

# *The Bulletin* *of the University of* **Minnesota**

*The President's Report for the Year*  
**1916-1917**



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THE PRESIDENT'S REPORT  
FOR THE YEAR 1916-17

## THE PRESIDENT'S REPORT

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

GENTLEMEN: I herewith submit my report as President of the University for the period from August 1, 1916, to June 30, 1917.

*A change in the presidency.*—The University and the state of Minnesota are to be congratulated on the appointment of Marion LeRoy Burton as President. Reared in Minnesota, a graduate of Carleton College and of Yale University, a student of educational administration, signally successful as the head of Smith College, a man of character, imagination, and ideals, Dr. Burton is singularly qualified to maintain the tradition established by Dr. Folwell and Dr. Northrop, and to guide the adaptation of this to the rapidly changing demands of a new social order.

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

Marion LeRoy Burton, President of the University.

A.B., 1900, Carleton College, Northfield, Minnesota; Principal Windom Institute, Montevideo, Minnesota, 1900-1903; Ph.D., 1907, Yale University; Instructor at Yale University; 1909, President of Smith College; 1909-10, educational investigation in Europe; Honorary Degrees: LL.D., 1911, Western Reserve University; LL.D., 1911, Tufts College; LL.D., 1913, Hobart College; LL.D., 1913, Amherst College.

John R. Allen, Dean of the College of Engineering and Architecture, Professor of Mechanical Engineering, and Head of the Department of Experimental Engineering.

B.S. in M.E., 1892, University of Michigan; M.E., 1896, University of Michigan; Professor of Mechanical Engineering, University of Michigan, 1906-17; leave of absence, 1911-13, to be Dean of Engineering at Robert College, Constantinople, Turkey.

W. E. Hotchkiss, Director of Business Education and Professor of Economics, College of Science, Literature, and the Arts.

Ph.B., 1897, Cornell University; New York Law School, 1900-1901; A.M., 1903, Ph.D., 1905, Cornell University; studied in France and Germany 1903-4 as Fellow from Cornell; Instructor Political Science, University of Pennsylvania, 1904-5; Assistant Professor of Economics, Northwestern University, 1905-7; Associate Professor 1907-9; Professor 1909-17; Dean, School of Commerce, 1908-17; Visiting Professor of Political Science, Stanford University, 1915-16; University of California, summer 1916.

Robert M. Yerkes, Professor of Psychology, Director of the Psychological Laboratory and Chairman of the Department of Psychology.

A.B., Ursinus College and Harvard University; A.M., 1899, Ph.D., 1902, Harvard University.

Clifford P. Fitch, Professor of Comparative Pathology and Bacteriology and Chairman of Division of Veterinary Medicine, Department of Agriculture.

B.S., 1906, Hamilton College; D.V.M., 1911, Cornell University Veterinary College; M.S., 1909, Hamilton College.

Major G. W. Moses, Professor of Military Science and Tactics and Head of the Military Department.

United States Military Academy, 1896; Army School of the Line, 1911, Distinguished Graduate; Army Staff College, 1912.

Everett Fraser, Professor of Law.

A.B., 1907, Dalhousie College; LL.B., 1910, Harvard Law School.

Wilbur H. Cherry, Professor of Law.

B.A., 1907, McGill University; LL.B., 1910, Columbia University; University of Chicago, summers of 1908 and 1909.

Dr. Burnside Foster, Professorial Lecturer in Medicine.

A.B., 1882, Yale University; M.D., 1886, Harvard; Vienna and Dublin, 1886-87.

M. L. Guzman, Professorial Lecturer in Romance Languages.

Balbino Davalos, Professorial Lecturer in Romance Languages.

First Prize, Superior Elementary Instruction; Seminario Conciliar, 1881; Liceo de Varones, 1884, First Prize; Escuela Nacional Preparatoria, Mexico, 1889, B. en Ciencias Y Artes; School of Medicine, Mexico City, 1890-91; Graduate School of Law, Mexico City, 1895.

