (0.5)	.....
XIX	Plant Pathology.....	28,980	+133	29,113	4,863 (16.7)	477 (1.6)	21,204 (72.9)	2,569 (8.8)	.....	.....
XX	Rhetoric .....	9,650	+1,629	11,279	6,975 (61.8)	4,304 (38.2)	.....	.....	.....	.....
XXI	Soils .....	26,340	—732	25,608	1,169 (4.6)	733 (2.9)	21,184 (82.6)	2,403 (9.4)	119 (0.5)	.....
	Total .....	\$765,784	+\$21,296	\$787,080	\$157,621	\$ 97,081	\$205,534	\$307,581	\$ 17,788	\$ 1,475‡
	Per cent.....	.....	.....	.....	20.0	12.3	26.1	39.1	2.3	0.2

\* Figures in parentheses indicate per cent.

† All transfers are considered as having been made to or from reserve altho in some cases the transfer was direct from one item to another. Transfers to are indicated by —; from, by +.

‡ Revolving funds totaling \$19,500 in printed budget omitted from distribution.

§ Consists principally of changes to General University Administration.

## THE LAW SCHOOL

*To the President of the University:*

SIR: I have the honor to submit the following report of the work of the Law School during the session 1919-20:

*Attendance.*—The total registration of the year, 266, shows a marked increase over that of the last normal year prior to the outbreak of the war, 1916-17, when the total number of students was 222. This increase is due principally to the large first-year registration of 147, as compared with 112 in 1916-17, which is much the largest since the raising of the admission requirement to one year of college work in 1909, followed by the further requirement of two years of college work in 1911. Practically all the male registrants have seen some form of military service during the war, and a large percentage of them have been over seas. The membership of the third-year class especially was made up almost entirely of men who had entered the military service voluntarily at the outbreak of the war, and returned to complete their professional training after a break of one or two years. The unusual experience of these students has had a very marked effect in increasing the seriousness of purpose and the earnestness with which they have pursued their professional studies.

The after-war registration in the Law School, while large and satisfactory, was not so overwhelming as in other departments of the University because the requirement of two preliminary years of collegiate work acted as a buffer in the case of returning soldiers who desired to enter the Law School. The unusually large number of students registered for the pre-legal course in the academic department, 89, indicates that the after-war tide of incoming students in the Law School will not reach its flood until next session, or even the session 1921-22. There is every reason now to believe that the attendance in the Law School, having recovered from the shock of advanced admission requirements, will show a steady increase from year to year. This prospect makes the better equipment of the Law School, adverted to hereafter, of the greatest importance.

Details of the registration compared with that of last year are shown in Table I following:

TABLE I. REGISTRATION

	REGULAR		SPECIAL		TOTAL	
	1918-19	1919-20	1918-19	1919-20	1918-19	1919-20
First-year .....	45	90	15	57	60	147
Second-year .....	31	46	6	19	37	65
Third-year .....	18	51	1	2	19	53
Unclassed .....	...	...	...	...	1	1
					117	266

*Provisions made for ex-service men.*—During the session every effort has been made to make such adjustments of schedules and curriculum as were possible without impairing scholastic standards, to reduce to a minimum the loss of time to students who had so splendidly and unselfishly entered military service. Wherever possible provisions were made whereby students who had been discharged after the beginning of the first quarter of the session 1918-19, but in time to enter the Law School for the second quarter of that session, might make up during the summer, or otherwise, the work of the first quarter and receive credit therefor upon passing the regular examinations. The only concessions made in the matter of admission requirements was that authorized by the Board of Regents in the following resolution:

Resolved that any applicant for admission to the Law School who presents credits aggregating not less than forty-five quarter credit hours of academic work of collegiate grade, and also shows that he has been engaged in the military or naval service of the United States for a period of not less than six months, may be admitted as a regular student provided the training received in such service has, in the opinion of the Law Faculty, been of such nature as to provide a reasonable equivalent for the additional training necessary to complete the two years of college training now required for admission as a regular student.

Pursuant to the authority so given the faculty granted regular standing to 20 returned soldiers who had had one year or more of collegiate work, but had not completed the regularly required two years of such work.

Under the provision of the Vocational Rehabilitation Act, 11 disabled men were registered in the Law School. Every effort was made by faculty and students to make it possible for these students to carry the work of the Law School successfully in spite of the handicaps, in some instances distressingly great, under which they labored. I am glad to report that of these, 9 successfully completed the work of the year. I am glad, in this place, to testify to the patience and courage with which most of these men endured manifest sufferings on account of their physical disabilities without complaining or asking for special favors.

*Summer session.*—Students numbering 39 in attendance during the summer session of 1919 are not included in the table given above. Instruction during the summer session was given in the Law School for the first time in the summer of 1919 for the purpose of enabling students who had lost time while in the service to make up their arrearages as far as possible. The attendance was drawn almost entirely from students who were registered in the Law School during the session 1918-19 or in previous years.

During the present summer, 1920, instruction is being given in a limited number of subjects, primarily for the benefit of the men entitled to training under the Vocational Rehabilitation Act. The total registration at the date of this report is 28. Of these, 8 are under the care of the Vocational Training Board. Of the total number registered all but 4 were registered during other quarters of the session 1919-20. The small attendance of the present summer session is partly due to the fact that the decision to give instruction in law during the summer was arrived at only when it was

found necessary in order to care adequately for the interests of the vocational-training men, and too late for such publicity as might have drawn students from outside the University. But even with due allowance made for the lack of publicity for the two summer sessions in law, it would seem that the demand for such instruction is scarcely sufficient to justify the giving of instruction in law as a regular feature of the University summer school.

*Faculty.*—The beginning of the present session saw the reestablishment of the faculty personnel upon a normal peace basis. The position made vacant by the resignation of Professor E. S. Thurston was filled by the election of Professor N. T. Dowling, formerly of the Law School of Columbia University. But the vacancy caused by the lamented death of Professor W. M. Jerome remained unfilled. The faculty thus diminished in numbers was obliged to give instruction to an unexpectedly large number of students, which necessitated teaching the first-year class in two divisions. The result was that the members of the faculty were heavily overloaded, and it was necessary to procure assistance in the conduct of the course in Practice. For this purpose Mr. Paul J. Thompson, of the Minneapolis bar, was employed to assist in the trying of cases in the practice court. Valuable aid was also rendered by Judge C. S. Jelley of the Fourth Judicial District, Judge Bert Fesler of the Eleventh Judicial District, and Judge Edward Lees, commissioner of the Supreme Court, all of whom presided over trials of cases. Judge Homer B. Dibell continued his highly valued and unselfish service by giving not only his usual course in Mortgages, but also a new course in Minnesota Real Property. For the latter course he prepared a special collection of cases and authorities, which he had printed without cost to the students or to the University. In conferring this great benefit upon the University, Judge Dibell has merely added to the valuable services which he has rendered during many years, wholly without any compensation. Judge Bert Fesler of Duluth repeated the course given last session in Legal Ethics to the great advantage and satisfaction of the students. Judge Fesler likewise refuses to receive compensation for the work done in behalf of the University.

On account of irregularities incident to the interruptions of war service, it proved impossible to make arrangements that would fit in with the convenience of all the special lecturers who were expected to give courses during the year. During the session, courses of lectures were given by Chief Justice Brown, of the Supreme Court, on Appellate Practice; by Judge Charles S. Jelley, of the District Court, on the Practice of Law; by Charles W. Bunn, of the St. Paul bar, on Federal Practice, and by Hugh V. Mercer, of the Minneapolis bar, on Equity Practice. As stated above Judge Fesler, of Duluth, also gave a course of lectures on Legal Ethics. Senator Kellogg's engagements in Washington prevented him from delivering his usual course on the Commerce Clause of the Federal Constitution.

*Legal Aid Bureau.*—The practice of assigning members of the senior class by turns to serve in the office of the Minneapolis Legal Aid Bureau,

practically discontinued during the distractions of the war, was satisfactorily resumed. Mr. M. U. S. Kjorlaug, attorney in charge of the Legal Aid Bureau, a graduate of the Harvard Law School, was appointed instructor in practice, and charged with the duty of giving instruction to the law students assigned to the "legal clinic" in the Legal Aid Bureau. Mr. Kjorlaug appears to have the qualifications of a teacher in a marked degree, and his work as instructor during the year is regarded by both students and members of the faculty as highly satisfactory. It is believed that Mr. Kjorlaug's authority and work should be extended, and that under his guidance the so-called "legal clinic" can be developed until it will be recognized as not only a valuable, but an indispensable feature of legal education.

*Library.*—During the present session there were added to the library 1,419 volumes as compared with 673 in 1918-19, 1,967 in 1917-18, 1,144 in 1916-17, 1,639 in 1915-16, and 2,703 in 1914-15. The total number of volumes in the law library at the close of the session was 30,500. Even after encroaching upon space in the reading-room, needed for students using the library, to secure a place for erecting temporary book-shelves, the library does not afford sufficient shelving to accommodate the books now on hand. The result is that it has been necessary to place many volumes in the basement, to which access can be had with such difficulty as to make the books there stored practically useless. It is proposed to provide shelf room for the inevitable growth in the library by erecting a balcony that will run half-way around the present reading-room. It is hoped that such a balcony can be erected without greatly marring the appearance of the room, or cutting off much of the light now available. This balcony as planned will afford shelf room for about 3,500 volumes; that is, it will provide for the growth of the library for about two and a half years, after which time accessions to the library will necessitate commensurate increase in the number of books stored uselessly in the basement.

The lack of shelf space to accommodate the growing contents of the library, seriously unfortunate as it is, is not the most critical defect in the present library equipment of the Law School. In the modern Law School the library is the laboratory, as indispensable as the laboratory in a chemistry or other scientific building. The present library reading-room in the Law School, diminished in size by the encroachments of book stacks, provides adequate space for not more than 90 students. There is practically no time of the day when the whole student body of the Law School will use the library, but there have been numerous periods during the past session when many more students desired to make use of the library than could possibly do so on account of the limited space. During the next session it is probable that the number of students will approach 300. To provide adequate library facilities for this number of students there should be not fewer than 175 places at reading desks. The situation thus disclosed, bad as it is, is rendered much worse by the fact that the facilities of the law library are constantly, and properly enough, made use of by students in

business law and in political science. The net result is that under existing conditions students in this Law School can not do work that is worthy of their own ambitions and desires, or which can be favorably compared with that done by students in better equipped institutions. If the University of Minnesota is to maintain a Law School worthy of its own ideals, and meeting the just expectations of the legal profession of the state, it is not only expedient, but imperatively necessary that the library facilities shall be improved.

*New building.*—The statements just made perhaps sufficiently call attention to the need so often urged in these annual reports of a new fire-proof law building, which shall provide not only adequate library facilities, but also large, and well ventilated classrooms, suitable professors' offices, a proper courtroom, and fitting assembly rooms for students. It must be said, with all seriousness, that the equipment of the Law School of the University of Minnesota is not creditable to the institution.

*Minnesota Law Review.*—It is gratifying to be able to report that in spite of the immensely increased cost of everything that goes into the publication of a periodical, the *Minnesota Law Review* has completed its fourth year with increased scientific prestige and without any deficit whatever. The work done by Professor Henry J. Fletcher as editor-in-chief with the eighteen student members of the board of editors is probably the most valuable educational work done in the Law School. The publication of this legal periodical has not only greatly stimulated legal scholarship and elevated standards within the Law School, but has brought great credit to the University throughout the country. Thanks to the energy and skill of the business management, the educational benefits of such a publication are enjoyed by the University of Minnesota without cost, while such institutions as the universities of Iowa and Wisconsin, and Cornell University secure much less satisfactory results by the publication of freely distributed bulletins at the cost of the institution.

*Scholarship.*—The work done in the classrooms both by teachers and students during the past session still shows the disturbing influences of the war, but on the whole the work of the year has been satisfactory and even encouraging. Table II shows primarily the percentage of successful students to the total enrolment, and the percentage of conditions and failures received to total examinations taken. For the purpose of this table, those students who passed successfully all examinations, as shown numerically in item 3, are deemed successful students, while those who were delinquents in three or more subjects, as shown in item 5, are to be deemed as failures. Table III deals only with the first-year class. It is intended to show the relation between the student's preliminary training and the results of his work in the Law School. The figures given in this table confirm the inference drawn from similar tables in preceding reports, that the success of the average student in the Law School increases directly with the increase in the extent of his preliminary education. Table IV, given below, is intended to show the gross extent of scholastic delinquencies for whatever cause.

TABLE II. SCHOLARSHIP STATISTICS

	FIRST YEAR			SECOND YEAR			THIRD YEAR		
	1st term	2nd term	3rd term	1st term	2nd term	3rd term	1st term	2nd term	3rd term
1. Total enrolment..	132	139	117	64	64	57	53	53	43
2. Number taking examinations .....	129	125	114	63	59	54	53	52	42
3. Number passing all examinations	81	78	67	42	46	40	48	46	40
4. Number delinquent in one subject only .....	21	22	23	12	6	8	5	5	0
5. Number delinquent in three or more subjects .....	12	12	11	2	4	0	0	0	1
6. Percentage of conditions and failures to total examinations .....	15	15	15	13	10	9	4	3	2
7. Percentage of successful students to total enrolment .....	61	56	57	65	72	70	90	87	93

TABLE III. PRELIMINARY TRAINING AND SCHOLARSHIP  
(First-Year Class)

	Regular						Special		
	Academic seniors and graduates			Having two years of college			Less than two years of college		
	1st term	2nd term	3rd term	1st term	2nd term	3rd term	1st term	2nd term	3rd term
1. Total enrolment..	29	27	25	56	59	51	47	53	41
2. Number taking examinations .....	28	26	25	56	56	51	45	43	38
3. Number passing all examinations	24	22	21	35	35	29	22	21	17
4. Number delinquent in three or more subjects .....	2	1	2	4	3	3	6	8	6
5. Percentage of failures and conditions to examinations taken	7	8	6	15	13	11	23	24	22
6. Percentage of successful students to total enrolment .....	82	82	84	62	59	57	47	39	44

## THE PRESIDENT'S REPORT

TABLE IV. CONDITIONS, FAILURES, AND INCOMPLETES

	REGULAR	SPECIAL	TOTAL
First term			147
Incompletes .....	11	1	12
Conditions .....	66	54	120
Failures .....	7	8	15
Second term			149
Incompletes .....	5	18	23
Conditions .....	61	51	112
Failures .....	1	13	14
Third term			118
Incompletes .....	1	7	8
Conditions .....	61	33	94
Failures .....	3	13	16

Respectfully submitted,

W. R. VANCE, *Dean*

## THE MEDICAL SCHOOL

*To the President of the University:*

SIR: During the year 1919-20 the Medical School so far as clinical instruction was concerned was definitely on the four-quarter basis. The revised curriculum with its new feature of student internship has been given a year of trial. So far as can be seen at the present time the plan is a success. Practically all students who have acted as student interns have been enthusiastic as regards both their individual opportunities and their advancement in practical efficiency, as compared with the old plan of group clinics. St. Mary's and Northwestern Hospitals of Minneapolis, and St. Joseph's and the new Miller Hospital of St. Paul, and the Glen Lake (Hennepin County) Tuberculosis Sanatorium have been approved for student internships, so that it will be possible to furnish this form of instruction to nearly all, if not all, members of the senior class during the last six months of their course.

The plan has aroused interest elsewhere, and was favorably commented upon by the examiners representing the American Medical Association and the Association of American Medical Colleges, when they visited our school last fall.

With the year 1920-21 the plan can be carried out to better advantage, as salaried supervisors of studies have been provided for the General Hospital, Minneapolis, and the City and County Hospital, St. Paul. All things considered, the school is satisfied with this new experiment in medical education and believes a distinct step in advance has been made.

The laboratory departments, also, may be said to be running on the four-quarter plan. Altho the courses were conducted under the summer-school rules, practically all the regular work was offered. Many courses ran throughout the entire quarter of eleven weeks.

The attendance for the year 1919-20 was as follows:

Summer quarter, 94; fall quarter, 295; winter quarter, 296; spring quarter, 188.

In addition 58 were registered for the seventh or graduate intern year.

There were 39 special and unclassified students.

The figure for the summer quarter does not express the entire facts, as a considerable number of medical students registered on the summer-school blanks and were not counted at this office. The great drop in attendance in the spring was due chiefly to the fact that the seniors finished their work at the end of the winter, this arrangement being necessary in the transition from the old to the new curriculum. Hereafter the Medical School will graduate two classes a year, in December and June respectively.

For several years the Medical School has faced the difficult problem of carrying into effect, in a practical way, the required intern year. It was impossible for a class, serving internships at various hospitals all over the country, to complete their work at one time or be present at the regular

commencement. This created a feeling of disappointment on the part of many students and diminished legitimate class spirit and institutional loyalty. It was finally decided to reinstate the degree of Bachelor of Medicine as indicating the completion of the regular four-year required course, and to give the degree of Doctor of Medicine at such later date as the year of internship might be completed. This will be satisfactory, it is believed, to both students and faculty. Under this plan 59 received the degree of Bachelor of Medicine, and 54 the degree of Doctor of Medicine during the year 1919-20.

During 1919-20, members of the faculty who had been detained in war service beyond the average length of time, returned; and the teaching force was reestablished on a peace-time basis.

The following faculty changes are recorded:

*Resignations.*—Associate Professor Francis G. Blake; Assistant Professors J. A. Myers and F. S. Bissell; Instructors H. L. Osterud, W. C. Rutherford, A. M. Snell, Jeanette MacLaren, E. J. Engberg, and Bronson Crothers.

*Deaths.*—Dr. Elmer R. Hoskins, assistant professor of anatomy, a promising young scientist, died of influenza-pneumonia.

*Appointments.*—Dr. Charles H. Mayo, professor of surgery; Dr. E. R. Hoskins, assistant professor of anatomy; Dr. L. W. Barry, assistant professor of obstetrics and gynecology; Dr. Robert G. Allison, assistant professor of roentgenology; Dr. Harry Oerting, instructor in medicine; Dr. A. M. Snell, instructor in medicine; Dr. Henry M. Klein, instructor in medicine; Dr. Edgar T. Herrmann, instructor in medicine; Dr. Percy A. Ward, instructor in experimental therapeutics; Dr. Margaret Hoskins, instructor in anatomy, L. B. Dickey, instructor in anatomy.

Dr. A. R. Colvin, assistant professor of surgery, was elected supervisor of studies for the City and County Hospital, St. Paul, and Dr. H. L. Ulrich, associate professor of medicine, for the Minneapolis General Hospital.

*Promotions.*—Dr. A. C. Strachauer, from associate professor to professor of surgery and chief of the department; Dr. William R. Murray, from associate professor to professor of ophthalmology and otolaryngology and chief of the department; Francis G. Blake, from assistant professor to associate professor of medicine; F. E. Burch, from assistant professor to associate professor of ophthalmology and otolaryngology; W. H. Condit, from instructor to assistant professor of obstetrics and gynecology; J. H. Simons, from instructor to assistant professor of obstetrics and gynecology; Paul F. Brown, from instructor to assistant professor of surgery; James A. Johnson, from instructor to assistant professor of surgery; Louis A. Daugherty, from instructor to assistant professor of surgery; J. A. Myers, from instructor to assistant professor of anatomy; F. H. Poppe, from instructor to assistant professor of surgery; H. B. Zimmerman, from instructor to assistant professor of surgery; E. M. Jones, from assistant to instructor in obstetrics and gynecology; F. J. Souba, from as-

sistant to instructor in obstetrics and gynecology; N. O. Pearce, from assistant to instructor in pediatrics; C. A. McKinlay, from assistant to instructor in medicine; F. A. Olson, from assistant to instructor in surgery; E. C. Robitshek, from assistant to instructor in surgery.

During the year it was arranged that Dr. L. G. Rowntree, chief of the Department of Medicine, should spend the fall and winter quarters at Minneapolis and the spring and summer quarters at Rochester, working on the Mayo Foundation. Dr. C. H. Mayo also kindly agreed to accept a professorship of surgery on the medical faculty and deliver special lectures from time to time. It is felt that such liaison positions between the Medical School and the Mayo Foundation will be of assistance to both these divisions of the University.

In addition to researches regularly carried on by faculty members and supported by the University, the Medical School received from the Interdepartmental Social Hygiene Board of the federal government a grant of \$8,250 for the investigation of venereal diseases. Three separate researches were approved, to be conducted respectively under the direction of Drs. Larson and McClendon, Drs. Rowntree, Nixon, and others, and Dr. Hirschfelder and others. This grant has now been renewed for the year 1920-21, and will continue to serve as an aid and stimulus to medical research in this institution. The National Dental Association has also continued an appropriation for dental research in the Medical School under the direction of Drs. Hartzell, Larson, and Henrici.

The course for embalmers was held for three months following January 1 and had 35 students.

The report of the hospital and the School of Nursing is appended hereto.

Respectfully submitted,

E. P. LYON, *Dean*

### THE UNIVERSITY HOSPITAL

Following is the report of the University Hospital for the fiscal year ending June 30, 1920.

A comparison of the statistics of the past year with those of the year 1917-18 shows that a smaller number of patients was cared for at a relatively larger cost. This has been the experience of practically all hospitals of this type during the same period. The daily per capita cost increased 11 per cent over that of the preceding period. This increase was not so great as the increase of the preceding period over that of the year 1917-18, which was about 30 per cent.

The statistics of the Out-Patient Department show that in comparison with the year 1917-18 a smaller number of patients made a larger average number of visits at a very slightly smaller average net cost to the hospital per visit. This cost was kept down by increasing the registration fee and the charges for drugs. The position of admitting officer was established in the Out-Patient Department, and Mr. W. P. Shepard has been serving in that capacity, with a resulting diminution of abuse of that charity service afforded by the department by those able to pay for professional care.

## THE PRESIDENT'S REPORT

## I. COMPARATIVE STATISTICAL STATEMENT

## I. HOSPITAL

	1917-18 (12 months) Aug. 1 to July 31	1918-19 (11 months) Aug. 1 to June 30	1919-20 (12 months) July 1 to June 30
Patients in the hospital at the beginning of period .....	159	148	159
Patients admitted during the year .....	2,754	2,187	2,480
Patients treated during the year .....	2,913	2,335	2,639
Total days hospital care.....	58,765	47,548	55,998
Average days per patient.....	20+	20+	21.14
Highest daily census.....	181	184	173
Daily average number patients	161	142.3	153
Daily average cost per patient	\$1.63	\$2.12	\$2.37
Daily average cost per capita for provisions for all persons supported .....	.323	.361	.385

## II. OUT-PATIENT DEPARTMENT

	1917-18 (12 months) Aug. 1 to July 31	1918-19 (11 months) Aug. 1 to June 30	1919-20 (12 months) July 1 to June 30
New patients treated.....	16,584	13,669	15,696
Total patients' visits made....	59,503	53,522	65,528
Average visits per day.....	196.37	194.63	214.82
Average cost per patients' visit gross .....	.34	.281	.333
Average cost per patients' visit —net—(after deducting receipts) .....	.105	.087	.102
Total prescriptions issued:			
Drug .....	23,690	21,424	25,485
Optical .....	1,271	757	998

## III. MOVEMENT OF POPULATION

	In hospital July 1, 1919	Admitted	Discharged	Died	Remaining June 30, 1920
Medical .....	43	573	502	39	38
Neurological .....	12	163	170	5	15
Dermatology .....	0	18	19	1	1
Pediatric .....	27	392	379	16	19
Surgical .....	40	536	525	39	40
Eye and Ear.....	8	132	125	1	6
Nose and Throat..	4	192	194	1	2
Urology .....	2	42	35	6	5
Gynecology .....	8	129	132	5	6
Obstetrics .....	15	303	297	1	15
	159	2,480	2,378	114	147

A dental clinic for the care of infected mouths only was established under the direction of Dr. W. A. Grey, and has been of great value in the care of many cases.

Dr. R. G. Allison was appointed to the position of roentgenologist, vice Dr. F. S. Bissell, resigned, and assumed the duties thereof in January 1920.

Attention is invited to the following reports of the superintendent of the School of Nursing and the director of the Social Service Department.

Respectfully,

L. B. BALDWIN, *Superintendent*

### THE SCHOOL OF NURSING

The following report of the School of Nursing for the period beginning July 1, 1919, and ending June 30, 1920, is submitted:

Applications received.....	59
Student nurses matriculated .....	24
Student nurses withdrawn or dropped (preliminary) .....	7
Student nurses withdrawn or dropped (undergraduates) .....	3
Students graduated.....	18
Accredited nurses accepted.....	17
Certificates to accredited nurses.....	17

#### *Nursing Staff in Hospital and Out-Patient Department*

##### Registered nurses:

Superintendent, School of Nursing.....	1
Assistant Superintendent.....	1
Instructor .....	1
Night supervisor .....	1
Operating department.....	1
Obstetric department.....	1
Pediatric department.....	1
Surgical supervisor.....	2
Medical supervisor.....	1
Out-Patient department.....	3
Seniors .....	19
Intermediates .....	24
Juniors .....	14
Probationers .....	3
Accredited nurses.....	4

On request of the superintendent of the School of Nursing, recommendation was made by the Administrative Board that the name be changed to the School of Nursing. This recommendation was approved by the Board of Regents in May.

During the year there were 541 days of illness, two major operations and one case of pneumonia complicating influenza, these being the only serious cases of illness among the students.

In the fall the building at 303 Washington Avenue was granted to the School of Nursing in order to provide housing for a larger number of students. This building has been furnished as a coöperative cottage and

was turned over to us just as it was, thus providing attractive sitting-rooms and a kitchen for the use of the students. These features have been a source of much pleasure and enjoyment to the whole student body.

There were registered in the combined Arts and Nursing Course during the past year 2 sophomores and 5 freshmen. There are 6 sophomores registered for the coming year.

The Public Health Course has continued and seems to be meeting a need in the state. We have had splendid coöperation from the various social agencies in the Twin Cities and feel that the following report shows a demand for the work:

Sept. 1, 1919, to Dec. 23, 1919	
Graduates .....	31
Senior students.....	6
Certificates granted .....	35
Jan. 1, 1920, to May 1, 1920	
Graduates .....	22
Senior students.....	3
Certificates granted	
4 months .....	18
8 months.....	6
May 1, 1920, to Aug. 1, 1920	
Graduates .....	6
Certificates granted	
8 months.....	6
Total students, 4 months.....	54
8 months.....	8

Respectfully submitted,

LOUISE M. POWELL, *Superintendent*

#### THE HOSPITAL SOCIAL SERVICE DEPARTMENT

The following statement of the work of the Hospital Social Service Department covers the period ending June 30, 1920:

*Present field in clinic work.*—During the past year, following readjustments necessary during the war period, the department has gradually returned to a somewhat normal condition, despite changes in staff. We again have full-time workers on duty in the dermatology, obstetrics, and pediatric clinics. The tuberculosis division of medicine has had a worker on duty for several months. In addition to these clinics, which are fully covered in the dispensary, the Social Service Department has been able to take care of all cases referred from the other clinics, thus meeting the most important cases in each group.

*Services rendered outside groups.*—Beside this work from within the institution, we have had a rapidly growing load of work referred from outside agencies, as the figures regarding coöperating agencies and reports given will show. The department has placed particular emphasis on this responsibility to the social agencies and has striven to give the highest type of service in every instance.

*Work extended.*—The work with the maternity patients has been extended so that the worker in charge covers the hospital ward, thus beginning

the development of the unit of service which we plan to extend, as our growth permits, until both hospital and dispensary needs are efficiently met under the guidance of the same worker, who can thus intelligently develop and utilize the important interrelationship between the hospital and its Out-Patient Department. Another extension of work involved the assumption of responsibility for a "follow-up" system for the men's night clinic for venereal diseases. This clinic, altho under direction of the State Board of Health, is closely related to our work with similar cases in day clinics, and the work is closely correlated.

*Student work.*—Students for supervised field work were accepted in the department from the Sociology Department, Red Cross Training Course, and Public Health Nursing Course. In all 29 students for credit and 3 volunteers received regular work among the several types of cases cared for by the department.

*Assured Plans.*—The close of the fiscal year finds us pledged to two new lines of activity, work with cardiac patients and development of work with nutritional cases, both of which activities begin in September.

*Statistical.*—Figures, in social work, are not illuminating, but the following figures are submitted as indicative at least of points of contact:

Number separate families worked with (intensive).....	1,203
Number additional patients (intensive) (clinic).....	2,766
Number visits made.....	3,617
Number agencies coöperated with.....	158
Number reports given agencies, etc.....	1,789
Letters written.....	3,069
Pieces of literature distributed.....	2,558

Due to change in organization, no figures are available to compare with families and individuals assisted last year, but there was an increase of 627 in the number of visits made; 550 in the number of reports given; 63 more agencies were coöperated with than in the previous year, and 1,365 more letters and notices sent.

*Personnel.*—The personnel of the department during the period has been as follows: Miss Marion Tebbets, Miss Lydia Christ, Miss Ethel Jones (2 months) left August, 1919, Miss Vera Warren (6 months) left January, 1920, Miss Emma Joncas (4 months) left October, 1919, Miss Corinne Plouf: new workers, Mrs. Francis Cushman, May, 1919, Miss Caroline Manger, July, 1919, Mrs. Mildred Robinson, October, 1919, Miss Gwen Owen, June, 1920.

This report should include our acknowledgment of the coöperation which we have received always from co-workers in the hospital and the dispensary, and our appreciation of the help received from outside agencies. This team work is in no small part responsible for the results secured in the year that is past.

Respectfully submitted,  
MARION TEBBETS, *Director*

## THE COLLEGE OF DENTISTRY

*To the President of the University:*

SIR: I beg to submit herewith the report for the year 1919-20 for the College of Dentistry:

The outstanding educational step of the year was the complete establishment of the pre-dental year. In 1908 the Dental Faculties Association of American Universities agreed that preparation in dentistry must ultimately coincide with that in medicine, its mother profession. The disrepute into which the profession had fallen in certain quarters was clearly due to an inadequate biological foundation. The first step in the reconstruction was the establishment of the four-year course. This increased largely the number of hours devoted to biological study. Our five-year course carries a much larger number. With the six-year course, which it is voted to establish not later than 1926, the preparation for medicine and its specialty dentistry will be practically identical.

The college has also established a course for dental nurses. The dentist proper, with the help of trained assistants, may render larger service. In this connection might be noted the inauguration of an extension course for dental mechanics.

To enable the practicing dentists to follow the latest developments in the profession, University extension courses in various fields are highly essential. The University has met this need with the courses in Oral Surgery, Crown and Bridge Work, and Prosthetic Dentistry. The attendance at these courses has been gratifying.

In order to meet the requirements of changing methods of instruction and practice the college building is now undergoing considerable modification. If the state is to educate even a major part of the youths desiring to study dentistry, a new building will be necessary in the near future.

Respectfully submitted,

ALFRED OWRE, *Dean*

# THE SCHOOL OF MINES

To the President of the University:

SIR: I herewith submit my report for the University year 1919-20:

## STATE MINING EXPERIMENT STATION

*Personnel.*—No change in the personnel of the station has been made during the year.

*Recently acquired equipment.*—The Dorr Company of Denver, Colorado, has presented the Mines' Experiment Station with a bowl classifier, valued at approximately \$1,000, which is available for experimental work.

*Ore-washing machine.*—The new concentrator mentioned in my last annual report as being in process of development is being manufactured and marketed by the Dorr Company of Denver, Colorado. Two installations will be completed during the summer of 1920, one at the plant of the Tennessee Iron and Coal Company, washing iron nodules out of clay, and one at the Mariska Mines of the Bowe-Burke Mining Company on the Mesabi Range.

*Activities.*—The work of the Mines' Experiment Station may be grouped as follows:—

- A. Work submitted by citizens of the state:
  - a. Large scale tests ( $\frac{1}{2}$  ton or more)..... 46
  - b. Small scale tests (less than  $\frac{1}{2}$  ton)..... 509
  - c. Samples submitted for assay and examination..... 190
  - d. Number of samples referred to other departments..... 6
- B. Special experimental work:
  - a. Investigations are being carried on in connection with the following problems. In some cases, the Lake Superior Station of the United States Bureau of Mines has offered its coöperation.
    - 1. Mechanical concentration of Lake Superior hematites. Bureau of Mines coöperates.
    - 2. Concentration of the iron and manganese in the Cuyuna manganiferous iron ores. Bureau of Mines coöperates.
    - 3. Concentration of the iron and the titanium in the titaniferous iron ores. Bureau of Mines coöperates.
    - 4. Magnetic concentration of the Lake Superior magnetites. Bureau of Mines coöperates.
    - 5. The consideration of the cost of the removal of silica from iron ores. Mechanical means versus blast furnace. Bureau of Mines coöperates.
    - 6. Magnetic roasting and concentration of the Lake Superior hematites. Bureau of Mines coöperates.
    - 7. The agglomeration of fine iron ore. Bureau of Mines coöperates.
    - 8. Comparative reducibility of various iron ores and ore productions. Bureau of Mines coöperates.
    - 9. The design of an efficient roasting furnace for hematite ores. Bureau of Mines coöperates.
    - 10. The smelting of fine iron ore. Bureau of Mines coöperates.
    - 11. Electrolytic deposition of iron from the ore.
    - 12. Technological investigation of peat.
    - 13. Removal of phosphorus from iron ore by leaching. Bureau of Mines coöperates.

14. Comparison of the gravimetric and volumetric methods of determining the phosphorus in iron ores. Bureau of Mines coöperates. Completed in 1920.
  15. The development of a high-power wet magnetic separator.
  16. Magnetic head motion for tables.
  17. Magnetic assayer.
  18. Methods for determining the amount of iron in the magnetic state in iron ores.
  19. Utilization of fine magnetite in the manufacture of paint. Completed in 1920.
  20. A proper design of magnetic poles for magnetic separators.
  21. Lixiviation of manganese iron ores. Bureau of Mines coöperates.
- b. The experiment station has agreed to coöperate with the Lake Superior Station on the following Bureau of Mines' problems:
1. Experimental smelting of manganese ores.
  2. Fuel-testing.
  3. Beneficiation of low-grade ores of the Black Hills.
- c. In coöperation with the United States Geological Survey, the following investigation has been made:
1. The determination of potash in ores, cokes, fluxes, and various furnace products. Completed in 1920.
- d. In coöperation with the Department of Geology of the University of Minnesota, the following investigations have been made:
1. The concentration of the titanium and the iron in the titaniferous iron ores of the Lake Superior districts. A certain amount of this work has been done and reported, but the problem is still active.
  2. The investigation of reported gold-bearing material at various locations in the state.

*Assays.*—The total number of assays made in connection with all these activities during the past year was 11,141.

*Publication.*—*Bulletin* no. 6 of the Mines' Experiment Station was published in December, 1919. This bulletin, entitled *A New Machine for Concentrating Minnesota Wash Ores*, describes a new type of ore-washing machine developed at the School of Mines' Experiment Station, and points out the possibilities of its usefulness.

*Bulletin* no. 7 was published in May, 1920, and was entitled *The Future of the Lake Superior District as an Iron-Ore Producer*.

A mining directory of Minnesota for 1920 is being printed and will be ready for distribution in July. If this publication appears to be of sufficient value to the mining public, the directory will be revised and issued each year.

*New building.*—Active work has been carried on throughout the year in connection with the new Mines' Experiment Station. The Board of Regents has agreed to begin the construction of this building in June, 1921, and will expend an amount of money equivalent to \$150,000 in 1916.

#### UNITED STATES BUREAU OF MINES

*Object.*—The Lake Superior Station of the United States Bureau of Mines was established in July, 1917. The station has as its object the study of iron-ore problems of the entire country and the investigation of mining and metallurgical problems of the Lake Superior district, including

Minnesota, Michigan, and Wisconsin. It also conducts the general administration of Bureau of Mines mine-rescue and first-aid work in the Lake Superior District. Mine Rescue Car No. 10 is employed in this service.

*Personnel.*—Mr. C. E. Juhl is the superintendent of the Lake Superior Station, and district engineer. He has been assisted by Mr. P. H. Royster, metallurgist, Mr. J. J. McKitterick, fuels-testing engineer, Mr. T. L. Joseph, chief analyst, Mr. J. F. Fleischut, chief clerk, Mr. G. E. Ingersoll, assistant metal-mining engineer, Mr. R. G. Ageton, engineer in charge of car no. 10, and nine others serving in various capacities.

*Activities.*—During the past year the work of this station has included:

1. The erection of an experimental blast furnace and its operation with a view to the utilization of low-grade manganese ores.
2. The construction and equipment of a fuels-testing plant in which a series of tests were conducted to determine the efficiencies in domestic heating of fuels available in the local market. A Bureau of Mines' bulletin on this subject is in course of preparation.
3. The study of a standard method for the determination of phosphorous in iron ores. On this, a Bureau of Mines' bulletin is being prepared.
4. A study of mine drill steels.
5. Miscellaneous field investigations, first-aid and mine-rescue training and assistance at mine disasters.

All work of this station is conducted in closest possible coöperation with the State Mining Experiment Station.

#### MINNESOTA TAX COMMISSION

*Object.*—The School of Mines still continues its service to the State Tax Commission. The ore estimates, as checked and submitted, are used as a basis for the valuation of mineral properties in the State of Minnesota.

*Services.*—Owing to the fact that our report to the Tax Commission is made biennially, and as the report for the biennial period, 1918-1920, is not due until September 1, 1920, no detailed statement will appear in this year's report.

*Personnel.*—Mr. E. M. Lambert, assisted by Mr. A. J. Carlson, continues in charge of the work. The cordial relations with the officials of the various mining companies continue to be maintained, and expressions of appreciation of this branch of service to the state come to us, both from the Tax Commission and the mining companies.

#### EDUCATION

*Registration.*—The total registration during the year was 157, distributed as follows:

Seniors .....	16
Juniors .....	20
Sophomores .....	36
Freshmen .....	85
<b>Total .....</b>	<b>157</b>

*Geographical distribution of students.*—The above students were registered from Minnesota counties as follows:

Becker .....	2	Meeker .....	1
Beltrami .....	2	Morrison .....	1
Clay .....	1	Nobles .....	1
Cottonwood .....	1	Ottertail .....	1
Crow Wing .....	5	Pope .....	1
Fillmore .....	2	Ramsey .....	19
Freeborn .....	1	Red Lake .....	1
Hennepin .....	65	Rice .....	1
Isanti .....	1	Rock .....	1
Lake .....	1	St. Louis .....	21
Le Sueur .....	1	Swift .....	1
Lyon .....	2	Todd .....	1
McLeod .....	2	Wabasha .....	1
		Winona .....	3

Students registered also from outside the state as follows:

California .....	1	Michigan .....	3
China .....	3	North Dakota .....	2
Colorado .....	1	Pennsylvania .....	1
Illinois .....	1	Spain .....	1
Iowa .....	2	Wisconsin .....	2

*Withdrawals.*—During the year, 18 students withdrew. These students were distributed by classes as follows:

Seniors .....	1
Juniors .....	1
Sophomores .....	4
Freshmen .....	12

The reasons for these withdrawals were as follows:

Transferred to other colleges .....	6
Financial .....	2
Ill health .....	2
Dropped .....	1
Unknown .....	7

18

*The faculty.*—Due to the exceptional opportunities in the field, the faculty has lost two men through resignation. Mr. Thomas M. Bains, Jr., associate professor of mining, resigned in August to take a responsible position with a large mining company. Mr. Francis B. Foley, instructor in metallography, on leave of absence since the entry of this country into the war, resigned to accept a position with the United States Bureau of Mines at their Pittsburgh Station.

Mr. Walter H. Parker, a graduate of the School of Mines of the class of 1907, was appointed associate professor of mining. After graduation, Mr. Parker was engaged in active mining work in Montana. Later, he was a member of the firm of Fletcher and Parker, Consulting Engineers, with a large business in Montana and the neighboring states. With the entry of the United States into the war, he secured a commission as captain in the Coast Artillery Corps and saw foreign service until the summer of 1919.

Mr. Oscar E. Harder, a graduate of the University of Oklahoma, and holding a Ph.D. from the University of Illinois, where he specialized in metallography, was appointed associate professor of metallography to fill the vacancy caused by the resignation of Mr. Samuel L. Hoyt. Mr. Harder was secured from Mellon Institute, where he was engaged in research work on alloys. Previous to his connection with Mellon Institute, he had been engaged in research work for the American Society for Testing Materials.

*Curriculum.*—No changes in curriculum have been made for the coming year.

*Attendance.*—Altho large numbers of students were enrolled during the year, no additional assistance was requested, notwithstanding the fact that many classes had to be sectioned and an excessive number of hours had to be carried by members of the staff. The faculty met this unusual demand made upon their time and energy with a most commendable spirit.

Respectfully submitted,

W. R. APPLEBY, *Dean*

# THE COLLEGE OF PHARMACY

To the President of the University:

SIR: I herewith submit my report of the College of Pharmacy for the University year 1919-20 (July 1, 1919 to June 30, 1920):

*Registration.*—The college completed its twenty-eighth year on June 17, 1920 which was also the twenty-seventh commencement date of the college. A total of 20 students graduated. The names and respective degrees of the graduates are as follows:

*Graduate in Pharmacy (Phm.G.)*

Amberg, Ray M.	Layne, George E.
	Townsend, Royal E.

*Pharmaceutical Chemist (Phm.C.)*

Aldes, Antoinette	Langland, Bert
Blanchette, John	Malerich, Elizabeth
Chambers, C. M.	Netz, Charles V.
Choudek, Beatrice	Petterson, C. N.
Cohler, Sara B.	Schiesser, Elizabeth
Goldner, Sigurd	Spetz, Esther
Guilbert O. W.	Siperstein, Anne
Hovland, Guy B.	Vogel, Vivian

*Bachelor of Science in Pharmacy (B.Sc. Phm.)*

Boothroyd, Margaret

The graduates taking the Phm.G. degree availed themselves of the privilege of completing the old minimum two-year course which was abolished several years ago but upon which they entered before the course was lengthened to three years.

The total registration during the year reached 118, distributed as follows: Three-year course: first year, 57; second year, 23; third year, 23. Four-year course: first year, 6; second year, 3; third year, 4; fourth year, 2. This enrolment is beyond the normal capacity of the Pharmacy Building and equipment. The heavy enrolment of last year (126) was limited practically to only the first quarter and included the large number of S.A.T.C. students who discontinued at the end of the first quarter when the S.A.T.C. was disbanded. The enrolment two years ago was 72.

*Geographical distribution of students.*—Illinois 2; Montana 5; North Dakota 2; South Dakota 8; Russia 1. In Minnesota by counties:

Anoka .....	2	Lincoln .....	1	Rice .....	4
Becker .....	1	Lac qui Parle.....	4	Renville .....	
Brown .....	2	LeSueur .....	1	Redwood .....	1
Bigstone .....	1	Lyon .....	1	Swift .....	1
Crow Wing.....	1	Murray .....	1	Steele .....	4
Douglas .....	2	Morrison .....	2	Stearns .....	2
Freeborn .....	1	McLeod .....	1	Sibley .....	2
Fillmore .....	4	Martin .....	1	St. Louis.....	1
Goodhue .....	5	Mille Lacs .....	1	Todd .....	1
Houston .....	1	Marshall .....	1	Winona .....	1

Hennepin .....	29	Otter Tail .....	2	Waseca .....	1
Itasca .....	1	Olmsted .....	1	Wabasha .....	1
Koochiching .....	1	Polk .....	1	Wright .....	1
Kandiyohti .....	1	Ramsey .....	10	Yellow Medicine .....	1

*Instruction.*—The division of the school year into three quarters, begun last year, was continued. The three-quarter plan as against the two-year was found to entail much more work so far as registration of students and the keeping and reporting of their records are concerned. These activities require under the quarter plan about 50 per cent more time than under the semester plan without a corresponding advantage.

The instructional work was more nearly normal than it was during the war years. Instruction in dispensing, senior operative pharmacy, U.S.P. assay, and inorganic pharmaceutical chemistry were strengthened in some respects. Two vacancies existed during the year in the instructors' ranks. This increased considerably the work of the rest of the faculty and required the employment of a larger number of student assistants than is desirable. The following named students assisted but, of course, did not instruct: Charles V. Netz, Louis Walechka, Oliver Guilbert, C. Winzenburg, and George Lark. No special lectures were given during last year because of the low state of the budget, but they were resumed this year, the principal special lectures having covered "first aids to the injured." Several educational trips in search of wild medicinal plants and for the inspection of drug laboratories and drug mills were made by the student body under competent guidance. The several classes attended, as usual, the sessions of the Scientific and Practical Section of the Minnesota State Pharmaceutical Association in Minneapolis during February. No new instructors were added to the faculty because of the scarcity of suitable men. The usual instruction in medicinal plant culture was given.

*Pharmacy prizes.*—Miss Elizabeth Malerich was the recipient of the Minnesota State Pharmaceutical Association prize of \$75. No student entered the competition for the Fairchild Scholarship prize.

*Free dispensary.*—The total number of physicians' prescriptions dispensed by the senior class under the supervision and instruction of Instructor Blossmo and assistants is exhibited by the following table:

July, 1919 .....	2,160
August .....	2,085
September .....	2,008
October .....	2,250
November .....	2,015
December .....	2,172
January, 1920 .....	2,320
February .....	1,738
March .....	2,427
April .....	2,148
May .....	2,205
June (estimate) .....	2,057

Total .....

25,585

This prescription practice supplements and corresponds with the didactic and laboratory work in the regular course in dispensing and incompatibilities and affords valuable practice and experience for the senior class.

*Pharmaceutical service.*—The activities of the college, tho always more or less pronounced, are continually increasing in all directions. The demands upon the college by the University Hospital and Free Dispensary for medicinal preparations were much greater this year than ever before. Pharmaceutical preparations were manufactured in larger quantities for the dental college, the health, veterinary, pharmacological, and other departments. The demand for the college-grown digitalis increased, but toward the end of the year became somewhat lessened probably because of an arrangement with Mr. F. A. Upsher Smith of St. Paul, who cultivates digitalis, whereby the college informed all who made requests for college digitalis, that Minnesota-grown digitalis could be obtained from Mr. Smith. The usual demand for identification of wild medicinal plants or supposedly medicinal plants continued. Two of these plants were found to have been wild or poison parsnip (*Cicuta maculata*) which had poisoned several children. Requests for the analysis of proprietary preparations lessened somewhat because the college has had to decline, for the past several years, to make these analyses, primarily on account of lack of time. (For a fuller reference to this kind of work, see last year's report.) The usual service by faculty members for the Minnesota State Pharmaceutical Association and pharmacists at large, consisting of the examination of official drugs and preparations found on the open market, was continued and reported to the state association.

*Departmental library.*—The library continued in charge of Mr. C. E. Smythe and was kept open daily from 8:00 to 9:00 a.m. and from 12:30 to 1:30 p.m., and on Tuesday and Thursday evenings, and on Saturdays from 8:00 to 12:00 in the morning. Because of the limited lecture and recitation rooms in the pharmacy building, the library reading-room was used frequently for instructional purposes to the disadvantage of those who use the library often.

*Outside activities.*—The faculty engaged in the usual outside activities (to which a full reference was made in last year's report). In addition to these usual activities, two members of the faculty have been elected, during the year, to the U. S. Pharmacopoeial Revision Committee and one to the Board of Trustees of the U. S. Pharmacopoeial Convention. The latter election covers a period of ten years. Two members of the faculty attended the decennial meeting of the U. S. Pharmacopoeial Convention at Washington, D. C., and one member attended the American Council on Education at Washington as the University representative. One member of the faculty was elected to the presidency of the Minnesota State Pharmaceutical Association and another to the secretaryship of the same association.

Respectfully submitted,

FREDERICK J. WÜLLING, *Dean*

## THE SCHOOL OF CHEMISTRY

*To the President of the University:*

SIR: Permit me to submit herewith my report for the School of Chemistry for the year 1919-20:

During the summer of 1919, by ruling of the Board of Regents, it was announced that the University of Minnesota would organize an institute of technology which should include the School of Chemistry and the College of Engineering and Architecture, for the time being, and in the future other units would be incorporated under the same administration. At the time of this announcement the two schools were united under the control of a single dean, and it fell to my lot to assume the responsibility of organizing this new unit. During the past year every effort has been made to bring about a close coöperation between the School of Chemistry and the College of Engineering and Architecture, in order that the two schools might actually be affiliated in their practices and not be merely grouped together under a single administrative organization. Considerable progress has been made in this past year and we are looking forward to a very close coöperation of these two units.

It was expected that enrolment in the School of Chemistry would return once more to a number approximately equal to the enrolment during the years immediately preceding the war, but contrary to expectations, we found ourselves last fall besieged by a host of students far exceeding in number any former enrolment in the school. On account of this increase, the laboratories, thought to be adequate a few years ago, were overcrowded in spite of every effort made by us to increase the number of working places available for students. This could be done only by limiting the desk space for equipment assigned to each student, and by crowding the laboratories with sections both morning and afternoon, and in some cases two sections each half day. The enrolment in the freshman class, which included students from the various schools and colleges, amounted to 1,700 while the total enrolment reached a number exceeding 2,200 at the beginning of the school year.

As a result of these conditions, great difficulties were met with when sufficient instructors were sought to take care of the teaching load, and at the same time, sufficient equipment and service people to take care of the daily needs of the students working in the laboratories. With an inadequate personnel to start with, the instruction of these large classes was far from being satisfactory for some time after the opening of the fall quarter.

During the past year the Board of Regents voted to complete the School of Chemistry Building, and steps are now being taken to bring this to fulfillment. However, the delay which has occurred in securing satisfactory bids has postponed many operations until after the meeting of the board in October. On this account it will be necessary for the School of Chemistry to carry on its teaching in the present quarters for a year, or perhaps two

years, before it may hope to occupy the new quarters which are being planned. During this period of time every effort should be made to increase the accommodations in the present quarters by changes similar to those suggested for the coming year. Notwithstanding this fact, it seems to me that before the new building can actually be ready for occupancy it may become necessary to limit the enrolment in the School of Chemistry, so far as this pertains to students from other departments of the University. The only other alternative which occurs to me would be to open classes during the summer time and to require students who are preparing to enter the various professional schools of the University to take some of their courses during the summer months.

Permit me to review briefly some of the important changes and to state some of the important events which have taken place in the School of Chemistry during the year 1919-20. These matters will be discussed under four heads: faculty, students, curriculum, equipment.

During the past year several new appointments have been made in the School of Chemistry:

#### FACULTY

Charles A. Mann, associate professor of industrial chemistry

B.S., ....; M.S., ....; Ph.D., ...., University of Wisconsin; assistant in chemistry, University of Wisconsin 1909-11; instructor in chemical engineering, University of Wisconsin 1911-16; associate professor of chemical engineering, Iowa State College 1916-18; professor of chemical engineering, Iowa State College 1918-19; associate professor of industrial chemistry, University of Minnesota 1919-20.

Arthur von Krogh Anderson, instructor in chemistry

B.S. in Agriculture, University of Minnesota 1913, M.S., University of Minnesota 1915; graduate assistant, University of Minnesota 1913-15; professor of chemistry, St. Olaf's College, Northfield, Minnesota, 1916-18; instructor in chemistry, University of Minnesota, 1919-20.

Lloyd Hilton Reyerson, instructor in chemistry

B.A., Carleton College, 1915; M.A., University of Illinois, 1917; Ph.D., Johns Hopkins University, 1920; graduate assistant, University of Illinois, 1915-16; instructor in chemistry, University of Minnesota, 1919-20.

At the beginning of the third quarter Professor George B. Frankforter, who had been on leave of absence in war service, returned to the University to assume his duties in the School of Chemistry.

The following promotions have been made: Lawrence M. Henderson from instructor to assistant professor; Frank C. Whitmore from instructor to assistant professor.

Resignations have been submitted and accepted from the following members of the staff: Frank W. Bliss, assistant professor; Frank C. Whitmore, assistant professor; Arthur R. Cade, instructor; Gladstone B. Heisig, instructor; Guy H. Woollett, instructor; Arthur K. Anderson, instructor. Many graduate assistants in the department resigned to accept assistantships in other institutions in which larger compensation was offered for services.

A dearth of teachers for the various branches of chemistry is even greater this year than it has been in the past and in spite of renewed efforts

to secure instructors and assistant professors for the School of Chemistry, there are many vacancies which have not been filled at this time. It is not possible to predict whether or not men will be found to fill some of the vacant positions which need to be filled in order that the teaching burden may be distributed in a satisfactory manner next year. There is every possibility that there will be increasing difficulties to fill vacancies which occur in chemistry. Every effort, therefore, should be made to retain men who have shown themselves capable and are at the present time rendering satisfactory service to the University.

## STUDENT BODY

I am submitting two tables which show the attendance in the School of Chemistry during the years 1918-19 and 1919-20.

## 1918-19

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
Freshmen .....	28	37	35
Sophomores .....	27	28	27
Juniors .....	15	21	22
Seniors .....	10	11	11
Post-seniors .....	2	2	2
	82	99	97

## 1919-20

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
Freshmen .....	79	63	54
Sophomores .....	39	37	32
Juniors .....	25	25	26
Seniors .....	23	24	22
Post-seniors .....	5	4	4
	171	149	138

It will be noted that a very considerable increase in the number of students enrolled has taken place, altho the total number enrolled is not a large number.

In considering the teaching duties performed by the School of Chemistry, it should be remembered that those who are enrolled as actual students for specialized courses in chemistry offered by the school are less than 10 per cent of the total. As I have already stated, at the opening of the school year, approximately 2,200 students were taking courses in the School of Chemistry. These were largely students from other colleges and were

limited almost exclusively to the freshman and sophomore years. On account of the large increase in the number of sophomore students which we expect next fall, we are anticipating a larger total enrolment at the opening of the year 1920-21.

### CURRICULUM

Perhaps the most important change which has been made in the curriculum of the School of Chemistry is related to the problem of recognizing courses, which in the past have been known as "applied courses" or courses in industrial chemistry, for the purpose of making them real courses of chemical engineering. It is now the intention of the School of Chemistry to abandon the title of Applied Course, which has been used for the five-year course leading to the degree of Chemical Engineer, and to substitute the title Chemical Engineering Course. Furthermore, the new curriculum proposed for the year 1920-21 has been arranged so that the freshman year is practically identical with the first year in the courses of engineering offered in the College of Engineering and Architecture, the only difference being that a course in German is taken by students in chemistry but not by other engineering students. This change has so unified the work of the College of Engineering and the chemical engineering work in the School of Chemistry, that all engineering students now have a common course during their freshman year. This will make it possible for any student to postpone his decision concerning a special field until the completion of his freshman year, at which time he may decide to enter any of the engineering branches, such as chemical engineering, electrical engineering, mechanical engineering, or civil engineering. During the sophomore year there will be certain differentiations, but for the most part the fundamental subjects, even in the sophomore year, will be identical.

In order that the work in chemical engineering may be pushed aggressively, Associate Professor Charles A. Mann has just been promoted to the rank of professor with the title of acting head of the Division of Chemical Engineering. For the time being very inadequate quarters must be used, and no satisfactory development of the experimental phases of chemical engineering can be put into operation until the completion of the fourth wing of the Chemistry Building. In the meantime, however, every effort will be made to develop a satisfactory course in chemical engineering. Next year there will be 26 seniors enrolled for courses in chemistry.

In the other courses of study offered in the school a number of changes have been made to increase the coördination between the various courses which are incorporated in them, in order to give a greater continuity in the subject-matter and a progressive training of the student from the more elementary parts of the work to the more advanced features. A number of courses which were not coördinate and which seemed to have no important position in the curriculum have been abandoned, and others substituted for them.

Considerable emphasis has been placed upon graduate work for students and assistants in the department. At the beginning of the school year

the number of students in the Graduate School amounted to 34, and a large part of these students were carrying on research work and at the same time making preparation for taking higher degrees.

### EQUIPMENT

During the past year a new policy has been decided upon in connection with advanced work in the department. In the past, graduate students and assistants have been assigned small offices and research laboratories and have worked separately upon their problems. It seemed best to the head of the School of Chemistry to abandon this policy, and for that reason a number of smaller rooms were thrown into a single large one which has been equipped as a research laboratory. This will accommodate fifteen or twenty persons, graduate students and assistants, who will carry out their research work and advanced work in this room. In my opinion, this association of students engaged in advanced work is of great benefit to them and accomplishes a purpose which can not be fulfilled by the old plan, namely the plan which assigns to each student a small room where he is isolated and out of contact with his fellow students. In the future it may be necessary to remove partitions and make other rooms in which a number of assistants and graduate students will work jointly upon their problems.

A new laboratory of physical chemistry has been made by enlarging the old room through the removal of partitions and the installation of new and modern desks. The enrolment in the Division of Physical Chemistry has increased many fold in the past two or three years. All the freshmen in the Medical School are required to take a course in physical chemistry for one quarter, and to this number must be added students in regular courses of the School of Chemistry who take physical chemistry as part of their required work. The new laboratory as it now stands will accommodate only 82 students working in sections. Next fall there will be approximately 90 medical students in addition to those in the School of Chemistry to take this subject. In order to accommodate them I have requested that another room in the School of Chemistry be equipped with desks so that it may be possible for us to teach the number of students which we shall have this coming fall.

If the course in Chemical Engineering is to develop as it should, it will be necessary to provide a considerable amount of special equipment for laboratory work. It is not the intention of the School of Chemistry to imitate any industrial processes in the nature of a complex chemical operation. On the other hand, it will be desirable to secure certain standard units of equipment, which would be a part of any working chemical industry, and to have them installed so that they may be used by students specializing in these fields in the solving of definite problems which may develop certain elements of research. A comparatively modest sum of money has been asked for in the budget of next year to make a beginning along this line. When the new building is completed, ample funds must be provided for equipment in order that there may be sufficient working material to place upon the floor of the new laboratory to take care of chemical engineers in their senior and

post-senior years. At that time the number will probably be two or three times as great as it is at present, which will require some duplication of equipment to handle classes. I would suggest that this matter be given consideration at some early date in order that the approximate amount of material may be determined beforehand and equipment ordered so that upon the completion of the building it may be installed at once.

During the latter part of July, 1919, it was my privilege to be honored with the appointment as dean of the College of Engineering and Architecture, and to assume the responsibility of directing the beginning of the new Institute of Technology. It has been a great privilege for me to have had this opportunity and to serve the University in this capacity during the past year. A few weeks prior to the close of the school year I accepted the position as Hepburn professor of organic chemistry at Princeton University, and at that time submitted my resignation to the president, which will take effect on July 31 of this year. I feel that the School of Chemistry has a very important function to perform in a state university such as this, and that every effort should be made to further the interests of the school for the purpose of enabling it to perform functions which it has assumed as a service department for most of the schools and colleges on the campus, and at the same time to provide for the development of the science of chemistry as such, by the appointment of men who will be offered privileges in the University of Minnesota to carry out investigations in their special fields, so that the University of Minnesota may possess one of the leading departments of chemistry in this country.

Respectfully submitted,

LAUDER W. JONES, *Dean*

## THE COLLEGE OF EDUCATION

*To the President of the University:*

SIR: I submit herewith my report as dean of the College of Education for the year 1919-20:

This has been the most successful year in the history of the College of Education. An excellent spirit has prevailed in the faculty and student body. The registration in the college showed a very remarkable increase. This was due to two factors: first, to the agreement entered into with the Arts College requiring all students desiring a teacher's certificate to register in the College of Education at the beginning of the junior year; second, to increased faith in higher education generally. This new faith in the value of higher education affected the registration in every college in the University, among others the College of Education. The following table shows the registration for the years 1917-18, 1918-19, 1919-20.

	1917-18	1918-19	1919-20 FIRST QUARTER
Unclassed .....	111	88	160
Seniors .....	42	35	50
Juniors .....	39	43	136
Sophomores .....	..	17	29
Freshmen .....	..	..	29
<b>Total .....</b>	<b>192</b>	<b>183</b>	<b>404</b>

### ENROLMENT BY QUARTERS FOR YEAR 1919-20

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
Unclassed .....	160	134	107
Seniors .....	50	53	50
Juniors .....	136	133	117
Sophomores .....	29	24	27
Freshmen .....	29	27	35
<b>Total .....</b>	<b>404</b>	<b>371</b>	<b>336</b>

*Social life of the students.*—For the first time in the history of the college the students became interested in the establishment of a self-government council. A constitution was framed which met with the approval of the faculty and was later adopted by the students.

*Scholarships.*—Two scholarships were given the college this year, one by Pi Lambda Theta, the educational sorority, and the other by Miss Elizabeth Carse, principal of the Northrop Collegiate School. The Pi Lambda Theta prize was granted to the best scholar and the Elizabeth Carse scholarship to the student having the highest degree of general efficiency. Mr. Willard C. Olson received the Pi Lambda Theta prize and Miss Ruth Taylor the Elizabeth Carse scholarship prize.

*Resignations.*—The College lost only one faculty member by resignation during the year, Mr. Robert Woellner, who was made director of vocational training in the army at Camp Pike, Arkansas.

*Degrees and certificates.*—The Bachelor of Arts degree in Education was conferred upon 58 candidates. Of this number 17 students received supervisor's certificates, 8 renewed certificates in Art Education, 1 in Library Work, 2 in Vocational Education, 1 in Physical Education, and 1 in Normal Training, and 18 received certificates to teach the ordinary high-school subjects. In addition 48 certificates were granted to graduates of the College of Science, Literature, and the Arts; and 41 in Home Economics, and 9 in Agriculture to graduates of the College of Agriculture, Forestry, and Home Economics.

*Graduate registration.*—Thirty-one students were registered in the Graduate School with education as a major. A year ago I called attention to the fact that only surgery at Rochester exceeds education in the number of students taking graduate work. I also called attention to the difficulties under which these students do their research work. No facilities have been available to students in the College of Education for graduate work in the General Library, and the seminar room in the College of Education Building has never been adequately staffed or equipped.

*Special courses and curricula.*—Art Education: The registration in Art Education has been particularly gratifying. It will be recalled that the Department of Art Education was formerly the Handicraft Guild and was taken over by the Regents on April 12, 1919. Miss Ruth Raymond, who has been in charge of the Department since its affiliation with the University, was recently elected president of the Western Arts Association.

Physical Education for Women: A four-year program for the training of teachers and supervisors of physical education was introduced in the College of Education this year. Eighteen students registered for it.

Vocational Education: A year ago we introduced courses in trade and industrial education for the training of teachers, under the administration of Professor Arthur F. Payne. We regarded this as an experiment at that time. Already, however, the demands are so great that we are unable to meet them. In order to provide shop facilities for training teachers in this field, a definite plan of affiliation was worked out with Dunwoody Institute. The plan is as follows:

**AGREEMENT AND PLAN OF COÖPERATION BETWEEN THE COLLEGE OF EDUCATION OF THE UNIVERSITY OF MINNESOTA AND THE WILLIAM HOOD DUNWOODY INDUSTRIAL INSTITUTE**

It is hereby agreed by the above mentioned parties, both subscribing to this agreement and plan of coöperation;

1. That the special field of the University Department of Trade and Industrial Education is the training of trade and industrial teachers for the types of schools and classes under the Smith-Hughes Act; also, the training of teachers of manual training, industrial arts, and prevocational education.

That the special field of Dunwoody Institute is the training of tradesmen and mechanics of various kinds.

2. That it is desirable, whenever possible, that there be an exchange of teachers between the two institutions.

3. That all students taking teacher training courses shall be registered in the College of Education of the University of Minnesota and all fees paid to the University.

4. That arrangements shall be made whereby the University students in Methods of Teaching Trade Subjects, Methods of Teaching Related Subjects, and other similar courses may spend a portion of their class time at Dunwoody Institute.

5. That so far as possible, Dunwoody Institute shall be used as the observation and practice teaching school for practice students in the Department of Trade and Industrial Education of the University. This includes day, evening, and special classes.

6. That a certain number of scholarships shall be awarded the faculty of Dunwoody Institute; these scholarships good only for regular courses offered by the College of Education.

7. That any classes given at any time at Dunwoody Institute in teacher training under the Smith-Hughes Act by regular or special members of the faculty of the College of Education shall be considered as regular College of Education classes and the members of these classes registered as such.

8. That the purpose and spirit of this agreement is that both institutions may cooperate in every possible way in the development of all forms of trade and industrial education in this part of the country.

*Committee on Appointments.*—During the latter part of August and during September, the secretary and assistant of the Committee on Appointments resigned their positions. It was not until October 1 that a new secretary was appointed. Consequently the records for this period are incomplete and no accurate account can be compiled. Omitting a group of teachers that were unquestionably placed during this period, the figures cover the period from July 1, 1919 to June 30, 1920.

The amount of business transacted for the year totaled \$229,233. The inexperienced teachers placed were 85, experienced 96, a total of 181. One was placed in college work, 2 in normal schools, 143 in secondary schools, 7 in junior high schools, 17 as principals, and 11 as superintendents.

ANNUAL SALARIES OF REGISTRANTS PLACED

	MODE	AVERAGE
Secondary teachers.....	\$1,170	\$1,208.69
Junior high schools and grades.....	1,400	1,403.57
Principals .....	1,800	1,840.00
Superintendents .....	2,000	2,113.63

TOTAL SALARIES OF REGISTRANTS PLACED

153 Teachers .....	\$174,703
17 Principals .....	31,280
11 Superintendents .....	23,250
<b>Total .....</b>	<b>\$229,233</b>

REGISTRANTS PLACED ACCORDING TO EXPERIENCE

Inexperienced .....	85
Experienced .....	96
<b>Total .....</b>	<b>181</b>

NOTE: Tabulate as nearly accurately as possible. These figures do not include placements from the College of Agriculture, Forestry and Home Economics.

## THE PRESIDENT'S REPORT

## REQUESTS FOR TEACHERS\*

Rural schools.....	7 plus
Grade teachers.....	323
Junior high schools.....	45
High schools.....	1,108
Music and art supervisors.....	69
Manual training.....	105
Physical training and athletics.....	58
Commercial teachers.....	70
Normal schools.....	39
Supervisors and critics.....	13
Librarians.....	12
Principals junior high school.....	13
Principals graded school.....	35
Principals high school.....	212
Superintendents.....	36
Colleges and universities.....	94
Total.....	2,239

\* Tabulation does not include calls for home economics or agriculture instructors received at this office. Personal calls for teachers are often not included.

*Needs.*—Let me reiterate my suggestion last year, that provision should be made for the training of teachers of commercial subjects, for the training of librarians for the public schools, and that as soon as conditions throughout the University will permit the Bureau of Coöperative Research should be reestablished and placed upon a more substantial footing; that the addition to the College of Education Building, for which an appropriation of \$50,000 was made by the last legislature, should be erected at the earliest possible moment; that a new building for the establishment of an elementary school as a part of the College of Education laboratory should be erected, and that increased space should be provided for the college classes in Education.

*University High School.*—Following is a summary of the enrolment for the year 1919-20.

	Boys	Girls	TOTAL
Freshmen.....	27	32	59
Sophomores.....	23	42	65
Juniors.....	27	33	60
Seniors.....	17	26	43
Total.....	94	133	227

The enrolment for 1919-20 was larger than it should have been. The space available for high-school work, at the present time, makes it impossible to accommodate more than 210 students, without crowding. An attempt will be made in 1920-21 to reduce the enrolment to about 210, which will be the maximum until more space is provided.

Plans for the construction of an addition to the University High School, to be used for a gymnasium and classrooms, did not materialize. The \$50,000 appropriated for this purpose was inadequate for the construction of a gymnasium that would satisfactorily meet our needs.

Respectfully submitted,

LOTUS DELTA COFFMAN, *Dean*

## THE GRADUATE SCHOOL

*To the President of the University:*

SIR: I submit herewith the annual report of the Graduate School for the year 1920:

Numbers are not of the greatest significance in the report of any unit of the University, but in estimating the work of the Graduate School, they are of more importance, perhaps, than elsewhere. It is to the Graduate School that we look for the training of men and women for teaching positions in colleges and universities and normal schools, and for the more progressive high schools and junior colleges. Its students, too, are sought by the industries which depend upon a trained research and laboratory staff for the discovery and improvement of new processes. The great demand for those thus trained, and the inadequate supply, has raised the work of the Graduate School into new importance and given to the question of its total registration a very concrete interest. It is therefore gratifying to be able to point out, the Graduate School at the University of Minnesota had 608 students this year, the largest registration in its history. It has become in the last few years one of the largest training schools for advanced students in the United States. This is due chiefly to the increasing strength and distinction of the teaching faculty. In spite of great difficulties and some serious losses, the colleges of Agriculture, Forestry, and Home Economics, Science, Literature, and the Arts, and Education, and the Medical School, have been particularly fortunate in putting at the service of their students and the students of the Graduate School a very excellent group of creative and inspiring teachers. There is no obligation of the University that exceeds the importance of keeping and properly appreciating the best men on our own faculty to-day. This means, not only the men who have arrived, who are already known, but the junior members of the staff whose scholarship and teaching power give greatest promise.

A glance at the tables will show that in the six years since it was inaugurated, the medical graduate work has developed into a leading position in numbers, and tho no longer novel with us, remains to the rest of the scientific and teaching profession our most significant contribution to higher learning. Other universities and medical centers where such graduate work is planned have on several occasions during the last year sent committees to investigate the work in Minneapolis and at Rochester.

It is to be noted that this development has been most rapid in the so-called clinical branches, especially in the various branches of surgery and in the department of pediatrics. The country-wide deficiency in trained men to teach pathology, anatomy, bacteriology, and other fundamental laboratory subjects is a matter of very serious concern to all interested in medical education, either graduate or undergraduate. Many of the students who have in recent years taken higher degrees with us in these subjects have suffered from the low salaries paid teachers; and have returned to

specialize in a clinical subject where the returns are quick and adequate. The need of encouraging properly qualified students to enter the fundamental branches has led us to increase the fellowship stipends in the Medical School and Mayo Foundation to \$900 for the first year, \$1,200 for the second and \$1,500 for the third, leaving the fellowships in clinical subjects unchanged. An additional incentive must come in higher salaries when they enter the teaching faculty or research work.

The steady increase in the number of graduate students in the summer session is an encouraging sign. A number of these now stay on for a full twelve weeks, and this year for the first time, we shall have candidates for the Master's degree, who have fulfilled all the residence and course requirements by summer registration. Even if we do not immediately find ourselves able to inaugurate the full summer quarter, an increase in the funds available for the summer session would enable us to offer a richer program to the teachers of the state who are striving for a better preparation by taking advanced courses.

Whatever encouragement may be derived from mere increase in numbers in Graduate School registration is fully balanced when one notes the decline in the number who this year took advanced degrees. This decline was most striking in the number of those who took the Doctor's degree, indicating full and adequate preparation for teaching and research careers. The disparity between demand and supply for this type of well-trained students has been increasing in the last few years and was very evident this year, as time after time I had to reply to inquiries from universities, colleges, and high schools that we had no one to recommend for places in almost every field of teaching.

Further the undergraduate influx has resulted in the cancellation of courses in the Graduate School by qualified instructors, who were overwhelmed by undergraduate teaching. In addition, graduate students serving as assistants were swamped by additional duties, and for slight increases in salary or with no increase, were engaged in additional duties that diverted them from the fundamental purpose they had in mind in coming to Minnesota. In some cases, I feel constrained to add, they did get their degrees, but it was at the cost of standards of scholarship that must be maintained.

From such situations there was no relief to be found on the part of the Graduate School. It had no fund with which to lift the burden of faculty teaching or student assisting. It could not hold even the best scientists from the burden and increased hours of teaching. It had to agree regretfully to the necessity of its staff abandoning either the teaching of advanced students or the continuation of research projects.

It is all very true that the University has obligations through its undergraduate colleges to care for elementary teaching, but it is equally true that it has another function as a University in the true sense, and under present conditions that function is in danger of being neglected, or what is worse, poorly performed. The results of neglecting at every choice the training of college teachers of the future, of the scientists who are to help us hold our pace as a state and a nation, and more important, who are to widen

the world's knowledge for the world's good, are not things that it takes an educational statesman to see. They would be evident to the common-citizen if they were ever pointed out to him.

All this brings up sharply as a matter of university policy and university obligations the question whether we can wisely go on, trying to maintain a Graduate School dependent on the surplus energy of the undergraduate colleges, when there is no such resource to maintain it without special funds and definite support. I once had some idea that this might be done, or at least, that it was the best policy in getting things started. Whether or not it served best in the beginning to ask little, as an independent unit of the University and the basic one, in its great work, may be decided by others. I am reasonably satisfied that it was, but I am thoroly convinced that it is no policy for the future. An undergraduate college of over 600 students that had funds only to pay part of its dean's salary, hire a clerk or two, and divide a small sum to hire assistants or buy materials for its faculty who had ambitions to do what they were selected to do, would be a joke. Certainly a graduate school with tasks in teaching, training, and direction of the same number of advanced or graduate students which at Minnesota is supported exactly upon the basis outlined, is entitled to raise the question of its place and work in the future of the University of Minnesota.

REGISTRATION, 1915-20

YEAR	GRADUATE STUDY	MASTER	DOCTOR	MEN	WOMEN	TOTALS
1915 .....	22	159	56	160	77	237
1916 .....	31	206	139	270	106	376
1917 .....	29	328	107	347	117	464
1918 .....	21	200	155	248	128	376
1919 .....	19	219	134	208	154	372
1920 .....	24	358	226	443	165	608

GRADUATE STUDENTS DOING FULL- OR PART-TIME WORK

	FULL TIME	PART TIME	TOTAL
Men .....	203	240	443
Women .....	69	96	165
Total .....	272	336	608

DISTRIBUTION ACCORDING TO YEARS OF GRADUATE WORK

FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR AND OVER
342	190	63	13

## MEMBERS OF STAFF REGISTERED IN GRADUATE SCHOOL

	MEN	WOMEN	TOTAL
Instructors doing graduate work*.....	76	23	99
Graduate students serving as assistants...	40	14	54
Graduate students holding scholarships....	15	9	24
Teaching fellows.....	29	20	49
Fellows (Mayo Foundation).....	127	4	131

\* Three Professors, 9 Associate Professors, and 11 Assistant Professors.

## MASTERS DEGREES GRANTED IN 1920 BY DEPARTMENTS

	MINNESOTA GRADUATES		OTHER COLLEGES		TOTALS		
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	TOTAL
Agronomy .....	2	..	2	..	4	..	4
Anatomy .....	2	..	..	..	2	..	2
Agricultural Education ..	..	..	2	..	2	..	2
Agricultural Economy ..	1	..	1	..	2	..	2
Animal Biology.....	2	..	1	..	3	..	3
Anthropology .....	1	1	..	..	1	1	2
Bacteriology .....	2	1	..	..	2	1	3
Biochemistry .....	1	1	1	..	2	1	3
Botany .....	..	1	..	..	..	1	1
Chemistry .....	..	1	1	..	1	1	2
Economics .....	1	..	..	..	1	..	1
Economic Entomology ..	..	..	1	..	1	..	1
Education .....	..	..	1	..	1	..	1
English .....	..	1	1	3	1	4	5
Geology .....	1	..	1	..	2	..	2
German .....	..	3	..	..	..	3	3
History .....	..	4	1	1	1	5	6
Home Economics.....	..	..	..	1	..	1	1
Horticulture .....	..	..	1	..	1	..	1
Latin .....	1	..	..	..	1	..	1
Mathematics .....	1	..	..	..	1	..	1
Medicine .....	1	..	..	..	1	..	1
Metallography .....	..	..	1	..	1	..	1
Obstetrics .....	..	..	1	..	1	..	1
Ophthalmology .....	..	..	1	..	1	..	1
Oto-Laryngology .....	..	..	1	..	1	..	1
Pathology .....	..	..	1	..	1	..	1
Physics .....	..	..	2	..	2	..	2
Plant Pathology.....	..	..	2	..	2	..	2
Romance .....	..	1	..	..	..	1	1
Sociology .....	..	..	1	1	1	1	2
Surgery .....	..	..	5	..	5	..	5
Totals .....	16	14	29	6	45	20	65

## GRADUATE STUDENTS MAJORING IN THE VARIOUS DEPARTMENTS

DEPARTMENT	MEN	WOMEN	TOTAL
Agricultural Economics	4	..	4
Agricultural Education	2	..	2
Agronomy and Farm Management	14	..	14
Anatomy	10	2	12
Animal Biology	6	5	11
Astronomy	..	1	1
Bacteriology	2	3	5
Biochemistry	7	2	9
Botany	11	8	19
Chemistry	31	7	38
Comparative Philology	..	1	1
Economics	15	2	17
Economic Zoology	..	1	1
Education	55	13	68
English	10	25	35
Electrical Engineering	3	..	3
Entomology	9	1	10
Forestry	1	..	1
Geology	11	..	11
German	3	6	9
Greek	1	..	1
History	12	16	28
Home Economics	..	8	8
Horticulture	6	..	6
Husbandry, Dairy	5	..	5
Latin	1	2	3
Mathematics	6	1	7
Mechanical Engineering	1	..	1
Medicine	43	2	45
Metallography	6	..	6
Oto-Laryngology	3	..	3
Pathology	6	1	7
Ophthalmology	12	..	12
Obstetrics	3	..	3
Pediatrics	7	1	8
Pharmacology	1	..	1
Philosophy	1	4	5
Physics	9	2	11
Physiology	2	2	4
Plant Pathology	4	4	8
Political Science	5	1	6
Psychology	4	9	13
Rhetoric	2	2	4
Roentgenology	1	..	1
Romance	12	15	27
Scandinavian	3	..	3
Sociology and Anthropology	7	19	26
Soils	2	..	2
Surgery	81	..	81
Veterinary Medicine	2	..	2
Total	443	165	608

EDUCATIONAL INSTITUTIONS REPRESENTED IN THE  
GRADUATE SCHOOL, 1920

Alabama .....	1	Kieve .....	1
Allahabad (India).....	1	Kiota (Japan).....	1
Albion .....	1	Knox .....	2
Amherst .....	1	Kristiania .....	1
Augsburg .....	3	Lawrence .....	3
Augustana .....	3	Lehigh .....	1
Beloit .....	3	Leland Stanford .....	5
Boston .....	2	Lewis .....	1
Bowdoin .....	3	Lombard .....	1
Brown .....	2	Ludwig .....	1
Bryn Mawr .....	1	Luther .....	4
Butler .....	2	Macalester .....	11
California .....	1	McGill .....	3
Carleton .....	10	Madrid .....	1
Case .....	1	Maine .....	4
Chicago .....	21	Maryland .....	1
Cincinnati .....	2	Marquette .....	2
Clark .....	1	Manitoba .....	2
Colgate .....	1	Mexico .....	1
Colgate T. Col. ....	1	Michigan .....	13
Colorado .....	1	Minnesota .....	116
Columbia .....	6	Mississippi .....	2
Concordia .....	1	Missouri .....	11
Connecticut .....	1	Nebraska .....	4
Cornell .....	13	Nebraska Wesleyan.....	2
Creighton .....	3	New Hampshire .....	1
Dakota Wesleyan.....	3	New York .....	1
Dartmouth .....	1	North Dakota .....	2
Davidson .....	4	Northwestern .....	4
Denver .....	1	Oberlin .....	4
Doane .....	1	Ohio .....	4
Drake .....	2	Ohio Wesleyan.....	4
Dixon .....	1	Oxford (England).....	1
DuPauw .....	1	Paris .....	1
Earlham .....	1	Pennsylvania .....	14
Edinburgh .....	2	Pittsburg .....	1
Emory and Henry.....	1	Pomona .....	2
Fargo .....	1	Princeton .....	3
Furman .....	1	Queens .....	2
Geneva .....	1	Red Wing.....	1
Georgia .....	2	Rice Institute.....	2
George Washington.....	2	Ripon .....	2
Grinnell .....	1	Roanoke .....	1
Gustavus Adolphus .....	1	Rome (Italy).....	1
Hamline .....	12	St. Catherines .....	5
Harvard .....	4	St. Louis .....	2
Havana .....	1	St. Thomas .....	1
Hope .....	1	Simpson .....	2
Howard .....	1	Smith .....	3
Huron .....	1	South Carolina .....	1
Idaho .....	1	South Dakota .....	3
Illinois .....	9	St. Olaf .....	9
Indiana .....	6	Syracuse .....	5
Iowa .....	7	Tennessee .....	1
Iowa State College.....	3	Texas .....	1
Kansas .....	2	Tokio .....	1

Toronto .....	4	Western Reserve .....	2
Tulane .....	3	Westminster .....	1
Ursinus .....	2	West Virginia .....	2
Valparaiso .....	2	Wheaton .....	2
Vanderbilt .....	2	William Jewell .....	1
Vassar .....	2	Wisconsin .....	21
Virginia .....	2	Wofford .....	2
Wabash .....	1	Worcester .....	1
Wartburg .....	2	Yale .....	3
Washburn .....	1		
Washington .....	4	Total colleges represented.....	136
Washington and Jefferson.....	2	Minnesota registration .....	116
Washington and Lee.....	1	Other colleges .....	392
Wellesley .....	1		
Western .....	1	Total registration .....	608
Wesleyan .....	3		

In case the rating of the college is low, the student's entry blank shows extra undergraduate work here or elsewhere or tested qualifications in his major work.

DOCTORS OF PHILOSOPHY CONFERRED IN 1920

Edgar Bernard Brossard, B.S. '11, Utah Agricultural College, M.S. '17, Minnesota. Major, agricultural economics; minor, farm management. Thesis: *Types of Irrigation Farming.*

Thomas Wainwright Bussom, B.A. '12, Amherst. Major, romance (French); minor, romance (Spanish). Thesis: *The Tragedies of Pradon.*

Paul Harmer, B.S. '11, Carleton, M.S. '15, Minnesota. Major, soils; minor, bacteriology. Thesis: *A Glacial Soil Study; Uniformity of the Late Gray Drift of Minnesota.*

Georgine Luden, B.A. '11, M.D. '12, Munich. Major, pathology; minor, physiological chemistry. Thesis: *Metabolic Disturbances as an Etiologic Factor in Carcinoma: The Influence of Cholesterol Metabolism and Other Factors (Studies on Cholesterol VII).*

Arthur Jerrold Tiejé, B.A. '05, M.A. '08, Cornell, Ph.D. '12, Illinois. Major, geology; minor, paleontology. Thesis: *Cambrian Sedimentation in the Big Horn Mountains.*

Gustave Leopold Van Roosbroeck, A.C. '09, Brussels, M.A. '17, Minnesota. Major, French; minor, philosophy. Thesis: *A Study of Corneille's Evolution.*

*Doctor of Philosophy in Surgery*

Carl Arthur Hedblom, B.A. '07, M.A. '08, Colorado College, M.D. '11, Harvard. Major, surgery; minor, pathology. Thesis: *Treatment of Chronic Empyema.*

FELLOWSHIPS, 1920-21

*Shevlin Fellowships*

Science, Literature, and the Arts: Gertrude Anna Jacobson, B.A. '17, M.A. '18, Minnesota.

Agriculture: Robert Newton, B.S. '12, McGill.

Medicine: Beryl Sparks Green.

Chemistry: Frank Joseph Heck, B.S. in Chem., '19, Minnesota.

*The DuPont Fellowship in Chemistry*

Christian John Wernlund, Ph.B. '13, Hamline, M.S. '16, Northwestern.

*Class of 1890 Fellowship*

Katharine Van Tuyl, B.A. '20, Vassar.

## PUBLICATIONS

Since the last report the following have appeared:

*Studies in the Social Sciences*

Louis A. Boettiger, *Armenian Legends and Festivals*.

Martin B. Ruud, *An Essay toward a History of Shakespeare in Denmark*.

Elmer E. Stoll, *Hamlet*.

In press are the following:

J. T. Gerould, *Sources of English History in the Seventeenth Century, 1603-1689, in the University of Minnesota Library*.

Frances E. Kelley, *A History of School Support in Minnesota*.

Notestein and Relf, *Editors, Commons Debates for 1629*.

Samuel R. Powers, *The Teaching of Chemistry in Secondary Schools of the United States during the First Half of the Nineteenth Century*.

## APPROPRIATIONS FOR RESEARCH

Allotments from the research funds of the Graduate School have been made by the Executive Committee during the past year to the following persons for the purposes stated with results as here summarized:

Hal Downey, \$250 for research assistant on investigations of two problems: (1) study of development of lymph nodes with special reference to the origin of the lymph sinuses of the nodes, (2) investigation of normal pathologic human and mammalian bone marrow and lymph nodes. Material collected. Work to be continued.

W. H. Emmons, \$400 for research assistant and materials for bismuth and petroleum investigations. Much material gathered and experiment in petroleum made. One paper published in *Engineering and Mining Journal*, May 1920. Work in progress, to be continued.

Erikson, Swann, \$1,000 for investigations in physics, assistants.

Tate, McKeehan, paper on the sun's influence on the diurnal variation of the atmospheric potential gradient published, *Monthly Weather Review*, July 1919. Paper on causes and prevention of fires in balloons, published in *Journal of U. S. Air Service*, 1919. Paper on atmospheric electricity, published in *Journal of the Franklin Institute*, Nov. 1919. Paper on unipolar induction published in *Physical Review*, May 1920. Work to be continued.

G. D. Flom, \$300 for research in Scandinavian languages. Fund not used, reverted to reserve.

T. B. Hartzell, \$200 for laboratory supplies in investigation in mouth infections. One paper published in *Journal of Dental Research*; series of papers in preparation to be published in fall.

Arthur T. Henrici, \$150 for supplies for investigations on immunologic streptococci. Materials used in an investigation of the relationships of nitrogen-fixing bacteria from various legumes by immunity reactions. Work to be continued.

J. I. Parcel, \$350 for research assistant for investigation in concrete and reinforced concrete. Many tests have been made in the study of shrinkage in cement and concrete reinforced flat-slab floors. Work to be continued.

- W. P. Larson, \$300 for supplies for investigations in surface tension. Three papers are now completed and will be published this fall. Work to be continued.
- K. S. Lashley, \$275 for supplies in investigations on brain experiments. Fund not used, reverted to reserve.
- R. E. Scammon, \$400 for research assistant and instrument on investigation on the anatomy of the fetus. Results will be published in several articles in anatomical journals this fall. Joint report made at annual meeting of the American Association of Anatomy.
- C. Searles, \$200 for books in romance languages—French literature of the 17th century. Many rare books acquired.
- F. W. Springer, \$200 for research assistant in investigations in ignition tests. Fund not used, reverted.
- F. H. Swift, \$600 for research assistant for investigation on state aid. Paper published in *American School Journal*, May 1920, four other articles published, book on school finance ready for press, work to be continued.
- M. J. Van Wagenen, \$300 for assistant and printing for investigations on psychology tests—preliminary reading tests in history and general science, resulting in two finished reading tests, and an article to be published this fall.
- J. P. Sedgwick, \$500 for assistants and supplies in investigations of breast feeding in Twin Cities. Investigation covers two years. Report being compiled.
- Wallace Notestein, \$175 for rotographs in history research. Rotographs of D'Ewes Notes of the Long Parliament procured. Book on Stuart Period in preparation.
- Olga Hanson, \$100 for materials for investigation of the antagonistic action of magnesium sulphate to the toxic action of arsenic. Animals purchased and histological sections prepared.\*
- E. J. Lund, \$50 for research assistant and materials for investigation of oxidations in invertebrates. Materials gathered. Series of articles to be published.
- Oscar E. Harder, \$50 for equipment and materials for investigations in metallography. Fund used for equipment.
- L. W. Jones, \$158 for apparatus—microscope and other apparatus purchased in connection with a study of colloids.
- L. L. Bernard, \$100 for tabulating work on investigations on survey of reading habits and cultural activities of a rural community.
- N. S. B. Gras, \$150 for traveling expenses in connection with a study of the storage problem. Several trips made during spring and much valuable data secured.
- E. C. Stakman, \$300 for research assistant for investigation in a study of the biologic forms of wheat rust.
- White, Ford, Krey, \$600 for research assistants for history research. A series of articles to be published this fall and two books in progress.
- Herbert Woodrow, \$280 for research assistant and printing for intelligence scales and tests. Experiments in rhythm and time—x-ray photos of hand and wrist of 500 school children made.

Respectfully submitted,

GUY STANTON FORD, *Dean*

# THE SCHOOL OF BUSINESS

*To the President of the University:*

SIR: I submit herewith my report for the year 1919-20.

To the School of Business has been assigned the twofold function of training its own students for executive positions in business, and of furnishing instruction in the various fields of economics to the other colleges and schools of the University. During this, its first year of existence, the latter phase of its activities has been by far the more conspicuous one, since but few persons had completed the equivalent of the two year pre-business course prescribed for entrance.

## THE STAFF

*Resignations.*—During the year the following resignations were accepted: E. Dana Durand, professor of economics, to continue in government service in Poland; John H. Gray, professor of economics, to accept a professorship at Carleton College; J. Hugh Jackson, assistant professor of accounting, to accept an assistant professorship at Harvard Graduate School of Business Administration; Albert C. James, assistant professor of economics, to accept an associate professorship in business administration at Western Reserve University.