L. L. Bernard, Associate Professor of Sociology.

B.S., 1903, Baptist College, Pierce City, Missouri; A.B., 1907, University of Missouri; University of Missouri, 1906-7; Ph.D., 1910, University of Chicago; Instructor in Sociology, Western Reserve University, 1910-11; Professor of History and Social Sciences, University of Florida, 1911-15; Acting Professor of Sociology, University of Missouri, Summer Sessions 1913, 1914, and year 1914-15; Assistant Professor of Sociology, University of Missouri, 1915-17.

Captain T. B. Taylor, Associate Professor of Military Science.

Graduate, Army School of the Line; Army Staff College, 1909.

Captain J. B. Woolnough, Associate Professor of Military Science.

West Point, 1914.

Dr. John Hinchman Stokes, Assistant Professor of Dermatology and Syphilology in the Graduate School on the Mayo Foundation.

A.B., 1908, M.D., 1912, University of Michigan; General Practice, 1912-13; Instructor in Anatomy, University of Michigan, March, 1912, to July, 1913.

Dr. F. G. Blake, Assistant Professor of Medicine.

A.B., 1908, Dartmouth College; M.D., 1913, Harvard Medical School; Peter Bent Brigham Hospital, Boston, 1913-16; Hospital of the Rockefeller Institute, New York, 1916-17.

Charles H. Rogers, Assistant Professor in Pharmacy.

Ph.B., 1909, St. Louis College of Pharmacy; Ph.C., 1911, University of Michigan; B.S. in Pharmacy, 1913, University of Michigan; M.S. in Pharmacy, 1915, University of Minnesota.

Henry T. Moore, Assistant Professor of Psychology.

A.B., 1903, University of Missouri; A.M., 1907, Yale University; Ph.D., 1914, Harvard University; Instructor, Millsaps College, Jackson, Mississippi, 1907-9; Haverford School, Pennsylvania, 1910-12; Assistant at Harvard, 1912-15; Instructor at Simmons College, 1914-15; Assistant Professor, Dartmouth College, 1915-17.

Phil C. Bing, Assistant Professor in Journalism.

B.A., 1906, Miami University; University of Chicago, 1907; University of Oxford, England, 1910; M.A. in Journalism, 1917, University of Wisconsin; Instructor in English, Utah, 1912-15.

Samuel Kroesch, Assistant Professor of German.

A.B., 1901, University of Missouri; Ph.D., 1909, University of Chicago; Marburg University, Germany, summer 1914; Instructor, High School, Lathrop, Missouri, 1901-3; Superintendent Schools, Doniphan, Missouri, 1903-4; Instructor, Modern Languages, Central State Normal School, Edmond, Oklahoma, 1904-8; Professor of German, Whitman College, Walla Walla, Washington, 1909-16.

Lieutenant Owen R. Meredith, Assistant Professor of Military Science.

West Point, June, 1904, to February, 1908.

Alice L. Edwards, Assistant Professor of Nutrition, Home Economics.

B.S., 1906, Oregon Agricultural College; University of Chicago, 1911-13; University of California, summer 1914; B.S., 1916, M.A.,

1917, Teachers' College, Columbia University; Instructor in Zoology and Physiology, Oregon Agricultural College, 1900-1915; Assistant in Biology, Teachers' College, Columbia University, 1915-17.

Katharine F. Ball, Vocational Adviser for Women.

B.A., 1900, Wellesley College; University of California, 1905-6; M.A. and Diploma "Adviser to Women," 1916-17, Columbia University; Teacher of Mathematics, Plainfield High School, 1901-17.

Ethel Ronzone, Assistant Professor of Textiles and Clothing, Home Economics.

B.S., 1913, Mills College, California; A.M., 1914, Teachers' College, Columbia University; Summer School, 1916, Teachers' College, Columbia University.

Laura F. Neale, Assistant Professor, Extension Specialist in Home Economics.

May Secrest, Assistant Professor, Extension Specialist in Home Economics.

B.S., 1892, Kansas Agricultural College; Diploma, 1902, Teachers' College, Columbia University, and year 1916-17.

Lucy Cordiner, Assistant Professor, Extension Specialist in Home Economics.

B.A., 1905, University of Wyoming; University of Chicago, 1906-7, 1910; M.A., 1917, Teachers' College, Columbia University.