*Leaves of absence without pay.*—E. Dana Durand, professor, for government service in Poland; J. Hugh Jackson, assistant professor, for graduate study at Harvard University; John H. Gray, professor, for the first quarter, for service with the Interstate Commerce Commission; Clara F. Sykes, instructor and secretary, for the third quarter, for graduate study at the University of Chicago.

*Promotions.*—Clara F. Sykes has been promoted from the rank of instructor to that of assistant professor.

*Appointments for 1920-21.*—The following new appointment has been made in the professorial ranks: Edwin A. Heilman, assistant professor of accounting.

The following table shows the constitution of the 1919-20 staff by ranks:

Professors .....	3
Associate professors .....	3
Assistant professors .....	6
Professorial lecturers .....	2
Instructors .....	5
Assistants .....	4
Part-time assistants .....	6
Total .....	29

## THE STUDENT BODY

*Enrolment.*—The following table shows the attendance during the year 1919-20:

	MEN	WOMEN	TOTAL
Seniors .....	17	1	18
Juniors .....	52	14	66
Special students .....	12	1	13
<b>Total .....</b>	<b>81</b>	<b>16</b>	<b>97</b>

*Scholarship.*—Owing to the fact that a C average is required for entrance, the number of conditions and failures is very small, being confined almost wholly to the small group of business men who were admitted as special students.

Number of conditions .....	2
Number of failures .....	6
	8

*Geographical distribution.*—The following table shows the distribution according to states and counties:

STATES	COUNTIES IN MINNESOTA
Minnesota .....	Anoka .....
Iowa .....	Blue Earth .....
North Dakota .....	Cass .....
Illinois .....	Clay .....
South Dakota .....	Faribault .....
Wisconsin .....	Goodhue .....
Missouri .....	Grant .....
Nebraska .....	Hennepin .....
Pennsylvania .....	Itasca .....
Washington .....	Kittson .....
	Lake .....
	Meeker .....
France .....	Norman .....
	Olmsted .....
<b>Total .....</b>	Otter Tail .....
	Pope .....
	Ramsey .....
	Redwood .....
	Roseau .....
	St. Louis .....
	Swift .....
	Wabasha .....
	Waseca .....
	Washington .....
	Winona .....
	Wright .....
	<b>Total .....</b>
	80

*Work offered to students of other colleges.*—The number of elections of courses offered by the School of Business on the part of students of other schools and colleges of the University was as follows:

Fall quarter .....	2,192
Winter quarter .....	2,008
Spring quarter .....	1,256
<b>Total .....</b>	<b>5,456</b>

The pronounced decrease in the spring quarter is due to the fact that several heavily elected beginning courses were given during the fall and winter quarters only.

### CURRICULUM

In addition to the general pre-business course given in the College of Science, Literature, and the Arts, a similar course has been provided in the College of Agriculture, Forestry, and Home Economics for students who expect to engage in some form of business closely related to agriculture.

In the School of Business, stress is laid upon the adaptation of a student's program to his future plans. In order to make this plan effective each registrant has assigned to him, as adviser, a specialist in the field in which his primary interest lies. Programs of study are published, covering a number of fields of specialization, but it is understood that they will be varied as each particular case dictates.

### NEW BUILDING

The development of the work of the School of Business is greatly impeded by its location in badly cramped quarters, in a building generally unfit for classroom and laboratory work, and not a suitable place in which to house expensive mechanical equipment.

Additions to the staffs of the School of Business and the Political Science Department, which is also located in this building, have made the congestion in offices quite intolerable. The members of the staff are compelled to hold classes in any building where an unoccupied room can be found.

### BUREAU OF BUSINESS RESEARCH

There is greatly needed, in connection with the work in business education, an organization which will render to the small business enterprises of the state a service similar to that rendered to the farming interests by the various agencies associated with the College of Agriculture, Forestry, and Home Economics. As a service bureau, such an organization would make a careful study of business problems of the small Minnesota merchant, in order to be in a position to render him the most effective aid in his accounting, credit, publicity, and other problems. As a research bureau it would serve to coördinate the research activities of the staff and students and direct them into the most profitable channels.

Respectfully submitted,

GEO. W. DOWRIE, *Dean*

## THE DEAN OF WOMEN

To the President of the University:

SIR: The dean of Women herewith submits the following report for the year 1919-20.

### REGISTRATION OF WOMEN

Science, Literature, and the Arts.....	1,618
Engineering and Architecture.....	12
Law .....	9
Medicine .....	20
Nurses .....	155*
Dentistry .....	10
Pharmacy .....	31
Chemistry .....	8
Education .....	358
Graduate .....	122
Business .....	5
Agriculture and Home Economics.....	300
Total .....	2,648
During summer session, 1919.....	712
Total for the year.....	3,360

\* Including 62 in Public Health Nursing courses.

The distribution as to residence (figures based on census cards supplied by registrar's office) during the regular session of 1919-20, is as follows:

At home .....	1,259
In private families: apartments.....	268
In approved houses .....	754
In sorority houses .....	130
In dormitories .....	85
In coöperative cottages.....	28
In home-management houses.....	20†
In nurses homes.....	74
Working for room and board.....	30
Total .....	2,468
Wholly self-supporting.....	265
Partly self-supporting.....	310
Wholly dependent.....	1,380
No reply.....	693

† Permanent residents; 16 different workers each quarter.

*Delinquents.*—The dean of Women has attempted to be of assistance to Dean Shumway.

*Absentees.*—During the first quarter, 286 students were called in; during the second quarter, 1,036; during the third quarter, 324. As a general thing the excuses were for sickness.

*Chaperones.*—All chaperones for evening parties must be approved by this office. We have attempted to have two faculty chaperones for each party. The faculty seems less and less desirous of acting as chaperones,

and we have therefore, made an arrangement with Miss Jessie Adincourt, who, for a small compensation, has chaperoned sunlight dances, and also evening parties. Of course the greater number of parties still have faculty members as chaperones.

*Housing.*—Sanford Hall has been full to overflowing, and has a long waiting list. The first wish of out-of-town girls coming to the University is to live in the dormitory. The work on the addition to Sanford is well under way, and by next spring may be ready for occupancy. With some few alterations of the main building, and the extending of two wings, we will be able to house one hundred more students. With the completion of the dormitory, we will be able to do away with the poorer rooming houses.

Through the months of September and part of October we were hunting rooms for students. All approved and inspected rooms were soon engaged, still the students poured into the city, to be housed somewhere. We advertised, and also made a house to house canvass. Many people were induced to open their homes to students. Some students were obliged to select rooms at some distance from the University.

On March 1, 1920, Mrs. M. E. Staples was engaged to give half-time service for the housing bureau. For the coming year we will have the full time of Mrs. Staples. Constant, unexpected inspections of rooms must be made; third-floor rooms without fire escapes must be condemned. Mrs. Staples will inspect houses for both men and women, and if possible the houses on the Agricultural Campus.

*Coöperative cottages.*—Only two are left us, Northrop and Loring. Folwell Cottage has been taken over as a nurses' home, and Winchell has been torn down. The fees for Northrop and Loring are very small; the girls pay \$23.50 per month at Loring, and \$23 per month at Northrop. This includes room and board, and many miscellaneous expenses.

In April 1920, the regents agreed to allow us to take over another house at 125 State Street, for coöperative purposes. This house will be renamed Winchell. It will house eight girls and a chaperone. This will help out somewhat.

These cottages fill a real need, and the rooms are much in demand. The practical experience gained in managing these cottages is exceedingly useful to the students. There is a wonderful chance in these small groups for coöperation and good fellowship. I hope that we may have more such cottages.

If there is to be a memorial to Professor Maria Sanford on the campus, I very much wish that it might take the form of a permanent coöperative cottage for University women. I can think of no other way by which so many women could be helped to gain an education. I am confident that nothing would have pleased Miss Sanford more than such a memorial.

The two home management houses have been operated under the supervision of the Home Economics Department. This practical work of running a home, complete in every detail, is of great benefit to the students. The number of girls who have had the benefit of this work this year totals 48.

*Sorority houses.*—Conditions are, as a general thing, much better than in the ordinary rooming houses. The chaperones are ladies who take their

duties seriously. The short rushing season seems more successful than the former methods.

*Summer school, 1919.*—Miss Gertrude H. Beggs, dean of Women in 1918-19 reports:

We departed this year from the previous custom of sending printed lists of rooms to summer school applicants, and handled in this office, either by correspondence, or by personal interview of individuals, applications for accommodations for summer school. This plan has worked so easily and so successfully that it would seem a pity to revert to the old system.

*Census slips.*—These slips have been of great value for obtaining quick and accurate information concerning the students. Any additional information gained, we add to the census slip.

*W.S.G.A.*—The additional representatives from the College of Pharmacy, the Medical School, the College of Engineering and Architecture, the Law School, the College of Education, the Division of Home Economics, and the School of Nursing have materially strengthened the W.S.G.A. One member from the vocational committee has been added. The W.S.G.A. has been the center of social life on the campus. The big sisters have been most helpful in looking out for the younger girls. The book exchange has been run in a successful manner by the W.S.G.A. Thirty-eight war orphans have been adopted, and 20 orphans readopted. The total money expended for this cause is \$2,117. The Vocational Committee has assisted in conferences. The W.S.G.A. has given Shevlin Hall a handsome reading lamp, as well as china and silverware. It has furnished five restrooms in various buildings on the campus. In fact the work of the W.S.G.A. is most important. It stands back of all movements for the betterment of conditions here at the University.

*The House Council.*—The House Council attempts fairly successfully to bind the various house groups together, to bring about a better understanding among them, and to carry out our simple house rules. Vexing questions are brought up, and talked over, and a solution sought. The Small House Council is really a committee chosen from the House Council to enforce disciplinary measures.

The Advisory House Council is an organization of householders. The meetings are partly to discuss ways and means, both as to rooming and boarding conditions, and partly as to social affairs. There is no question but that these meetings make for a better understanding of the problems which confront householders.

*The Woman's University Club.*—The teaching faculty of the University has formed an organization called "The Woman's University Club." The president of the club is Dr. Hermione Dealey. The women have adopted a constitution and have made tentative plans for a house. Such a house would be most useful, as there are no suitable places where women of the faculty may live. For the coming year the room in Shevlin formerly occupied by the vocational adviser, will be the headquarters of the club. One fine plan of the club is to have a committee on housing. This committee will meet the new members of the teaching staff and assist them to find

rooming-places. We are expecting great results from pleasant social relations and general coöperation from this banding together of the faculty women.

*Social events.*—Many small groups of students were entertained during the year at the dean's home. Teas were given to the students on Sunday afternoons during February and March at the home of the dean. Faculty members were asked to assist. They were well attended, and proved exceedingly worth while, in that students and faculty had an opportunity for informal meeting. One of the most hopeful signs of the times is the desire on the part of the students for better relations between faculty and students.

Two picnic suppers were given, one for the members of the Women's University Club, and the other for the members of Mortar Board. During the examination week of each quarter teas were given in Shevlin Hall. This proved to be of real value to the students.

The fireside reading hour has continued to be a Wednesday afternoon feature, as in years past.

*Social events—students.*—Sunlight dances have been given by the W.S.G.A. every two weeks. Every Friday afternoon a social hour has been held, under the auspices of the W.S.G.A. The entertainment is provided by different organizations. All evening parties given on the campus have been confined to Friday and Saturday evenings. There has been an unusual desire for dancing and gayety this year. It seems to be an aftermath of the war, and is, I believe, felt all over the country.

*Financial aid to students.*—Loan funds: The most useful has been the loan fund for women students, given by the Faculty Women's Club. There is also a small emergency fund, given by the Faculty Women's Club. The Self-Government Association of the Home Economics Division maintains a small loan fund.

From the faculty loan fund, from February 1, 1919 to February 1, 1920, 40 students borrowed a total of \$1,456.94; 31 students paid back \$1,107.20. Our two British bonds, belonging to the loan fund, are still in the care of Mr. Luth Jaeger. A report of all loan fund transactions has been given to Mrs. Carlyle Scott, president of the Faculty Women's Club.

Scholarships: Following is a list of scholarships handled by this office:

Mrs. Elbert L. Carpenter scholarship.....	\$	100.00
Mrs. George C. Christian scholarship.....		100.00
College Women's Club of Minneapolis scholarships.....		450.00
College Women's Club of St. Paul scholarships.....		900.00
Faculty Women's Club scholarship.....		100.00
Nina Morais Cohen scholarship.....		2,750.00
George H. Partridge scholarships.....		500.00
Women's Club of Minneapolis.....		100.00
W.S.G.A. scholarships.....		400.00
Total .....	\$	2,750.00

Besides these scholarships there are the Minnesota Federation of Women's Clubs scholarships, the Duluth Branch of the Association of Collegiate Alumnae scholarship, and Puritan Colony scholarship loan fund. These funds are handled outside the office of the dean of Women.

Respectfully submitted,

JESSIE S. LADD, *Dean of Women*

## THE DEAN OF STUDENT AFFAIRS

*To the President of the University:*

SIR: I beg to submit herewith my report as dean of Student Affairs for the school year 1919-20.

The past year has closely approached a normal year in so far as the student life and activities are concerned.

There have been new problems and questions arising, all of them directly related to the following conditions:

1. The unexpectedly large enrolment;
2. The introduction into the student body of over two thousand returned service men;
3. A spirit of unrest, existing not only in the University, but throughout the country;
4. The overcrowding of the classes and laboratories of the first-year classes, due to a shortage of instructors and facilities;
5. The rapidly rising cost of living, felt as much by the students, and frequently more, than by the outside public.

None of the new questions or problems were of particularly serious character.

Minnesota was particularly fortunate in the attitude and spirit of her student body towards the University. The student body has at all times been cheerfully amenable to authority.

This does not seem to have been the experience of other colleges and universities, particularly of the Middle West.

At a conference of deans of Men held at the University of Illinois in March, it was reported as the common experience that the spirit of unrest in the colleges represented at the meeting, verged closely on insubordination, this being particularly true of the sophomore class.

As showing the spirit of our student body I will state that in no previous year has there been as strong and concerted an effort on the part of the students of the upper classes, including the sophomore, to bring the incoming class in touch with the University and what it stands for, and to create a general spirit of friendliness and helpfulness. This coöperation has made possible the resumption of pre-war student life and activities without friction or jar.

The All-University Student Council, the college councils, the Upper-Classmen's Association and the Women's Self-Government Association, rendered great service in this quiet reëstablishment of the University student life.

*Student councils.*—The All-University Student Council has had a very successful year. It has been active and aggressive in its work for the University and the students.

It planned and had general charge of Home-Coming Day in the fall; it had charge of the annual freshman-sophomore bag rush, which was car-

ried through successfully; it prepared and submitted to the general student body a new constitution which provides for the representation of each college council on the All-University Student Council, thus insuring a co-ordination of efforts and a full understanding of all college and University student policies (this was ratified); it prepared and submitted a new so-called point system, which provides for the participation in student activities of a great number of students and limits the number of offices one student may hold or the number of activities he may be engaged in at the same time.

The council has successfully conducted student elections which were all-University in character and enforced proper election regulations.

The college councils have not been as active as they might have been nor as successful. This has been due in part, I believe, to the lack of co-ordination of the efforts of these councils, and the All-University Student Council. The representation provided for in the new all-University constitution mentioned above will insure a greater unity of effort in the future through a fuller understanding of college and University student policies.

*Student publications.*—The *Minnesota Daily* has had a successful year. There has been worked out, and in operation for some time, a plan of coöperation between the *Daily* and the Department of Journalism, whereby the department may use the *Daily* as a laboratory and the *Daily* benefit by advice and criticism. This plan in no way interferes with the independence and identity of the paper as the students' paper.

The *Gopher* has had a normal and successful year.

My report for the preceding year mentioned the *Minnesota Magazine* and *Minnehaha* and the discussion of the advisability of combining the two. This possibility was suggested by myself at a joint meeting of the two boards and was made on the basis of financial desirability. At the time it did not seem desirable to the two boards. During the summer and early fall, the boards changed their views, accepting my suggestion. In the meantime, after longer consideration, I changed my views and concluded that a combination of the two magazines with such a great difference of purpose, was not practical.

In all good faith the two boards organized on the basis I had suggested, obtained their advertising and proceeded with their contracts for the joint magazine—*Foolscap*.

*Foolscap* will not continue next year. Plans are under way for the reestablishment of the old *Minnesota Magazine*.

*Finances.*—The *Daily*, notwithstanding a successful advertising campaign, will probably show a slight deficit after all collections are made and bills paid. The deficit is provided for. This deficit is due (1) to the rapidly rising costs of printing which had to be met or publication would be suspended (this rise for the year totals over 30 per cent); (2) to insufficient support from the student body. Owing to the prohibiting of the whirlwind campaign of subscription solicitation on the campus, the total list of subscribers was proportionally much smaller than usual.

The *Gopher* had a successful year financially and will show a very fair balance after all accounts are settled. A portion of this balance will have to go to the settlement of bills contracted and not paid during the sophomore year.

*Foolsap* will close the year with all bills paid and a balance to its credit. How this balance will be used or distributed, in view of the discontinuance of the publication, has not as yet been determined.

The dramatic clubs close the year with all bills paid and a reasonable balance to the credit of each.

The All-University Student Council closes the year with all bills paid and a fair balance with which to start the next year.

The Junior Ball Association and the Sophomore Vaudeville have met all bills and have left balances of a few dollars each.

The Senior Class closes its connection with the University leaving a balance from its sale of programs and its class play more than sufficient to care for any bills outstanding.

Of accounts outstanding against miscellaneous organizations, such as fraternities, etc., I know of only one fraternity which is closing the year in bad financial condition. There are two or three accounts contracted before the war that are not cared for yet. I hope that these may be arranged for the coming year.

*General social activities.*—To one not familiar with the organization of the student body into innumerable groups and the tendency of each group to set up its own independent social life, the social activity at the University is appalling.

There are at least 173 recognized groups, each of which takes some part in the social activities—most of them once a quarter, a very few, once a year. Included in this group is each college which has a get-together social gathering at least once in the year, each class in each college, with the exception of law, medicine, and education, each of the publications, the dramatic clubs, the departmental clubs, the fraternities, the sororities, the miscellaneous clubs, and the Women's Self-Government Association. Of the above, the fraternities and sororities engage in more parties than any other group. Each plans for one so-called "formal" party a year. In addition to the "formal," informal parties are planned and held frequently.

One social gathering a quarter for each group is not excessive. If this could be made operative in the case of the individual no harm would be done, but the opportunity greatly to overdo is offered to the individual who is socially inclined and lacks good judgment, and this seriously interferes with the real purpose of his attendance here. If the University were able to care for even the wise amount of social life entirely on the campus, the problems could be reasonably well controlled.

There has been no tendency to increase the number of social affairs of a general University character. The University regulation that social affairs on the campus may be held only on Friday and Saturday nights and nights preceding a holiday has been held to.

Eligibility regulations to the effect that a student with a failure or condition against him on the registrar's books may not participate in any public performance, or hold any office which makes real demands on his time, have been closely enforced. Adjustments have had to be made in the case of students in the Colleges of Science, Literature, and the Arts, and Education. These are the only colleges on the campus which do not require a student to remove a failure by repeating the course.

*Dramatic clubs.*—In the past there has been no recognition of the dramatic clubs, beyond a supervision of their finances and the eligibility of those taking part in the plays. The clubs have provided for their coaching by engaging outside people. This necessitated a heavy expense and at the same time removed the work of the clubs, to a great extent, from the University atmosphere.

There has been a consistent effort during the last three years to bring these clubs in closer contact with the University, especially by the appointment of a member of the faculty qualified in dramatic work to act as an official adviser.

This year the Department of Rhetoric obtained an instructor trained in dramatic work and qualified to handle all the coaching. It was agreed a year ago by the clubs that if such a person was obtained they would accept his services for all their coaching.

This year, for the first time, the University has recognized dramatics to the extent of furnishing the services of an instructor for part time, who has done all the coaching, or at least has supervised it and has acted as adviser in the matter of plays and casts.

*Fraternalities.*—There are on the campus to-day 24 so-called academic fraternities with a total membership of 861 men. There are 22 so-called professional fraternities with a total membership of 728; 12 so-called academic sororities with a total membership of 406, and 6 professional sororities with a total membership of 156.

The fraternity situation is good. The academic fraternities and sororities have maintained their relative positions in regard to scholarship as compared with the non-fraternity and sorority groups, and as compared with the general average.

It was reported at the Illinois meeting in March by practically every institution represented that the fraternities had fallen below in their standing for the year 1918-19, being below the general average.

This has not been true at Minnesota. The fraternities maintained a slightly higher average than the general average.

The spirit of fraternities and sororities has been good.

*Discipline.*—There has been one case of expulsion and some eight students have been indefinitely suspended.

The number of students withdrawn due to failure to maintain a satisfactory scholastic standing has been practically normal, tho it was felt by many that with the abnormal enrolment the proportion would be largely increased.

This past year there has been practically uniformity in the handling of students by the Colleges of Science, Literature, and the Arts, Agriculture, Forestry, and Home Economics, Education, and Dentistry.

The student adviser system as a whole has not worked satisfactorily; the mentor system has been practically discontinued; the faculty adviser system has not been in operation long enough to judge it fairly.

*Absences.*—The plan of collecting reports of absences and interviewing those students who showed a tendency to absent themselves unduly has been continued. The College of Agriculture, Forestry, and Home Economics voted to discontinue the checking of absences for the spring quarter.

These reports have, in my judgment, proved of sufficient value, particularly in the case of freshmen and sophomores, to justify the time and expense. Many errors in registration are found, many misunderstandings between instructors and students are straightened out, attention is called to many cases of sickness which would otherwise escape notice for a considerable length of time, many delinquents are found before they have fallen hopelessly behind, great differences in practice by different instructors are shown. It has helped materially in assisting the Student Health Service to get in touch with many students whom they might otherwise have missed.

A comparison of data for the second quarter with the third quarter is interesting. During the second quarter conditions were abnormal, due to the influenza epidemic. Fourteen hundred and eighty-one men and 844 women were called in for absences. Practically all those summoned reported. Some had cancelled or had been dropped, some had not completed their registration and were therefore not in college. The majority of these students had been absent due to illness. Comparatively few had been deliberately cutting.

In the third quarter there were summoned 407 men and 334 women. Of these again the major number was due to illness.

During the year 548 registered letters were sent to parents of students who for one reason or another were not progressing satisfactorily.

*Military credit for returned service men.*—Adjustment of this question was placed in this office in the fall by the Administrative Committee of the senate. Each case was dealt with separately.

359 were granted credit for one quarter of University military drill.  
 10 were granted credit for two quarters of University military drill.  
 86 were granted credit for one year of University military drill.  
 632 were granted credit for two years of University military drill.

At the beginning of the spring quarter the matter of passing upon all requests preferred by students relative to drill was placed in this office. Since that time 252 petitions have been received and acted upon.

*Disabled service men—Federal Board for Vocational Education.*—The handling of these men was placed in this office about the middle of the first quarter. The following tabulation will show the number and distribution of these men:

## THE PRESIDENT'S REPORT

Science, Literature, and the Arts.....	38
Agriculture, Forestry, and Home Economics.....	34
Chemistry .....	8
Dentistry .....	13
Education .....	4
Engineering .....	20
Farm school .....	125
Graduate .....	1
Medicine .....	8
Mines .....	5
Law .....	11
Pharmacy .....	4
War special .....	28
Stationary engineering .....	17
	<hr/>
Total .....	316

With very few exceptions these men are serious and earnest in their efforts and the progress which they are making justifies to the fullest extent the assistance given by the government.

Respectfully submitted,

EDWARD E. NICHOLSON, *Dean*

## THE GENERAL EXTENSION DIVISION

*To the President of the University:*

SIR: This report deals with the activities of the General Extension Division during the academic year 1919-20. Each of the activities is dealt with in the following pages somewhat in detail. There are statistical tables, summaries, and comparisons with previous years by semesters and by whole years.

The first section of the report is devoted to the work of evening extension classes. The classes are listed by cities under three divisions of collegiate, business, and engineering or industrial subjects. The chief thing to be noted about evening extension classes is the very considerable increase in the enrolment. The enrolment was more than double that of the preceding year. There were 5,216 registrations for work by 3,335 individuals. As a matter of fact, the registration for the first semester of this year was as large as that of any other preceding whole year. Comparisons are given by semesters and by years.

The work of the Correspondence Study Department has shown a very gratifying expansion during the year. This is shown by the fact that at the end of the year, there were double the number of students on the roll as compared with the close of the preceding year. There were 881 registrations in force during the year. The increase in the efficiency of the department is shown not only by the number of students cared for, but also by the increase in the number of courses offered, by the addition of the preparatory or high-school courses, by greater care shown in the preparation of correspondence lessons, and by the systematic attention given to delinquent students. The effective management of the department is vindicating our wisdom in putting one person solely in charge of this branch of our work.

Two notable forms of expansion during the past year should be touched upon. Judge Frank T. Wilson of Stillwater was appointed community organizer and adviser. The report of his work as shown herein will demonstrate that he has been exceedingly active in holding conferences, in coordinating the work of various social agencies as they operate in the average small Minnesota community, in visiting towns where community organizations were being formed, and in delivering numerous addresses on the subject of community organization, community coöperation, and community solidarity. His bulletins and articles also have had wide circulation. His department is planning enthusiastically for a number of community institutes next year.

In the same way the organization of our Bureau of Visual Education under the leadership of J. V. Ankeney as secretary of the bureau, has proved to be profitable. Mr. Ankeney is an enthusiast in his work and sees in it great possibilities for future service to the schools of the state. The report of the bureau follows in its proper place, but I should like to reinforce and emphasize here the recommendation to the effect that

an adequate film and slide service be provided for the schools of Minnesota, that this bureau be supplied with a fund of eight or ten thousand dollars a year for this purpose, that a library of slides be built up, that we own our negatives so far as possible, and that an adequate staff of clerks and helpers be provided. I concur also in Mr. Ankeney's belief and recommendation that all slide and film service of this University for the schools of the state should be centralized in one office. When the General Extension moves from its present rather cramped quarters in the main engineering building to the quarters to be provided in the new administration building, it is essential that dark-rooms, projection rooms, storage vaults, and other conveniences and facilities be provided for the anticipated expansion of this work in visual education.

This has been an unusually prolific year for short courses. They have been more numerous than usual and have covered a wider range of subjects. Among the most promising short courses are those now being conducted for graduates in dentistry. These courses bring in graduates practicing dentistry from ten or fifteen states of the Union as well as from outside of the United States. These short courses in dentistry promise to become a regular part of our annual program. Short courses are a very effective means for bringing adults into touch with the latest discoveries and with the latest improvements in technic. There is no reason why short courses should not be offered in various other fields of University instruction. The regents have already ruled that all such non-collegiate short courses should be conducted under the auspices of the General Extension Division. It is probable that under this ruling the School of Embalming will be taken over from the Medical School. It is understood that the Extension Division handles these short courses from the standpoint of administration only. The content and subject-matter of these courses is still controlled by the respective faculties.

The Lecture and Lyceum department is maintaining its customary activities. One hundred and seventy-eight towns were served with complete lyceum courses during the year under review and there were numerous other single lectures, entertainments, and concerts. It is probable that more than 200 towns will be served next year. The communities are learning to look with confidence to the educational value of the attractions sent out by the University. The main problem of the department now is to standardize these attractions, to eliminate the poor and trashy ones and to secure artists and lecturers of the highest talent. This is a somewhat difficult task, because many of the Minnesota communities are not able to pay for attractions of the very highest merit. Therefore, attractions will have to be selected within the financial reach of the towns and yet meritorious of their class. In this manner a list of attractions that the University can afford to recommend is being built up.

During this year the work of the Drama Service was directed by Mr. John Seaman Garns. The tabulated statement found in this report will indicate that this drama service has met with ready acceptance among the school people of the state. A library of choice plays has been built up and

a selection of these plays is sent out to any inquirer, so that a choice may be made from the plays themselves rather than from the titles. Mr. Garns also gives advice and suggestions about costumes, staging, and production. Mr. Garns is serving on a half-time basis.

The Municipal Reference Bureau has shown gratifying activities, as may readily be inferred by the tabulated statement in another part of this report. The secretary has answered numerous inquiries originating in widely separated places in this country and covering a wide field of municipal information. He has also helped city officers in drafting ordinances and in framing city charters. The affiliation of the Extension Division with the League of Minnesota Municipalities through the medium of the bureau continues. The director of University extension is secretary-treasurer of the league, and the secretary of our Municipal Reference Bureau is the executive secretary of the league. In this capacity the latter official acts as the editor of the league's bimonthly publication *Minnesota Municipalities*. The league is now an active and vigorous organization, fourth in membership of such organizations in the United States. Because of lack of space the office of the Municipal Reference Bureau was moved away from the general offices of the Extension Division to a room in the Library. Here, a working arrangement has been put into effect with the Bureau for Research in Government by which office space is shared and the services of a stenographer and of a cataloger are available in common. In July, 1919 the Municipal Reference Bureau added to its staff Miss Sophia Hall in the capacity of a cataloger. Her services have added greatly to the efficiency of the bureau. Miss Hall gives half her time to the Bureau for Research in Government and that bureau's stenographer gives half of her time to the Municipal Reference Bureau. In addition, the League of Minnesota Municipalities provides a one-half time stenographer specifically for its own work. It is a matter for regret that on July 1, 1920, we lost by resignation the services of Mr. E. L. Bennett, who for the past four years has served as the very efficient secretary of the Municipal Reference Bureau. We were paying Mr. Bennett \$1,800 a year. He has now accepted a position with the City Club of Chicago at \$3,000 a year. The impression which Mr. Bennett's services made upon the city officers of the state is evidenced by the resolutions which were passed at the annual convention of the League of Minnesota Municipalities held in Bemidji in June, 1920. Mr. Bennett's successor is Mr. Joseph C. Taylor of the University of Wisconsin.

At the close of this report will be found a comparative statement of all the extension activities by years. This will enable the reader to follow the growth and development of the various forms of extension work.

Since 1913 the General Extension Division has occupied quarters in three different University buildings. It is now back in the main engineering building which it was forced to vacate during the war. However, notice has already been given that the School of Engineering will soon need the space now occupied by this division. The question of a permanent home therefore, becomes a serious one. It is planned now that the Extension Division

## THE PRESIDENT'S REPORT

shall occupy a floor in the new administration building. It is urgently requested that since this is to be the permanent home of the division, ample space may be provided for storage-rooms, shipping-rooms, dark-rooms, projection rooms, general work-rooms, and the necessary waiting and office-rooms. The entire floor should be held provisionally for this division so that there may be ample space for expansion.

On recommendation of the Senate Committee of University Extension, the University Senate at a meeting held on May 13, 1920, approved a new schedule of payment to University instructors who conduct evening extension classes. The schedule provides for an increase of \$25 a course per semester, but also increases the compensation to those who draw salaries at the top of the scale up to a maximum of \$300 per course. The amount paid to instructors for teaching evening extension classes varies with the regular scale of University salaries.

The committee recommendation that the fees of students of collegiate subjects in advanced courses be increased from \$5 to \$7.50 a semester was also approved. The action of the University Senate was subsequently approved by the Board of Regents.

REGISTRATION FOR THE YEAR  
1919-20

DEPARTMENT	FIRST SEMESTER	SECOND SEMESTER	YEAR
<b>COLLEGIATE</b>			
Minneapolis .....	947	431	1,378
St. Paul .....	442	84	526
Duluth .....	29	...	29
Anoka .....	19	...	19
	1,437*	515*	1,952*
<b>BUSINESS</b>			
Minneapolis .....	858	594	1,452
St. Paul .....	419	267	686
Duluth .....	136	63	199
	1,413*	924*	2,337*
<b>ENGINEERING</b>			
Minneapolis .....	600	304	904
St. Paul .....	23	...	23
	623*	304*	927*
<b>Totals .....</b>	<b>3,473*</b>	<b>1,743*</b>	<b>5,216*</b>

\* This is the total number of student semester registrations for sixteen weeks each.

SUMMARY OF CLASSES FOR THE YEAR  
1919-20

DEPARTMENT	FIRST SEMESTER	SECOND SEMESTER	YEAR
<b>COLLEGIATE</b>			
Minneapolis .....	26	25	51
St. Paul .....	5	5	10
Duluth .....	1	..	1
Anoka .....	1	..	1
	33	30	63
<b>BUSINESS</b>			
Minneapolis .....	23	24	47
St. Paul .....	12	12	24
Duluth .....	4	4	8
	39	40	79
<b>ENGINEERING</b>			
Minneapolis .....	21	22	43
St. Paul .....	1	..	1
	22	22	44
	94	92	186

SUMMARY OF REGISTRATION FOR THE YEAR  
1919-20

DEPARTMENT	FIRST SEMESTER	SECOND SEMESTER	YEAR
Total collegiate .....	1,437	515	1,952
Total business .....	1,413	924	2,337
Total engineering .....	623	304	927
Total .....	3,473*	1,743*	5,216*

Total number of registrations for the year 1919-20 was 5216.  
Total number of individuals taking work during the year 1919-20 was 3355.

SUMMARY OF FEES FOR THE YEAR  
1919-20

DEPARTMENT	FIRST SEMESTER	SECOND SEMESTER	YEAR
Total collegiate .....	\$ 5,051.50	\$ 2,729.00	\$ 7,780.50
Total business .....	10,611.25	6,935.00	17,546.25
Total engineering .....	3,155.00	2,090.00	5,245.00
	\$18,817.75	\$11,754.00	\$30,571.75

\* This is the total number of student semester registrations for sixteen weeks each.

## THE PRESIDENT'S REPORT

COMPARISON OF THE ENROLMENT OF EXTENSION CLASSES FOR THE  
YEAR 1918-19 AND THE YEAR 1919-20

## SUMMARY OF STUDENTS

	1918-19	1919-20
Total collegiate .....	1,234	1,952
Total business .....	1,012	2,337
Total engineering .....	215	927
Total .....	2,461*	5,216*
SUMMARY OF FEES		
	1918-19	1919-20
Total collegiate .....	\$ 6,007.50	\$ 7,780.50
Total business .....	6,004.50	17,546.25
Total engineering .....	1,446.00	5,245.00
Total .....	\$13,458.00	\$30,571.75

\* This is the total number of student semester registrations for sixteen weeks each.

## COMPARATIVE STATEMENT OF EXTENSION CLASSES

BUSINESS COURSES	1915-16	1916-17	1917-18	1918-19	1919-20
Number of classes.....	49	62	51	43	79
Number of instructors from Extension Division.....	3	3*	2	3*	3*
Number of instructors from outside Extension Division	12	11	19	15	23
Number of registrations...	1,080	1,739	1,056	1,012	2,337
Fees received from reg- istrations .....	\$6,821.00	\$10,649.50	\$7,013.75	\$6,004.50	\$17,546.25
Salaries paid to instructors on extension staff.....	6,100.00	6,250.00	5,750.00	5,200.00	7,550.00
Fees paid to instructors not on extension staff.....	4,135.00	6,349.00	4,944.50	5,137.52	9,185.00

\* Full time for two instructors, part time for one.

COLLEGIATE COURSES	1915-16	1916-17	1917-18	1918-19	1919-20
Number of classes.....	67	68	65	52	63
Number of instructors from Extension Division.....	2	1†	2‡	1‡	1†
Number of instructors from outside Extension Division	27	34	25	25	32
Number of registrations...	1,425	1,655§	1,420	1,234	1,952
Fees received from reg- istrations .....	\$6,569.75	\$7,608.50	\$6,255.00	\$6,007.50	\$ 7,780.50
Salaries paid to instructors on extension staff.....	3,300.00	750.00†	2,300.00	500.00†	500.00†
Fees paid to instructors not on extension staff.....	7,975.00	9,875.00	8,756.25	7,590.00	11,270.50

† Part-time collegiate; part-time business.

‡ Part-time collegiate.

§ In the report for the year 1916-17, this was carried as 1,718 but included 63 registrations in swimming of the first semester duplicated in the second semester.

ENGINEERING COURSES					
Number of classes.....	27	33	25	16	44
Number of instructors from Extension Division.....	1	1	1	1	1
Number of instructors from outside Extension Division	8	11	6	5	17
Number of registrants...	349	373	210	215	927
Fees received from reg- istrations .....	\$2,154.00	\$ 2,164.00	\$1,675.00	\$1,446.00	\$ 5,245.00
Salaries paid to instructors on extension staff.....	2,000.00	2,000.00	2,100.00	2,100.00	2,400.00
Fees paid to instructors not on extension staff.....	2,325.00	2,787.50	1,925.00	1,700.00	6,092.50

## CORRESPONDENCE COURSES

The following table summarizes the correspondence work for the year 1919-20:

Number of students on roll July 1, 1919.....	248
Number of new students registered from July 1, 1919, to July 1, 1920.....	504
Number of registrations from July 1, 1919, to July 1, 1920.....	595
Number of expirations not reinstated during the year.....	107
Number of courses refunded or cancelled during the year.....	27
Number of reinstatements of registrations during the year.....	34
Number of courses completed during the year.....	124
Number of registrations in force during the year	
in business subjects.....	126
in collegiate subjects.....	616
in preparatory subjects.....	57
in engineering subjects.....	82
Total .....	881
Number of active students sending four or more lessons during the year.....	238
Number of active students sending less than four lessons.....	102
Number of students recently registered and not yet started.....	124
Number of inactive students whose terms have not expired.....	159
Number of students registered for two or more courses.....	126
Number of instructors carrying courses.....	52
Number of students on roll July 1, 1920.....	508
Number of courses active July 1, 1920.....	619

## SHORT COURSES

*Merchants' short course.*—The seventh annual merchants' short course was held during the week of January 26 to 30, 1920, with an enrolment of 148. The program included addresses of a general nature as well as discussions and conferences for groups interested in special lines of merchandise. Altho the registration did not quite equal that of the preceding year, the interest and enthusiasm was even stronger and was sustained until the very end of the course. A financial statement follows:

## RECEIPTS

Fees from registrations..... \$728.00

## EXPENDITURES

Fees paid for services of lectures..... \$385.00  
 Printing ..... 171.15  
 Postage (estimated) ..... 10.00 566.15  
 Balance ..... \$161.85

## COMPARISON OF ENROLMENT, 1914-20

	Aug. 1 1914	Aug. 1 1915	Aug. 1 1916	Aug. 1 1917	Aug. 1 1918	July 1 1919	July 1 1920
Number of students on the roll.....	76	100	196	208	177	248	508
	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	
New students.....	102	199	190	151	223	504	.....
Number of active students during the year.....	105	182	247	210	312	464	.....
Number of completions..	49	86	110	99	91	124	.....
Number of students carry- ing two courses.....	49	80	85	88	74	126	.....
Number of instructors..	31	35	41	40	39	52	.....
Number of courses reg- istered for .....	140	252	239	180	256	595	.....
	Aug. 1 1915	Aug. 1 1916	Aug. 1 1917	Aug. 1 1918	July 1 1919	July 1 1920	
Number of students on the roll .....	100	196	208	177	248	508	.....
Number of students active	68	96	143	91	179	349	.....

*Dentistry short courses.*—During the six weeks beginning June 27 and ending August 8, 1919, a course in hospital dentistry was given with the coöperation of the College of Dentistry and the Medical School. No fees were charged. The work was divided into three groups as follows:

Group I. Series of lectures only.....	Enrolment	26
Group II. Lectures, ward and library work occupying 6 half-days per week.....	Enrolment	3
Group III. Lectures, ward and library work, and actual dental work on hospital patients, requiring full time.....	Enrolment	6

Following this course, in October, 1919, four men enrolled in a twelve months' extension course in hospital dentistry. These students were assigned to the University Hospital for dental work under supervision. No fee was charged for the course.

A short course in prosthetics was given in coöperation with the College of Dentistry during the period September 1-27, 1919. This was a complete and comprehensive course of lectures, laboratory and clinical work on

scientific technic in the construction of artificial dentures conducted by Dr. M. M. House of Indianapolis, assisted by Dr. W. F. Lasby of the University of Minnesota. Patients were brought in by students registered for the course or were furnished by the College of Dentistry if requested. The forty-eight men who took the course came from Minnesota, Canada, Texas, Oregon, Wisconsin, Iowa, North Dakota, Indiana, and Illinois.

So great an interest was shown in this work all over the country that it was decided to repeat this course in June and July, 1920 and follow it up with an advanced course lasting two weeks. A financial statement follows:

## RECEIPTS

Fees from 48 registrations at \$100.00 each.....	\$4,800.00
--	------------

## EXPENDITURES

Fees for services of instructors.....	\$3,266.66	
1 refund of fee and 1 pro-rata refund.....	175.00	
Printing .....	22.20	
Postage (estimated) .....	34.78	3,498.64
Balance .....		\$1,401.36

The short course in crown and bridge work given May 24 to June 5, 1920, was conducted by Dr. E. T. Tinker of Minneapolis assisted by Dr. T. W. Maves, also of Minneapolis, and Dr. A. S. Wells and Dr. E. E. MacGibbon of the staff of the College of Dentistry.

The course consisted of the study, diagnosis, and application of principles involved in the use of vital teeth for crown and bridge work. The students were required to go through the technical procedures in the preparation of teeth for full crowns and partial crown abutments. This technical work was supplemented by illustrated lectures. There were 20 registrations from men in Minnesota, Montana, North Dakota, Iowa, Utah, Texas, and Nebraska. A financial statement follows:

## RECEIPTS

Fees from 20 registrations at \$125.00.....	\$2,500.00
---	------------

## EXPENDITURES

Fees for services of instructors.....	\$2,100.00	
Printing .....	31.53	
Postage (estimated) .....	86.70	2,218.23
Balance .....		\$ 281.77

The course in minor oral surgery, given June 7 to 12, 1920, was conducted by members of the staff of the College of Dentistry of the University of Minnesota with lectures, clinics, and daily demonstrations in extraction and minor oral surgery. The 22 men registering for this course came from Minnesota, Illinois, Wisconsin, Iowa, Utah, Michigan, Indiana, South Dakota, Washington, Nebraska, and Texas. A financial statement follows:

## RECEIPTS

Fees from 22 registrations at \$50.00..... \$1,100.00

## EXPENDITURES

Fees for services of instructors.....	\$640.00	
Printing .....	31.53	
Postage (estimated).....	86.70	758.23
		<hr/>
Balance .....		\$ 341.77

A course in porcelain-jacket crowns to be conducted by Dr. W. D. Vehe was offered for June 7 to 16, 1920, and a certain number of registrations were accepted, when it was found necessary to cancel the course because of the illness of Dr. Vehe. Several of the students transferred their registrations to the course in minor oral surgery, while the fees were refunded to others.

*Short course in citizenship for women voters.*—During the week of November 17 to 21, 1919, at the suggestion of the Minnesota League of Women Voters, a short course in citizenship for women voters was given. This was an intensive course with three periods of work each afternoon and three periods each evening. As rapidly and also as thoroly as could be done in the limited time available, members of the University faculty gave a survey of the elements of federal, state, and municipal government. In addition, time was allowed for lessons in public speaking and parliamentary law, while other topics of vital importance such as public health, americanization, food problems, pending political and social problems, were considered briefly. In addition to lectures and conferences bibliographies were furnished for those who wished to pursue further the study of these topics.

The afternoon sessions were held in the auditorium of the Law Building on the University campus, while the evening meetings took place in the Minneapolis City Hall.

The fee for the entire course, afternoon and evening, was \$3 and there were 338 registrations. The fee for the evening sessions only was \$1 and there were 273 registrations, so that 611 people took advantage of this opportunity.

Since the completion of the course many requests have come from other states for information concerning it, and a number of women in Minnesota who were unable to attend have asked to be allowed to take at least a part of the work through correspondence. A financial statement follows:

## RECEIPTS

Fees received from 611 registrations..... \$1,285.00

## EXPENDITURES

Fees paid for lectures.....	\$260.00	
Printing .....	78.70	
Incidentals .....	6.25	344.95
		<hr/>
Balance .....		\$ 940.05

As a result of the interest aroused in this course the Woman's Club of Minneapolis requested the Extension Division to arrange for it a brief intensive course which should touch upon the general question of city, state, and

federal government, the courts, legislation, public finance, public education and elections, and political machinery. Sixteen lectures were given by various members of the University faculty during January and February, 1920.

*Short course in income-tax problems for bankers.*—During the week of December 8 to 12, 1919 at the request and with the coöperation of the Minnesota Bankers' Association, there was organized a short course in income-tax problems for bankers. The association was largely responsible for the publicity and the registration.