*Promotions.*—R. W. Thatcher from Chief of the Division of Agricultural Biochemistry to Dean and Director of the Department of Agriculture; E. M. Freeman from Professor to Dean of the College of Agriculture; E. E. Nicholson from Assistant Dean of the College of Science, Literature, and the Arts to Dean of Student Affairs. From Associate Professor to Professor: Wallace Notestein, Hal Downey, O. W. Firkins, C. R. Stauffer, D. F. Swenson. From Assistant Professor to Associate Professor: L. J. Cooke, J. Anna Norris, Solon J. Buck, Frank F. Grout, Sterling Temple, Joseph W. Beach, A. C. Krey, L. W. McKeehan, R. R. Shumway, Herbert Woodrow, C. H. Bailey, J. L. Mowry, W. G. Brierley, Wm. Moore, C. W. Howard, J. F. McClendon, S. E. Sweitzer, Henry L. Ulrich, R. R. Knight, I. H. Derby, C. H. Preston. From Instructor to Assistant Professor: H. C. H. Kernkamp, W. W. Cumberland, C. C. Palmer, W. K. Foster, F. B. Barton, James Davies, A. W. Johnston, A. E. Koenig, T. T. Quirke, E. H. Sirich, John T. Tate, Amy P. Morse, Mildred

Weigley, John Butler, A. R. Hall, A. T. Henrici, Harry G. Irvine, F. B. Kingsbury, C. J. V. Pettibone, E. T. F. Richards, C. A. Reed, J. F. Schneider, J. H. Forsythe, R. W. French, G. C. Priestler, H. J. Leonard, F. H. McDougall, Sterling Temple, O. C. Edwards.

*Retirement.*—Professor John Corrin Hutchinson, Professor of Greek and Head of the Department, with the title Emeritus. In taking this action the Regents voted “to express to Professor Hutchinson the appreciation of the University of his devoted service as an exponent of scholarship, as a stimulating teacher, and an inspiring personal force in the life of the institution, and to extend to him the sincere best wishes of the Board.”

*Resignations.*—During the year the following men of professorial rank resigned from the faculty: George E. Vincent, President of the University; A. F. Woods, Dean of the Department of Agriculture; F. C. Shenehon, Dean of the College of Engineering and Architecture; Margaret Sweeney, Dean of Women; E. M. Morgan, Professor of Law; E. G. Lorenzen, Professor of Law; W. C. Kavanaugh, Professor and Head of Department of Experimental Engineering; Carl L. Becker, Professor of History; F. E. Clements, Professor of Botany; E. P. McCarthy, Professor in School of Mines; E. C. Higbie, Superintendent of West Central School of Agriculture, Morris, Minnesota; M. L. Guzman, Professorial Lecturer in Romance Languages; W. F. Lusk, Assistant Professor of Agricultural Education; B. E. Dahlgren, Associate Professor of Dentistry; Soren P. Rees, Assistant Professor of Medicine; W. T. Mitchell, Assistant Professor of Economics; G. A. Gesell, Assistant Professor of Finance, General Extension Division; C. W. Howard, Associate Professor of Entomology; Laura F. Neale, Assistant Professor, Extension Specialist in Home Economics.

*Deaths.*—Dr. Everton J. Abbott, Professor Emeritus of Clinical Medicine; Dr. E. H. Beckman, Associate Professor of Surgery, Mayo Foundation; Dr. Burnside Foster, Lecturer in History of Medicine.

*Leaves of absence granted during the year.*—Professor C. F. Sidener, for the first semester of 1916-17 with half salary, on account of illness; Professor B. E. Dahlgren for 1916-17 without salary to do research for the American Museum of Natural