The officials of the internal revenue offices in St. Paul and Minneapolis gave valuable assistance in furnishing the services of several members of their forces to lecture on special phases of the income tax. Several members of the University faculty also participated, and the course was considered to be intensely practical and worth-while. A financial statement follows:

RECEIPTS

Fees received from Minnesota Bankers' Association.....	\$300.00	
Fees from 5 other direct registrations.....	25.00	
		\$325.00

EXPENDITURES

Fees paid for lectures.....	\$130.00	
Printing .....	9.00	139.00
		\$186.00
Balance .....		\$186.00

*Short courses for volunteers in social-service work.*—In November, 1919 there was organized and conducted with the coöperation of the Minneapolis Council of Social Agencies a short course for volunteers in social-service work, lasting six weeks. The aim of the course was to give the volunteer an insight into the problems with which the agencies of the various types are confronted, and how they are met. This was done by means of lectures and practical field work under the supervision of professional workers. The lectures were given by members of the University faculty and others connected with the various social agencies of the city. University credit was granted to those who took the lectures and completed the required field work. There were 79 registrations. A financial statement follows:

RECEIPTS

Fees from 79 registrations at \$5.00.....	\$395.00
---	----------

EXPENDITURES

Fees to instructors.....	\$130.00	
Printing .....	9.00	..
Postage (estimated) .....	10.00	149.00
		\$246.00
Balance .....		\$246.00

Shortly before the conclusion of the above course, in response to a request from public-school nurses, a second course was organized to begin December 2, 1919 and continue until April 13, 1920. This longer course

## THE PRESIDENT'S REPORT

was a little more thoro but covered in general the same ground with the emphasis placed upon the work from the standpoint of the public-school nurse. There were 83 registrations. A financial statement follows:

## RECEIPTS

Fees from 83 registrations at \$5.00..... \$415.00

## EXPENDITURES

Fees to instructors.....	\$190.00	
Printing .....	20.00	
Postage (estimated) .....	40.00	250.00
Balance .....		\$165.00

*Short courses in trade and industrial subjects.*—Pursuing the policy adopted the previous year of offering to teachers an opportunity to prepare themselves for teaching vocational subjects, the General Extension Division in coöperation with the College of Education arranged for three courses during the year 1919-20.

The course in Minneapolis, called Problems in Vocational Education, met once a week for two hours in the Girl's Vocational High School with Professor A. F. Payne of the College of Education in charge. There were 21 registrations.

The course in St. Paul, called Analysis and Classification of Trade Knowledge, was conducted at the Mechanics Arts High School with Mr. Robert Woellner of the College of Education in charge. There were 26 registrations for this course.

The course in Duluth was conducted by Mr. Payne and was called Methods of Teaching Trade Subjects. There were 23 registrations.

## LECTURE AND LYCEUM DEPARTMENT

Number of different attractions used .....	37
Number of members of University faculty.....	14
Number taken from outside the University.....	23
Total number of towns represented.....	178
Total number of attractions .....	837
Total amount of fees.....	\$43,692.20
Total audiences represented (estimated).....	80,000

In addition to the regular lyceum courses, this department has carried on community lecture courses or entertainments.

COMPARISON, 1914-20  
COURSES

	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20
Number of towns having courses	100	110	136	180	176	178
Number of engagements filled...	522	541	654	905	780	837
Price of courses	\$25,040.83	\$29,145.00	\$34,692.00	\$38,814.50	\$33,087.50	\$43,692.20

## SINGLE LECTURES OR ENTERTAINMENTS

	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20
Number of towns having lectures or entertainments .....	89	42	14	12	16	48
Number of engagements filled...	94	59	27	14	21	74
Amount of fees	\$2,784.49	\$1,785.00	\$ 560.00	\$ 280.00	\$ 275.00	\$ 880.00

Courses of from 2 to 10 numbers have been booked in 182 towns for delivery during the year 1920-21.

## COMMENCEMENT ADDRESSES

In addition to the lectures and entertainments listed above, commencement addresses were arranged for in the 40 towns.

## BUREAU OF VISUAL INSTRUCTION

Since the organization of the Bureau of Visual Instruction as a distinct bureau of the General Extension Division, July 1, 1919, approximately one third of the time of Mr. J. V. Ankeney has been devoted to its development. This consisted of the assembling and cataloging of all the materials for the film service and the working out a scheme of office records. A number of lantern-slide sets was assembled and still others are under way. Hundreds of letters requesting information on various phases of visual instruction were handled with the aid of a part-time stenographer who assisted with the film- and slide-booking and inspection. Difficulties have been encountered and mistakes have been made, but considered as a whole, the service has made a very promising beginning as is indicated in Table I and Figures 1 and 2 (pages 212 and 213).

Figure 1 shows the distribution of towns receiving slide service, and Figure 2 shows the distribution of towns receiving film service from October 1, 1919 to June 1, 1920.

TABLE I  
SHOWING THE EXTENT OF THIS SERVICE FROM OCTOBER 1, 1919 TO  
JUNE 1, 1920

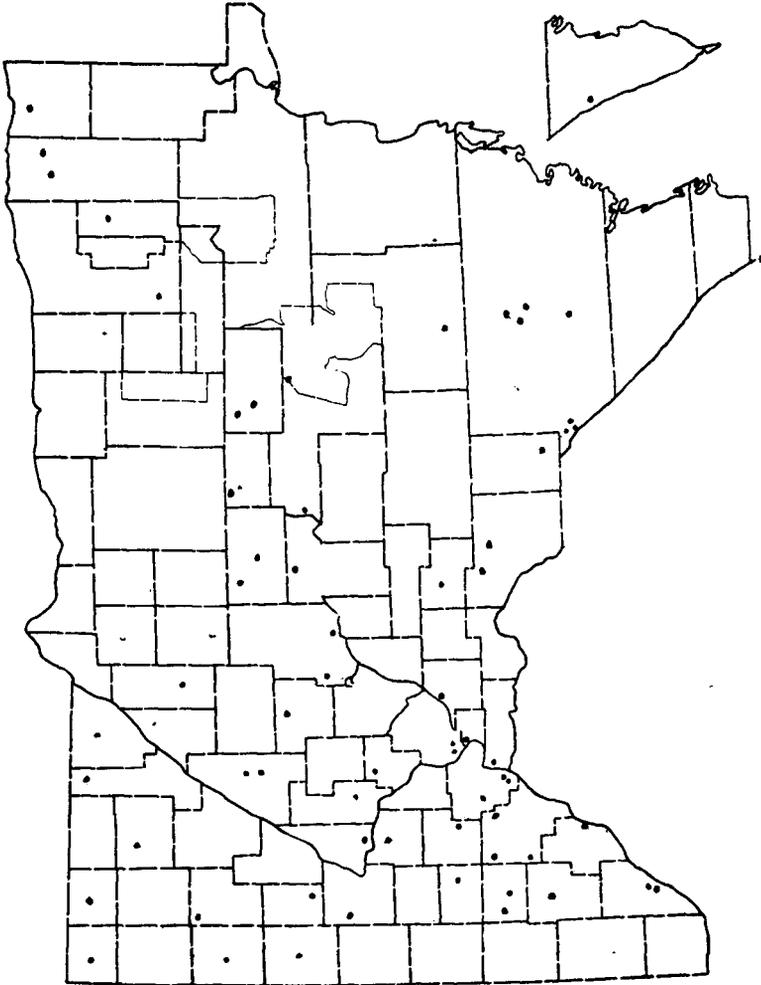
<i>Slide Service</i>	
Towns having slide service .....	60
Total number of services .....	286
Total attendance at meetings .....	38,617
<i>Film Service</i>	
Towns receiving film service .....	66
Total number of services .....	396
Total attendance at meetings .....	85,520

More towns were not accommodated because there was not sufficient material to go around and of not sufficient variety. Total attendance at the meetings where films were used is greater than for slides because most of the slides were used for classroom instruction, while a great part of the films were used for mass education.

During the year Mr. Ankeney attended the meeting of the visual instruction section of the National Educational Association at Cleveland, and the National Association of Extension Divisions at Ann Arbor. He visited and

FIGURE I

Figure I shows distribution of towns receiving slide service.

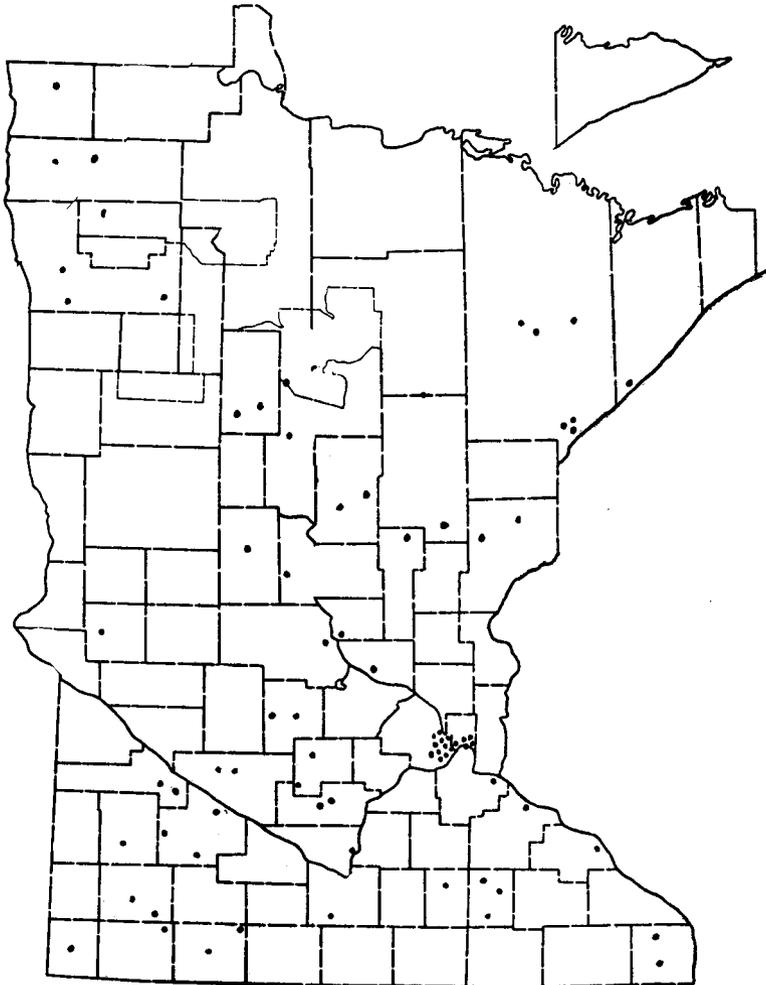


Each dot shows one town or organization receiving slide service.  
October 1, 1919-June 1, 1920.

studied the department of visual instruction of the city of Detroit and that at Albany, New York. He also studied the motion picture laboratory and division of pictures in the U. S. Department of Agriculture at Washington, D. C., and the extension division of the International Harvester Company at Chicago. These visits, together with one that he made to the Visual Instruction Bureau at Madison, Wisconsin, in 1919, gave him an opportunity to see first hand what is being done by the leaders in visual education.

## FIGURE II

Figure II shows distribution of towns receiving film service.



Each dot shows one town or organization receiving film service.  
October 1, 1919-June 1, 1920.

As a result of these studies and of several years' constant use of the various aids, the following conclusions have been reached by Mr. Ankeney.

1. The film and slide service for the state of Minnesota should endeavor to do four things:

- a. Educate people by sending out slide sets and lectures
- b. Entertain and incidentally instruct by means of slide sets
- c. Supply visual aids for the classroom instruction
- d. Supply slides for popular education by others.

2. In order to establish a bureau that will be of permanent value to the people of the state, without tremendous losses from antiquated and inferior materials, it is necessary to exercise the greatest care. The service built on quality will suffer the smallest losses from the above causes and be of largest lasting benefit.

3. It is evident that sufficient funds should be made available for an adequate development of this service. (During the last year funds for additions have been too small to meet the demands made on us for slides. If slides had been available, with slight additional help we could have taken care of three or four times as many requests for visual aids, thereby reducing the overhead.) To do this presupposes that we own our negatives for all the slides which we send out. On thoro investigation it is found that this is the cheapest in the long run, and the quality of material that can be supplied is very much superior to that that must be picked up in the open market. Then, too, the open-market service is limited in its range of available topics, with little or no attention to artistic or pedagogical value. To meet adequately the needs of the schools of the state, Minnesota should have a slide library of 150,000 slides within the next six years and should own approximately 25,000 negatives.

TABLE II

## AT THE PRESENT TIME WE HAVE ON HAND (APPROXIMATELY)

Lantern-slide sets.....	50
Number of slides in these sets.....	2,850
Miscellaneous slides to be catalogued.....	1,500
Films from the College of Agriculture	
Owned .....	1
On loan from industrial concerns and U. S. Government.....	5
U. S. Bureau of Education.....	82
Ford Motor Company.....	40
Industrial concerns.....	25
Odds and ends and unclassified (Bureau of Education) approximately.....	30
	183
Total films .....	183

Table III is an attempt to rank the states in order of the relative values of their services, taking into consideration extensiveness, efficiency, quality, and pedagogical value. It shows how Minnesota ranks with the states leading in the number of lantern slides available for loan.

The field of motion pictures is developing so rapidly that what is good to-day is antiquated to-morrow. It is therefore believed that service in this field should be developed as fast as the demand makes it necessary. An abundance of material is now becoming available and developments are being rapidly made. The percentage of projectors in the state has increased

from 6 to 17 per cent in the schools of the state in a year, and there are prospects of doubling this within another year. Commercial concerns will reap a rich harvest using inferior materials if the universities do not take partial care of the field. There is a possibility that various philanthropic individuals will interest themselves in the development of this free service, using the universities as distributors and advisers.

TABLE III

New York.....	213,000*
Wisconsin .....	120,000
California .....	44,000
Texas	
A. & M. College.....	7,000
University .....	10,000
Iowa	
A. & M. College.....	8,000
University .....	7,000
Minnesota	
Agricultural Education .....	3,000
General Extension Division .....	5,000

\* Figures for 1914. Slides are being added at the rate of about 24,000 a year, each of definite, immediate, historic value and of the highest photographic quality.

In order to build up adequately and maintain a high standard of quality in a service of this sort it is necessary that an adequate staff of workers be provided who will be with the service ten to twelve years. For the next biennium it is recommended that the same individual have charge of all visual-education work both in the General Extension Division and College of Agriculture. One full-time assistant and one full-time clerk should be provided for the General Extension Division and others should be added as needed. (See Table IV.)

TABLE IV

SHOWING THE NUMBER OF PERSONS EMPLOYED IN THE VISUAL INSTRUCTION SERVICE IN THE SEVERAL STATES

	FULL-TIME	PART-TIME
New York .....	11	1
Wisconsin .....	8	1
California .....	..	..
Texas		
A. & M. College.....	1	2
University .....	6	3
Iowa		
A. & M. College.....	1	2
University .....	1	1
Minnesota		
College of Agriculture.....	..	2 (small part)
General Extension Division.....	..	2

To build up an adequate slide service, between five and ten thousand dollars should be provided per year for additions for negatives, slides, color work, pictures, etc., and three to five thousand dollars be provided each year for motion-picture work, with stipulation that part of the slide funds may be used if deemed advisable. (See Table V.)

## THE PRESIDENT'S REPORT

TABLE V  
SHOWING THE APPROPRIATIONS FOR CARRYING ON THE VISUAL  
INSTRUCTION SERVICE

	TOTAL	SALARIES	ADDITIONS
New York.....	\$23,260	\$13,460	\$9,800*
Wisconsin .....	11,084	9,084	2,000
California .....	.....	.....	.....
Texas			
A. & M. College.....	2,500	2,000	500
University .....	10,500	8,500	2,000
Iowa			
A. & M. College .....	4,500	4,000	500
University .....	1,700	1,200	500
Minnesota			
College of Agriculture .....	No definite appropriation		
University .....	2,400	1,400	1,000

\* It might be well to note here that since 1911 New York has put \$90,000 into negatives alone for its slide and picture service. This bureau does not work with motion pictures. It is believed that all the motion picture negative-making at the University of Wisconsin is done with funds outside of the Bureau of Visual Instruction.

With a budget as outlined above, the visual instruction work could be put on a plane where it deserves to be. It would be able to carry on research and experimental work to determine relative values and best methods of using the various aids, and it could build up a service based on quality and pedagogic value and could supply the various aids when wanted and in the quantities wanted.

## COMMUNITY SERVICE

The main work has been the presentation of the University plan of community service to the leading communities of Minnesota. This has been done by correspondence, conferences, and public addresses. A little bulletin was published by the University in April, 1919. A wide circulation was given to this bulletin. It was revised and republished in March, 1920. The revision furnished practical suggestions for the organization of communities and the conduct of community-service activities.

A series of articles was prepared concerning community service and published in a dozen successive issues of the two trade journals of the Northwest, the *Twin City Commercial Bulletin* and the *Hardware Trade*.

Conferences have been held with the executive officers and addresses given to the members of the following organizations: American City Bureau, American Red Cross, Community Service, Inc. (successors to War Camp Community Service), Methodist Summer School for Pastors at Hamline, Minnesota Association of Wholesale Grocers, Minnesota Editorial Association, Minnesota Department of Agriculture, Minnesota Department of Education, Minnesota Federation of Farm Bureaus, Minnesota Federation of Farm Clubs, Minnesota Federation of Labor, Minnesota Federation of Women's Clubs (district meetings), Minnesota Health Association, National Educational Association, Retail Hardware Association, Rotary Club of Minneapolis, Town Criers Club of St. Paul, United Commercial Travelers, Western Mesaba Association of Commercial Clubs.

Personal visits were made, conferences held, and addresses given in 73 communities.

A large amount of correspondence has been had with the officers of the commercial and community clubs throughout the state.

A community-service institute was held in the city of Fairmont in the month of June, 1920. The Retail Hardware Association and the publishers of the agricultural journal, *The Farmer*, gave active coöperation. The institute comprised two days of instruction and one day of recreation. There were five sessions dealing with five topics,—health, home, store, roads, and market. Each topic was presented by an expert. An extremely favorable impression was created upon the community. The local forces behind this experiment were the Fairmont Commercial Club, the Martin County Farm Bureau, and the Martin County Federation of Farmers Clubs.

Exchange of bulletins and publications has been made with the following organizations: American City Bureau, Community Center Department of the U. S. Bureau of Education, Community Service, Inc., Universities of Colorado, Indiana, Illinois, Kansas, Tennessee, and Wisconsin.

In response to special invitation, community service was presented to the merchants' short course of the University of Tennessee, held at Knoxville in March, 1920.

#### DRAMA SERVICE

1919-1920

The estimated total of inquiries is.....	275
The estimated total of towns making inquiries.....	142
The estimated total of plays sent out.....	1,493
The estimated total of letters written.....	1,578
The estimated total of towns choosing plays as a result of our service.....	80
The estimated total of audiences reached by dramas so chosen.....	35,500

#### MUNICIPAL REFERENCE BUREAU

*Number of inquiries.*—The bureau has handled 216 specific inquiries for information during the past year. Of these, 201 came from municipal officials, civic organizations, and private individuals within the state of Minnesota, and 15 came from inquirers without the state. The number of cities within Minnesota from which inquiries came is 88.

Some of the inquiries outside of the state came from the Philadelphia Bureau of Municipal Research, the National Municipal League, the New York State Senate, Columbia University, the Yonkers (New York) Municipal Reference Bureau, the Wibaux (Montana) County High School, St. Louis Municipal Reference Bureau, U. S. Army Recruiting Station of Chicago, and the Richmond (Virginia) Civic Association.

*Nature of inquiries.*—As to subject, the inquiries answered during the past year cover as wide a range as ever. Some of the subjects of inquiry were: licenses 12, charters 15, home rule 5, electric power and lighting plants (including rates, franchises, etc.) 9, special assessments 2, municipal finance 4, traffic 8 or 10, a half-dozen requests for a model traffic ordinance which the bureau had drafted, inquiries about ice plants, memorial buildings, tanks, street numbering, licensing of soft-drink parlors, water hammer in pipes, protection against hogs, curfew, regulation of scales on the right of way, and a couple of requests about city-manager cities.

## COMPARATIVE STATEMENT OF ACTIVITIES

	1915-16	1916-17	1917-18	1918-19	1919-20
<b>EVENING CLASSES</b>					
Number of semester registrations .....	2,854	3,830	2,686	2,461	5,216
Number of individuals during the year without duplication	1,951	2,371	1,825	1,741	3,335
Number of semester classes..	143	163	141	111	186
<b>CORRESPONDENCE COURSES</b>					
Number of registrations from August 1 throughout the fiscal year.....	199	190	151	256	595
<b>SHORT COURSES</b>					
Merchants' short course'					
Number of registrations..	134	125	125	168	148
Social service courses					
Number of registrations..	...	...	41	25	162
Trade and industrial courses					
Number of registrations..	...	...	...	97	70
Short courses for dentists					
Number of registrations..	...	...	50	76	125
Short course in citizenship					
Number of registrations..	...	...	...	...	611
Short course in income tax					
Number of registrations..	...	...	...	...	243
<b>LECTURE AND LYCEUM DEPARTMENT</b>					
Number of towns having courses .....	110	136	180	176	178
Number of engagements filled at above towns.....	541	654	905	780	837
Number of single engagements .....	82	100	57	73	138
<b>VISUAL INSTRUCTION</b>					
Number of towns having slide or film service.....	80	108	62	37	126
Number of showings of slides and films.....	205	343	463	185	684
<b>DRAMA SERVICE</b>					
Number of towns served....	...	193	226	178	142
Number of inquiries received	...	353	361	329	275
Number of plays sent.....	...	1,143	1,918	1,420	1,493
<b>MUNICIPAL REFERENCE BUREAU</b>					
Number of towns making inquiries .....	100	102	72*	96	88
Number of inquiries received	200	225	225	200	216

\* This does not indicate a lack of interest, or appreciation of, the service rendered by the Municipal Reference Bureau as it might seem at first glance. Inquiries were anticipated by questionnaires and the results, after being compiled, were sent out.

As to service requested, the inquiries varied from requests for data which could be supplied by sending a bulletin to requests for drafts of

ordinances and for assistance in framing charters. The secretary of the bureau has kept an accurate list of material lent since December 1, 1919, from which it appears that 131 clippings, 129 pamphlets and 2 books have been lent by the bureau in this period. In the same time the secretary of the bureau has drafted eight or ten new ordinances for inquirers. A great many requests for ordinances have been supplied by the use of ordinances previously drafted in the bureau or found to be in effect in other cities.

*The League of Minnesota Municipalities.*—The affiliation of the bureau with the League of Minnesota Municipalities continues as a most profitable arrangement to both the bureau and the league. The secretary of the bureau acts as executive secretary of the league and as editor of *Minnesota Municipalities*, the league's official magazine, and publishes in this magazine a number of informational articles and editorials in the course of the year. The league has attained a membership to date of 175 cities, villages, boroughs, and townships, which places it fourth in the United States in point of numbers of such state leagues of municipalities.

*Staff.*—On July 15, 1919, Miss Sophia Hall was added to the staff of the bureau, and has rendered most excellent service in the handling of the bureau's work. On October 1, 1919, an arrangement was put into effect whereby one half of Miss Hall's time was exchanged for half of the time of Miss Goddard, the stenographer of the Bureau for Research in Government which shares the offices in the library with this bureau. These arrangements made it possible to relieve the one-half time stenographer of the League of Minnesota Municipalities of the bureau's work which she had formerly done.

*Classification and handling of bureau material.*—Immediately after Miss Hall joined the staff of the bureau, the secretary availed himself of the circumstance that she is a trained librarian by securing her coöperation in preparing a classification scheme for the material in the Municipal Reference Bureau. Prior to this time the material accumulated could hardly be said to be classified at all, and such scheme as there was of classification had broken down with the accumulation of several years. It was found possible by coöperation between the secretary as a political scientist and Miss Hall as a librarian to work out a very satisfactory classification scheme which has been proved by being put into operation in the bureau. The bureau now has a great deal more material than it ever had before, and it is all available. The work of preparing the classification occupied fully three months, and the actual reclassification and arrangement of material took a great deal longer.

On December 5, 1919, the bureau sent out about twenty copies of the classification scheme to other bureaus and libraries which might be interested. The scheme received favorable mention from a number of periodicals. Subsequently the bureau has received about forty requests for copies of the classification, some of which it has been possible to supply by lending copies, and a few of which it has been possible to supply by giving copies. The bureau has been advised by the Municipal Reference Bureau of the City of Toledo, and by the Municipal Reference Bureau of the universities of Kansas and Oklahoma, that the scheme is to be installed for their collec-

tion of material as early as possible, and some other places have indicated an interest that may lead to the installation of the scheme.

*Coöperation with the Bureau for Research in Government.*—As has been mentioned the bureau shares the office space, which the Library of the University very kindly placed at its disposal, with the Bureau for Research in Government of the Department of Political Science. The secretary has found it very advantageous for both to have quarters in the Library and to keep in close coöperation with the other bureau, and recommends that the arrangements be continued.

*Office-procedure.*—By reason of the change of secretary which is consequent upon the resignation of the present secretary, there have been prepared some memoranda for his successor. Miss Hall has added some further memoranda concerning those parts of the office administration which have been in her charge, so that the bureau will now have a statement of most of the items of the customary practice.

Respectfully submitted,

RICHARD R. PRICE, *Director*

## THE SUMMER SESSION

I herewith submit my report as Director of the Summer Session for 1920, dates June 21, and August 3.

*Enrolment.*—Enrolment for the six weeks' session for the year, 1920, showed an increase of 610 over the year 1919. The enrolment by colleges was as follows:

	MEN	WOMEN	TOTAL
Agriculture .....	114	117	231
Business .....	8	4	12
Chemistry .....	40	1	41
Dentistry .....	110	6	116
Education .....	106	304	410
Engineering .....	169	1	170
Graduate .....	124	61	185
Law .....	27	1	28
Medicine .....	180	15	195
Pharmacy .....	4	2	6
Science, Literature, and the Arts.....	250	587	587
War specials.....	9	...	9
	<hr/>	<hr/>	<hr/>
University High School.....	1141	849	1990
			<hr/>
			39

*Staff.*—150 persons gave instruction, 176 of whom were members of the regular staff.

The following outside instructors were employed: Frank M. Anderson, Dartmouth, History; John A. Fitch, New York School of Special Work, Sociology; M. M. Guhn, South Dakota, Americanization; W. M. Hodson, Minnesota State Board of Control, Sociology; D. H. Holbrook, American Red Cross, Sociology; Anne E. Nicholson, Public Schools, San Francisco, Americanization; H. T. Waller, Akron, Ohio, Americanization; Earl Baker, Minneapolis Public Schools, Public School Music; Albert Gullette, Minneapolis Public Schools, Education; Charles A. Prosser, Dunwoody Institute, Trade and Industrial Education; D. H. Reed, University of Wisconsin, Poultry Husbandry; Dr. L. M. Massey, Delaware State College, Home Economics; Helen Bridge, Delaware State College, Home Economics; Paul E. Lawson, University of Kansas, Entomology.

*Convocations, lectures, concerts, and sight-seeing trips.*—Two convocations were held, one on June 24, addressed by Dean L. W. Jones, and one on July 15, addressed by President L. D. Coffman. Seven general lectures, three sight-seeing trips and three receptions were arranged for by Mr. Eric Selke.

*Continuation courses.*—Following the close of the regular six weeks' session, a number of continuation courses were provided, in Agricultural Biochemistry, Anatomy, Animal Biology, Bacteriology, Chemistry, Entomology, and Medicine. The Medical School, for the first time, was

in session for a full summer quarter, and had its full quota of students. A total of 190 students were in attendance in the various continuation courses.

## EXPENDITURES

Advertising .....	\$ 570.34	
Printing .....	1,466.65	
Stamps .....	70.00	
Reception and entertainments.....	171.59	
Music and concerts.....	68.00	
Sight-seeing trips.....	2.20	
Miscellaneous assistance.....	99.30	
Miscellaneous supplies.....	191.27	
		\$ 2,639.35

## PAYROLL

Science, Literature, and the Arts.....	\$14,673.08	
Chemistry .....	2,099.97	
Education and University High School.....	5,077.88	
Law .....	1,650.00	
Engineering .....	2,679.97	
Dentistry .....	625.00	
University Farm.....	6,034.15	
Medicine, first term.....	5,232.64	
		\$38,072.69
Medicine, second term.....	\$ 4,593.31	
Total expenses for the Summer Session.....		\$45,305.35

The Director is pleased to acknowledge the invaluable assistance of Professor E. E. Nicholson, Dean of Student Affairs, in looking after many of the details of administration. An abstract of his report follows:

*Registration.*—One day was devoted to official registration, when representatives of each department offering instruction were present in the large reading room of the Library. Registration was practically completed in that one day, with the largest registration in the history of the Summer Session.

*Auditors.*—As in the past, there were innumerable requests for the privilege of attending classes as auditors. These were refused unless the person was a regularly registered student and the work desired was closely related to his work of the year.

*Absences.*—Reports of absences were made by instructors daily instead of weekly, as in the past.

*Extra work.*—Many requests for extra work were submitted,—the explanation is as follows: When the students began to register, it developed that the arrangement of courses and credits made it necessary to restrict a large number of students to one subject and a less number of credits than generally allowed, or to exceed the stated maximum allowable credits by one, making it ten instead of nine. This was done and accounts for the apparently excessive number of students carrying extra work. There were many requests for extra work, over and above those in petition form.

*Scholarship.*—A scholastic report on the work of all students was called for at mid session.

*Recommendations.*—I. That, the Summer Session be extended to eleven weeks, to be divided into two terms of six and five weeks.

a. The eleven weeks session is practically in effect now, because for the last three sessions, when there has been sufficient demand, any course has been continued for four weeks beyond the regular six weeks' period.

b. It is, and will be, necessary to maintain the short six weeks' course, for: (1) the group to whom the summer quarter will make the greater appeal is the teacher group; (2) if the teacher group is to be brought here and efforts made to increase it, the short session will have to be maintained, for the major number of this group will not give over six weeks to summer work.

II. That, the summer quarter be organized with a Director and a centralized administration.

a. The teacher group is a group much more mature than the regular student group. (1) They have no knowledge, as a rule, of University procedure, regulations, or requirements. (2) Lack of uniformity in the handling or treatment of the individuals of this group is more quickly resented than is the case with regular students, this dissatisfaction will have much more far-reaching results than in the case of ordinary students.

b. That, with such an organization, the idea of "The University of Minnesota" instead of the "College" idea will continue to grow and be carried throughout the state. Such an organization will function smoothly and the administration will be uniform.

c. A decentralized organization will mean an aggregation of colleges, with a multiplicity of administrative units, conflicts of interests and requests, and a wide variation in administration. In all probability there will not be more than two colleges with sufficient registration to warrant the necessary money, time, or energy required by the added administrative units.

Respectfully submitted,

LOTUS D. COFFMAN, *Director*

# DEPARTMENT OF PHYSICAL EDUCATION FOR MEN

*To the President of the University:*

SIR: I herewith submit my annual report for the year 1919-20.

The chief tasks undertaken by the department were practically the same as in former years, tho in a number of instances on a larger scale.

1. Physical examination of all new matriculants and all those using the privileges of the department, and medical inspection of same.
2. Administration of a special lecture on sex hygiene.
3. Lectures on personal hygiene for all freshmen in the University.
4. Conducting organized classes in gymnastics and calisthenics for all freshmen in the College of Science, Literature, and the Arts and the School of Chemistry.
5. Conducting special course for physical defectives in all colleges of the University.
6. Promotion of intramural sports, such as baseball, basket-ball, tennis, swimming, ice-hockey, track and field athletics, boxing, and wrestling.
7. Promotion of miscellaneous sports and physical activities including gymnastics, track, and field events, Sigma Delta Psi (the honorary athletic fraternity,) and basket- and volley-ball.
8. Promotion of minor intercollegiate athletics.
9. Organization and administration of special features of physical education.

*Physical examinations.*—(1) Careful physical and medical examination was given all new students entering the University. This examination was given in conjunction with the University Health Service, and included the personal history of the student; inspection and examination of the heart, lungs, nose, throat, teeth, eyes, ears, skin, and body in general; prescription of corrective exercise where indicated. (2) Medical inspection was required of all students using the department privileges, such as shower-baths, swimming-pool, towel exchange, gymnasium, training quarters, and athletic field. All candidates for athletic teams were required to take a physical examination at the beginning of the training season, and as often during the season as their physical condition indicated. (3) A second physical examination, at the end of the school year, was required of all students taking the regular physical education course.

During the year a total of 3,871 examinations was made, divided as follows:

Original examinations, with measurements.....	2,392
Reexaminations, with measurements.....	758
Medical inspections.....	721
Health consultations—referred to Students' Health Service	
First aid cases—referred to Students' Health Service	

*Special lecture.*—A total of 2,356 students attended the special lecture on sex hygiene, as required of all students entering the University for the first time.

This lecture was given in three divisions by Dr. H. L. Williams, Dr. Charles A. Erdmann, and Dr. J. C. Litzenberg.

*Personal hygiene lectures.*—There was an enrolment of 2,272 students for this course, consisting of twelve lectures, given twice a week. The course embraced the following subjects: the human body, briefly considered, nutrition, general and corrective exercises, bathing, hygienic hints, including suggestions on rest, selection of student's living- and sleeping-room, care of the eyes, teeth, etc., sources of infection and control of same, and first aid to the injured. Themes were required during the course with a written examination at the close.

*Gymnasium classes.*—A total of 1,176 students was enrolled in organized groups and classes, conducted twice a week as required by the curriculum. Of this number 946 students were enrolled for gymnastics, calisthenics, and swimming, 130 for boxing, 35 for wrestling, 15 for athletics, and 150 for corrective work. All students taking the course, except defectives, were required to pass efficiency tests for credit in physical education. Three of these tests were required in the first and second quarters, and five in the third quarter. The former were in swimming, bar-vaulting, and set exercises on apparatus; the latter in life-saving, running, jumping, and apparatus work. The standards required in all the exercises are such that the average student, with the training given, can meet them, and are the result of careful study by the department.

*Corrective gymnastics.*—The defectives were grouped according to condition, and were under the direction of a medically trained instructor, who supervised the execution of the corrective exercises as indicated. These defectives were excused from the tests required of other students, but were required to come three times each week for exercise. A student whose petition for excuse from military drill on account of physical disability was granted was assigned to one of these groups.

*Intramural sports.*—Intercollege, interfraternity, and all-University contests were held in basket-ball, baseball, handball, ice-hockey, swimming, track and field events, tennis, boxing, and wrestling. (See report of Intramural Sports Committee.)

*Miscellaneous physical activities.*—(1) The department had a leaders' corps, and the work of this course consisted in instructing and training classes and groups in calisthenics, apparatus drill, swimming, boxing, and wrestling. Such of the leaders as cared to follow up the work were given the opportunity to register for advanced leadership with credit, and were placed in charge of classes under supervision of a member of the departmental staff. (2) Sigma Delta Psi, the honorary athletic fraternity, is well established at Minnesota. Eleven athletic trials were held during the college year in the following events: football punt, baseball throw, running high jump, running broad jump, 100-yard dash, 220-yard low hurdles, pole vault, shot put, 2-mile run, 10-mile walk, and tumbling. One hundred and thirty

students are candidates for the fraternity. Three senior- and one junior-grade certificates were awarded at the close of the year to the following named students: Russell A. Patrick, sophomore academic, Carl C. Hanke, senior engineer, and Carl G. Schjoll, freshman academic, senior-grades, and Raymond L. Olander, freshman academic, junior-grade.

*Recommendations for the future.*—Too strong an emphasis can not be placed on the need for a new gymnasium and more ground for intramural sports. The Department of Physical Education shares the Armory with the Athletic Department, the Military Department, and the Committee on University Functions. The Athletic Department uses the building for football practice, basket-ball and track athletics, while the Military Department, with its heavy schedule of drill periods, occupies the building the major part of the time, and about fifty miscellaneous functions are held in it during the year. This seriously embarrasses the Department of Physical Education in its efforts to carry out the regular program of class exercises and indoor intramural sports. During the past year the demand for the use of the gymnasium, on the part of the students, has been so heavy that in many instances two and three students have occupied a single locker.

The promotion of intramural sports is greatly curtailed because of the lack of room both indoors and out of doors, and the work is carried on to the full capacity of the limited facilities, leaving the larger mass of students unprovided for means of physical exercise.

While the needs of the department have been emphasized in all the annual reports submitted by the director, no relief has been provided, and it is again emphatically urged that provision be made to meet the physical needs of the large and increasing number of men in the University.

Respectfully submitted,

L. J. COOKE, *Director*

## DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN

*To the President of the University:*

SIR: I submit herewith my report for the year 1919-20.

The new work which has been taken up by this department during the year comprises:

1. Organized exercises two periods a week for all sophomore women in the College of Science, Literature, and the Arts, as a college requirement. Wide election has been offered the students, limited only by (1) their physical capacity for vigorous exercise, (2) the requirement that they shall register for swimming if not already able to swim.

2. The institution of a four-year course for the preparation of teachers and supervisors of physical education. Fifteen young women were registered for the course this year. Since they were either freshmen or sophomores they took no professional courses with this department.

3. The reorganizing of the technic of the teaching of swimming. Teaching it by class methods, with various teaching devices and progression from day to day resulted in a remarkable increase of confidence in the students. During the year 249 beginners learned to swim.

*Physical examinations.*—Examinations of 1,160 newly entering students were made, including 40 in the University High School and 90 in the agricultural schools at Morris and Crookston. In addition, all members of the sophomore-college classes in exercise and 35 University High School students received a physical examination in the spring, juniors and seniors to the number of 279 were called in for health consultations, 200 freshmen were called in for reëxamination or special advice, and each instructor had many consultations with members of her own classes on the basis of their hygiene reports.

The students were distributed in courses as follows (December, 1919):

Required freshman physical training.....	762	
Required sophomore exercise		
Physical Training .....	58	
Folk Dancing and Games.....	22	
Major Sports.....	21	
Swimming .....	200	
Rhythmic Expression.....	104	405
Elective exercise		
Intermediate and Advanced Physical Training (juniors and seniors).....	58	
Rhythmic Expression.....	28	
Organized Games and Folk Dancing.....	25	
Major Sports (average of three quarters).....	73	1,351 registrations
Swimming (the number of swims) number not available; approximately .....	1,900	
Required freshman hygiene.....	781	
Elective personal hygiene.....	20	
Teachers' Course in Physical Education (minor).....	9	

*The staff.*—The director was away on sabbatical leave for the second and third quarters, and in her absence May S. Kissock was acting director.

Miss Kissock has been given a leave of absence without pay for 1920-21 and Beatrice Berthold has been appointed to fill the vacancy. The staff was increased by the appointment of Helen A. Barr as instructor; at the end of the year Miss Barr resigned to accept a position in Northwestern University, and Miss Grace M. Rockwood was appointed instructor in her place. Gertrude M. Baker was appointed for the year to replace Evelyn Voss, resigned; Miss Baker has been given a leave of absence without pay for 1920-21 for the purpose of study, and Gertrude Lyon has been appointed to fill the vacancy. The staff has been increased by the appointment of Gladys A. Fellows, instructor, to begin service during the year 1920-21.

The following were promoted from the rank of instructor to that of assistant professor: Alice H. Tolg, Valeria G. Ladd, Gertrude B. Schill.

*University High School.*—Enrolment in required classes was 131, distributed in three groups, freshman, sophomore, junior-senior.

*Summer session.*—Enrolment of students in the two teachers' courses in gymnastics, games, and folk dancing was 47. Sixty-five students registered for swimming.

*Extension Division.*—Four classes used the natatorium once a week during the year in the evening; 120 students registered.

The department has worked under great disadvantage this year on account of the very large enrolment. No gymnasium class should contain more than 60 members, but there have been three classes this year containing between 80 and 90 and four classes containing more than 90. Moreover, the corrective classes, which should contain not more than 10 members, have 15 or more in three instances. The instructors report that the girls appear to feel like cogs in a well-oiled machine, which is far from ideal. This condition will probably be remedied by the appointment of an additional instructor for next year.

It is imperative that additional office space be provided for the staff if it is to work efficiently. We have room for five desks and next year we shall have eight persons who will need them. I would repeat urgently the recommendation of last year that the storage space above the instructors' offices be transferred into three offices to correspond with those below.

I would repeat also my recommendation of the past two years for finishing the natatorium unit by equipping with shower baths and dressing-rooms the space which has been reserved for them. It was necessary to leave this portion of the natatorium unequipped when the gymnasium was built, and therefore the girls who use the pool must take their showers in the general shower room. This necessitates their passing through a main hall from the shower room to the natatorium in dripping suits and bare feet. (During 1917-18 this journey had to be made about 9,000 times by about 900 individuals). The hall is very public and very cold in winter, which leads to serious complaints from students. It is indeed a source of embarrassment to the department also, since we have to admit that students run the risk of catching cold in passing through it, and rather frequently have to postpone the requirement in swimming on that account.

Respectfully submitted,

J. ANNA NORRIS, *Director*

## COMMITTEE ON PHYSICAL EDUCATION AND INTRAMURAL SPORTS

*To the President of the University:*

SIR: The Committee on Physical Education and Intramural Sports respectfully presents its reports for the year 1919-20:

### INTRAMURAL SPORTS FOR WOMEN

The following report on intramural sports for women is submitted by Miss May Kissock:

*Autumn activities.*—1. Field-hockey. Number of participants, 60. The field-hockey tournament between the classes was unfinished because of bad weather conditions. 2. Swimming exhibition. Under management of the Women's Athletic Association, October 31, 1919. Demonstration of swimming strokes, diving and plunging for distance, under-water swimming for distance, retrieving objects, rescue work. Number of participants, 10.

*Winter activities.*—1. Basket-ball. Number of participants, 100. Interclass tournament began March 8. Final championship game in contest, March 16. Winners of tournament, class of 1921. 2. Annual gymnastic contest. Held Friday, March 19. Number of participants, 250. Contest won by class in advanced gymnastics. 3. Ice-hockey. Under management of Women's Athletic Association. Number of participants, 35. Interclass tournament won by senior-junior team. 4. Swimming exhibition. Under management of Women's Athletic Association, March 10. Number of participants, 20. Program: events for records, demonstration of carriers, diving.

*Spring activities.*—1. Baseball (indoor rules). Number of participants, about 75. Interclass tournament began May 15. 2. Field-hockey. This sport is usually a fall sport, but owing to bad weather conditions last fall, the interclass tournament was finished this spring. 3. Swimming contest. Under management of Women's Athletic Association. Date, June 1. 4. House baseball (indoor rules). A tournament between 14 different sororities, boarding and coöperative houses, and Sanford Hall. 5. Horseback riding. Under management of Women's Athletic Association. Number of participants, 40. 6. Archery. Number of participants, about 20. 7. Tennis. Under management of Women's Athletic Association. Number of participants, 50. Annual spring tournament in both singles and doubles. 8. Field-day. Final event in college year. Was held on the river flats below the Elliot Memorial Hospital on May 29. At this time the final games in all the spring activities took place.

### INTRAMURAL SPORTS FOR MEN

The following report on the intramural sports for men is submitted by W. K. Foster:

*Interfraternity bowling tournament.*—Schedule finished. Twenty-four teams divided into four divisions and then an elimination contest between divisions. Estimate, 144 men competing.

*Interfraternity basket-ball tournament.*—Schedule completed and finals have been played between the divisions. Twenty-four teams competing, with an estimate of 184 men.

*Interfraternity hockey.*—Twenty-two teams, estimated 220 men competing. Schedule finished and elimination between divisions winners.

*Interclass basket-ball.*—Tournaments held in the Engineering and Agricultural colleges only. Estimated 64 men competing. In the Dentistry and Pharmacy colleges there was a partial tournament arranged, the freshmen playing the sophomores. Estimated that 32 men competed. Total 96.

*All-University wrestling meet.*—About 30 men competed. Winners determined in the different weights.

*Intercollege basket-ball.*—Teams divided into two divisions of 5 each, and final for championship. Won by College of Engineering. Estimated 70 men participated.

*All-University boxing tournament.*—Thirty-four men competing. Winners determined in seven weights.

*Handball-doubles.*—Twelve men entered. Tournament completed.

*Handball-singles.*—Twelve men entered. Tournament completed.

*Intercollege and all-University swimming meet.*—Forty men competing. Eliminations and finals.

*Sigma Delta Psi.*—(Honor athletic fraternity.) Trials held weekly, monthly earlier in the year. One hundred and ten men competing in the various events.

*Interfraternity relay meet.*—Twelve teams competing, by straight elimination, 48 men. Four men to the team, each running two laps on the indoor track.

*Intercollege baseball.*—Eleven teams, 2 divisions. Winners of divisions played in finals. Estimated 165 men participating.

*Interfraternity baseball.*—Twenty-four teams, 4 divisions, winners played in elimination tournament. Estimated 360 men participating.

*All-University tennis tournament.*—Singles and doubles, 64 men entered.

*Other activities.*—Intercollege tennis tournament, interfraternity tennis tournament, track and field events under Coach Frank, all-University tennis tournament-doubles.

The total number of men participating in intramural sports was more than 1,600. At the end of school year a banquet for the winners in the various sports was held at the Minnesota Union. To the winning teams, cups were presented. The intramural "M" was given to various winners of intramural sports. Medals were presented to the boxing champions in the several weights.

The committee wishes to reiterate its statement which appeared in the president's report for the school year 1918-19:

"It is the aim of the committee to stimulate interest in and make provisions for the daily physical exercise on the part of all students and teachers. Conservation of health, symmetrical and harmonious development,—

the Greek ideal—and the cultivation of the instinct and desire to be active, are the objects sought. Without question, if some form of daily exercise were required of all students and teachers as well, better health and greater academic efficiency would result.”

*Budget.*—Assuredly an activity which has for its object the ideal expressed in the foregoing paragraph is worthy of better support on the part of the University. At the present time the expenditures for intramural sports are limited to approximately \$500. This sum is subscribed by the Committee on Athletics. Annually, the Committee on Physical Education and Intramural Sports must supplicate for this fund.

The committee feels strongly that the University must assume a new and more serious responsibility in matters pertaining to the physical development of its students. The recent draft examinations,—the most extensive health census ever taken in America,—revealed the appalling fact that more than one third of our young men between the ages of 21 and 31 were sub-normal. It is to the colleges and universities of our country that America must look in the very largest measure, for the physical regeneration of its citizens. Why not develop a university type of physique which, in time, will permeate our country?

In order to meet the aims and ideals of the Committee, numerous facilities must be provided. Gymnasia, tennis courts, baseball diamonds, swimming aquaria, and various equipment for physical exercise for the different seasons must be provided.

For the immediate and urgent needs of the committee, a budget of \$5,000 should be granted by the University. This budget, in detail, is printed in the president's report for the previous year, and will be presented to the president for the next biennium.

Respectfully submitted,  
JOHN SUNDWALL, *Chairman*

## THE MILITARY DEPARTMENT

*To the President of the University:*

SIR: I beg to submit my report as professor of Military Science and Tactics of the University of Minnesota for the year 1919-20.

The organization of the Reserve Officers' Training Corps was accomplished during the first week of the first quarter. Actual training and instruction began the second week and continued throughout the year ending June 16, 1920. Satisfactory progress was made in the instruction and training of the students of the Reserve Officers' Training Corps as a whole. The chief task undertaken at the beginning of the year was in perfecting a sound organization of this department. One of the greatest difficulties encountered during the first and second quarters was occasioned by the drill schedule as arranged for that period, which prevented a uniform system of instruction due to the registering of students in groups of varying sizes from about 25 to 400. This was corrected during the third quarter when an excellent schedule was arranged which will continue during 1920-21.

The Advanced Course of the Reserve Officers' Training Corps was organized on March 1, 1920 with an enrolment of 8 students. The total number eligible of those applying for instruction in this course was 12.

A junior unit of the Reserve Officers' Training Corps was organized and trained under the direction of this department at the College of Agriculture, Forestry, and Home Economics on February 9, 1920. The number of students enrolled in this unit was 525. Due to the short period of time from the organization of this unit to the close of this school on March 23, and a delay in the receipt of clothing and equipment, no issues were made to the students, all clothing and supplies being put in storage for issue next fall. A good organization was perfected and a foundation laid so that this unit will be prepared to resume military instruction promptly, for the year 1920-21.

The personnel detailed by the War Department and on duty at the close of the school year was as follows:

A. G. Goodwyn, Captain, Inf., Professor of Military Science and Tactics.  
L. T. Walker, Captain, C. A., Assistant Professor of Military Science and Tactics.  
Ben W. Field, Captain, Inf., Assistant Professor of Military Science and Tactics.  
Lee R. Watrous, Jr., Captain, C. A., Assistant Professor of Military Science and Tactics.  
H. G. Thomas, 1st Lieut., Ret., Assistant Professor of Military Science and Tactics, Adjutant.  
E. B. Moomau, 1st Lieut., Inf., Assistant Professor of Military Science and Tactics.  
Haylicek, Joseph, Regt. Com. Sgt., Clerk.  
Lees, Joseph, 1st Sgt., Sergeant Major.  
McWilliams, John, 1st Sgt., Instructor.  
Baker, Joel R., Master Signal Elec., Instructor.  
Palms, William G., Sgt., Instructor.  
Brandt, Alfred T., Regt. Sgt. Major, Instructor.  
Brown, H. W., Sgt., Instructor.  
Finke, William, 1st Sgt., Instructor.  
Dunkum, Aubrey K., 1st Sgt., Instructor.  
Caldwell, Kenna B., Sgt., Instructor.  
Hogan, William L., 1st Sgt., Instructor.

The number of students enrolled in the Military Department at the close of the year was as follows:

Total number enrolled.....		2,295
Registration cancelled.....	389	
Special gymnasium work substituted on account of physical disqualification .....	93	
Discharge from R.O.T.C. for army or other service.....	223	
Completed course		
Grade A .....	52	
Grade B .....	788	
Grade C .....	368	
Grade D .....	167	
Grade E .....	..	
Grade I .....	89	
Grade F .....	126	
	<hr/>	<hr/>
	1,590	705
		2,295

Of the above number present at the close of the year, the distribution was as follows:

Basic course.....	1,582
Advanced course.....	8
	<hr/>
Total .....	1,590

The following students graduated from the University and satisfactorily completed two years of the Basic Course and one year of the Advanced Course: Cadet Colonel Karl P. Buswell, Cadet Major Walter Julius Lee, Cadet Captain H. G. Loehlin.

The first two named have been recommended for appointment as second lieutenants in the Infantry Section of the Officers' Reserve Corps, having completed one entire year of the Advanced Course. The latter is not eligible for appointment in the reserve corps as he did not complete one entire year of this course.

Report of individual rating of each student has been made to the office of the registrar.

The value of equipment issued by the War Department for use of the Reserve Officers' Training Corps is approximately as follows:

Clothing .....	\$ 80,429.81
Ordnance .....	91,368.32
Artillery .....	9,000.00
Signal Corps .....	5,000.00
	<hr/>
Total .....	\$185,798.13

Regulations provide that uniforms be turned in by the student at the end of each scholastic year for renovation or salvage. This has been done. I desire to inform you that requisitions for such additional clothing and supplies as may be needed by this department for the year 1920-21 have been prepared and submitted.

Respectfully submitted,

A. G. GOODWYN,  
Captain, Infantry, U. S. A.

## THE GEOLOGICAL SURVEY

*To the President of the University:*

SIR: I submit herewith my report as director for the period from July 1, 1919, to June 30, 1920.

*Introduction.*—The survey was allotted \$16,500 for the biennial period begun July 1, 1919. The work of the survey was carried on according to the plan outlined in previous reports to the president of the University and published in the annual reports of the president. At the end of the fiscal year, 1919-20, there were under way or completed the following investigations:

1. Detailed survey of the east part of the Mesabi iron range from Mesaba station to Birch Lake, by Professor F. F. Grout and Assistant Professor T. M. Broderick. Report completed and available for distribution as *Bulletin 17*.

Altho this part of the Mesabi range has produced practically no ore, it has a promising future. The iron-bearing rock, which carries from 20 to 30 per cent iron, is not usable in its present state, but much of it can be concentrated to a high-grade product by magnetic separation. Only certain beds are suited to this process, however, while others interlayered with them are not workable. The mapping of the range and separation of the beds has shown the position and character of the valuable beds. The concentrated ore from these beds is a very high-grade ore and carries little phosphorus, being superior probably to any iron ore in the United States. A large concentrating plant is now being built near the east end of the range. The future of these ores is very vital to the prosperity of northern Minnesota, for if they are workable profitably under normal conditions, the life of the iron-mining industry in Minnesota will probably be greatly increased, owing to the enormous tonnage available.

2. Investigation of the clays and shales of Minnesota. This investigation was undertaken several years ago in coöperation with the United States Geological Survey. A comprehensive preliminary report of 172 pages, by Professor F. F. Grout and Professor E. K. Soper, was published as *Bulletin 11* by the Minnesota Geological Survey in 1914. The final report was published in 1919 as *Bulletin 678* of the United States Geological Survey, in coöperation with the Minnesota Geological Survey. In general the object of the work has been to assist in the development of the clay resources of the state, the broader problems of ceramics being treated only incidentally. Specifically, the object was to investigate the brick supply for every town of 1,000 or more inhabitants and for every county in the state, to ascertain the extent of several deposits now developed at only a few points, to find new deposits, and to determine the qualities of these deposits and of certain mixtures so as to ascertain whether it is possible to produce refractory wares, pottery, paving brick, and other high-grade products.

3. Detailed stratigraphic investigations of the Mesabi Range west of Mesaba station. This work consisted of the examination of drill cores preserved by mining companies, and likely to be unavailable in the near future, and the mapping of the strata in detail from the cores. The work was done by Assistant Professor T. M. Broderick and Mr. John W. Gruner. The Biwabik iron-bearing formation heretofore has been mapped as a unit. As a result of the detailed work on the east end of the range by Professor F. F. Grout and Assistant Professor T. M. Broderick, it has been found practicable to subdivide the Biwabik iron-bearing formation into ten or more subdivisions, some of which are much richer than others. Some of these subdivisions have been shown to extend westward into the more productive part of the range. It is believed that the results of the detailed stratigraphic work will be useful in prospecting the range west of Mesaba, altho probably not so valuable as it has proved to be in the part of the range east of Mesaba station.

4. Survey of an area of metamorphic rocks in St. Louis County, north and west of Vermilion Lake. This area contains large bodies of ancient granite cut by pegmatite veins, some of which carry iron ores. No large deposits are developed in this region. Certain areas have attracted attention recently and will probably be explored. The work is in charge of Professor F. F. Grout, assisted by Mr. J. D. Wheeler and Mr. Stanwood Johnston.

5. Survey of the Gunflint iron range in Cook County. Assistant Professor T. M. Broderick and Mr. J. W. Gruner spent about five weeks examining the Gunflint iron range in Cook county, mapping it in detail. Correlations were established between the formations of the eastern Mesabi Range and the Gunflint Range, and special attention was given to possibilities of magnetic concentration of the Gunflint ores. It was not thought advisable to prepare the Gunflint data for publication as a survey bulletin, but to save expense of publication it has been compiled as an article which appears in one of the scientific journals.

In addition to the more comprehensive investigations outlined above, many inquiries are received in the offices of the survey concerning the geological structure in various places, from those who contemplate drilling for water or ore, and numerous materials are forwarded from various localities in the state to be examined to determine their availability for various economic purposes.

Respectfully submitted,

W. H. EMMONS, *Director*

## THE ZOOLOGICAL SURVEY AND MUSEUM

*To the President of the University:*

SIR: I have the honor to submit the following report of the condition and activities of the Zoological Survey and Museum for the year ending June 30, 1920. The present status of the Zoological Survey and Museum as a separate college or department of the General University, responsible directly to the president, has simplified and facilitated the work of the department. It is hoped that this plan may be continued.

On September 1, Mr. Charles Phillips of Minneapolis, a former student in the University, began work as museum assistant. His duties are to help with the office routine, to assist in lecture work and with the University class in ornithology, and to look after a portion of the detail in the general conduct of the museum.

### MUSEUM

*Exhibits.*—The museum taxidermist, Mr. Jenness Richardson, has been employed most of the time since last September on the Heron Lake bird group mentioned in my last report. This has proved to be more of an undertaking than was expected, due largely to the considerable amount of wax work required to represent properly the marsh vegetation. Mrs. Richardson has rendered much assistance in the making of this wax work. The background is being painted by Mr. H. M. Rubens of Minneapolis. When this painting, which is over thirty-two feet in length, is completed, the foreground will be quickly assembled and it is expected that the group will be ready for exhibition to the public sometime in the fall. The case for this group is an entirely new departure in our museum and follows in the main a design adopted in recent years by the American Museum of Natural History, New York City, the California Academy of Sciences, and elsewhere. The construction, except the front, is of iron and cement with vaulted roof, and the painting is executed directly on the prepared surface of the cement. It is expected that this style of case will add greatly to the effectiveness of the group, as the reflections from the considerable amount of water surface necessary prohibited the use of the usual flat, undecorated ceiling.

The double-crested cormorant group was completed and placed on exhibition in December last. It accurately represents a nesting scene on Gull or Cormorant Rock, Lake of the Woods. A beautiful little group showing a pair of spotted sandpipers and their nest and eggs amid the natural surroundings was assembled by the taxidermist during the year. The exquisite wax work in this group was made by Mrs. Richardson. Seasonal exhibitions of bird skins have been displayed in flat cases in the upper museum hall, and these have been supplemented by a selection of the nests and eggs of some of our native birds. A very attractive and valuable collection of the plumes of the lesser and black birds of paradise, the egret and the gaura pigeon, prepared for millinery purposes, is on exhibition on the same floor. These were donated to the museum through the kind offices of Mr. T. Gilbert

Pearson, secretary of the National Association of Audubon Societies, and formed part of a large illegal importation confiscated by the Revenue Collector at the port of New York.

During the winter there was placed on permanent exhibition, in swinging wall frames, a collection of water-color paintings of Minnesota birds that has long been the property of the survey. It was hoped when these paintings were executed for the survey by a Japanese artist, Kako Morita, that they could be reproduced for the benefit of our bird students, but thus far the way has not been opened. This display, augmented by a selection of reproductions of paintings by Louis A. Fuertes, has been studied and much appreciated by many local students of our birds.

Throughout the spring months a wild-flower table, showing the commoner species in bloom in the vicinity of Minneapolis, was maintained in the museum for the instruction of visitors and students. It attracted considerable attention and it is planned to continue it.

A large map of Minnesota on which was indicated as reports came in the presence and distribution of winter visitant birds, and another on which was shown the arrival in the spring of several well-known species, were hung in the upper hall.

No plans have been made for the construction of a large habitat group during the coming year, as the present cost of erecting cases and of all materials required is so expensive that it scarcely seems reasonable to ask for donations of money on the scale that would be required. But material has been collected for making interesting additions to the public exhibits on a less elaborate and costly basis.

*Donations of material.*—The donations of specimens to the collections of the museum during the past year have been not inconsiderable, but they have gone for the most part into the study collections. They are as follows:

Mr. William L. Gantebein, Diamond Bluff, Wis. ....	1 grove-billed ani (mounted)
Mrs. W. E. Albee, Minneapolis.....	1 orchard oriole's nest
Mr. Paul A. Brooks, Minneapolis.....	6 sunfish, 2 black bass, 1 catfish (alive for aquarium)
Mr. J. H. Eheim, Hutchinson.....	1 red-tailed hawk (in flesh)
Mrs. A. S. Brooks, Minneapolis.....	1 ruby-throated hummingbird's nest
Dr. G. H. Luedtke, Fairmount.....	1 white-winged scoter (in flesh)
Mr. Bernard Bailey, Elk River.....	342 bird skins and 60 sets of birds' eggs
Mr. Alfred Peterson, Pipestone.....	1 Clark's nutcracker (skin)
Dr. Thomas S. Roberts, Minneapolis.....	109 mammal skins (collection of Bernard Bailey); 1 parasitic jaeger (mounted)
Mr. Thaddeus Surber, St. Paul.....	7 mammal skins.
Mr. Dan Smith, Excelsior.....	1 long-billed dowitcher (skin) and 1 black-crowned night heron (skin)
Professor Chas. E. Johnson, University of Kansas.....	30 bird skins collected in Minnesota
Professor R. N. Chapman, University of Minnesota .....	20 bird skins collected in Minnesota
Mr. Carlos Avery, St. Paul.....	9 ducks in the flesh
Mr. William L. Wolford, Minneapolis.....	26 hummingbird skins and 12 skins of South American birds

National Association of Audubon Societies, through its secretary, Mr. T.

Gilbert Pearson, New York..... A collection of plumes of birds of paradise, egret and gaura

Mr. James F. Bell, Minneapolis..... 2 "dancing" mice (alive) and  
3 reels of moving pictures of big game, camp scenes, etc., taken in northern Minnesota by Charles E. Johnson

*Publications.*—The principal publication issued during the year was a pamphlet of 35 pages, illustrated with half-tones on the *Water Birds of Minnesota; Past and Present*. This was prepared by the Director from the files of the museum and published by Mr. Carlos Avery, game and fish commissioner of Minnesota, in his biennial report for the period ending July 31, 1918. Five hundred copies with a special cover were procured at the expense of the museum and distributed as a museum publication.

A check-list of the birds of Minnesota, arranged for recording migration and nesting data, was issued by the museum in February and has been widely distributed to correspondents who, for sometime, have been asking for such a list. It has also served an especially useful purpose in the collection of data in regard to the birds of the state from numerous bird students who are in communication with the museum. Copies of the bird-life or faunal map that formed the frontispiece of the *Review of the Ornithology of Minnesota*, published last year, have been printed separately and circulated in a similar manner.

It is hoped that it may be possible during the coming years to issue a series of papers on natural-history subjects for the benefit of the steadily increasing number of nature students in the state.

*Photography.*—About 700 feet of positive from negative moving-picture film made in 1918 have been printed and added to the museum's reels used for lecture purposes. During the month of June, 1920, several hundred feet of new negative were taken by Mr. Richardson and the director in the vicinity of Minneapolis. This is chiefly bird life and associated subjects. A small number of negatives of natural-history subjects has been added to the museum's collection.

An important addition to the lecture resources of the museum is the generous gift by Mr. James F. Bell of the three reels of moving pictures of big-game animals, camp scenes, natural scenery, etc., taken in the wilds of northern Minnesota by Mr. Charles E. Johnson several years ago and heretofore the personal property of Messrs. Bell and Johnson. These are remarkable pictures from several points of view, and are in constant demand for the entertainment of gatherings of sportsmen and nature lovers. The museum is very fortunate to possess them and very grateful to Mr. Bell for this additional evidence of his continued interest in its welfare.

*Coöperation.*—Mr. J. V. Ankeney of the Agricultural School has been permitted to have a considerable number of slides made from the museum's collection of negatives for use in his extension work.

A set of slides, illustrating the bird life of Minnesota, has been assembled in a suitable shipping case and has been sent on request to two high schools in the state—at Hutchinson and Montevideo. This small beginning is expected to expand into a valuable feature of the educational work of the museum. Reels of moving pictures have on several occasions been loaned to Mr. Carlos Avery, game and fish commissioner, to illustrate lectures in various parts of the state, and also on one occasion to Mr. H. J. Jager for use at Owatonna. But generally it is not considered desirable to loan films, as they are liable to serious and expensive damage in the hands of inexperienced persons. Moving pictures of bird life were shown on April 24 in connection with an exhibition of Maeterlink's *Blue Bird* given by the Kindergarten Association of the city at the East Lake Street Theater to 1,200 school children. The collection of the museum is constantly in use in teaching the University class in ornithology, and the series of skins are at all times open to the inspection of school teachers and other accredited persons who make application to the curator.

The museum lecture-room with its full projection equipment has been used at various times by other departments of the University. It is necessary however to exercise some supervision over such use in order to protect the instruments. The lantern and the moving-picture projector are not the property of the University.

*Lectures.*—Thirty-seven illustrated lectures have been given during the year, chiefly by the director—on two or three occasions by Mr. Phillips, museum assistant. Nine of these lectures have been given away from the museum—one at Cokato and one at Brainerd—the others in the museum lecture-room in the basement of the Animal Biology Building. The majority have been to groups of public-school children accompanied by their teachers, and have invariably been followed by a trip through the museum with talks on the principal exhibits. The average attendance at the museum lectures has been 35, with a maximum of 70. The capacity of the room is 84. Outside audiences have numbered as high as 500. Including the 1,200 children who attended the Kindergarten Association exhibition mentioned above, it is estimated that at least 3,667 children and adults have received instruction in natural-history subjects directly through the museum's lecture equipment. The following list will serve to show the character and variety of audiences reached by the lecture work of the museum:

October	15.	Crystal Bay School
November	26.	Northrop School class
December	10.	Blake School class
December	18.	Scout masters and patrol leaders
January	8.	Scout masters and patrol leaders
January	10.	Wayzata Boy Scout Patrol
January	20.	Entomological Society at farm school
January	21.	Green Cross Society at South High School
January	30.	St. Mark's Church Sunday School (at the church)
February	10.	Minneapolis Lodge No. 18, A. F. A. M. at the Masonic Temple
February	20.	Senior kindergarten teachers' class.
March	1.	Tuttle School Boys' Club
March	5.	Pratt School Boys' Club.
March	6.	Y. M. C. A. class

## THE PRESIDENT'S REPORT

March	10. Holmes School Boys' Club
March	12. Arnold School Boys' Club
March	15. Motley School Boys' Club Literary society at St. Anthony Park Library
March	17. Marcy School Boys' Club
March	19. Unity House Mothers' Club
March	24. St. Anthony Park public-school class
March	26. Brainerd Musical Society at Brainerd
April	12. Six O'Clock Club at Dayton's tearoom.
April	16. Cahill School class
April	21. Boy and girl scouts
April	24. East Lake Street Theater, two performances
April	30. Cokato High School at Cokato
May	5. West High School Bird Club
May	7. Minneapolis Audubon Society at Walker Branch Library
May	17. Bremer Junior High School
May	21. Franklin Junior High School Central Inter-Urban Clinical Club
May	25. Minneapolis Woman's Rotary Club
May	27. Central High School Girl Scouts
May	28. North High School botany class
June	2. Douglas School class
June	11. Motley School class
June	17. Group of lower grade and kindergarten children from public schools

On April 6 Mr. William L. Finley of Portland, Oregon, one of the best known wild-life photographers and lecturers in the United States, gave a lecture in the museum lecture-room illustrated with remarkable moving pictures to an invited audience of about 80 persons. A reception and inspection of the museum followed.

*Attendance.*—There has been a very considerable increase in the attendance at the museum during the past year. Much of the time of the museum assistant, Mr. Phillips, has been spent in showing groups of visitors through the museum and explaining the exhibits. School children especially are in evidence, and many are the compositions that are written afterwards descriptive of these trips. The museum is still closed on Sundays and holidays, which greatly lessens the attendance and its educational value to the general public.

*Correspondence.*—Hundreds of inquiries in regard to the natural history of the state and other topics have been answered from the office of the director. The services of a stenographer will soon be required if this important work is to be carried on satisfactorily.

A vigorous attempt was made during the fall and winter to locate as many as possible of the nature students throughout the state and affiliate them with the field work of the museum. This met with a fairly satisfactory response, but there is still much to be accomplished in this direction. Large areas of the state are yet without representation. Blanks to be filled in, addressed postal cards, and special inquiries were sent to all who signified a willingness to assist in an effort to obtain information in regard to the distribution, migration, and winter visitants, in a survey of the bird life of the state. The returns were even better than expected, and many new and valuable records were obtained for the files of the museum. As far as possible this information was displayed on large state maps, hung

in the museum hall, for the benefit of all interested. Similar maps were also maintained in conspicuous places in Brainerd, Moorhead, Red Wing, and elsewhere through the coöperation of interested correspondents to whom we furnished the data. Much valuable assistance was rendered in this work by Mr. Carlos Avery, game and fish commissioner, who prepared blanks at our suggestion and organized his wardens as field observers.

A general summary of the winter-visitant records has been prepared by Mr. Phillips for publication in the quarterly bulletin of the game and fish commissioner.

*Live Beaver.*—Two live beavers presented to the museum nearly three years ago by Mr. Carlos Avery are still flourishing in the outside pool. They are now fully grown and receive much attention from school children and other visitors.

#### FIELD WORK

No field work other than the taking of moving pictures by the museum staff has been done during the past year.

The field trips in connection with the University class in ornithology, conducted by the museum director, resulted in the usual accumulation of data for the museum files.

#### FINANCES

*University budget.*—The maintenance fund, received this year from the University for the first time, has been expended largely in making much needed permanent improvements and additions to the museum equipment. The preparation department, under the direction of Mr. Jenness Richardson, has been hampered heretofore by the lack of safe and adequate facilities for storing work finished or in course of construction; by the absence of tanks, sinks, etc., for handling of skins; and for the want of various tools, supplies, etc. These have been provided and with a few minor additions the department will be well equipped for any kind of work.

The bird study-room has been provided with an iron balcony for half of its length to secure additional space for storing in accessible manner the collection of bird skins which now numbers between six and seven thousand. Additional Cambridge metallic cabinets of the standard museum pattern have been purchased, and now the entire collection of bird and mammal skins and birds' nests and eggs, which has been in large part boxed and stored in various places in the building, is available for examination and study. The labeling, cataloging, and indexing of this material is in progress.

In addition to the above a five-foot metal-multiplex wall display fixture, small cases for exhibition purposes, moving-picture film and printing same, special student work in the museum, and the ordinary minor running expenses of the museum have been paid for out of the budget allowed. Certain technicalities prevented charging the cases for the cormorant and sparrow-hawk groups to the budget, and these were paid for by the director.

## THE PRESIDENT'S REPORT

*Contributions to the museum subscription fund.*—Mr. James F. Bell has continued his monthly contribution of \$50 throughout the year, which for the present is being added to the Heron Lake bird-group fund. The following amounts have been received to be applied to the cost of the Heron Lake Group:

Mr. R. M. Bennett.....	\$ 500.00
Mr. W. O. Winston.....	500.00
Mr. C. D. Velie.....	250.00
Mrs. Louise Koon Velie.....	250.00
Mr. James F. Bell.....	500.00
Mr. F. A. Chamberlain.....	100.00
	<hr/>
	\$2,100.00
Mr. Bell's monthly contribution of \$50.....	600.00
	<hr/>
	\$2,700.00
Additional contributions:—	
Mr. F. W. Commons.....	50.00
Minneapolis Lodge No. 19, A. F. A. M.....	25.00
	<hr/>
	\$2,775.00

This money has been deposited in the First National Bank of Minneapolis to the credit of Thos. S. Roberts, trustee, and the construction expenses of the Heron Lake group to date paid from it. The balance on hand June 30, 1920, is \$917.31.

## COMMENTS

On the whole the year has been one of marked progress for the museum along the lines originally laid out. It is hoped that its value as a live and worth-while educational asset to the University, and through it to the general public is being established and more and more recognized. More adequate accommodation will have to be provided in the near future, as the museum has already nearly reached the limit of its growth in its present quarters. Valuable and important donations of material have had to be declined because of the impossibility of properly caring for or displaying them.

The services of a special caretaker or service man are needed in the museum to keep the exhibits and rooms in proper condition for the reception of visitors. This work now falls on the janitors of the Animal Biology Building, who are hardly able to cope satisfactorily with the situation.

Attention is again called to the great desirability of keeping the building open and heated when required on holidays and Sunday afternoons.

Respectfully submitted,

THOMAS S. ROBERTS, *Director*

## THE UNIVERSITY LIBRARY

*To the President of the University:*

SIR: I submit herewith the report of the University Library for the year ending June 30, 1920.

The unprecedented number of students who have been members of the University during the year has thrown a load upon the library that, because of the already congested condition of the building, it has been impossible adequately to carry. I can not refrain from acknowledging at once the forbearance both of the students and of the faculty at the quality of the service we have been able to give. The reading-rooms have been unduly overcrowded and the cramped conditions at the loan desk have made satisfactory service impossible. To meet the emergency, the special reference books for a number of courses were transferred from the space behind the loan desk to shelves which we vacated in the periodical room, thus dividing the stream of readers and enabling us to serve those who required only the special reference service very much more quickly. This involved, of course, the maintenance of continuous service through the entire period of fourteen hours daily, during which the library is open, at three points rather than two, but we were able to handle it with one extra assistant supplemented by some student service.

The space of the upper hallway, which was walled off and fitted with cheap wooden shelving, gave temporary relief to the crowding in the stacks, but within another year we shall have again reached the point of saturation, and at present there seems to be no further space available for expansion. It is inevitable that we shall be compelled, before the new building is completed, to box and store considerable numbers of our less frequently consulted books, as we have already done with many of our duplicates. This is greatly to be regretted as it is never possible to foresee when there may be an urgent need for the use of these books, and it is almost certain that the work of some members of the University will be hindered because these books are not available.

These facts among others emphasize the necessity for the construction of the new building at the earliest possible moment. The immediate requirements of classroom instruction have made it necessary for the board to utilize the earliest income from the building appropriation for the erection of certain smaller buildings; but they have recognized the fundamental necessity for the early construction of the library by providing for the completion of the detailed architect's plans. The state architect is now engaged in the study of the problem and the preparation of the plans, using as a basis the sketches drawn by Mr. Forsythe and published in pamphlet form in January. The sketches have met with the general approval of the faculty and of my professional colleagues in other Universities; and Mr. Johnston, the state architect, is attacking the problem with his usual thoroughness and open-mindedness. These plans should be completed during the

coming winter and provision should be made for the commencement of the construction in the early spring of 1921. The exigencies of the situation will probably require that the actual construction will extend through two or three years and we can not make the beginning a moment too soon.

*The staff.*—The library has suffered severely by reason of necessary changes in the staff. Miss Firkins, after many years of service, was granted leave of absence and her position as reference librarian was filled temporarily by Miss Couillard, who came to us from Columbia University.

At the loan desk: Mr. Russell, himself a new appointee, was obliged to open the year with a staff only one of whom had had any previous experience in library work. The low salaries which we are able to pay require us to renew our staff almost completely each year from the young women who have just graduated at the University. Not unnaturally, they frequently find other and better-paid positions. In one position we have had four different young women and in another three. It is superfluous to point out how difficult it is to give satisfactory service under these conditions.

In the order department: Mr. Heyl has had to train five different girls for the work of one of his assistants and two for another.

In the catalog department: Miss Currie, the chief cataloger, resigned on November 1 to accept a better paid position at the University of Missouri. We were fortunate enough to fill her position by reëngaging Miss Goss, who was Miss Currie's predecessor and who had been obliged to retire on account of her health.

Miss Goetz, the classifier, was compelled to take leave of absence for a similar reason beginning December 1, and to resign on April 1. We were not able to fill her position during the remainder of the year.

Miss Oaks, the reviser, resigned on January 1 to become librarian of a normal school in Nebraska, and her position could not be filled at the salary we were able to pay. For a like reason one of the cataloger's positions has been vacant during almost the entire year.

*Circulation of books.*—The table below gives the statistics of recorded use of books in the main building as compared with last year and with the average of the previous five years:

AVERAGE	HOME	OVER-NIGHT	READING-ROOM	EXTENSION	TOTAL
1913-14—1917-18 . . . .	21,756	18,113	130,696		170,623
1918-19 . . . . .	22,492	7,895	104,201	134	134,722
1919-20 . . . . .	56,426	11,302	224,702	783	293,213

These figures show an increase in the total number of books used over the average of the last five normal years of 71.8 per cent, and in the number of books drawn from the library on a two weeks' loan of 159 per cent. The number of books borrowed for over-night use has decreased. These figures are, in every respect, most gratifying. Without pressing an interpretation of them too far they seem to indicate that the students are doing a considerably increased amount of reading in connection with their courses, and that, in a still larger ratio, they are securing the more intimate acquaintance with books that is implied by home use.

A graph illustrating the variation in the circulation week by week indicates, however, that in the second and third quarters, the use of books fell considerably below that of the first. In previous years, making allowance for vacations and holidays, the curve shows the use to be fairly constant, with only a slight tendency to fall as the year progresses. During the second quarter of this year, however, as compared with the first, the use was roughly in the ratio of 75 to 95, and the third compared with the first shows similarly a ratio of 85 to 95.

Two factors at least probably contribute to this result: the difficulties which students have experienced in securing and using the books they need, due to the lack of sufficient duplicate copies and the crowded condition of the reading-rooms during the rush hours, have tended to discourage them and to reduce their enthusiasm for work. In addition, the instructional staff, probably because they realize that under present conditions students find it difficult to secure adequate use of the reference books, have not held them rigidly to the requirements of reading. The students, not unnaturally, sense this fact and allow their work to slacken.

We have made every effort to increase the facility with which they can secure the special reference books. During the rush period, which comes at the beginning of every hour, there is frequently a line of students in the lower reading room extending from the desk to the door, a distance of from 60 to 70 feet. On a number of occasions, without the knowledge of the assistants in charge, I have timed the service and have found that a student arriving at the end of the line will have been served in from three to four minutes. At other times the transaction is generally complete in less than half a minute.

*Accessions.*—The total expenditures for books, periodicals, and binding for the year have been \$38,886.43.

The distribution of this amount is as follows:

	BOOKS	PERIODICALS	BINDING	TOTALS
General Library .....	\$22,103.93	\$4,730.60	\$3,414.57	\$30,249.10
Law Library .....	3,446.89	144.59	225.97	3,817.45
Agricultural Library ...	1,830.56	1,591.75	588.72	4,011.03
Crookston .....	637.18	.....	.....	637.18
Morris .....	171.67	.....	.....	171.67
Totals .....	\$28,190.23	\$6,466.94	\$4,229.26	\$38,886.43

This sum includes amounts paid for many orders, the shipment of which was delayed because of the war.

The corresponding totals during the past six years are these:

1913-14 .....	\$42,981.22
1914-15 .....	46,774.83
1915-16 .....	40,076.16
1916-17 .....	35,567.29
1917-18 .....	28,993.04
1918-19 .....	31,126.71
1919-20 .....	38,886.42

We are still holding a large number of delayed orders, but we may expect that most of them will be filled during the coming year.

The number of books added during the year is 18,495, making the estimated number of books in the library at the end of the year 300,000.

*Binding.*—We were fortunate enough to be able to renew our contract for binding at no advance over the former year and at what was, under the conditions, a very low rate.

The total spent amounted to the following:

	CLOTH		COWHIDE		MOROCCO		PAMPHLETS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
General Library .....	2,936	\$2,416.91	307	\$459.91	330	\$503.59	271	\$34.16
Law Library .....	237	225.97	...	.....	...	.....	.....	.....
Farm Library .....	363	362.75	116	140.78	48	72.26	87	12.93
Totals .....		\$3,005.63		\$600.69		\$575.85		\$47.09

*Duplicate copies of books for reference use.*—To an extent greater than ever before we have purchased duplicates of books used as special references in connection with current courses. The greatly increased number of students has made this imperative. More particularly, however, the course in Economic History, under the direction of Professor Gras, required of all students in the School of Business, has necessitated a very large number of duplicate books. We have expended in all over \$2,500 for books of this type. While it makes a serious inroad on our library fund it is essential if the students are to receive any sort of service.

*Sale of publications.*—Altho little effort is made to push the sale of our University publications, the library, as the sales-agent, has credited to the respective budgets which cover the expense of the several series the following sums:

Anatomy .....	\$ 1.14
Botany .....	117.17
Geology .....	330.67
Research .....	153.74

*Notable accessions.*—By far the richest gift of the year was the collection of English newspapers of the mid-seventeenth century, donated by Mr. H. V. Jones of the *Minneapolis Journal*. Newspapers of this period are of the utmost rarity and long runs very seldom come into the market. Our collections, already considerable, have been enriched through this gift of Mr. Jones by a file of the *Perfect diurnall of some passages in Parliament*, containing the first one hundred numbers issued for June 26, 1643 to June 30, 1645; the *Mercurius Pragmaticus* from September 14, 1647 to July 25, 1648; *Several proceedings in Parliament* from October 9, 1648 to September 23, 1652; the *Publick intelligencer* from December 28, 1657 to March 7, 1659; and the *Mercurius publicus* from April 12, 1660 to March 27, 1662.

The government of Denmark has very generously given to the University a complete set of their parliamentary publications, the *Rigsdagstidende*, amounting in all to 461 volumes.

A similar gift has been announced by the government of Spain, the books have not yet been received.

*The catalog.*—Notwithstanding the crippled condition of our cataloging staff, the number of volumes cataloged has been the largest since 1916-17. We have not been able, however, to record all of the accessions, particularly the books related to the war, nor to do much with the uncataloged portion of the Monod library. There remain of the books in the library at the time of the commencement of the present catalog, about 20,000 which are still unrecorded. Until we can secure urgently needed additions to our staff, this condition is bound to remain.

The statistics of the year follow:

	CENTRAL CATALOG	DEPARTMENTAL CATALOG
Titles cataloged .....	7,793	1,674
Volumes cataloged .....	10,965	2,088
Printed cards added .....	18,255	5,253
Typewritten cards added .....	9,655	1,066
Printed shelf-list cards added.....	3,051	963
Volumes added .....	6,268	1,970
Total volumes recorded .....	247,832	

*A program of library development.*—The differentiation of field in the development of graduate instruction has been discussed by the administrative officers of our American universities for a number of years, but thus far the results have been meager. While it is recognized that no one institution is able to provide facilities which will be adequate for investigations of a serious and scholarly sort in every line of research, in practice, we seem to be acting on the assumption that there are no such limitations.

To those responsible for the policy of our university libraries, the problem is immediate and pressing. The funds at our command are relatively small and altogether inadequate for the task that their institutions have assumed. The volume of publications is constantly and rapidly increasing and the prices, both of the older and the newer literature, are continually advancing. Unless funds available for purchase are materially increased our rate of progress will grow less as the years go on.

The physical problem involved is worth considering. The housing and care of the collections which we are bringing together involves an increasingly large expense. Buildings are being outgrown and even those most recently constructed will supply the needs of the libraries only for a relatively short period.

Harvard has recently erected the Widener Library at an expense of about three million dollars. This building will house about three million books, but at the present rate of increase its capacity will be reached in

about thirty years. The projected new building of the University of Minnesota is planned to handle the increment of only fifty years. President Eliot, about twenty years ago, called attention to the magnitude of this problem, but the remedy which he proposed was quickly shown to be, from the standpoint of the scholar, an impractical one.

What we need is not vast conglomerates of books, but libraries so selected and collected that they will furnish the scholar, within a reasonable radius of his home, all the books he is likely to need. The student of Dante or of Petrarch must, of necessity, go to Cornell, and it is foolish, in that section of the country at least, to attempt to duplicate those splendid collections. The scholar who would investigate labor problems should go to Wisconsin, and it would be a short-sighted policy which would attempt to gather a similar collection in the middle West.

On the other hand, distinctive collections of this sort are rare, and too few of them are being consciously developed. Intensive collection is generally due to some specialist, possessing the bibliographic sense, who at the time is a member of a particular faculty and who is responsible for the accumulation of the beginnings of a notable library in his subject. He is called to another institution where the process is repeated. It is quite likely that at the first university he is replaced by a man whose special interests are in other lines, and the collection made by his predecessor is relatively useless and is no longer developed. The result is that we have scattered about the country scores of infant and orphaned special collections, no one of which is complete enough to satisfy the requirements of serious scholarship.

This fact is immediately evident when one begins to search the country for an out-of-the-way volume which is necessary for the completion of some investigation. It is no unusual thing for the librarian to fail to find the book after inquiry at a dozen or more libraries. Time is consumed and the work delayed, if not imperfectly done, in consequence.

It is no exaggeration to say that, except in a very few instances, our university libraries have hardly risen above mediocrity. We are all developing the obvious fields and leaving many others essential to the progress of learning almost uncultivated.

Libraries are very willing to loan their books to other institutions, but there is no way of knowing what each has and where the book needed is to be found.

This situation can be remedied, to some extent, by the publication of evaluated descriptions of the available special collections, such as that compiled by Dr. Johnston and Miss Mudge, and published a number of years ago by the Bureau of Education. Comparative evaluation is, however, very difficult and the development of our libraries is so rapid and so fluctuating that statements in regard to them must be constantly revised.

No permanently satisfactory condition can prevail until our universities adopt an ordered program of development that will harmonize with similar programs established in neighboring institutions. It is not to be supposed that any such working agreement will produce a perfect result, but it should at least give some direction to what is now an almost fortuitous development.

To be successful, the principle must be unreservedly accepted by the university administrations within certain areas. To be specific, an attempt might be made to secure such an agreement between the universities of Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Missouri, Iowa, Kansas, and Nebraska, Chicago, and Northwestern.

The principle once established, committees representing the various fields of learning and each of the institutions involved, should be asked to study the problem as it relates to their own subject and present a survey, not only of the present facilities for graduate work, particularly as regards the libraries, but of the subjects on which no one of the associated institutions has as yet undertaken to provide the material for research. They should then attempt to allocate to the several institutions particular phases of work on which each may be expected to specialize and in time to become preëminent. Provision must, of course, be made in many fields for the distribution of new subjects as they develop.

Such a program will, of course, involve the expenditure of much time and some money. It may be that the Carnegie Foundation might be induced to bear the expense.

After such a program has been accepted, the libraries should begin at once a very careful study of the bibliography of the subjects assigned to each, and should purchase with the definite idea of completeness in mind. In a very few years such a program would result in collections to which the student could resort with the confident expectation of being able to find the books that he needs.

As new men are secured for the faculty, the attempt should be made to find those who are specialists in the specific fields that the institution has accepted as its own.

It must be kept distinctly in mind that all of this suggested program refers only to the development of graduate work. Each institution must obviously have a well-rounded library sufficient for undergraduate instruction, and the more obvious apparatus for the wider fields of graduate study. The program is a positive rather than a negative one. It implies quality rather than bulk; not less books, but more carefully considered selection.

Respectfully submitted,

J. T. GEROULD, *Librarian*

## THE INTERFRATERNITY COUNCIL

To the President of the University:

SIR: I herewith submit my report as president of the Interfraternity Council for the year ending June 30, 1920.

A marked increase in the number of pledged men has been the most striking feature of fraternity activities during the past year. This was necessary because of losses in active membership sustained during the previous two years.

In general there has been a distinct improvement in scholarship amongst fraternity members, altho the following table is based upon a new rule which permits the initiation of men who are below in one third of their work instead of one quarter as in previous years. This rule was passed by the Interfraternity Council because of the adoption of the three five-hour courses for underclassmen.

FRATERNITIES	TOTAL PLEGDED	ELIGIBLE	NOT ELIGIBLE	PER CENT NOT ELIGIBLE
Acacia .....	21	21	0	00
Alpha Delta Phi .....	11	11	0	00
Alpha Sigma Phi .....	10	10	0	00
Alpha Tau Omega .....	18	17	1	5.55
Beta Theta Pi .....	8	8	0	00
Chi Psi .....	14	14	0	00
Delta Chi .....	16	16	0	00
Delta Kappa Epsilon .....	16	15	1	6.2
Delta Tau Delta .....	14	14	0	00
Delta Upsilon .....	13	11	2	15.4
Kappa Sigma .....	17	16	1	5.88
Phi Delta Theta .....	17	15	2	17.5
Phi Gamma Delta .....	16	14	2	12.5
Phi Kappa Psi .....	14	13	1	7.14
Phi Kappa Sigma .....	14	13	1	7.14
Phi Sigma Kappa .....	17	14	3	17.6
Psi Upsilon .....	13	11	2	15.4
Sigma Alpha Epsilon .....	18	15	3	16.66
Sigma Chi .....	12	11	1	8.33
Sigma Nu .....	20	15	5	25
Sigma Phi Epsilon .....	14	13	1	7.14
Tau Kappa Epsilon .....	12	12	0	00
Theta Delta Chi .....	17	17	0	00
Zeta Psi .....	14	14	0	00

Respectfully submitted,

JAMES DAVIES, *President*

## THE GENERAL ALUMNI ASSOCIATION

*To the President of the University:*

SIR: The past year has been an eventful one in the life of this association. The gift of \$1,000 by Mr. Todd W. Lewis, mentioned in the previous report, has been available for improving the *Minnesota Alumni Weekly*. The gift has made possible the use of a better grade of paper, and the employment of more office help, so that increased time and energy could be devoted to improving the content of the *Weekly*. The year has been made noteworthy, also, by the publication in the *Weekly* of the "Reminiscences" of President Northrop. The series was warmly welcomed by subscribers, and they are to be published in book form some time this fall.

The alumni regret to note that the alumni directory, for which the University has assumed responsibility, is still far from completion. We had hoped that in consideration of the acknowledged importance of the matter, early action would be taken.

Last November, after fourteen years' service, our secretary, Mr. E. B. Johnson, resigned, and his resignation was accepted to become effective July 1. In the search for his successor, the Board of Directors of the association early became convinced that Mr. E. B. Pierce, registrar of the University, was the man for the place. As the selection of Mr. Pierce would involve the dual role of secretary of the Alumni Association and field secretary of the University, the proposal naturally met with a great deal of discussion and some variance of opinion among the members of the board. However, Mr. Pierce's suitability for the position was so evident that the majority of the board voted to accept the proposition and try out the plan. The new secretary assumed his duties July 1.

The Board of Directors is fully committed to an expansion of the work of the association. Additional help is to be employed to carry out these larger plans, and particular emphasis will be placed upon the organization of classes and local alumni associations.

One matter that aroused unusual interest during the past year was the raising of fees, as voted by the Board of Regents. Among the alumni a strong sentiment exists against the increase of fees; and delegations of alumni appeared at several meetings of the Board of Regents to protest against the proposal. Many alumni still hope that there may be a speedy return to the old plan of free, or practically free tuition, so that every son and daughter of Minnesota may have an equal chance, without the interposition of artificial barriers, for a higher education.

As has been our custom for many years, we again call attention to the fact that the Alumni Association exists solely for the sake of the service it may be able to render the University. Its officers are always glad to be called upon for any service within their power to give.

Respectfully submitted,

E. B. JOHNSON, *Secretary*

## THE REPORT OF THE REGISTRAR

*To the President of the University:*

SIR: I submit herewith a report on the work of the registrar's office for the year 1919-20.

*Changes in the staff.*—Mr. W. L. Harris, assistant registrar since July 1, 1919, resigned March 1, 1920, and was succeeded by Mr. H. G. Arnsdorf, deputy superintendent of public instruction of North Dakota. Mr. Arnsdorf was graduated from the University of Wisconsin in 1912, was registrar and institutional manager of the Valley City Normal School for five years, and is well equipped for the position.

*Entrance matters.*—There are just three modifications to record:

1. Acceptance of general science as a standard unit.—Many schools are now offering this subject as differentiated distinctly from other science courses, approved texts have been prepared, the High School Board is now offering a state examination in it. In view of all these facts, the University Senate on May 13 voted, upon recommendation of the Committee on the Relation of the University to Other Institutions of Learning and the endorsement of the Administrative Committee, that general science be accepted as a unit course in the science group towards admission to the University.

2. Admission of service men.—On October 16, 1919, the senate voted upon recommendation of the Administrative Committee, that graduates of accredited preparatory schools who have been in service be admitted to the University as regular students and candidates for degrees without conditions. This means that for this group of students the technical requirements, such as elementary algebra, plane geometry, English, standard units, etc., are waived.

3. Preparatory work by correspondence.—On May 13, 1920, the senate voted, upon recommendation of the Committee on the Relation of the University to Other Institutions of Learning, that the General Extension Division be authorized to offer preparatory work by correspondence which shall be credited towards admission, provided the student who is taking such work is not at the same time enrolled in a secondary school.

*Accredited schools and colleges.*—The following recommendations of the Committee on the Relation of the University to Other Institutions of Learning were approved by the University Senate May 13, 1920.

Preparatory schools: That Red Wing Seminary and Luther Ladies' Seminary of Red Wing be continued on the accredited list.

2. That Bethel Academy, St. Paul, be continued on the published list of accredited schools, but that its officers be advised that by the beginning of another academic year the matters to which reference has been made should be corrected.

3. That Bethlehem Academy, Faribault, be continued for one year as an unpublished, conditionally accredited school, and that, if all items are remedied by the date of the next inspection, it be placed on the published list of accredited schools.

4. That Windom Institute, Montevideo, be continued on the accredited list for one more year, and that recognition after that time be conditioned upon remedying certain unsatisfactory conditions.

5. That Parker College, Winnebago, be omitted from the list of accredited schools until the improvements recommended by the inspector have been made.

6. That Maplewood Academy, Maple Plain, be refused recognition as an approved school until certain desirable modifications in its educational program have been made.

Junior colleges: That the Winona Normal School be recognized as giving one full year of satisfactory collegiate work.

2. That the junior college at Pipestone be recognized for one year's work of collegiate grade.

Credit for normal-school work in other states: That graduates of professional courses of normal schools in other states be admitted here under the regulations governing the admission of Minnesota normal-school graduates. This would mean that a graduate of a one-year course in another state would receive no advanced standing at Minnesota except upon examination.

*Enrolment.*—For tables and comments see pages 35 to 63.

Respectfully submitted,

E. B. PIERCE, Registrar

## THE UNIVERSITY HEALTH SERVICE

*To the President of the University:*

SIR: The following is a summary of the activities of the Health Service for the school year 1919-20.

	UNIVERSITY	FARM	TOTAL
Physical examinations.....	4,189	683	4,872
Dispensary visits for consultation, advice and treatment .....	21,053	4,860	25,913
Outside calls .....	392	152	544
Hospital bed cases.....	629	681	1,310
<b>Total .....</b>	<b>26,263</b>	<b>6,376</b>	<b>32,639</b>

Thus 32,639 individual services were rendered during the second year of the existence of the health service. This indicates the need for such an activity. Our records show that 5,002 students received treatment at the dispensary during the school year.

*Influenza.*—The pandemic of influenza, which swept our country again this year with such appalling results, was anticipated and preparations were duly made. Its severity, however, was beyond all calculation. In six large cities of the United States,—Kansas City, St. Louis, Milwaukee, Detroit, Minneapolis, and St. Paul, the morbidity and mortality from influenza, according to the United States Public Health Reports, were even greater than the pandemic of the preceding year. The disease was especially severe at the University and the farm. As no other hospitals were available for the care of our students, the facilities of the Health Service were taxed to the utmost. The supreme devotion and the almost superhuman efforts of the medical and nursing staff are worthy of the highest commendation. Through the close and efficient coöperation of the Medical School, the nursing staff of the University Hospital and the ex-medical corps men of the army and navy, our organization was such as to provide adequate medical and nursing service. Even during the height of the epidemic we received and cared for all cases reported to us. Experienced and capable physicians and nurses were at hand at all hours of the day and night. Of course the limited space at our command was a great handicap. However the director feels that in every instance each student was given all the care and treatment that modern medicine provides.

The greatest pro-rata mortality rate from influenza was among the freshman school boys at the farm, where 5 deaths occurred. These boys came from the rural and more or less isolated districts. They have not developed any immunity towards infection because of their relative isolation. The highest mortality from influenza and other communicable diseases in the army was likewise among the boys from the rural districts.

Four of the deaths in the School of Agriculture were boys who lived outside the dormitories and in whom pneumonia developed before their illness was reported to the Health Service. (A powerful argument in favor of providing adequate dormitories.)

The deaths from influenza and its sequel, pneumonia, at the main campus Health Service totaled 11. Practically all these deaths were among students who had developed pneumonia before the Health Service was called.

A detailed report of the influenza epidemic may be of interest:

	UNIVERSITY	FARM	TOTAL
Enrolment .....	7,180	999	8,179
Number of cases of naso-respiratory infections treated during Jan. and Feb. (This includes mild and severe types of influenza.).....	4,841	234	5,075
Number of cases of pneumonia.....	30	23	57
Number of deaths .....	11	5	16

Reports show that the epidemic was especially severe in this state. At the Red Wing Seminary there were 40 cases of influenza, 8 cases of pneumonia, and 5 deaths. Of 3,697 cases of influenza reported to the City of Minneapolis Commissioner of Health, there were 325 deaths. At the University of Wisconsin it was also severe. Their report is as follows:

Number of cases of influenza .....	1,500
Number of cases of pneumonia .....	37
Number of deaths .....	13

Influenza in all probability will recur during the next school year. We may assume, however, that it will not be so severe.

*Unlimited service.*—One distinctive feature of our service is that it is not limited in the nature or the scope of the treatment rendered to students. It has been our aim to give all students every care needed. On this basis only can a students' health service fulfill its real purpose and function.

The following, taken from our records, indicates some of the special services rendered without extra charges other than the regular health fee.

More than 100 operations have been performed. These include removal of tonsils, adenoids, nasal operations, mastoids and appendectomies, surgical treatment for hernia, varicose veins, empyema, etc. Approximately 300 eye refractions have been done.

No charges have been made at the University of Minnesota for outside calls. In other comparative institutions extra charges are made for surgical operations, special service, and outside calls.

*Fellowships.*—Our arrangement this year, whereby graduate fellowships in clinical departments are supported by the Health Service in return for two hours' service per day from each fellow, and the special service of the head of the department when needed, is unique. Other institutions have been very much interested in our experiment which is proving successful in every respect.

The fellows, who must be graduates of a recognized school of medicine and who have had from one year to eighteen months internship, and usually additional experience in some special phase of medicine or surgery, are chosen by the head of the department concerned and the director of the University Health Service, from those who come to the University for advanced work in the clinical specialty in question.

During the past year we have supported 1 fellow in each of the following clinical departments: Medicine, Surgery, Gynecology, and Eye, Ear, Nose, and Throat. This will be increased for the next school year to 6 fellows in the clinical departments and 1 in sanitary engineering, making a total of 7 fellows. Eventually, we shall provide for 10 fellows to be distributed in preventive and curative medicine. The advantages to the Health Service, from such an arrangement are:

1. A high degree of medical service at a relatively low cost—as ten fellowships can be supported with the funds that would be required to employ one full-time practitioner.

2. For several reasons a number of doctors on part time are preferable in student health work to one or two men on full time. For instance at certain hours of the day a great many students with limited time come in for consultation: also the personal element is especially important in medicine, and students under this arrangement have a wider range of choice.

3. The heads of the various clinical departments render services without extra charge when desired in return for a share of the graduate fellow's time. Thus all special and expert treatment can be given students without extra charge.

The Medical School is benefited by this arrangement. Graduate teaching and research are encouraged. Students are not, however, used for teaching purposes. Ten new fellowships will be opened and supported eventually. The average cost of a fellowship may be taken as \$750 per year. Ten fellowships would amount to \$7,500 annually. At 5 per cent this would be the income of an investment of \$150,000. Thus our money for medical services is expended largely in the advancement of medicine.

The chief disadvantage in our fellowship arrangement is that our medical staff is temporary—many fellows remaining only one year (maximum, three years). Thus a large burden is placed on the director, in that new men must be instructed in the ideals, aims, and activities of a students' health service, and that more supervision is necessary.

*Buildings.*—Our present quarters are entirely inadequate. More room must be provided both at the main campus and at the farm. Every nook and corner of our quarters in Pillsbury Hall are utilized. We are in dire need of additional space. Remodeling the basement of the Boys' New Dormitory at the farm, at a cost of approximately \$6,000, to be utilized for the Health Service, is now going on. We have been forced to maintain two separate dispensaries and hospital services there owing to lack of room. This has been unsatisfactory and more expensive than it should be. The new plan provides for a concentration of the health work at the farm, altho still in temporary and far from ideal quarters.

Shortly after the initiation of the Health Service, last year, the director submitted to you plans for a model university health center at a cost of approximately \$150,000. Of course the cost for such a building would be doubled now. However, we sincerely hope that this building will be provided in the near future. The importance and nature of our work demands special consideration. Further, it must be borne in mind that an activity which is supported by special fees must be given every provision essential, otherwise students are going to be dissatisfied and be super-critical.

*Budget.*—Our entire expenditures, salaries, equipment, maintenance, drugs, laboratory supplies, hospital supplies, commissary, etc. are derived from health fees. During the past two years practically all our income has been expended in connection with the treatment and care of sick students, consequently the sanitation and educational phases of our work have been neglected. The influenza epidemics have been largely responsible for this. If, however, we are to emphasize positive health, which is the ultimate aim of a students' health service, additional funds should be provided.

1. The director has always maintained that students ill in the hospital should pay the cost or approximately the cost of their board while there. One dollar per day would be a consistent and moderate charge. For the first seven months of the present school year there were 2,631 hospital days. On the basis of one dollar per day this would have amounted to \$2,631. At the farm, during the six months, October to February inclusive, there were 3,732 hospital days. The majority of these students were paying board at the dining-hall, however. In all probability the yearly income from hospital fees of one dollar per day would amount to about \$4,000.

2. Another method for increasing our income would be for the University to carry on its regular salary budget part of the salaries of members of our medical staff. This is not an inconsistent suggestion, as at one of our neighboring institutions the medical and clerical staff is paid from the budget granted by the legislative appropriation, while the health fees are devoted almost entirely to hospital equipment and maintenance. During our two years of existence we have had to deal with influenza, and owing to both its intensiveness and extensiveness the cost to the Health Service has been large.

*Immediate future developments.*—With the beginning of the school year 1920-21, we shall begin our work in sanitation. So far this important phase of our Health Service has been neglected to some extent owing to the fact that we have been compelled to concentrate all our energies and resources on the personal division.

The work in sanitation will be begun by a fellow in sanitary engineering. His work will be concerned with "on campus" and "off campus" sanitation. Regulations for campus sanitation and rooming- and boarding-house regulations have been discussed with and approved by the superintendent of Buildings and Grounds, the dean of Student Affairs, and the dean of Women. These will be submitted to the president for approval.

The director is endeavoring to make arrangements whereby our sanitarian will become a member of the city fire-inspection department to serve without pay. By this arrangement, the dangers from fires will be very much minimized in that our sanitarian will have direct authority to act where dangers exist. Likewise he will become a member of the city health department.

The Health Service in conjunction with Sanford Hall will employ a full-time visiting nurse whose function will be to carry positive health into the various girls' rooming-houses. Through the aid of voluntary health officers to be appointed from each rooming-house, the nurse will in time become familiar with the girl students and the conditions under which they live. The service of a visiting nurse marks a distinct advancement in our work.

Respectfully submitted,

J. SUNDWALL, *Director*

## FINANCIAL REPORT

*To the President of the University:*

SIR: In accordance with your instructions, I enclose herewith a summary of the financial operations of the University of Minnesota covering the period from July 1, 1919, to June 30, 1920.

Respectfully submitted,

G. H. HAYES, *Comptroller*

## THE PRESIDENT'S REPORT

## SUMMARY OF RECEIPTS

1919-1920

*Receipts from Students*

Tuition and Fees.....	\$501,420.27	
Genl. Deposits (Incl. Agric., Crookston and Morris).....	72,417.53	
Dining Halls, etc.....	616,787.68	
		\$1,190,625.48

*Receipts from Interest*

Swamp Land Interest.....	30,210.00	
Land Contracts.....	10,483.97	
University Land Fund.....	69,188.64	
		109,882.61

*Receipts from Federal Government*

Morrill Fund.....	25,000.00	
Nelson Fund.....	25,000.00	
Adams Fund.....	15,000.00	
Hatch Fund.....	15,000.00	
Smith-Lever Fund.....	74,562.26	
Smith-Hughes Fund.....	15,246.25	
Social Hygiene.....	8,250.00	
Lever Extension.....	37,247.47	
		215,305.98

*Receipts from State*

23/100 Mill Tax*.....	425,358.83	
Maintenance Appropriation.....	1,422,688.00	
Sundry Support Appropriations.....	442,312.00	
New Buildings†.....	328,000.00	
Paving, Roads, and New Lands†....	49,000.00	
County Agents.....	86,000.00	
Agricultural Extension.....	30,000.00	
Peat Soil Investigations.....	6,000.00	
Sandy Land Investigations.....	1,000.00	
		2,790,358.83

*Receipts from Other Sources*

Dental Infirmary.....	37,921.30	
Hospital and Free Dispensary (Incl. Pay Dept.).....	18,753.20	
Agric. Products, Livestock, etc.....	156,854.74	
Lyceum Lectures.....	51,042.44	
Campus Bldg. Rents (Incl. Sales)...	11,367.27	
Trolley System.....	6,893.37	
Advanced Registry Testing.....	27,993.86	
Sundry items.....	50,586.06	
		361,412.24
Trust Funds.....	73,922.82	
Mayo Foundation—Income.....	89,371.48	
Mayo Foundation—Donation.....	232,671.01	
Cold Storage.....	93,708.22	
		489,673.53

Total ..... \$5,157,258.67

\* Approximately \$27,000.00 of these collections belong to the year 1920-21.

† These appropriations were practically untouched, a balance remaining of

\$267,000.00.

FINANCIAL REPORT

261

CLASSIFICATION OF EXPENDITURES FOR THE FISCAL YEAR  
1919-1920

SCHOOLS, COLLEGES, ETC.	SALARIES & WAGES	SUPPLIES	CAPITAL OUTLAY	TOTALS
Administration . . . . .	\$134,388.63	\$33,433.22	\$5,036.58	\$172,858.43
General University..	112,711.61	60,948.34	31,146.95	204,806.90
Science, Literature, and the Arts . . . . .	448,794.70	46,158.06	12,527.68	507,480.44
College of Engineer- ing . . . . .	162,228.70	27,096.53	10,064.67	199,389.90
Department of Agri- culture . . . . .	641,609.44	242,757.43	44,119.66	928,486.53
Medical School . . . . .	244,315.10	135,600.18	8,480.82	388,396.10
School of Chemistry	60,487.40	29,323.67	15,443.54	105,254.61
School of Mines . . . . .	58,362.15	18,636.56	4,227.76	81,226.47
College of Dentistry	83,448.02	38,631.43	3,197.73	125,277.18
Law School . . . . .	40,609.72	2,526.92	3,998.44	47,135.08
College of Pharmacy	21,305.82	7,275.80	473.22	29,054.84
College of Education	98,348.14	12,184.58	3,895.42	114,428.14
Summer Session . . . . .	37,000.74	5,277.03	.....	42,277.77
University Extension	112,510.68	18,696.84	1,055.28	132,262.80
Graduate School . . . . .	10,126.62	5,749.41	796.10	16,672.13
School of Business . . . . .	63,825.47	1,383.06	1,984.49	67,193.02
Physical Plant . . . . .	135,917.55	150,844.49	140,213.14	426,975.18
Crookston . . . . .	50,827.60	27,863.85	14,474.40	93,165.85
Morris . . . . .	43,285.66	25,835.23	7,832.52	76,953.41
Grand Rapids . . . . .	14,004.38	12,354.87	5,069.45	31,428.70
Duluth . . . . .	9,500.14	5,103.17	1,729.09	16,332.40
Waseca . . . . .	7,423.48	4,967.53	2,952.20	15,343.21
Zumbra Heights . . . . .	6,595.82	1,513.61	677.85	8,787.28
Service Enterprises.	115,877.30	526,355.00	51,849.97	694,082.27
Mayo Foundation Donation . . . . .	174,162.10	58,508.91	.....	232,671.01
Totals . . . . .	\$2,887,666.97	\$1,499,025.72	\$371,246.96	\$4,757,939.65
Mayo Foundation Investments . . . . .				90,434.17
Refundments . . . . .				88,041.86
Trust Fund Loans . . . . .				62,389.94
Total . . . . .				\$4,998,805.62

# PUBLICATIONS OF THE FACULTIES

## GENERAL UNIVERSITY UNIVERSITY HEALTH SERVICE

JOHN SUNDWALL, B.S., Ph.D., M.D., Professor of Hygiene and Director  
of the University Health Service

Health organizations and activities in colleges and universities. *United States Public Health Report* 34 no. 45:2489-518. November 7, 1919.  
Health education and activities in colleges and universities. *Proceedings of the Council on Public Health, American Medical Association.* 1920.

## THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

### ANIMAL BIOLOGY

HAL DOWNEY, Ph.D., Professor of Histology

*Review of*  
Adolpho Ferrata, Le Emopatie. *Anatomical Record* 19:67-71. 1920.

THOMAS SADLER ROBERTS, M.D., Professor of Ornithology and Director of  
the Zoological Museum

Water birds of Minnesota: past and present. *Biennial Report of State Game and Fish Commission of Minnesota*, for the biennial period ending July 31, 1918. St. Paul, 1919. 56-91 pages; also as author's separate with special cover and title page. Minneapolis.

Check list of Minnesota birds and migration and nesting record blank. Minneapolis: University of Minnesota Press. 4 pages. 1919.

The season. April 15 to June 15, 1919. Minneapolis region. *Bird-Love* 21:251-52. 1919.

The season. June 15 to August 15, 1919. Minneapolis region; Heron Lake; Itasca State Park. *Ibid.* 21:310-12. 1919.

The season. August 15 to October 15, 1919. Itasca State Park; Minneapolis and vicinity. *Ibid.* 21:367-68. 1919.

The season. October 15 to December 15, 1919. Minnesota region. *Ibid.* 22:49-50. 1920.

The season. December 15, 1919 to February 15, 1920. Minnesota region. *Ibid.* 22:107-8. 1920.

The season. February 15 to April 15, 1920. Minneapolis (Minnesota) region. *Ibid.* 22:167-68. 1920.

\*GEORGE DELWIN ALLEN, Ph.D., Instructor in Animal Biology

The rate of oxygen consumption during starvation, feeding, growth, and regeneration in relation to the method of susceptibility to potassium cyanide as a measure of rate of metabolism. *American Journal of Physiology* 49:420-73. 1919.

---

\* Deceased. Papers reported by H. F. Nachtrieb.

ADOLPH RINGOEN, Ph.D., Instructor in Animal Biology

The development of the gastric glands in *Squalus acanthias*. *Journal of Morphology* 32:351-77. 1919.

*Abstract*

On the origin of the eosinophil leucocytes of mammals. Proceedings of the American Association of Anatomists. *Anatomical Record* 18:255. 1920.

### ASTRONOMY

FRANCIS P. LEAVENWORTH, M.A., Professor of Astronomy and Head of the Department of Astronomy

Micrometric measures of double stars, made at the Yerkes observatory. *Astronomical Journal* 32:129-33. 1919.

Observation of the eclipse of the sun, November 22, 1919. *Ibid.* 32:165. 1920.

Observations of comet d 1919 (Finlay-Sasaki) made with 10½ inch equatorial of University of Minnesota. *Ibid.* 32:166. 1920.

### BOTANY

JOSEPHINE ELIZABETH TILDEN, M.S., Professor of Botany

Index Algarum Universalis. A universal card index of the marine, freshwater, epiphytic, and parasitic algae of the world. Classified in four divisions: 1. Authors. 2. Genera. 3. Geographical areas. 4. General subjects. Issue III a. Minneapolis: The Colwell Press. 1920. 1650 cards.

Bibliography of the literature relating to the Pacific ocean algae and to the freshwater algae of the countries bordering upon the Pacific ocean. With supplement: Special bibliographies relating to fisheries, economic algae, geology, and fertilizer algae. Minneapolis: The Colwell Press. 1920. 58 pages.

### COMPARATIVE PHILOLOGY

FREDERICK KLAEBER, Ph.D., Professor of Comparative and English Philology

Zu altenglisch hwonne aer, donne (don) aer de. *Anglia* 40:503-4. 1916.

*Reviews of*

Massimiliano Foerster, II Codice Vercellese con omelie e poesie in lingua anglosassone, and M. Föster, Der Vercelli-Codex CXVII. *The Journal of English and Germanic Philology* 18:476-80. 1919.

Blanche Colton Williams, Gnostic poetry in Anglo-Saxon. *Englische Studien* 49:428-30. 1916.

J. B. Kirtlan, Beowulf translated into modern prose. *Beiblatt zur Anglia* 27:129-31. 1916.

J. Mueller, Das Kulturbild des Beowulfepos. *Beiblatt zur Anglia* 27:241-44. 1916.

### ENGLISH

ELMER EDGAR STOLL, Ph.D., Professor of English and Chairman of the Department of English

Hamlet: an historical and comparative study. Minneapolis: University of Minnesota. *Studies in Languages and Literature* no. 7. 1919. 76 pages.

JOSEPH WARREN BEACH, Ph.D., Associate Professor of English

Francis Jammes, primitive (with Gustave van Roosbroeck). *Sewanee Review* 28:172-85. 1920.

CHARLES WASHBURN NICHOLS, Ph.D., Assistant Professor of Rhetoric

J. G. Holland: On the one hundredth anniversary of his birth (poem). *Springfield Republican* July 25, 1919.

A note on *The Stage-Mutineers*. *Modern Language Notes* 35:225-27. 1920.

STANLEY ISRAEL RYPINS, Ph.D., Instructor in Rhetoric

The Old English Life of St. Christopher. *Modern Language Notes* 35:186-87. 1920.

The Beowulf codex. *Modern Philology* 17:173-79. 1920.

## GEOLOGY AND MINERALOGY

FRANK FITCH GROUT, Ph.D., Professor of Geology

Chapter. A case of mineral dependence, in the book *The strategy of minerals*. New York: Appleton & Co. 1919.

The magnetite of the eastern Mesabi range, Minnesota. Minneapolis: Minnesota Geological Survey. *Bulletin* 17. 1919.

The nature and origin of the Biwabik iron-bearing formation of the Mesabi range, Minnesota. *Economic Geology* 14:452-64.

Movements in crystallizing magmas. *Journal of Geology* 28:255-65. 1920.

Organic structures in the Biwabik iron-bearing formation of the Huronian of Minnesota (with T. M. Broderick). *American Journal of Science* 48:199-205.

*Review of*

T. G. Bonney, The foliation and metamorphism of rocks. *Ibid.* 48:477. 1919.

CLINTON R. STAUFFER, B.S., Ph.D., Professor of Geology

Geological map of Ohio (with others). *Geological Survey of Ohio*. 1920.

## GERMAN

OSCAR CARL BURKHARD, Ph.D., Assistant Professor of German

The future of the study of German in America. *The School Review* 28:360-67. 1920.

Die Aufaenge der Novelle. *Wartburg Quarterly* 14 no. 2:17-30. 1920.

ALFRED EDMUND KOENIG, M.A., Dr. Theol., Assistant Professor of German

What we can learn from Lincoln. *The Citizen* 1 no. 5:9-10. February, 1920.

Exhibits. *Service* 2 no. 12:7-8. February, 1920.

Extending americanization service. *Association Men* 45:429. March, 1920.

What is americanization? *Manual for Leaders*, 1:18-20. 1919.

Coöperative agencies. *Americanization Institute Proceedings* 1:21-23. March, 1920.

The Minneapolis Council of Americanization. *Bulletin of the Minneapolis Council of Americanization* 1 no. 3:4. June, 1920.

Americanization—what is it? *The North Star* 2 nos. 5-6:140-41. June, 1920.

Americanization through the Minneapolis Council of Americanization. *Proceedings of the Second Minnesota State Americanization Conference* 1:71-74. May, 1920.

SAMUEL KROESCH, Ph.D., Assistant Professor

Semantic notes. *Journal of English and Germanic Philology* 19:86-93. 1920.

RICHARD JENTE, Ph.D., Instructor in German

Translation of the constitutions of Baden (pp. 35-50), Bavaria (pp. 71-75) and Reuss, younger line (pp. 256-71) in *Constitutions of the German Empire and German States*, edited by Edwin H. Zeydel. Washington: Government Printing Office. 1919.

## HISTORY

WILLIAM STEARNS DAVIS, Ph.D., Professor of History

A history of France, from the earliest times to the Treaty of Versailles. Boston: Houghton, Mifflin Company. 650 pages. December, 1919.

Public letters on current topics in *The New York Times*, *The Springfield Republican*, *The Minneapolis Journal*, *The Minneapolis Tribune*, *The St. Paul Pioneer Press*, *The Boston Herald*, *The New Republic*.

ALBERT BEEBE WHITE, Ph.D., Professor of History

Was there a "Common Council" before Parliament? *American Historical Review* 25:1-17. 1919.

SOLON JUSTUS BUCK, Ph.D., Associate Professor of History

The agrarian crusade; a chronicle of the farmer in politics. New Haven: Yale University Press. *Chronicles of America Series*, 45:215. 1920.

Handbook of the Minnesota Historical Society. St. Paul: Minnesota Historical Society. 1920. 46 pages.

Editor, *Minnesota History Bulletin* 3 nos. 2-5. May, 1919, to February, 1920. St. Paul: Minnesota Historical Society. Pages 55-327.

*Reviews of*

Theodore C. Blegen, A report on the public archives. *Minnesota History Bulletin* 3:137-39. 1919.

Milo M. Quaipe, The movement for statehood. *Ibid.* 3:139-40. 1919.

Gordon C. Davidson, The North West Company. *Ibid.* 3:296-98. 1920.

Loren W. Collins, The story of a Minnesotan. *Ibid.* 3:299-300. 1920.

LESTER BURRELL SHIPPEE, Ph.D., Assistant Professor of History

Syllabus for the study of the national period of American history. Minneapolis: Perine Book Company. 1919. 58 pages.

Federal relations of Oregon, parts IV-VII. *Quarterly of the Oregon Historical Society* 20:35-93, 173-218, 261-95, 345-95. 1919.

Steamboating on the upper Mississippi after the Civil War: a Mississippi magnate. *Mississippi Valley Historical Review* 6:470-502. 1920.

*Reviews of*

F. E. Haynes, James Baird Weaver (Iowa Biographical Series). *Minnesota History Bulletin* 3:210-12. 1919.

E. L. Sabin, Building the Pacific Railway. *Mississippi Valley Historical Review* 7:83-84. 1920.

## LATIN

JOSEPH BROWN PIKE, M.A., Professor of Latin and Head of the Department of Latin

Canat adulteria in Suetonius. *Classical Journal* 15:372-73. March, 1920.

## MATHEMATICS

ROBERT MAURICE MATHEWS, B.A., Instructor in Mathematics

Graphical constructions for imaginary intersections of line and conic. *The American Mathematical Monthly* 24:447-51. December, 1915.

## PHILOSOPHY

NORMAN WILDE, Ph.D., Professor of Philosophy and Head of the Department of Philosophy

Plural sovereignty. *Journal of Philosophy, Psychology, and Scientific Methods* 16:658-65. November, 1919.

The attack on the state. *International Journal of Ethics* 30:349-71.

Reviews of

W. J. Whitney, Moral education; A. Morgan, Education and social progress; John Dewey, Democracy and education. *Educational Review* 59:168-71.

DAVID FERDINAND SWENSON, B.S., Professor of Philosophy

The spirit of America in the war, also Independence day address. Minneapolis: Minneapolis Veckoblad Publishing Company. 1918. 16 pages.

Sixteen logical aphorisms. *Journal of Philosophy* 15:515-18. 1918.

The logical implicates of the community. *Ibid.* 17:253-60. 1920.

The finances of the Minneapolis schools. Minneapolis: Board of Education. 1919. 24 pages.

RUPERT CLENDON LODGE, M.A., Assistant Professor of Philosophy

Introduction to modern logic. Minneapolis: Perine Book Company. 1920. 361 pages.

Tests of truth. *Journal of Philosophy, Psychology, and Scientific Methods* 17:71-77. 1920.

The logical status of elementary and reflective judgments. *Ibid.* 17:214-20. 1920.

Negation in traditional and modern logic. *Mind* 29:82-90. 1920.

Review of

Former students, philosophical essays in honor of James Edwin Creighton. *International Journal of Ethics* 30:224-26. 1920.

## PHYSICS

WILLIAM FRANCIS GRAY SWANN, D.S., Ph.D., A.R.C.S., Professor of Physics

The sun's influence on the diurnal variation of the atmospheric potential-gradient. *Monthly Weather Review* 47:453-56; *The American Mathematical Monthly* 26:436-38. 1919.

Causes and prevention of fires in balloons. *United States Air Service Journal* 31:33. October, 1919.

Atmospheric electricity. *Journal of the Franklin Institute* 188:577-606. 1919.

Unipolar induction. *The Physical Review* 15:365-98. 1920.

The electric field of a rotating magnetic doublet. *The Physical Review* 15:137. 1920.

Electromagnetic induction and relative motion. *The Physical Review* 15:227. 1920.

Abstract of

F. Chapman, The electrical phenomena in the upper atmosphere. *Monthly Weather Review* 47:879. 1919.

## POLITICAL SCIENCE

CEPHAS DANIEL ALLIN, M.A., LL.B., Professor of Political Science and Chairman of the Department of Political Science

Representation on the council of the League of Nations. *Minnesota Law Review* 4:117-55. January, 1920.

The international status of the British Dominions with respect to the League of Nations. *Ibid.* 4:190-218. February, 1920.

Review of

J. L. Morison, British supremacy and Canadian self-government. *The American Historical Review* 25:531-32. 1920.

JEREMIAH SIMEON YOUNG, Ph.D., Professor of Political Science

Industrial courts with special reference to the Kansas experiment. *Minnesota Law Review* 4:483. 1920.

ROBERT EUGENE CUSHMAN, Ph.D., Associate Professor of Political Science

The national police power under the taxing clause of the constitution. *Minnesota Law Review* 4:247-81. 1920.

The national police power under the postal clause of the constitution. *Ibid.* 4:402-40. 1920.

Judicial decisions on public law. *American Political Science Review* 13:451-59; 14:303-16. 1919, 1920.

Review of

John R. Commons and associates, History of labour in the United States. *Ibid.* 14:331-36. 1920.

WILLIAM ANDERSON, Ph.D., Assistant Professor of Political Science

Problems of citizenship: a manual for Minnesota voters. Minneapolis: University of Minnesota. 1920. 32 pages.

The fate of the five-cent fare: Minneapolis. *National Municipal Review* 9:78-83. 1920.

The codification of municipal law in Minnesota. *Minnesota Municipalities* 4:124-32. 1919.

Review of

E. E. Lincoln, The results of municipal electric lighting in Massachusetts. *American Political Science Review* 13:516-17. 1919.

HAROLD S. QUIGLEY, Ph.D., Assistant Professor of Political Science

Review of

Henry Chung, The oriental policy of the United States. *St. Paul Pioneer Press*, February 15, 1920.

QUINCY WRIGHT, Ph.D., Assistant Professor of Political Science

Effects of the League of Nations covenant. *American Political Science Review* 13:556-76. 1919.

Amendments and reservations to the Treaty. *Minnesota Law Review* 4:14-39. 1919.

Validity of the proposed reservations to the Peace Treaty. *Columbia Law Review* 20:121-52. 1920.

Review of

H. S. Quigley, The immunity of private property from capture at sea. *American Political Science Review* 13:514. 1919; *Minnesota Law Review* 4:552. 1920.

BENJAMIN W. PALMER, M.A., LL.B., Lecturer in Political Science

Notes on business law for engineering students. Minneapolis: Hayward Brief Co. 1920. 107 pages.

## PSYCHOLOGY

HERBERT WOODROW, Ph.D., Associate Professor of Psychology

Brightness and dullness in children. Philadelphia: J. B. Lippincott Co. 1919. 322 pages.

FRANCES ERMA LOWELL, Ph.D., Instructor in Psychology

A preliminary report of some group tests of general intelligence. *Journal of Educational Psychology* 10:323-45. 1919.

A group intelligence scale for primary grades. *Journal of Applied Psychology* 3:215-47. 1919.

## RHETORIC AND PUBLIC SPEAKING

JOSEPH MORRIS THOMAS, Ph.B., Ph.D., Professor of Rhetoric and Head of Department of Rhetoric and Public Speaking

The inhibitory instincts: President's address, National Council of Teachers of English, Boston, November 24, 1919. *The English Journal* 9:1-12. January, 1920.

MARTIN BROWN RUUD, Ph.D., Assistant Professor of Rhetoric

James Russell Lowell: An American university man. *The Quarterly Journal of the University of North Dakota* 9:351-58. July, 1919.

An essay toward a history of Shakespeare in Denmark. Research Publications, Minneapolis: University of Minnesota. *Studies in Language and Literature* no. 8. 1920. 116 pages.

A conjecture concerning the origin of modern English she. *Modern Language Notes* 35:222-25. April, 1920.

*Abstract of*

Shakespeare in Denmark. *Scandinavian Studies* 4:191-96. May, 1919.

SIGURD BERNHARD HUSTVEDT, Ph.D., Instructor in Rhetoric

When the wild geese fly north. Translated from the Norwegian of Hans Aanrud. *The American-Scandinavian Review* 8:356-62. 1920.

ELBRIDGE COLBY, M.A., Instructor in Rhetoric

Panama in fiction. *The Star and Herald* August 8, 1919.

Early American comedy. *Bulletin of the New York Public Library* 23:427-35. July, 1919.

The echo device in literature. New York: The New York Public Library. 1920. 75 pages.

Serbian memories. *The Near East* 8, 15. June, 1917.

Thomas Holcroft: radical. *The Mid-West Quarterly* 5:44-60. October, 1917.

Theodore Winthrop: soldier. *Yale Alumni Weekly* December 28, 1917.

The war books. *The Nation*. February 16, 1918.

A defence of spouting clubs. *The Nation* January 31, 1918.

Letters of Thomas Hardy to Thomas Paine. *Ibid.* May 18, 1918.

The plates of the Winthrop books. *Bulletin of the New York Public Library* 22:87-90. February, 1918.

Small problems for trench warfare. Ft. Leavenworth: The Army Service Schools. 1918. 125 pages.

CHARLES FREDERICK LINDSLEY, M.A., Instructor in Public Speaking

Henry Woodfin Grodg, Orator. *Quarterly Journal of Speech Education* 6:28-42. April, 1920.

*Review of*

L. J. Hanifan, The community center. *Ibid.* 6:102-4. June, 1920.

## ROMANCE LANGUAGES

EVERETT WARD OLMSTED, Ph.D., Litt.D., Professor of Romance Languages and Head of the Department of Romance Languages

First course in Spanish. New York: Henry Holt and Co. 1920. 393 pages.

Elementary French reader (with Francis Brown Barton). New York: Henry Holt and Co. 1920. 282 pages.

- GUSTAVE LEOPOLD VAN ROOSBROECK, Ph.D., Instructor in Romance Languages  
 Guido Gezelle, the mystic poet of Flanders. Vinton, Iowa: Kruse Publishing Co. 1919. 80 pages.  
 A commonplace in Corneille's *Mélite*: the madness of Eraste. *Modern Philology* 17:141-49. 1919.  
 Rossetti and Maeterlinck. *Modern Language Notes* 34:439-41. 1919.  
 Notes on Pradon. *Ibid.* 35:312-13. 1920.  
 The new tendencies in American poetry. *Vlaamsche Arbeid* 10:206-10. 1920.  
 A God has died. *Foolscape* 1:22-23; 33-35. 1919.  
 A sonnet by William Kloos; translated from the Dutch. *Ibid.* 1:6. 1919.  
 Two poems by Albert Verwey and Frederik van Eeden, translated from the Dutch. *Ibid.* 1:3. 1919.  
 A new theory of Hamlet. *Ibid.* 1:16-44. 1920.  
 A few platitudes about cleverness. *Ibid.* 1:3-4. 1920.

## SOCIOLOGY AND SOCIAL WORK

- ARTHUR JAMES TODD, Ph.D., Professor of Sociology, and Director of Training Course for Social and Civic Work  
 The scientific spirit and social work. New York: The Macmillan Company. 1919. ix, 212 pages.  
 Preface to Louis A. Boettiger, Armenian legends and festivals, Minneapolis: The University of Minnesota *Studies in the Social Sciences* no. 14. 1920. 1 page.  
 Discussion on bolshevism and democracy. *Publications of the American Sociological Society* 14:225-27. 1919.  
 Towards law and order in industry. *Proceedings of the Twenty-seventh Minnesota State Conference of Charities and Corrections* 27:20-26. 1919.  
*Reviews of*  
 Norman Angell, The British revolution and the American democracy. *American Journal of Sociology* 25:230-32. 1919.  
 Richard Cabot, Social work. *The Survey* 42:576. 1919.  
 C. A. Ellwood, Sociology and modern social problems, revised edition. *Ibid.* 44:121-22. 1920.  
 Educating the public and the consumer. *Ibid.* 40:373-76. 1920. *Proceedings of the Conference of the Vocational Education Association* 1:1-10. 1920.  
 Social reconstruction (with others). *The Survey* 42:402-9. 1918.  
 Honest industrial government. (A tribute to a symposium on the industrial situation now before the President's conference and the country.) *Ibid.* 43:271. 1919.  
 Introduction to *Positions in Social Work in Minneapolis*. Minneapolis: The Minneapolis Council of Social Agencies. 1919. 42 pages.  
 LUTHER LEE BERNARD, Ph.D., Associate Professor of Sociology  
 The objective viewpoint in sociology. *American Journal of Sociology* 25:298-325. 1919.  
 Shanting and social justice. *Foolscape* 1 no. 19:44-47. 1919.  
 Vocational factors in democratic education. *Publications of the American Sociological Society* 14:185-88. 1919.  
 The education of the rural ministry. *School and Society* 11:68-73. 1920.  
 Education by correspondence. *Ibid.* 12:31-38. 1920.  
*Reviews of*  
 G. F. Nicolai, The biology of war. *American Journal of Sociology* 25:96-97. 1919.  
 Jacques Loeb, Forced movements, tropisms, and animal conduct. *Ibid.* 25:240-41. 1919.  
 Charles Benedict Davenport, Naval officers, their heredity and development. *Ibid.* 25:241-42. 1919.  
 Charles Otis Whitman, Orthogenetic evolution in pigeons. *Ibid.* 25:490-91. 1919.  
 Roy Franklin Richardson, The psychology and pedagogy of anger. *Ibid.* 25:492. 1919.  
 Dr. G. Papillault, Science française: scholastique allemande. *Ibid.* 25:492-93. 1919.  
 Edwin M. East and Donald F. Jones, Inbreeding and outbreeding; their genetic and sociological significance. *Ibid.* 26:251-52. 1920.

MANUEL C. ELMER, Ph.D., Associate Professor of Sociology

Armourdale, a city within a city. Topeka: State Printer. 1919. 92 pages.

Technique of social surveys. Minneapolis: University Printing Co. 1920. 125 pages.

Stillwater, The queen of the St. Croix. Stillwater Community Service. 1920. 72 pages.

## THE COLLEGE OF ENGINEERING AND ARCHITECTURE

### MECHANICAL ENGINEERING

JOHN VAN SICKLE MARTENIS, M.E., Associate Professor of Mechanical Engineering

Refrigeration in its relation to the municipal power plant. *The American City* 21: 149-50. 1919.

Refrigeration in its relation to the municipal power plant. *Minnesota Municipalities* 4:101-4. 1919.

FRANK BENJAMIN ROWLEY, B.S., M.E., Associate Professor of Mechanical Engineering and Director of the Experimental Engineering Laboratory

Determination of radiant heat given off by a direct radiator (with John R. Allen). *Journal of the American Society of Heating and Ventilating Engineers* 17 no. 3: 33-36. March, 1920.

Tests to determine the efficiency of coal stoves (with John R. Allen). *Ibid.* 17 no. 1: 119-26. January, 1920.

### MATHEMATICS AND MECHANICS

BURT LEROY NEWKIRK, Ph.D., Assistant Professor of Mathematics and Mechanics

Weight and centripetal acceleration. *Science* (n.s.) 51:321. 1920.

## THE DEPARTMENT OF AGRICULTURE

ROSCOE WILFRED THATCHER, B.S., M.A., D.Agr., Dean of the Department of Agriculture, and Director of the Agricultural Experiment Stations

The twenty-seventh annual report of the Minnesota Agricultural Experiment Station, July 1, 1918 to June 30, 1919. 1919. 95 pages.

Our agricultural resources. *Forty-first Annual Report Minnesota State Dairymen's Association*, 70-78. 1919.

Coöperation in peat investigations. *The Journal of the American Peat Society* 13:10-12. 1920.

Ideals in agricultural research. *School and Society* 13:361-71. 1920.

### AGRICULTURAL BIOCHEMISTRY

ROSS AIKEN GORTNER, Ph.D., Professor of Agricultural Biochemistry and Chief of the Division of Agricultural Biochemistry

The gold numbers of protalbinic and lysalbinic acids. *Journal American Chemical Society* 42:595-97. 1920.

- On the origin of the humin formed by the acid hydrolysis of proteins IV. Hydrolysis in the presence of aldehydes III. Comparative analyses of fibrin and gelatin in the presence of various aldehydes (with George E. Holm). *Ibid.* 42:632-40. 1920.
- The origin of the humin formed by the acid hydrolysis of proteins V (with George E. Holm). *Ibid.* 42:821-27. 1920.

Is wild vetch seed a safe feed? *The Breeders' Gazette* 77:1230-32. 1920.

CLYDE HAROLD BAILEY, M.S., Associate Professor of Agricultural Biochemistry

- A simple hydrogen electrode. *Journal American Chemical Society* 42:45-48. 1920.
- Humidity measurement and control in the baking. Iowa State College, Engineering Extension Department. *Bulletin* no. 45. June, 1920.

RAYMOND ADAMS DUTCHER, M.S., M.A., Associate Professor of Agricultural Biochemistry

- Vitamine studies IV. Antineuritic properties of certain physiological stimulants. *Journal of Biological Chemistry* 39 no. 1:63. 1919.
- Vitamine Studies V. The antiscorbutic properties of raw beef. *Ibid.* 42 no. 2:301. 1920.
- The antiscorbutic properties of raw lean beef (with Edith M. Pierson and Alice Biester). *Science* (n.s.) 50:184. 1919.
- The nature and function of the antineuritic vitamine. *Proceedings of the National Academy of Sciences* 6:10. 1920.

LEROY S. PALMER, Ph.D., Associate Professor of Agricultural Biochemistry and Dairy Chemistry, Minnesota Agricultural Experiment Station

- The preservation of milk for chemical analysis. Missouri Agricultural Experiment Station *Research Bulletin* 34:1-31. 1919.
- Relation of plant carotinoids to growth, fecundity, and reproduction of fowls. *Journal of Biological Chemistry* 39:299-312. 1919.
- The physiological relation between fecundity and the natural yellow pigmentation of certain breeds of fowls. *Ibid.* 39:313-30. 1919.
- The influence of specific feeds and certain pigments on the color of the egg yolk and body fat of fowls. *Ibid.* 39:331-37. 1919.
- Carotinoids as fat-soluble vitamine. *Science* (n.s.) 50:501-2. 1919.
- Relation of the enzymes of butter to the production of tallowniness by copper salts and over-neutralization. *Journal of Dairy Science* 2:444-52. 1919.
- Growth and reproduction in fowls in the absence of carotinoids and the physiological relation of yellow pigmentation to egg laying. *Proceedings of the National Academy of Sciences* 5:582-87. 1919.

GEORGE ELMER HOLM, M.S., Ph.D., Assistant Professor of Agricultural Biochemistry

- A modification of the apparatus for the determination of arginine nitrogen by Van Slyke's method. *Journal of the American Chemical Society* 42:611-12. 1920.
- The origin of humin formed by the acid hydrolysis of proteins V (with R. A. Gortner). *Ibid.* 42:821-27. 1920.
- Notes on the composition of the sorghum plant (with J. J. Willaman, R. M. West, and D. O. Spriestersbach). *Journal of Agricultural Research* 18:1-31. 1919.

JOHN JAMES WILLAMAN, Ph.D., Assistant Professor of Agricultural Biochemistry

- Vocational chemistry for students of agriculture and home economics. Philadelphia: J. B. Lippincott Company. 1920. 299 pages.
- Sorghum and sorghum sirup manufacture (with R. M. West and C. P. Bull). St. Paul: Minnesota Agricultural Experiment Station. *Bulletin* 187. 1919. 56 pages.
- Notes on the composition of the sorghum plant (with R. M. West, D. O. Spriestersbach, and G. E. Holm). *Journal of Agricultural Research* 18:1-31. 1919.

The function of vitamins in the metabolism of *Sclerotinia cinerea*. *Journal of the American Chemical Society* 42:549-85. 1920.

ARTHUR K. ANDERSON, M.S., Instructor in Analytical Chemistry

A study of the electro-pure process of treating milk (with Rubin Finkelstein). *The Journal of Dairy Science* 2 no. 5:374-406. 1919.

### AGRICULTURAL ENGINEERING

HALL BREWER WHITE, B.S. in Agriculture, Assistant Professor of Farm Buildings

Short articles for *Farm Press News*.

### AGRICULTURE

ANDREW BOSS, Vice Director of Agricultural Experiment Station, Professor of Agronomy and Farm Management, and Chief of Division of Agronomy and Farm Management

Cost of production in relation to profits. *Twenty-first Biennial Report of Kansas State Board of Agriculture* 24:49-57. 1919.

Relation of the tractor to better farming. *The Farmer* 37:1579. 1919.

Calculating the farm labor requirements. *Kimball's Dairy Farmer* 18:4. 1920.

Important factors in the cost of producing wheat. *Journal of Farm Economics* 1:85-89. 1919.

HERBERT KENDALL HAYES, M.S., Professor of Plant Breeding and Associate Agronomist in the Agricultural Experiment Station

First generation crosses between standard Minnesota corn varieties (with P. J. Olson). Minnesota Experiment Station. *Bulletin* 183:4-22. 1919.

Controlling flax wilt by seed selection (with E. C. Stakman, J. G. Leach, and Olaf S. Aamodt). *Journal of American Society of Agronomy* 11:291-98. 1919.

Synthetic production of high protein corn in relation to breeding (with R. J. Garber). *Ibid.* 11:309-18. 1919.

*Abstracts of*

Raymond Pearl, The seasonal distribution of swine breeding. *Botanical Abstracts* 2:208. 1919.

S. C. Harland, Tomato breeding at St. Vincent. *Ibid.* 3:93. 1920.

W. T. Macoun, Apple breeding in Canada. *Ibid.* 3:95. 1920.

M. A. Beeson, Report of agronomy department. *Ibid.* 3:306. 1920.

C. P. Blackwell and R. E. Currin, Work with field crops in South Carolina. *Ibid.* 3:306. 1920.

James Johnson, The inheritance of branching habit in tobacco. *Ibid.* 3:319. 1920.

Edwin M. East and Donald F. Jones, Inbreeding and outbreeding. *Ibid.* 4:88-89. 1920.

### AGRONOMY AND FARM MANAGEMENT

ALBERT CEDRIC ARNY, M.S., Associate Professor of Farm Crops and Associate Agronomist in Charge of the Section of Farm Crops in the Agricultural Experiment Station

Seed wheat for 1920. St. Paul: The University of Minnesota Agricultural Extension Division. *Circular Series* no. 4. 4 pages.

RALPH J. GARBER, M.S., Assistant Professor of Agronomy

Synthetic production of high-protein corn in relation to breeding (with H. K. Hayes).  
*Journal of the American Society of Agronomy* 11:309-18. 1919.

*Abstracts of*

Anonymous. Plant breeders find new tobacco hybrid. *Botanical Abstracts* 2:158. 1919.

Ph. J. Baldensperger, Punic and parthenogenesis. *Ibid.* 3:5. 1920.

S. C. Harland, The inheritance of immunity to leaf-blister mite (*Eriophyes gossypii*, Banks) in cotton. *Ibid.* 3:7. 1920.

T. B. Hutcheson and T. K. Wolfe, Relation between yield and ear characters in corn. *Ibid.* 3:8. 1920.

T. H. Goodspeed and Pirie Davidson, Controlled pollination in *Nicotiana*. *Ibid.* 3:145. 1920.

Paul Weatherwax, The ancestry of maize—a reply to criticism. *Ibid.* 3:154. 1920.

S. C. Harland, Note on inheritance in the cowpea. *Ibid.* 3:316. 1920.

### DAIRY HUSBANDRY

CLARENCE HENRY ECKLES, D.Sc., Professor of Dairy Husbandry and Chief of the Division of Dairy Husbandry

Silage in Missouri. *Monthly Bulletin, Missouri State Board of Agriculture* 17-19. 1919. 14 pages.

Capacity of silos and weights of silage (with O. E. Reed and J. B. Fitch). Missouri Agricultural Experiment Station *Bulletin* 164, 1919. 24 pages. Also issued as *Bulletin* 222, Kansas Agricultural Experiment Station.

Estimating silo capacities and silage weights. Missouri Agricultural Experiment Station. *Circular* 89, 1919. 4 pages.

The summer silo. *Kansas Farmer* April, 1920.

Mold in silage. *Hoard's Dairyman* 59:338. 1920.

Editor, Dairy Department. *Farm, Stock, and Home*.

### ENTOMOLOGY AND ECONOMIC ZOOLOGY

WILLIAM A. RILEY, Ph.D., Professor of Entomology, Chief of Division of Entomology and Economic Zoology, and Entomologist and Parasitologist, Agricultural Experiment Station

The broad tapeworm, *Dibothriocephalus latus*, in Minnesota: Additional records. *Journal of the American Medical Association* 73:1186-87. 1919.

A mouse oxyurid, *Syphacia obvelata*, as a parasite of man. *Journal of Parasitology* 6:89-93. 1919.

How to fight the dangerous housefly. St. Paul: The University of Minnesota Agricultural Extension Division. *Special Bulletin* no. 48. 1920. 8 pages.

*Reviews of*

Signed *Reviews and Abstracts* on medical entomology and parasitology in *Abstracts of Bacteriology* 3, 4. 1919, 1920.

FREDERIC LEONARD WASHBURN, M.A., Professor of Economic Vertebrate Zoology, College of Agriculture, and Zoologist of Experiment Station

The rabbit book: a practical manual on the care of Belgian hares, Flemish giants, and other meat and fur-producing rabbits. Philadelphia: The J. B. Lippincott Co. 1920. 170 pages, 1 colored plate, 83 text figures.

ROYAL N. CHAPMAN, Ph.D., Assistant Professor of Animal Biology, and Assistant Entomologist, Agricultural Experiment Station

The life cycle of the coleoptera, including the Strepsiptera (in *The Life Cycle in Insects*, a symposium by various authors) *Annals of the Entomological Society of America* 13:174-80. 1920.

The elimination of weevils. *The New Macaroni Journal* 2, 3, 26-30. 1920.

- HARRY HAZELTON KNIGHT, B.P., B.S., Assistant Professor of Entomology  
 The genus *Bolteria* Uhler (Hemiptera-Miridae). *Bulletin of the Brooklyn Entomological Society* 14:126-28. 1919.  
 New and little-known species of *Phytocoris* from the eastern United States. (Heteroptera-Miridae). *Bulletin of the Brooklyn Entomological Society* 15:49-66. 1 pl. 1920.

## HOME ECONOMICS

- ALICE BIESTER, M.A., Associate Professor of Nutrition  
 The antiscorbic properties of raw lean beef (with R. Adams Dutcher and Edith M. Pierson). *Science* (n.s.) 50:184-85. 1919; same (Vitamine Studies V). *Journal of Biological Chemistry* 42:301-10. 1920.
- HARRIET IRENE GOLDSTEIN, Associate Professor of Home Economics  
 Related art for home economics courses in Smith-Hughes schools. *The Journal of Home Economics* 11:300-6. 1919.
- MARION WELLER, B.A., Associate Professor of Textiles  
 How cloth is made. St. Paul: Finch Merchants Advertisers Club. April, 1920.  
 Shrinkage in fabrics. *Ibid.* May, 1920.  
 Texture and design of fabrics. *Ibid.* July-August, 1920.  
 Five textile fibers and fabrics. *Ibid.* September, 1920.
- CLARA MAUDE BROWN, B.A., Assistant Professor of Home Economics  
 American dyes for America. *Hours at Powers* 2 no. 6:3. 1919.  
 The garment making project (with Edna R. Gray). The University of Minnesota Extension Division. *Special Bulletin* no. 46. 1919. 46 pages.
- NOLA TREAT, B.S., Assistant Professor of Institution Management  
 Cafeteria standards and methods of attaining them (with L. Richards). St. Paul: The University of Minnesota Agricultural Extension Division. *Special Bulletin* no. 44. October, 1919.  
 A study of comparative waste in a dining hall and in a cafeteria (with L. Richards). *The Journal of Home Economics*. 2:540-42. 1919.

## HORTICULTURE

- MAXWELL JAY DORSEY, M.S.A., Ph.D., Associate Professor of Horticulture  
 A study of sterility in the plum. *Genetics* 4:417-88. 1919. 5 plates.  
 The relation of weather to fruitfulness in the plum. *Journal of Agriculture Research* 17:1103-26. 1919.  
 A note on the dropping of flowers in the potato. *Journal of Heredity* 10:226-28. 1919.

## PLANT PATHOLOGY AND BOTANY

- ELVIN CHARLES STAKMAN, Ph.D., Professor of Plant Pathology, Plant Pathologist of Agricultural Experiment Station  
 Effect of certain ecological factors on the morphology of the Urediniospores of *Puccinia graminis* (with M. N. Levine). *Journal of Agriculture Research* 16:43-77. 1919.

- New biologic forms of *Puccinia graminis* (with M. N. Levine and J. G. Leach). *Ibid.* 16:103-5. 1919.
- The black stem rust and the barberry. United States Department of Agriculture. *Yearbook* 1918:75-100. 1919.
- Destroy the common barberry. United States Department of Agriculture. *Farmers' Bulletin* 1058. August, 1919.
- Rust resistance in timothy (with H. K. Hayes). *Journal of American Society of Agronomy* 2:67-70. 1919.
- Controlling flax wilt by seed selection (with H. K. Hayes, Olaf Aamodt, J. G. Leach). *Ibid.* 2:291-98. 1919.
- Puccinia graminis* on native *Berberis canadensis* (with L. J. Krakover). *Phytopathology* 10:305-6. May, 1920.

PUTTICK, GAIL FERGUSON, M.Sc., Assistant in Plant Pathology

- The reaction of the F<sub>2</sub> generation of a cross between Marquis and Mindum to two biologic forms of stem rust of wheat. Master's thesis. University of Minnesota. June, 1920.

#### PUBLICATIONS AND RURAL JOURNALISM

WILLIAM P. KIRKWOOD, B.A., Professor, Editor of Publications

- Two ways to grow potatoes. *The Northwest Farmstead* 21:8. 1920.
- Lots of bloom, no fruit; why? *The Country Gentleman* 84:8. 1919.
- Another girl takes first honors with a fat pig. *American Swineherd* 37:33. 1920.
- Farm college in a far country. *The Northwestern Miller* 121:1270. 1920.
- Word movie of a country print shop. *The Inland Printer* 64:427. 1920.

#### SOILS

FREDERICK JAMES ALWAY, Ph.D., Professor of Soil Chemistry and Chief of the Division of Soils

- A phosphate-hungry peat soil. *The Journal of the American Peat Society* 13:108-43. 1920.
- Chemical requirements of peat soils in the light of European experience. *Ibid.* 13:327-41. 1920.
- The agricultural value and reclamation of Minnesota peat soils. St. Paul: The University of Minnesota Agricultural Experiment Station. *Bulletin* no. 188. 136 pages. 1920.
- The value of peat soils for vegetable growing. *Minnesota Horticulturist* 48:103-9. 1920.

CLAYTON ORD ROST, Ph.D., Assistant Professor of Soil Chemistry, and Associate Soils Chemist Agricultural Experiment Station

- Pyrites and its toxic oxidation products in peat soils. *The Journal of the American Peat Society* 13:303-6. 1920.

GUY RAYMOND McDOLE, B.Sc., M.A., Instructor in Soils, and Assistant Chemist in Agricultural Experiment Station

- The fens country of England. *The Journal of the American Peat Society.* 13:307-12. 1920.

#### VETERINARY MEDICINE

CLIFFORD PENNY FITCH, M.S., D.V.M., Professor of Animal Pathology and Bacteriology, Chief of the Division of Veterinary Medicine, and Animal Pathologist, Agricultural Experiment Station

- Exudative septicemia of geese (with Otto Kinneberg). *The Cornell Veterinarian* 10: 211-14. 1920.

- Cavernous hemangeonia of the liver together with multiple adenoma of the pancreas (with W. L. Boyd, C. D. Grinnels, and W. A. Billings). *Ibid.* 9:169-71. 1919.
- Diagnosis of bovine contagious abortion. *Journal of the American Veterinary Medical Association* (n.s.) 9:459-67. 1919.
- Veterinary education. *Ibid.* 10:518-24. 1919.
- Contagious abortion of cattle with a short account of the disease in swine and sheep (with W. L. Boyd). St. Paul: The University of Minnesota Agricultural Extension Division. *Special Bulletin* no. 28. Revised and reprinted 1920. page 20.
- Review of*  
E. T. Baker, Sheep diseases, *American Journal of Veterinary Medicine* 15:429. 1920.
- HOWARD CARL HENRY KERNKAMP, D.V.M., Assistant Professor of Veterinary Medicine
- Umbilical hernia, double cryptorchidism and sacral kyphosis in a pig. *Cornell Veterinarian* 9:174-76. 1919.
- The longevity of the virus of hog cholera. *Ibid.* 10:11-7. 1920.
- Hog cholera. *Duroc-Digest* 2:6. 1920.
- The common round worm of swine. *Duroc Bulletin* 16:65-66. 1920.

### AGRICULTURAL EXTENSION

- WILLIAM LANE CAVERT, M.S., Farm Management Demonstrator
- When is farming profitable? *Breeder's Gazette* 77:1472. May 27, 1920.
- Cost of raising colts. *Ibid.* 77:195.
- Editor of Farm Management column of *Farm, Stock, and Home*.

### THE LAW SCHOOL

- ANDREW ALEXANDER BRUCE, B.A., LL.B., Professor of Law
- The tyranny of the taxing power. *Michigan Law Review* 18:508-21. 1920.
- State socialism and the school land grants. *Harvard Law Review* 33:401-20. 1920.
- Double jeopardy and the power of review in court-martial proceedings. *Minnesota Law Review* 3:484-510. 1919.
- Injunction in Supreme Court. *Ibid.* 4:40-48. 1919.
- North Dakota. *Encyclopedia Americana* 20:419-24. 1920.
- EVERETT FRASER, B.A., LL.B., Professor of Law
- Future interests in property in Minnesota. *Minnesota Law Review* 4:307-29. 1920.

### THE MEDICAL SCHOOL

- ELIAS POTTER LYON, Ph.D., M.D., LL.D., Dean of the Medical School, Professor of Physiology, and Director of the Department of Physiology
- Graduate medical work (Editorial). *Minnesota Medicine* 3:255-57. 1920.
- The effect of breathing dry and moist air (with Esther Greisheimer). *American Journal of Physiology* 51:191. 1920.
- Medical school standardization and hospital standardization. (Address of Welcome, Convention of Catholic Hospital Association). *Hospital Progress* 1:139-41. 1920. Also Transactions of the Association.
- University endowment and medical education. (Commencement address St. Louis University, June 7, 1920). St. Louis: St. Louis University. 1920. 12 pages.

## ANATOMY

CLARENCE MARTIN JACKSON, M.S., M.D., Professor of Anatomy, and Director of the Department of Anatomy

Skill and scholarship as ideals in medical graduate education. *Journal of the American Medical Association* 73:307-11. 1919.

ANDREW THEODORE RASMUSSEN, Ph.D., Associate Professor of Neurology

The mitochondria in nerve cells during hibernation and inanition in the woodchuck (*Marmota monax*). *Journal of Comparative Neurology* 31:37-49. 1919.

The hypophysis cerebri of the American marmot (*Marmota monax*) with special reference to changes during hibernation. Abstract from the Proceedings of the American Association of Anatomists, 36th Session. *Anatomical Record* 18:255. 1920.

## MEDICINE

LEONARD GEORGE ROWNTREE, M.D., D.Sc., Professor of Medicine and Chief of the Department of Medicine

Aviation medicine (with Colonel W. H. Wilmer). *Oxford Loose Leaf System* 1:545-80. 1920.

Aviation accidents. *Oxford Loose Leaf System* 1:580-618. 1920.

The pharmacological basis of medicine. *Oxford Loose Leaf System* 1:811-923. 1920.

JOHN PETER SCHNEIDER, M.D., Associate Professor of Medicine

Chronic and relapsing arthritis. *Journal-Lancet* 40:93-102. 1920.

A study of the bile pigments in pernicious anemia. *The Journal of the American Medical Association* 74:1759-63. June 26, 1920.

SAMUEL EDWARD SWEITZER, M.D., Associate Professor of Dermatology and Syphilis

Acidosis in skin diseases. *Archives of Dermatology and Syphilology* 2 no.1:61. July, 1920.

JOHN BUTLER, M.D., Assistant Professor of Dermatology

The importance of early diagnosis and treatment of syphilis. *The Journal Lancet* 39:336-38. 1919.

The handling and treatment of dermatologic and luetic cases in the dispensary. *Minnesota Medicine* 3:236-41. 1920.

HARRY GARFIELD IRVINE, M.D., Assistant Professor of Dermatology and Syphilis

Recent progress with syphilis. *The Journal of Cutaneous Diseases* 37:702-7. 1919.

The venereal disease campaign in retrospect. *Ibid.* 37:748-53. 1919.

Program of the State Board of Health for control of venereal diseases and what results may be expected. *Minnesota Medicine* 2:428-35. 1919.

The handling and treatment of dermatologic and luetic cases in the dispensary (with S. E. Sweitzer and J. Butler). 3:236-41. May, 1920.

Syphilis from a public health standpoint. *Journal-Lancet* 39:333-34. 1919.

GEORGE MANGHILL OLSON, M.D., Assistant Professor of Dermatology and Syphilis

Traumatic hemolysis and the Wassermann reaction. *The Journal of Laboratory and Clinical Medicine* 5 no.4:259-60. January, 1920.

Veneroid ulcer. *Archives of Dermatology and Syphilology* 38 (n.s.) 1 no.3:279-82. March, 1920.

Arsphenamin dermatitis. *Journal-Lancet* 40:338-41. June 15, 1920.

FREDERICK WILLIAM WITTICH, M.A., M.D., Assistant Professor of Medicine

The correlation of laboratory with clinical methods in the study of tuberculosis. *Minnesota Medicine* 3 no.3:133-39. March, 1920.

JOHN ALOYSIUS LEPAK, B.S., M.D., Instructor in Medicine

*Reviews of*

Wilson and Carroll, The nervous heart, its nature, causation, prognosis and treatment. *Minnesota Medicine* 3:103-4. February, 1920.

Byam, Carroll, Churchill, Dimond, Sorapure, Wilson, and Lloyd, trench fever, a louse-borne disease. *Ibid.* 3:103. February, 1920.

G. W. Holmes and H. E. Ruggles, Roentgen interpretation: a manual for students and practitioners. *Ibid.* 3:220. April, 1920.

### OBSTETRICS AND GYNECOLOGY

JENNINGS CRAWFORD LITZENBERG, B.S., M.D., F.A.C.S., Professor of Obstetrics and Chief of the Department of Obstetrics and Gynecology

How may the obstetrician cooperate with the pediatrician. *American Journal of Obstetrics.* 77:463-66. 1919.

The graduate degree in obstetrics and gynecology. *Ibid.* 78:404-7. 1918.

The use of benyl benzoate in dysmenorrhoea. *Ibid.* 73:601-5. 1919.

### OPHTHALMOLOGY AND OTO-LARYNGOLOGY

HORACE NEWHART, B.A., M.D., F.A.C.S., Assistant Professor of Oto-Laryngology

The responsibility of the physician in otology. *Journal-Lancet* 40:180-83. April, 1920.

FRED JOHN PRATT, M.D., Assistant Professor of Ophthalmology and Oto-Laryngology

Ethmoiditis. *Journal-Lancet* 10 (n.s.):213. April, 1920.

JOHN ABRAHAM PRATT, M.D., F.A.C.S., Instructor in Ophthalmology and Oto-Laryngology

Treatment study of otosclerosis. *Minnesota Medicine* 2:390. October, 1919.

Tuberculomata of the larynx. *Annals of Oto-Rhinology and Laryngology* 29 no. 2:401. June, 1920.

An ethmoid operation. *Ibid.* 28:1051-66. December, 1919.

Surgical treatments of the ethmoids. *Journal-Lancet* 40:216. April, 1920.

### ORTHOPEDICS

PAUL W. GIESSLER, B.S., M.D., Instructor in Orthopedic Surgery

Foot disabilities. *Journal-Lancet* 40:65-68. 1920.

### PATHOLOGY, BACTERIOLOGY, AND PUBLIC HEALTH

HAROLD EUGENE ROBERTSON, B.A., M.D., D.D.Sc., Professor of Pathology

The collection and preservation of gross pathologic specimens in the American Expeditionary Forces. *International Association of Medical Museums. Bulletin* no. 8. 1919.

EDWARD CARL ROSENOW, M.D., Professor of Experimental Bacteriology

- The etiology and treatment of acute poliomyelitis. *Minnesota Medicine* 2:253-56. 1919.  
 Studies on elective localization. Focal infection with special reference to oral sepsis.  
*Journal of Dental Research* 1:205-67. 1919.  
 Studies in influenza and pneumonia IV. Further results of prophylactic inoculations  
 (with B. S. Sturdivant). *Journal of American Medical Association* 73:396-401.  
 1919.  
 Observations on the bacteriology and certain clinical features of influenza and influenzal  
 pneumonia. *Journal of Infectious Diseases* 26:469-91. 1920.  
 The leukocytic reaction in influenza and influenzal pneumonia. *Ibid.* 26:492-503. 1920.  
 A study of the effects following the injection of bacteria found in normal throats,  
 in simple nasopharyngitis, and in lobar pneumonia. *Ibid.* 504-56. 1920.  
 Experiments on the etiology of "Gastro-intestinal influenza." *Ibid.* 26:557-66. 1920.  
 Changes in the green-producing streptococcus induced by successive animal passage and  
 their significance in epidemic influenza. *Ibid.* 26:567-96. 1920.  
 The immunologic properties of the green-producing streptococci from influenza. *Ibid.*  
 26:597-613. 1920.  
 Therapeutic effects of a monovalent antistreptococcus serum in influenza and influenzal  
 pneumonia. *Ibid.* 26:614-22. 1920.  
 Etiology of and prophylactic inoculation in influenza. *Illinois Medical Journal* 37:153-  
 55. 1920. Also *Wisconsin Medical Journal* 18:370-71. 1920.

WILLIAM CARPENTER MACCARTY, M.S., M.D., F.A.C.P., Associate Profes-  
 sor of Pathology

- The frequency of adenomyoma of the uterus (with R. H. Blackman, M.D.). *Annals  
 of Surgery* 69:1331. Feb. 1919.  
 The role of the pathologist in the practice of medicine (with A. C. Broders, M.D.).  
*Journal of Laboratory and Clinical Medicine* 4:687-90. August, 1919.  
 Extruterine adenomyomata (with A. E. Mahle M.D.). *Ibid.* February, 1920.  
 A mathematical terminology for neoplasia and its significance. *Utah State Medical Jour-  
 nal* 19:113. May, 1920.  
 Early lesions in the gall-bladder (with John Corkery, M.D.). *American Journal of  
 Medical Science.* 159:646-53. May, 1920.

MOSES BARRON, B.S., M.D., Assistant Professor of Pathology

- Abnormalities resulting from the remains of the omphalomesenteric duct. *Surgery,  
 Gynecology and Obstetrics.* 30:350-56. 1920.  
 Necropsy studies at a hospital center. *Archives of Internal Medicine.* 24:302-20. 1919.

ARTHUR TRAUTWEIN HENRICI, M.D., Assistant Professor of Bacteriology

- The bacteriology of vital pulps. *Journal of Dental Research* 1:419-22. 1919.  
 Abstracts of articles on oral bacteriology. *Abstracts of Bacteriology.*

MARGARET WARWICK, B.S., M.D., Instructor in Pathology

- A study of the colloidal gold reaction and its clinical interpretation (with C. E. Nixon).  
*Archives of Internal Medicine* 25:119-45. 1920.  
 Tuberculosis of the appendix. *Annals of Surgery* 71:139-48. 1920.  
 Colloidal gold reaction. *Minnesota Medicine* 3:188-91. 1920.  
 The place of the tissue laboratory in the surgical clinic. *Journal-Lancet* 40:333-38. 1920.

## PEDIATRICS

JULIUS PARKER SEDGWICK, B.S., M.D., Professor of Pediatrics and Chief  
 of the Department of Pediatrics

- The nitrogenous and sugar content of the blood of the new born (with Mildred R. Zieg-  
 ler). *American Journal of Diseases of Children* 19:429-32. 1920.

E. J. HUENEKENS, B.A., M.D., Assistant Professor of Pediatrics

- The Minnesota rural clinic. *Southern Medical Journal* 13 no.7:501-5. July 1920.  
 The care of the new-born with especial reference to prematures. *Northwest Medicine* 13, no. 8:149-53. August, 1919.  
 Practical everyday pediatrics. *Ibid.* 13 no. 10:206-9. October 1919.

FREDERICK CONSTANS RODDA, M.D., Assistant Professor of Pediatrics

- Studies with a new method for determining the coagulation time of the blood in the new-born. *American Journal of Diseases of Children* 19:269-76. April 1920.  
 Coagulation time of the blood in the new-born with especial reference to cerebral hemorrhage. *Journal of the American Medical Association* 75 no. 7:152-57. Aug. 1920.

MAX SEHAM, M.D., Assistant Professor of Pediatrics

- The acidotic state of the new born. *American Journal of Diseases of Children* 18:42-50. July 1919.

MILDRED R. ZIEGLER, B.A., M.S., Instructor in Pediatrics

- A metabolic study of amyotonia congenita (with N. O. Pearce). *The Journal of Biological Chemistry* 42:581-90. 1920.

## PHARMACOLOGY

ARTHUR DOUGLASS HIRSCHFELDER, B.S., M.D., Professor of Pharmacology and Director of the Department of Pharmacology

- The local anaesthetic actions of saligenin and other phenolic alcohols (with A. Lundholm, H. Norrgard, and J. Hultkrans). *Science* (n.s.) 51:21; *Journal of Pharmacology and Experimental Therapeutics* 15:237. 1920.  
 The local anaesthetic actions of saligenin and other phanyl carbinols (with A. Lundholm and H. Norrgard). *Ibid.* 15:26. 1920.  
 The effects of drugs which inhibit the parasympathetic nerve endings upon the irritability of intestinal loops (with A. Lundholm, H. Norrgard, and J. Hultkrans). *Science* (n. s.) 51:21. 1920.  
 The effect of fever upon the action and toxicity of digitalis (with J. Bicek, F. J. Kucera, and W. Hanson). *Ibid.* 51:21; *Journal of Pharmacology and Experimental Therapeutics* 15:238. 1920.  
 The toxicity of tobacco smoke from cigars, cigarettes, and pipe tobacco (with A. E. Lange and A. C. Feaman). *Science* (n.s.) 51:21. 1920.  
 A simple method for the preparation of sodium amalgam in flakes (with M. C. Hart). *Journal of Industrial and Engineering Chemistry*. 12:499. 1920.

## PHYSIOLOGY

JESSE F. MCCLENDON, M.S., Ph.D., Associate Professor of Physiology

- Nutrition and public health with special reference to vitamins. *American Journal of the Medical Sciences* 159:477-97. 1920.  
 A chart for rapid calculation of calorific value of diets. *Journal of the American Medical Association* 74:101-2. 1920.  
 The effects of malt and malt extracts on scurvy and alkaline reserves of the blood (with W. C. Cole, O. Engstrand, J. E. Middlekauff). *Journal of Biological Chemistry*. 40:243-58. 1919.  
 Note on the hydrogen ion concentration of the human duodenum (with F. J. Myers). *Ibid.* 41:187-90. 1920.

ESTHER GREISHEIMER, B.S., M.A., Ph.D., Instructor in Physiology

A quantitative study of the effects produced by salts of sodium, potassium, rubidium and calcium on motor nerve of frog. *American Journal of Physiology* 49 no. 4:497-522. September 1919.

#### SURGERY

ARTHUR CLARENCE STRACHAUER, M.D., F.A.C.S., Professor of Surgery and Chief of the Department of Surgery

The surgical treatment of traumatic epilepsy. *Minnesota Medicine* 2:382-85. 1919.

A new operation for pyothorax: The trephine operation. *Ibid.* 3:127-33; *Wisconsin Medical Journal* April, 1920.

Abstract of A new operation for pyothorax: The trephine operation. *American Journal of Surgery* 34:113. 1920.

#### THE SCHOOL OF NURSING

LOUIS MATHILDE POWELL, R.N., Superintendent of the School of Nursing

Nursing education as a function of the hospital. *The Modern Hospital* 14 no.2:54-55. 1920.

Student self government in schools of nursing. *The American Journal of Nursing* 20 no. 6:471-78.

#### THE COLLEGE OF DENTISTRY

##### PROSTHETICS

LEHMAN WENDELL, B.S., D.D.S., Instructor in Prosthetics and Orthodontia

Systematic development of x-ray plates and films. St. Louis: C. V. Mosby Company. 1919. 78 pages.

#### THE SCHOOL OF MINES

##### ORE-TESTING WORKS

EDWARD WILSON DAVIS, B.S. in E.E., Superintendent of Mines Experiment Station

A new machine for concentrating Minnesota wash ores. School of Mines Experiment Station *Bulletin* no. 6. 1919. 32 pages.

The future of the Lake Superior district as an iron-ore producer. School of Mines Experiment Station *Bulletin* no. 7. 1920. 18 pages.

#### THE COLLEGE OF PHARMACY

FREDERICK JOHN WULLING, Phm.D., LL.M., Dean of the College of Pharmacy, Professor of Pharmacology, and Director of the University Medicinal Plant Gardens

Fineness of powders. *Journal of American Pharmaceutical Association* 9 no. 9:296-97.

Comments on organizing American pharmacy. *Northwestern Druggist* 28 no. 5:30-31.

Advancing pharmaceutical standards. *California Retail Drug Journal* 1 no. 7:10-11.

#### PHARMACOGNOSY

EDWIN LEIGH NEWCOMB, Phm.D., Professor of Pharmaceutical Botany and Pharmacognosy

- Editor, Northwestern Druggist*, St. Paul: Codifying pharmacy laws; Pharmaceutical publicity; Prohibition legislation; Will pharmacy wake up; Progress in publicity work; The Pharmaceutical corps; Is there an over-supply of drug clerks; Consider the druggist; Your part in publicity work; The United States pharmacopœia and pharmacists; Prohibition and the drug store; The United States pharmacopœial convention.
- Report of the thirty-ninth convention Wisconsin Pharmaceutical Association. *Ibid.* 27 no. 7:26. 1919.
- Report of 1920 convention Minnesota Pharmaceutical Association. *Ibid.* 28 no. 3:24-31. 1920.
- Organizing American pharmacy. *Ibid.* 28 no. 4:25-30. 1920.
- Report of thirty-third convention North Dakota Pharmaceutical Association. *Ibid.* 27 no. 9:24-27. 1919.
- Report of thirty-third convention South Dakota Pharmaceutical Association. *Ibid.* 27 no. 9:29-34. 1919.
- Proceedings of the thirty-fifth convention Minnesota Pharmaceutical Association. Minneapolis: Colwell Press. 1920. 344 pages.

### PHARMACY

GUSTAV BACHMAN, Phm.D., Phm.M., Professor of Pharmacy

- Drug adulteration. *Minnesota State Pharmaceutical Association Proceedings* pages 107-9. 1920.
- Proceedings, thirty-sixth annual convention of the Minnesota State Pharmaceutical Association (edited and arranged with the assistance of Dean Wulling). Minneapolis: The Colwell Press. 1920. 232 pages.

### THE SCHOOL OF CHEMISTRY PHYSICAL CHEMISTRY

FRANK HENRY MACDOUGALL, Ph.D., Associate Professor of Chemistry

- The calculation of the temperature coefficient of the distribution ratio. *Journal of the American Chemical Society* 41:1718-21. 1919.

### THE COLLEGE OF EDUCATION

ROSS L. FINNEY, Ph.D., Assistant Professor of Educational Sociology

- Administration of village and consolidated schools (with W. L. Schafer). New York: The Macmillan Company. 1920. 298 pages.
- Tentative report of the Committee of the American Sociological Society on the Teaching of Sociology in the Grade and High Schools of America. *School Review* 28:255-62. 1920.
- Course in general history from the sociologists' standpoint. *The Historical Outlook* 10:221-27. 1920.

### AGRICULTURAL EDUCATION

JOHN VELTE ANKENEY, Assistant Professor of Agricultural Education

- Practical teaching of teachers to teach through the eye. *Moving Picture Age* 3 no. 3:17. 1920.

### EDUCATIONAL PSYCHOLOGY

HERMIONE L. DEALEY, Ph.D., Assistant Professor of Educational Psychology

- College curricula and interests of college women. *School and Society* 10:294-99. 1919.
- College women and emotional attitudes. *Education* 40:511-19. 1920.

MARVIN JAMES VAN WAGENEN, B.S., Ph.D., Assistant Professor of Educational Psychology

Historical information and judgment in pupils of elementary schools. New York: Teachers College Bureau of Publications. 1919. 74 pages.

Some results and interferences derived from the use of the army tests at the University of Minnesota. *The Journal of Applied Psychology* 4:59-72. 1920.

The accuracy with which English themes may be graded with the use of English composition scales. *School and Society* 11:441-50. 1920.

### HIGH SCHOOL

WILLIAM DAVID REEVES, B.S., Instructor in Mathematics, College of Education in University High School

General mathematics (with Raleigh Schorling). Boston: Ginn and Company. 1919. 488 pages.

### HISTORY AND PHILOSOPHY OF EDUCATION

FLETCHER HARPER SWIFT, Ph.D., Professor of Education

What the Twin Cities offer to students: a guide to the cultural and social institutions of Minneapolis and St. Paul and environs. Minneapolis: University of Minnesota. 1919. 36 pages.

Common school finance in Alabama. *Educational Administration and Supervision* 5 no. 8:303-24; 9:365-86. 1919.

Existing educational inequalities. *The American School Board Journal* 60 no. 5:29-30. 1920.

The puzzle. *The Open Court Magazine* 34 no. 3:129-46. March, 1920.

The teachers baccalaureate; a historical study of the origin of academic degrees. *Teachers College Record* 21 no. 1:25-50. 1920.

Review of

Raymond A. Kent, A study of state aid to public schools in Minnesota. *Mississippi Valley Historical Review* 6 no. 3:425-26. 1919.

### LATIN

MARIE B. DENNEEN, B.A., Instructor in Latin in the University High School

English words from Latin. Chicago: Scott, Foresman, and Company. 1920. 46 pages.

### TRADE AND INDUSTRIAL EDUCATION

ARTHUR FRANK PAYNE, M.A., Ph.B., Assistant Professor of Trade and Industrial Education

The "N. E. A." adopts a so-called "National policy of vocational education." *Industrial Arts Magazine* 8:364-65. 1919.

Vocational guidance: a review and a program. *Ibid.* 9:89-91. 1920.

Coöperation between the public and the schools in taking advantage of the vocational educational bill. *Ibid.* 8:370. 1919.

Cracking the pedagogue's shell. *The Survey* 42:630. 1919.

Vocational education as a preventive of juvenile delinquency. *School and Society* 10:509-13. 1919.

Scientific methods of selecting labor. *Bulletin Chicago Chapter American Association of Engineers.* March, 1920. 5 pages.

- Vocational education. *Students' Encyclopedia*. 1920. 10 pages.  
 The new department of trade and industrial education and a plan of coöperation with the Dunwoody Institute. *Alumni Weekly* 19:8-9. May, 1920.  
*Review of*  
 W. H. Dooley, Principles and methods of industrial education. *School Education* 25:25. May-June, 1920.

## SCHOOL ADMINISTRATION AND SUPERVISION

LEONARD V. KOOS, Ph.D., Professor of Secondary Education

- The junior high school. New York: Harcourt, Brace, and Howe. 1920. 179 pages.  
 The flexibility of requirements for admission to colleges east and west. *The School Review* 28:436-50. 1920.  
 Space-provisions in the floor-plans of modern high-school buildings. *Ibid.* 27:573-99. 1919; *The Elementary School Journal* 20:12-25. 1919.  
 The adjustment of the teaching load in a university. *United States Bureau of Education. Bulletin* no. 15. 1919. 63 pages.  
 The growth of the University in the next quarter century. (Report of the Survey Commission with Rodney M. West). *Bulletin of the University of Minnesota* 28:1-50. 1920.  
 The plan of organization of the Green Lake elementary school. *The Elementary School Journal* 20:435-48. 1920.  
*Review of*  
 Leverett S. Lyon, A survey of commercial education in the public high schools of the United States. *The School Review* 28:154-55. 1920.

## THE GRADUATE SCHOOL

### MAYO FOUNDATION FOR MEDICAL RESEARCH

#### MEDICINE

HENRY STANLEY PLUMMER, M.D., Professor of Clinical Medicine

##### *Abstracts of*

- Thyroid disease. *Journal of the American Medical Association* 73:1466. 1919.  
 The clinical interpretation of basal metabolic rate estimations. *Medical Record* 97:803-4. 1920.

HERBERT ZIEGLER GIFFIN, B.S., M.D., Associate Professor of Medicine

- Tuberculosis of the spleen. *Medical Clinics of North America* 3:765-71. 1919.  
 Persistent eosinophilia with hyperleukocytosis and splenomegaly. *American Journal of the Medical Sciences* 158:618-29. 1919.

WALTER MEREDITH BOOTHBY, M.A., M.D., Assistant Professor of Medicine

- The value of the basal metabolic rate in the treatment of diseases of the thyroid. *Medical Clinics of North America* 3:603-18. 1919.

GEORGE BYSSHE EUSTERMAN, M.D., Assistant Professor of Medicine

- Syphilis of the stomach: report of a case. Symptomatology. Gastric chemistry and the x-ray. Diagnostic criteria. Differential diagnosis. Results of treatment. Observations and conclusions based on a study of 55 cases. *Medical Clinics of North America* 3:669-80. 1919.

ROBERT DANIEL MUSSEY, M.D., Assistant Professor of Medicine

- Pancreatic carcinoma. *Medical Clinics of North America* 3:681-88. 1919.

WILLIS STORRS LEMON, M.D., Instructor in Medicine

The routine management of duodenal ulcer cases. *Northwest Medicine* 18:179-84. 1919.  
 Mediastinal affections in childhood. *Medical Clinics of North America* 3:629-34. 1919.  
 Differential diagnosis of mediastinal affections. *Ibid.* 3:635-51. 1919.  
 Angioma of the stomach. *Medical Record* 97:220-22. 1920.

LEDA JUNE STACY, M.D., Instructor in Medicine

The treatment of carcinoma of the uterus by radium. *Medical Clinics of North America* 3:705-6. 1919.

JOHN HINCHMAN STOKES, B.A., M.D., Associate Professor of Dermatology and Syphilology

The organization and methods of contagious disease service. *Pennsylvania Medical Journal* 22:729-36. 1919.

1. A case of early lepra. 2. Solitary cutaneous nodular recurrences as aids in the diagnosis of obscure visceral syphilis. 3. Three cases illustrating the diagnosis and treatment of syphilitic involvement of the nervous system. 4. The etiologic analysis of a chronic urticaria following influenza vaccination. 5. Interstitial keratitis in heredosyphilis following influenza, with comment on treatment. 6. The protection of the kidney in intensive antisyphilitic treatment, with special reference to the influenza of dental focal infections. *Medical Clinics of North America* 3:821-47. 1919.

Tubing as a cause of reaction to intravenous injection, especially of arsphenamin. Preliminary report (with G. J. Busman). *Journal American Medical Association* 74:1013-17. 1920.

Syphilis in railroad employees. (A clinical study of an occupational group, with Helen E. Brehmer.) *Journal Industrial Hygiene* 1:419-27. 1919.

HENRY W. WOLTMANN, B.S., M.D., Ph.D., Instructor in Medicine

Tetany in the eunuchoid: report of case. *Journal of Nervous and Mental Diseases* 50:438-48. 1919.

Facial paralysis. *Medical Clinics of North America* 111:557-81. November, 1919.  
*Reviews of*

C. v. Monakow and S. Kitabayashi, Schizophrenia und Plexus choroidei. *Archives of Neurology and Psychiatry* 3, 182-84. 1920.

C. Ladame, Psychose aiguë idiopathique ou foudroyante. *Ibid.* 3:324-25. 1920.

Zdrawa Jatschewa, Ueber verwandtschaftlicher Formbildung an beiden zueinander gehörenden Hemisphären. *Ibid.* 3:447-48. 1920.

E. Landau, Ueber chemische Differenzierungen an makroskopischen gehirnschnitten. *Ibid.* 3:446. 1920.

Gustav Bychowski, Zur Psychopathologie der Brandstiftung. *Ibid.* 3:435-37. 1920.

Will Boven, A propos du sondage nasal des aliénés. *Ibid.* 3:669-70. 1920.

Raoul Mourgue, La fonction psycho-motrice d'inhibition étudiée dans un cas de chorée de Huntington. Essai d'application des techniques de la psycho-physiologie et de la psychologie expérimentale à la neuro-psychiatrie. *Ibid.* 3:663-65. 1920.

J. Carmanis, Note sur les canalicules intracellulaires des cellules nerveuses. *Ibid.* 4:97-98. 1920.

## • OPHTHALMOLOGY AND OTO-LARYNGOLOGY

WILLIAM LEMUEL BENEDICT, M.D., Assistant Professor of Ophthalmology

Report of a case of retinitis circinata associated with tuberculosis. *Medical Clinics of North America* 3:551-55. 1919.

Intracapsular extraction of cataracts. *Minnesota Medicine* 2:461-67. 1919.

Treatment of chronic dacryocystitis (with R. A. Barlow). *American Journal of Ophthalmology* 2:843-49. 1919.

Radium in the treatment of diseases of the eye and adnexa (with G. B. New). *Ibid.* 3:244-50. 1920.

HAROLD IRVING LILLIE, B.A., M.D., Assistant Professor of Otolaryngology, and Rhinology

Mastoiditis, acute and subacute; results in a series of operated cases (with R. A. Barlow). *Minnesota Medicine* 3:23-25. 1920.

GORDON BALGARNIE NEW, D.D.S., M.D., Assistant Professor of Oto-Laryngology and Stomatology

Angiomas of the larynx. Report of three cases (with C. M. Clark). *Annual Otolaryngology and Rhinology* 28:1025-49. 1919.

Treatment of malignant tumors of the antrum. *Journal of the American Medical Association* 74:1296-300. 1920.

### PATHOLOGY AND BACTERIOLOGY

LOUIS BLANCHARD WILSON, M.D., Professor of Pathology

Graduate medical education in Great Britain and France. *Journal of the American Medical Association* 73:1955-57. 1919.

The pathologic service of the American Expeditionary Force. *Military Surgery* 65:592-705. 1919.

Museum and art service of the American Expeditionary Forces. *Ibid.* 46:165-72. 1920.

The autopsy service of the American Expeditionary Forces. *Transactions of the Association of American Physicians* 34:291-97. 1919.

The 1919 laboratory field in retrospect. *Modern Hospitals* 14:191-92. 1920.

ARTHUR HAWLEY SANFORD, M.A., M.D., Associate Professor of Clinical Bacteriology and Parasitology

Blood transfusion: Indications for its use; methods of selecting donor; and a brief consideration of technic. *Medical Clinics of North America* 3:801-19. 1919.

Diagnostic methods in the anemias. *New York State Journal of Medicine* 19:415-19. 1919.

Protein sensitization in asthma and hay fever. *Minnesota Medicine* 3:174-80. 1920.

WAYNE WILLIAM BISSELL, B.S., M.D., Assistant Professor of Pathology

An instance of primary portal thrombosis, illustrating a not uncommon source of diagnostic error. *Medical Clinics of North America* 3:733-39. 1919.

THOMAS BYRD MAGATH, Ph.B., M.S., Ph.D., M.D., Assistant Professor of Clinical Bacteriology and Parasitology

The eggs of *Diphyllobothrium latum*. *Journal of the American Medical Association* 73:85-87. 1919.

*Camallanus americanus*. *Transactions of the American Microscopical Society* 38:147-170. 1919. 10 plates.

*Leucochloridium problematicum* n. sp. *Journal of Parasitology* 6:105-15. 1920. 4 plates.

### PHYSIOLOGY AND PHYSIOLOGIC CHEMISTRY

EDWARD CALVIN KENDALL, B.S., M.A., Ph.D., Associate Professor of Biochemistry

The chemical and physiologic nature of the active constituents of the thyroid. *Medical Clinics of North America* 3:583-602. 1919.

- Isolation of the iodine compound which occurs in the thyroid. First paper. *Journal of Biological Chemistry* 39:125-47. 1919.  
 The chemical identification of thyroxin. *Ibid.* 40:265-334. 1919.

## ROENTGENOLOGY

RUSSELL DANIEL CARMAN, M.D., Professor of Roentgenology

- The roentgen diagnosis of gastric ulcer. *Journal-Lancet* 39:402-6. 1919.  
 Renal fluoroscopy at the opening table (with W. F. Braasch). *Journal of the American Medical Association* 73:1751-52. 1919.  
 The operability of cancer of the stomach as determined by the roentgen ray. *Ibid.* 73:1513-18. 1919.  
 Roentgenology of tuberculous enterocolitis. *Ibid.* 74:1371-73. 1920.

ALEXANDER BERKELEY MOORE, M.D., Assistant Professor of Roentgenology

- A roentgenologic study of metastatic malignancy of the bones. *American Journal of Roentgenology* 6:589-91. 1919.

## SURGERY

WILLIAM FREDERICK BRAASCH, B.S., M.D., Professor of Urology

- Dilatation of the ureter and renal pelvis. *Journal of the American Medical Association* 73:731-37. 1919.  
 Renal fluoroscopy at the operating table (with R. D. Carman). *Ibid.* 73:1751-52. 1919.  
 Surgical renal tuberculosis: The prognosis. *American Journal of the Medical Sciences* 159:8-19. 1920.  
 Recent advance in the diagnosis of surgical lesions of the kidney. *Minnesota Medicine* 3:112-13. 1920.

CHARLES HORACE MAYO, M.A., M.D., LL.D., F.A.C.S., Professor of Surgery

- Exstrophy of the bladder. Contributions to medical and biological research dedicated to Sir William Osler in honour of his seventieth birthday, July 12, 1919, by his pupils and co-workers. New York: Hoeber 1095-110. 1920.  
 War problems. *Medical Record* 96:172-73. 1919.  
 Cancer of the stomach and its surgical treatment. *Annals of Surgery* 70:236-40. 1919.  
 Jaundice and its surgical significance. *Surgery, Gynecology, and Obstetrics* 30:545-49. 1920.  
 The health problems of a small city. *Journal of the American Medical Association* 74:1187. 1920.

DONALD CHURCH BALFOUR, M.B., M.D., Associate Professor of Surgery

- Surgical treatment in the bleeding type of gastric and duodenal ulcer. *Journal of the American Medical Association* 73:571-75. 1919.  
 Life expectancy of patients following operations for gastric and duodenal ulcer. *Annals of Surgery* 70:522-25. 1919.

MELVIN STARKEY HENDERSON, M.B., M.D., Associate Professor of Orthopedic Surgery

- Ununited fracture of the hip. *Surgery, Gynecology, and Obstetrics* 30:145-48. 1920.  
 The use of beef-bone screws in fractures and bone transplantation. *Journal of the American Medical Association* 74:715-17. 1920.  
 Injuries of the semilunar cartilages of the knee joint. *Annals of Surgery* 71:658-62. 1920.

EDWARD STARR JUDD, M.D., Associate Professor of Surgery

- Surgery of the urinary bladder. *Journal-Lancet* 40:6-9. 1920.  
 Intrathoracic goiter. *International Clinics* 1 no. 30:149-57. 1920.  
 Results of operations for the removal of stones from the ureter. *Annals of Surgery* 71:129-39. 1920.  
 Surgery of the kidney. *Minnesota Medicine* 3:221-27. 1920.  
 The operative treatment of vesicovaginal fistulae. *Surgery, Gynecology, and Obstetrics* 30:447-53. 1920.

FRANK CHARLES MANN, B.S., M.A., M.D., Associate Professor of Experimental Surgery and Pathology

- The effect of splenectomy on the thymus. *Endocrinology* 3:299-306. 1919.  
 An experimental study of the effects of duodenectomy (with K. Kawamura). A preliminary report. *Journal of the American Medical Association* 73:878-80. 1919.  
 Experimental surgical shock. V. The treatment of the condition of low blood pressure which follows exposure of the abdominal viscera. *American Journal of Physiology* 1:86-101. 1919.  
 Attempts to obtain a transplantable tumor in the higher species of animals. *Journal of Cancer Research* 4:331-47. 1919.  
 A study of the tonicity of the sphincter at the duodenal end of the common bile duct. *Journal of Laboratory and Clinical Medicine* 5:107-10. 1919.  
 The relation of the common bile duct to the pancreatic duct in common domestic and laboratory animals (with J. P. Foster and S. D. Brimhall). *Ibid.* 5:203-6. 1920.  
 Experimental surgical shock. *American Journal of Surgery and Anesthesia Supplement* 34:11-15. 1920.  
 The extrahepatic biliary tract in common domestic and laboratory animals (with S. D. Brimhall and J. P. Foster). *Anatomical Record* 18:47-66. 1920.  
 A comparative study of the anatomy of the sphincter at the duodenal end of the common bile-duct, with special reference to species of animals without a gall-bladder. *Ibid.* 18:355-60. 1920.

BOYD S. GARDNER, D.D.S., Assistant Professor of Dental Surgery

- Retracting and suturing of soft tissues with regard to extraction of the impacted lower third molar. *Dental Cosmos* 61:1092-93. 1919.

JAMES CARRUTHERS MASSON, M.D., Assistant Professor of Surgery

- Recurring inguinal hernia. *Minnesota Medicine* 2:373-82. 1919.

WALTER E. SISTRUNK, Phm.G., M.D., Assistant Professor of Surgery

- The selection of operation for exophthalmic goiter. *Journal of the American Medical Association* 74:306-8. 1920.  
 The surgical treatment of cysts of the thyroglossal tract. *Annals of Surgery* 71:121-22. 1920.

JOHN DE JARNETTE PEMBERTON, B.A., M.D., M.S., Instructor in Surgery

- Practical considerations of the dangers associated with blood transfusion. *Journal of the Iowa State Medical Society* 10:170-73. 1920.

VERNE CARLTON HUNT, M.D., M.S. in Surgery, Instructor in Surgery

- Benign hypertrophy of the prostate. *Journal-Lancet* 40:267-73. 1920.

HENRY WILLIAM MEYERDING, B.S., M.D., Instructor in Orthopedic Surgery

- Chondromas. *Journal of Orthopedic Surgery* 2:77-91. 1920.  
 The treatment of tuberculosis of the spine. *Minnesota Medicine* 3:245-51. 1920.

JOHN LEWIS CRENSHAW, M.D., Instructor in Urology

- The treatment of urethral caruncle. *Minnesota Medicine* 3:54-57. 1920.

THE SCHOOL OF BUSINESS  
BUSINESS

GEORGE WILLIAM DOWRIE, Ph.D., Dean of School of Business and Professor of Economics

- Thrift and business. *Annals of the American Academy of Political and Social Science* 87:52-56. 1920.  
 Prices and banking policy—discussion. *American Economic Review* 10 (Suppl.): 179-82. 1920.  
 Reviews of  
 D. E. Beebe, Retail credits and collections. *Ibid.* 10:367. 1920.  
 C. E. Meyer, Mercantile credits and collections. *Ibid.* 10:369. 1920.

ECONOMICS

PROFESSOR ROY GILLISPIE BLAKEY, Ph.D., Professor of Economics

- Editor, The new American thrift. Philadelphia: *American Academy of Political and Social Science* 1920. 248 pages.  
 America's new conception of thrift. *Annals of the American Academy of Political and Social Science* 87 no. 176:1-3. 1920.  
 Thrift and readjustment. *Ibid.* 82 no. 171:30-38. 1918.  
 Export trade policy of the United Kingdom, 1913-1918. Published by United States War Trade Board, Bureau of Research, Washington: Government Printing Office. 1918. 60 pages.  
 Does luxurious expenditure give employment to labor? *Journal of Home Economics* 11 no. 2:82-83. 1919.  
 The relation of the national saving campaign to federal and local finance. *Bulletin of the National Tax Association* 4 no. 5:114-16. 1919.  
 The revenue act of 1918 (with Gladys C. Blakey). *American Economic Review* 9 no. 2: 213-43. 1919.  
 Sugar prices and distribution under food control. *Quarterly Journal of Economics* 32:567-96. August, 1918.  
 Wise spending. *Journal of Home Economics* 11 no. 3:128-31. 1919.  
 Executive versus legislative budgets (with G. C. Blakey). *Survey* 42 no. 8:307-8. 1919.  
 Reviews of  
 Edward A. Fitzpatrick, Budget making in a democracy (with G. C. Blakey). *Survey* 41 no. 24:875-76. 1919.  
 F. S. Harris, The sugar beet in America. *American Economic Review* 9 no. 2:328. 1919.  
 United States Tariff Commission, Washington, Costs of production in the sugar industry. *American Economic Review* 9 no. 389-90. 1919.

NORMAN SCOTT BRIEN GRAS, Ph.D., Professor of Economic History

- The present condition of economic history. *The Quarterly Journal of Economics* 34:209-24. 1920.  
 Review of  
 A. P. Usher, An introduction to the industrial history of England. *Ibid.* 34:532-37. 1920.

FREDERICK B. GARVER, Ph.D., Associate Professor of Economics

- Review of  
 W. F. Willoughby, The problem of a national budget, and the movement for budgetary reform in the states. *American Economic Review* 9:598-602. 1919.  
 Review and Abstract of  
 Report of the Michigan Budget Commission of Inquiry, 1918. *Ibid.* 9:638-39. 1919.

## THE PRESIDENT'S REPORT

ALVIN H. HANSEN, M.A., Ph.D., Associate Professor of Economics

Thrift and labor. *Annals of the American Academy of Political and Social Science* 87:44-49. 1920.

The sequence in war prosperity and inflation. *Ibid.* 89:234-40. 1920.

BRUCE D. MUDGETT, Ph.D., Associate Professor of Economics

The course of profits during the war. *Annals of the American Academy of Political and Social Science* 89:148-56. 1920.

JOSEPH EARL CUMMINGS, M.A., Instructor in Economics

United States government bonds as investments. *Annals of the American Academy of Political and Social Science* 87:158-67. 1920.

## THE GENERAL EXTENSION DIVISION

RICHARD REES PRICE, M.A., Professor, Director of University Extension

Should teachers unionize under the American Federation of Labor? *School and Society* 11:391-400. 1920.

# INDEX

	Page		Page
Accessions to library.....	245-46, 247	Agriculture, Department of (con- tinued)	
Accredited schools and colleges .....	70, 252-53	report of dean (continued)	
Adams Act .....	141	Appointment Committee....	118
Administrative Board abolished...63,	102	appointments .....	113-14
Administrative Building proposed	90	College of Agriculture, For- estry, and Home Eco- nomics .....	118-20
Administrative changes .....	9-15	administration .....	118
deanship of education .....	13-14	curriculum .....	119
deanship of engineering and chemistry .....	14-15	scholarships .....	119-20
deanship of law .....	15	coöperation with School of Business .....	119
presidency .....	9-13	distribution of expendi- tures at University Farm	142-43
Administrative Committee of Senate .....	22, 23, 24, 29, 30, 35, 71, 75, 78-79, 97	experiment stations.....	140-41
Administrative measures .....	27-32	Central .....	140-41
All-University Conference Com- mittees .....	29-30	substations .....	141
College of Science, Literature, and the Arts .....	102	leaves of absence.....	113
extension of Health Service... 31-32		organization .....	112-14
free transportation on inter- campus trolley .....	32	promotions .....	114
per diem plan at Elliot Hospital.	32	publications .....	114-15, 141
Survey Commission .....	27-29	resignations .....	112-13
Advanced standing .....	25	scholarships .....	119-20
Advisers .....	24	schools of agriculture.... 120-23	
Advisory Committee .....	26	Central .....	120-21
Agriculture, Département of..... 64-65		Northwestern .....	121-22
publications of the faculty.... 270-76		West Central .....	122-23
report of dean and director... 112-42		subject-matter groups... 112	
administrative assignments.. 112		Agriculture, Forestry, and Home Economics, college of	
agricultural extension work. 124-40		fees .....	75
bulletins .....	124-26	<i>See also</i> Agriculture, Depart- ment of, report of dean and director	
coöperative creameries ... 136		Agriculture, schools of..... 28	
county agent work..... 126-29		Central .....	120-21
demonstration farms .....	129-30	age limit for entrance.... 120	
demonstration work .....	131	registration .....	116
extension work with women	132	Northwestern .....	121-22
Farm Bureau work..... 126-29		dining hall .....	90-91
Farm Club report .....	138	enrolment .....	121
<i>Farmers' Institute Annual</i>	126	Health Service..... 31-32	
<i>Farmers' Library series..</i>	125	registration .....	117
home demonstration agents 132-33		sanitary regulations..... 31	
horticulture .....	137	studied by Survey Commission	64
land clearing demonstra- tions .....	139-40	West Central..... 122-23	
livestock and dairy..... 134-35		Health Service..... 31	
plant pests .....	138-39	registration .....	117
poultry .....	137	Alumni Association. <i>See</i> General Alumni Association	
publications .....	124-26	Alumni of School of Agriculture	120-21
soils .....	139	<i>Alumni Weekly</i> .....	8, 12, 75
sources of revenue..... 124		American Council on Education.	76, 71

	Page		Page
American Medical Association ..	151	<b>Building and grounds (continued)</b>	
American University Union in Europe .....	70-71	funds available prior to July 1, 1920 .....	50
Americanization work .....	59	landscape engineer .....	94-95
Appointments .....	15-19	location of auditorium .....	94
College of Engineering and Architecture .....	105-6	Northern Pacific tracks .....	94
College of Science, Literature, and the Arts .....	100	Bureau of Business Research .....	188
Department of Agriculture .....	113-14	Bureau of Coöperative Research .....	66, 176
Medical School .....	152	Business, School of .....	5, 66-67, 96
School of Business .....	186	fees .....	75
School of Chemistry .....	168	publications of the faculty .....	289-90
Appointments, Committee on .....	66, 118, 175-76	report of dean .....	186-88
Armory, inadequate size .....	34	appointments .....	186
Art Education .....	174	Bureau of Business Research .....	188
Assays made by Mines' Experiment Station .....	160	curriculum .....	188
Association of American Colleges .....	70	enrolment .....	186-87
Association of American Medical Colleges .....	151	geographical distribution of students .....	187
Association of American Universities .....	70	leaves of absence .....	186
Athletics. <i>See</i> Physical Education for Men, and Physical Education and Intramural Sports, Committee on		new building .....	188
Auditorium, location .....	94	promotions .....	186
Auditors .....	222	resignations .....	186
Bachelor of Medicine degree reinstated .....	65, 152	scholarship .....	187
Benefactions to the University .....	87	staff .....	186
"Better Minnesota Movement" .....	96	student body .....	186-88
Birds, study by Zoological Survey .....	69, 236-40	work offered to students of other colleges .....	187
Biwabik iron-bearing formation .....	235	Business Research, Bureau of .....	188
Board of Control, state .....	95	Cap and Gown Day Convocation .....	33
Board of Regents .....	27, 30, 71, 72, 76, 94-95	Carse, Elizabeth, scholarship .....	173
Salaries Committee .....	74	Census slips .....	191
Boarding-houses, regulations .....	190, 191, 257	Central School of Agriculture. <i>See</i> Agriculture, Schools of, Central	
Boy Scout short course .....	117	Chaperones .....	189-90
Boys' and Girls' Club Work .....	123, 130, 131-32, 133, 134	Charter Day Convocation .....	33
British Educational Mission .....	71	Chemical Engineering Course proposed .....	170, 171
Budget .....		Chemistry, School of .....	5, 28, 66
Department of Agriculture .....	143	correlation with College of Engineering and Architecture .....	64, 66, 105, 107-8, 111, 167
Health Service .....	256-57	deanship .....	14-15
plans for 1920-21 .....	77-84	fees .....	75
<i>See also</i> finances		publications of the faculty .....	282
Buildings and grounds .....	89-95	report of dean .....	167-72
committee .....	89	appointments .....	168
consulting architect .....	95	completion of building .....	167-8
decisions regarding building plan .....	91-94	correlation with College of Engineering and Architecture .....	167
		curriculum .....	170-71
		equipment .....	171-72
		faculty .....	168-69
		resignation of dean .....	172
		student body .....	169-70

	Page		Page
Cincinnati University, coöperation with industry .....	110	Coöperative cottages .....	67, 190
<i>Circular Series</i> , Farmers' Library	125	Coöperative creameries .....	136
Collegiate enrolment by quarters, statistics .....	39	Coöperative Research, Bureau of	66, 176
Collegiate students .....	35-38	Coöperative Shippers' Ass'n.....	134-35
statistics .....	36-38	Coöperative wool-marketing .....	135
Commencement address .....	211	Correspondence course .....	30, 67
Commencement exercises .....	34	General Extension Division...	205
Committee on Appointments.....		preparatory work .....	252
.....66, 118, 175-76		Council of National Defense, Women's Committee .....	132
Committee on University Functions	33-35	County Agents .....	64, 126-29
Community organizer and adviser	67, 199	Crookston School of Agriculture. <i>See</i> Agriculture, Schools of, Northwest	
Committees, All-University Con- ference .....	29-30	Crowded conditions.....	5-6, 89, 193
Curriculum .....	29	College of Engineering and Architecture .....	105, 106-7
Military .....	30	College of Science, Literature, and the Arts.....	63, 98
Schedule .....	29	Graduate School .....	178-79
Students' Work .....	29	library .....	69, 243
Community service .....	216-17	School of Chemistry.....	66, 167
Comptroller, report of.....	259-61	West Central School of Agri- culture .....	122
Concert course .....	32-33	Curriculum	
Consolidated school principals' short course .....	117	College of Engineering and Architecture .....	108-9
Consulting architect .....	95	College of Science, Literature, and the Arts .....	102-3
Continuation courses .....	222	School of Business .....	188
Convocations .....	33-35, 222	School of Chemistry .....	170-71
Coöperation of Agricultural Ex- tension Division with United States Department of Agricul- ture .....	135	Curriculum committee.....	29
Coöperation of Colleges of Edu- cation and Agriculture with Dunwoody Institute.....	26-27, 66, 174	<i>Daily Bulletin, Official</i> .....	81, 97
Coöperation of Civil Engineering Department with State High- way Commission .....	110-11	Dairy Council .....	134, 135
Coöperation of Medical School and staff of the University Hospital .....	69-70	Dairy short course .....	116, 123
Coöperation of Municipal Refer- ence Bureau with Bureau of Research in Government.....	220	Danish Government, gift from..	247
Coöperation of School of Busi- ness with Department of Agri- culture .....	119	Deans. <i>See</i> respective colleges, Women, dean of, and Student Affairs, dean of	
Coöperation of School of Mines with Minnesota State Tax Commission .....	161	Deaths .....	22
Coöperation of United States Bu- reau of Mines with State Mining Experiment Station...	161	College of Science, Literature, and the Arts .....	99
Coöperation of United States Geological Survey with Minne- sota Geological Survey.....	234	Medical School .....	152
Coöperative associations .....	64	Degrees conferred .....	43
Coöperative bookstore .....	108	Graduate School	
		Doctors .....	183
		Masters .....	180
		Demonstration farms .....	64, 129
		Demonstration teams .....	64
		Demonstration train, land-clearing	123
		Dental Faculties Association of American Universities .....	158
		Dentistry, College of .....	65
		fees .....	75
		publications of the faculty....	281
		report of dean.....	158

	Page		Page
Dentistry short courses.....	206-8	Engineering and Architecture, College of (continued)	
Discipline .....	29, 196	report of dean (continued)	
Dispensary, free .....	165-66	mathematics, entrance re-	
Dorr, Caleb, college scholarships	119-20	quirements .....	108-9
Drama service .....	67, 200-1, 217, 218	registration .....	107
Dramatic clubs .....	67, 196	resignation of dean.....	111
Dunwoody Institute.....	86	student body .....	106-8
agreement with..26-27, 66, 88, 174-75		Engineering and Chemistry	
Editors' short course.....	123	deanship .....	14, 15, 105, 167
Education, American Council on	70, 71	Engineering Students, Associa-	
Education, College of .....	66	tion of .....	107
deanship .....	13	Enrolment, increase .....	74
fees .....	75	Enrolment. <i>See also</i> Registration	
publications of the faculty....	282-84	Entrance requirements..22-23, 108-9, 252	
report of dean.....	173-76	Equipment	
Committee on Appointments	175-76	College of Engineering and	
degrees and certificates.....	174	Architecture .....	110-11
graduate registration.....	174	Evening classes .....	30, 218
needs .....	176	Exchange professorship with the	
registration .....	173	University of London.....	71-72
resignations .....	174	Executive Committee....24, 25, 63, 102	
scholarships .....	173	<i>Experiment Station Annual Re-</i>	
social life of students.....	173	port .....	141
special courses and curricula	174	<i>Experiment Station Bulletins...</i> 114, 141	
University High School..	176	Experiment Stations	
Educational developments.....	22-27	Agricultural .....	114, 140-41
agreement with Dunwoody		Mining .....	159-60
Institute .....	26-27	Experimental Engineering, changes	108
entrance requirements .....	22-23	Extension, Agricultural .....	112, 124-40
four-quarter system .....	23-24	publications .....	115
reorganization of College of		<i>See also</i> Agriculture, Depart-	
Science, Literature, and		ment of, report of dean and	
the Arts .....	24-26	director Agricultural Exten-	
Educational Mission, British....	71	sion work	
<i>Educational Record</i> .....	70	Extension courses in dentistry..	158
Elective system, group.....	64	Extension Division, General ....	67
Elliot Memorial Hospital. <i>See</i>		courses accepted for entrance	
University Hospital		credit .....	70
Embalming, School of.....	200	publications of the faculty....	290
Emergency appropriations.....	81-83	relation to other units.....	30-31
Emergency fund, proposed.....	88-89	report of director.....	199-220
Engineering and Architecture,		Bureau for Research in	
College of .....	5, 28, 63-64	Government .....	201
correlation with School of		commencement addresses....	211
Chemistry .....		community services .....	216-17
.....64, 66, 105, 107-8 111, 167		correspondence courses .....	205
deanship .....	14-15, 111	Drama Service .....	200-1
fees .....	75	League of Minnesota Mu-	
publications of the faculty....	270	nicipalities .....	201
report of dean.....	105-11	Lecture and Lyceum depart-	
changes in departments and		ment .....	200, 210-11
curriculum .....	108-9	Municipal Reference Bureau	
equipment .....	110-11	.....201, 217-20	
faculty .....	105-6	registration .....	202-5
General Engineering course		short courses .....	200, 205-10
discontinued .....	109	swimming classes .....	228
		teachers, appointment and rank	30-31

	Page		Page
Faculty		Forestry short course.....	117, 123
appointments .....	15-19	Four-quarter system .....	23-24, 102
changes .....	15-22	summer session .....	23
College of Engineering and		Fraternities .....	67, 196, 250
Architecture .....	105-6	academic .....	69
College of Science, Literature,		scholarship .....	250
and the Arts .....	99-100	Fruit breeding farm.....	90
deaths .....	22	General Alumni Association....	69
Department of Physical Edu-		opposition to charging of fees	76-77
cation for Women .....	227-28	report of secretary.....	251
Law School .....	146	resignation of secretary.....	69
leaves of absence .....	20-21	General Extension Division. <i>See</i>	
promotions .....	19-20	Extension Division, General	
publications of .....	262-90	General science accepted for en-	
resignations .....	21-22	trance .....	22, 252
retirement .....	22	Geographical distribution of stu-	
School of Chemistry.....	168-69	dents .....	44-56, 60-63
School of Mines .....	162-63	College of Pharmacy.....	164-65
Faculty and students, relationship	35	Graduate School .....	182-83
Faculty members registered in		School of Business .....	187
Graduate School .....	180	School of Mines.....	162
Faculty Women's Club concert		Geological Survey .....	69
course .....	32-33	report of director.....	234-35
Farm Bureau .....	64, 126-29	Gifts to the University.....	87
Farm Club report .....	138	<i>Gopher</i> .....	67, 194, 195
Farm management demonstrations	129-30	Graduate registration in College	
<i>Farm Press News</i> .....	115, 126	of Education .....	174
Farmers' and Home-Makers'		Graduate School .....	66
short course .....	123	fees .....	75
<i>Farmers' Institute Annual</i> .....	124, 126	publications of the faculty....	284-88
<i>Farmers' Library Bulletins</i> 115, 124, 125		relation to Senior College....	24
Federal Board for Vocational		report of dean.....	177-85
Education .....	67, 120, 197-98	crowded conditions .....	178-79
Fees .....	75-77	degrees conferred	
General Extension Division...	203	Doctors .....	183
Health Service .....	31	Masters .....	180
increase .....	87-88	educational institutions rep-	
proposed abolishment .....	76-77	resented .....	182-83
Fellowships		fellowships .....	183-84
Graduate School.....	183-84	Mayo Foundation .....	177-78
Health Service .....	255-56	obligations of a university..	178-79
Field Secretary of the University	251	publications .....	184
Finances .....	67, 72-75	registration .....	179-80
<i>See also</i> Budget		research, appropriations for.	184-85
Finances of student activities... 194-95		Grain elevator management short	
Financial aid to students.....	192	course .....	117
Financial report .....	259-61	Growth of University.....	5, 6
Financial suggestions .....	84-89	Gunflint iron range.....	235
emergency funds .....	88-89	Gymnasium work. <i>See</i> Physical	
increase of resources.....	86-88	Education for Men, and Physi-	
reduction of work .....	84-86	cal Education for Women	
Fiscal year, change.....	5	Handicraft Guild .....	174
<i>Foolscap</i> .....	67, 194, 195	Harvard library .....	247-48
Folwell, William Watts, title of		Hatch Act .....	141
"President Emeritus" .....	7	Health Service. <i>See</i> University	
Forest Fires Relief Commission.	135	Health Service	
Forestry, Division of, registration	115		

	Page		Page
Health Service requested for faculty members .....	32	Law School (continued)	
High school curricula .....	22	fees .....	75
Home-Coming Day .....	194	publications of the faculty....	276
Home demonstration agents ....	132-33	report of dean .....	144-50
Home Economics, Division of registration .....	115	attendance .....	144
<i>See also</i> Department of Agriculture, report of dean and director, College of Agriculture, Forestry, and Home Economics		faculty .....	146
Home management houses.....	190	Legal Aid Bureau.....	146-47
Home project work.....	121	library .....	147-48
Horticultural Society, State....	137	<i>Minnesota Law Review</i> ....	148
Horticulture, extension work....	137	new building needed.....	148
Hospital. <i>See</i> University Hospital		provisions for ex-service men	145
Hospital Social Service Department .....	156-57	scholarship .....	148-50
House Council .....	191	summer session .....	145-46
Housing Bureau .....	13, 67	League of Minnesota Municipalities .....	201, 219
Housings of women students....	190	Leaves of absence.....	20-21
Ice-cream makers' short course..	116	College of Engineering and Architecture .....	106
Industrial Education .....	26-27	College of Science, Literature, and the Arts .....	100
Industrial research .....	110	Department of Agriculture...	113
Influenza pandemic .....		School of Business.....	186
.....69, 70, 121, 123, 197, 254-55		Lecture and Lyceum department .....	200, 210-11, 218
Intercampus trolley .....	32	Legal Aid Bureau.....	65, 146-47
Intercollege athletics .....	230	Legislative appropriations.....	72-73, 80, 87, 89
Interfraternity athletics .....	230	Library	
Interfraternity council, report of president .....	250	College of Pharmacy.....	166
International Christian Bible College Building, rooms rented...	89	Law School .....	147-48
International Institute .....	71	University .....	69
Internships .....	151-52	report of librarian .....	243-49
Intramural sports .....	225	accessions .....	245-46, 247
<i>See also</i> Physical Education and Intramural Sports, Committee on		catalog .....	247
<i>Journal Series</i> of agricultural experiment stations .....	114, 141	circulation of books....	244-45
Journalism short course.....	117	duplicate copies of books of reference .....	246
Junior Ball Association .....	195	need for new building...	243-44
Junior colleges .....	85, 253	program of library development .....	247-49
Junior College .....	24, 63, 102, 103	sale of publications.....	246
assistant dean .....	25, 63, 102	staff .....	244
Junior Short Course.....	123	Livestock breeders' associations..	64, 134
Land-clearing demonstration train .....	123, 139-40	Livestock judging .....	134
Landscape engineer .....	95	London University, exchange professorship .....	71-72
Law School .....	65	Massachusetts Institute of Technology coöperation with industry .....	110
deanship .....	15	Mathematics entrance requirements .....	108-9
entrance requirements for service men .....	22, 23	Mayo clinic, affiliation with....	88
		Mayo Foundation .....	177-78
		Medical School .....	65, 69
		fees .....	75

	Page		Page
Medical School (continued)		Municipal Reference Bureau....	
Hospital Social Service De-		.....67, 201,	217-20
partment		Museum, Zoological .....	69
report of director.....	156-57	National Association of Exten-	
publications of the faculty....	276-81	sion Divisions .....	212
report of dean .....	151-57	National Association of State	
appointments .....	152	Universities .....	70
deaths .....	152	National Dental Association....	65, 153
promotions .....	152-53	National Education Association..	212
resignations .....	152	New York, College of the City of	
School of Nursing		coöperation with industry....	110
report of superintendent....	155-56	Non-resident students, fees....	75, 76
University Hospital		Northern Pacific tracks.....	94
report of superintendent....	153-55	Northrop, Cyrus, <i>Reminiscences</i> .	69
Mesabi Iron Range.....	159	Northwestern School of Agricul-	
survey .....	69, 234-35	ture. <i>See</i> Agriculture, Schools	
Michigan, University of		of	
coöperation with industry....	110	Nurse, health service.....	31, 70
Military Committee .....	30	Nursing, School of.....	65
Military Department .....	68-69	report of superintendent.....	155-56
report of commandant.....	232-33	Nursing short course.....	123
Mines' Experiment Station ....	159-60	<i>Official Daily Bulletin</i> .....	81, 97
Mines, School of.....	65	Ore-washing machine .....	159
fees .....	75	Per diem plan at Elliot Hospital	32
publications of the faculty....	281	Petitions .....	25
report of dean .....	159-63	Pharmacy, College of.....	65-66
faculty .....	162	fees .....	75
Minnesota State Tax Com-		publications of the faculty....	281-82
mission .....	161	report of dean.....	164-66
registration .....	161	departmental library .....	166
State Mining Experiment		free dispensary.....	165-66
Station .....	159-60	instruction .....	165
new building .....	160	outside activities.....	166
ore-washing machine ....	159	pharmaceutical service.....	166
publications .....	160	prizes .....	165
recently acquired equip-		registration .....	164
ment .....	159	Photography	
United States Bureau of		Zoological Survey .....	238
Mines .....	160-61	Physical Education and Intra-	
Mines, United States Bureau		mural Sports, Committee on	68
of .....	65, 160-61	report of chairman.....	229-31
<i>Minnehaha</i> .....	194	intramural sports for men ...	229-31
<i>Minnesota Alumni Weekly</i> ....	251	intramural sports for women.	229
<i>Minnesota Daily</i> .....	67, 194	Physical Education for Men,	
<i>Minnesota Horticulturist</i> ....	137	Department of .....	68
Minnesota Institute of Technol-		report of director.....	224-26
ogy, proposed .....	14	corrective gymnastics.....	225
<i>Minnesota Law Review</i> .....	65, 148	gymnasium classes .....	225
<i>Minnesota Magazine</i> .....	194	intramural sports .....	225
<i>Minnesota Municipalities</i> ....	219	personal hygiene lectures...	225
Minnesota Tax Commission .....	161	physical examinations .....	224
Morris School of Agriculture.		recommendations for the fu-	
<i>See</i> Agriculture, Schools of,		ture .....	226
West Central		sex hygiene lecture.....	224
Mortar Board .....	192		
Motion pictures .....	214-15		
Moving pictures of birds.....	69, 238		

	Page		Page
Physical Education for Women,		Registration (continued)	
Department of .....	174	Graduate School .....	66, 179, 180
report of director.....	227-28	Law School .....	144
staff .....	227-28	Military Department .....	233
summer session .....	228	Schools of Agriculture.....	64, 116
University High School....	228	School of Chemistry .....	167
Physical examinations .....	31	School of Mines.....	162
men .....	224	short courses .....	116-17
women .....	227	Summer Session .....	68, 221
Pi Lambda Theta scholarship...	173	women .....	67, 189
Poultry Association News.....	138	Registration figures, comparative	
Presidency .....	9-13, 97	1918-1920 .....	42
President Emeritus .....	7	Registration statistics .....	5, 35-63
Prizes, College of Pharmacy....	165	Table I. Collegiate students by	
Promotions .....	19-20	schools and colleges.....	36-38
College of Engineering and		Table II. Collegiate enrolment	
Architecture .....	106	by quarters .....	39
College of Science, Literature,		Table III. Subcollegiate stu-	
and the Arts.....	100	dents .....	40
Department of Agriculture...	114	Table IV. Extension students.	41
Medical School .....	152-53	Table V. Summary.....	41
School of Business.....	186	Table VI. Comparative reg-	
Psychological tests .....	14	istration figures, 1918-1920..	42
Public Health Course .....	156	Table VII. Degrees conferred	43
Publications .....	262-90	Table VIII. Schools from	
Agricultural Extension Divi-		which entrants were ac-	
sion .....	124-26	cepted .....	44-45
Department of Agriculture...	114-15, 141	Table IX. Students admitted	
Faculty .....	262-90	with advanced standing....	57-60
Geological Survey .....	234	Table X. Geographical distribu-	
Graduate School .....	184	tion of University students	
Law School .....	148	of collegiate grade .....	60-63
Mines' Experiment Station...	160	Relation of the University to	
Student .....	67, 194, 195	Other Institutions of Learning,	
Zoological Survey .....	238	Committee .....	22, 25, 252-53
Railroad and Warehouse Com-		Relationship of faculty and stu-	
mission .....	135	dents .....	35
Regents, Board of. <i>See</i> Board		Relationships with other univer-	
of Regents		sities .....	70-72
Registrar .....	70	<i>Reminiscences of President</i>	
assistant .....	70	Northrop .....	69
report of .....	252-53	Reorganization of College of	
accredited schools and col-		Science, Literature, and the	
leges .....	252-53	Arts .....	24-26
changes in staff.....	252	Research, agricultural .....	140-41
entrance requirements .....	252	Research, appropriations for....	184-85
Registration .....	74	Research in Government, Bureau	
College of Agriculture .....	64	for .....	201
College of Education .....	66, 173	Reserve Fund .....	78, 80
College of Engineering and		Reserve Officers' Training Corps	
Architecture .....	105, 107	.....	39, 68, 232-33
College of Pharmacy .....	65, 164	Resignations .....	21-22
College of Science, Literature,		College of Education .....	174
and the Arts .....	63, 100-1, 102	College of Engineering and	
Department of Agriculture...	115-18	Architecture .....	106
General Extension Division..		College of Science, Literature,	
.....	67, 68, 202-5	and the Arts.....	99

	Page		Page
<b>Resignations (continued)</b>		<b>Senate, University</b>	
Department of Agriculture...	112-13	Administrative Committee....	
Law School .....	146	.....22, 23, 24, 29, 30, 35,	
Medical School .....	152	71, 75, 78-79, 97	
School of Business .....	186	Committee on the Relation of	
School of Chemistry .....	168	the University to Other In-	
Secretary of General Alumni		stitutions of learning...22, 25,	252-53
Association .....	69, 251	Committee on University Ex-	
Rooming house regulations...190-91,	257	tension .....	30
Salaries Committee of Board of		Senior College .....	24, 63, 102, 103-4
Regents .....	74	assistant dean .....	24, 63, 102
Salaries.....6, 73, 74, 78-79,	80-84	Service men	
extension teachers .....	202	admitted without conditions..	70
library, inadequate .....	244	disabled .....	67, 197
minimum schedule .....	82-83, 84	entrance requirements.....22-23,	252
teachers placed by Committee		Law School .....	65, 145
on Appointments .....	175	military credit allowed.....	197
Sanford, Hall .....	190	tuition fees .....	5
Sanford, Maria L.		See also Federal Board of	
death .....	7-9	Vocational Education	
proposed memorial .....	190	Sharples Separator Company,	
Sanitary regulations .....	31	scholarship .....	119
Schedule Committee .....	29	Shevlin Hall dining room, addi-	
Scholarship of fraternity men...	250	tion .....	90, 91
Scholarships		Short Course Bulletins.....	115
awarded to women .....	67	Short courses.....30, 64, 67,	116-17,
Caleb Dorr .....	119-20	123, 131, 136, 137	
College of Agriculture, Forestry,		citizenship .....	208-9
and Home Economics.....	119-20	dentistry .....	200, 206-8
College of Education.....	173	General Extension Division... 205-10	
Elizabeth Carse .....	173	grain elevator management... 117	
for women .....	192	ice-cream makers' .....	116
Pi Lambda Theta .....	173	income tax problems..... 209-10	
Schools from which entrants were		journalism .....	117
accepted .....	44-56	junior .....	123
Science, Literature, and the Arts,		merchants' .....	205-6
College of .....	63	nursing .....	123
fees .....	75	social-service .....	209-10
publications of faculty..... 262-70		threshermen's .....	117
reorganization .....	24-26	trade and industrial subjects.. 210	
report of dean.....98-104		Sigma Delta Psi .....	68, 224, 225
administrative organization. 102		Smith-Hughes Act.....26, 174	
curriculum .....	102-4	Social Hygiene Board.....65, 153	
enrolment .....	100-1	Social-service short course..... 209-10	
faculty .....	99-100	Soils, Agricultural Extension	
deaths .....	99	work .....	139
leaves of absence.....	100	Sophomore Vaudeville .....	195
new appointments .....	100	Sorority houses .....	191
promotions .....	100	Sororities .....	67
resignations .....	99	Special Series Farmers' Library..115, 125	
salaries of .....	98	State Board of Control.....	95
student body .....	100-1	State Highway Commission, co-	
Self-government council in Col-		operation with College of	
lege of Education .....	173	Engineering and Architec-	
Semester plan abandoned.....	23	ture .....	64, 110-11

	Page		Page
State Horticultural Society ....	137	University Functions, report of Committee on .....	33-35
State Tax Commission, coöpera- tion with School of Mines.....	65	University Health Service.....	
Statistics of Registration.....	35-63	.....31-32, 69-70, 96	
Student Affairs, dean of.....	67	publications .....	262
report .....	193-98	report of director.....	254-58
absences .....	197	budget .....	257
discipline .....	196	buildings .....	256-57
dramatic clubs .....	196	fellowships .....	255-56
fraternities .....	196	immediate future develop- ments .....	257-58
finances .....	194-95	influenza pandemic .....	254-55
service men .....	197	unlimited service .....	255
social activities .....	195-96	University High School.....	176
student councils .....	193-94	building addition .....	90, 91
student publications .....	194	physical examinations .....	227
Student Council ....35, 67, 193-94, 195		physical training .....	228
Student publications .....	67, 194-95	University Hospital .....	153-55
Students and faculty, relationship	35	coöperation with Medical School .....	70
Students' Army Training Corps		per diem plan .....	32
.....73, 96, 101, 117		University life .....	32-35
Students' Health Service. <i>See</i>		concert course .....	32-33
University Health Service		convocations .....	33-35
Students, non-resident, fees....	75-76	relationship of faculty and students .....	35
Students' Work, assistant dean..	25	Upper Classmen's Association...	193
Students' Work Committee ....		Visiting nurse .....	190, 258
.....24, 25, 29, 63, 102		Visual Instruction, Bureau of .....67, 199-200, 211-16, 218	
Sub-collegiate students, statistics.	39-40	Vocational Education .....	174
Summer Session.....	68, 191	Federal Board .....	67, 120
Law School .....	65, 145-46	Vocational Rehabilitation Act... 145	
Physical Education for Women	228	Vocational section, S.A.T.C..... 117	
report of director .....	221-23	Vocational Training Board .... 145	
auditors .....	222	War, effects on registration.... 5	
continuation courses .....	222	Waseca sub-station .....	91
convocations .....	222	<i>Weekly News Letter</i> .....	126
enrolment .....	221	West Central School of Agricul- ture. <i>See</i> Agriculture, schools of	
extra work .....	222	Widener Library .....	247-48
recommendations .....	223	Women, dean of .....	13, 67
registration .....	222	report .....	189-92
scholarship .....	222	absentees .....	189
staff .....	221	census slips .....	191
Sunlight dances .....	192	chaperones .....	189-90
Survey Commission.....27-29, 64, 120		coöperative cottages .....	190
Surveys		delinquents .....	189
Geological .....	69, 234-35	distribution of students as to residence .....	189
Zoological .....	69, 236-42	financial aid to students.... 192	
Swimming instruction .....	227, 228	House Council .....	191
Swimming meets .....	230	housing .....	190
Teacher shortage .....	29	registration .....	189
Teacher training .....	26-27	<b>social events</b> .....	192
Teachers' training school..... 117			
Technology, Institute of, proposed	14		
Threshermen's short course.... 117			
Traction engineering short course discontinued .....	117, 123		
Trade and Industrial Education	26-27		
Tuition fees, sentiment against increase .....	69		

INDEX

301

	Page		Page
Women, dean of (continued)		Zoological Survey and Museum	
report (continued)		(continued)	
sorority houses .....	191	report of director (continued)	
summer school .....	191	contributions to museum sub-	
Woman's Self-Government		scription fund .....	242
Association .....	191	coöperation .....	238-39
Women's University Club..	191-92	correspondence .....	240-41
Woman's Self-Government		donations of material .....	237-38
Association .....	67, 191, 193, 195	exhibits .....	236-37
Women's University Club...	67, 191-92	field work .....	241
Wool-marketing, coöperative ....	135	finances .....	241-42
		lectures .....	239-40
Zoological Survey and Museum.	69	museum .....	236-37
report of director.....	236-42	photography .....	238
attendance .....	240	publications .....	238