History; Assistant Professor Moses Barron from August 16 to September 30, 1916, without salary, to do work for the State Board of Health; Professor Louise Powell for six months beginning February 1, 1917, on half salary; Dean F. C. Shenehon from October 1, 1916, to December 15, without salary, and for January and February, 1917, on half salary; Professor John H. Gray, at request of the Valuation Bureau of the Interstate Commerce Commission from February 1, 1917, to July 31, 1918; Dean Margaret Sweeney, for the year 1916-17, with salary; Assistant Professor H. H. Dalaker, for the second semester 1916-17 with salary, for graduate study at another university; Professor Richard Burton for the second semester 1917-18 without salary; Assistant Professor F. M. Rarig, for the year 1917-18 without salary; Dr. Robert A. Hall, sick leave for remainder of year 1916-17 with salary; Assistant Professor S. C. Shipley, for second semester 1916-17 and first semester 1917-18 on half salary; Associate Professor C. H. Bailey for year 1916-17 without salary; Assistant Professor Horace Newhart, indefinite leave because of illness; Professor John T. Stewart for federal service, year 1917-18; Assistant Professor Grace I. Williams, year 1917-18 without salary; Professor M. E. Haggerty for brief government service; Professor H. E. Robertson for war service; Professor Robert M. Yerkes for government service.

#### UNIVERSITY FUNCTIONS, CONVOCATIONS, ETC.

*Commencement exercises.*—The Commencement address for 1917 was delivered by Professor Theodore G. Soares of the University of Chicago. His subject was "The Efficiency of Democracy." The Baccalaureate address, "The Making of a Life," was given by the Reverend Lathan A. Crandall of the Trinity Baptist Church, Minneapolis.

*University convocations.*—In accordance with custom a general assembly of faculty and students was held in the University Armory on the opening day of the first semester. All-University convocations were also held on December 19, in honor of the eightieth birthday of Professor Emeritus Maria L. Sanford, and on March 8 in honor of Dr. Marion L. Burton, president of Smith College, and president-elect of the University. Convocation addresses were delivered by the Reverend Hugh Black on

March 20; by the Honorable Henry L. Stimson, formerly secretary of war, and Mr. Frederic R. Coudert of New York, on April 5; and by Dr. Hamilton Holt, editor of the *Independent*, on May 3.

*Chapel assemblies.*—Throughout the year chapel assemblies were held at twelve o'clock on Tuesdays and Thursdays. Brief addresses were delivered by members of the University community, ministers, and social workers of the Twin Cities, and by a number of distinguished visitors. Prominent among these were the Reverend Charles R. Watson, D.D., of Cairo, Egypt, and Mr. George Inness of Philadelphia; President Henry Churchill King of Oberlin; Dr. A. J. Elliott, western student secretary of the International Committee of the Y. M. C. A., Chicago; Bishop E. H. Hughes, of the Boston Area of the Methodist Episcopal Church; Mr. Frank Lascelles, pageant master; Mrs. W. I. Thomas, national executive secretary of the Woman's Peace Party, Chicago; Professor Otto Heller of Washington University, St. Louis; Mr. E. McNeill Poteat, field secretary of the Student Volunteer Movement, New York; Dean Andrew F. West of Princeton University; Mr. Francis Wilson, former member of the House of Commons; Professor J. D. Adam of Hartford Seminary; Dr. Frederick G. Coan of Urumia, Persia; Mr. Albert E. Roberts of New York; Mr. Brewer Eddy, secretary of the American Board for Foreign Missions; Bishop John T. Tyler of North Dakota; Miss Helen M. Bennett, manager of the Chicago Collegiate Bureau of Occupations; the Reverend James M. Stifler of Evanston, Illinois; the Honorable C. G. Schulz, state superintendent of education; Bishop Charles B. Mitchell, of the Methodist Episcopal Church; Miss Fannie Simpson, chairman of the College Girls' Branch of National War Service League; Professor John Phelan of the Massachusetts Agricultural College.

*University public lectures.*—A regular course of University public lectures on scientific subjects was again offered. Various faculty members representing the special fields gave these addresses. During the Economic Conference period, lectures were given by members of the faculty of the Department of Economics. Dr. Hugh Black gave six lectures during March, and Professor Otto Heller of Washington University, St. Louis, dealt with "Some Modern Mystics" in five lectures. Under the auspices of

the Cosmopolitan Club, Count Ilia Tolstoy lectured on "My Father's Life and Ideals." Subjects of public interest were discussed by the following speakers: Mr. John Lokrantz, general manager of the Swedish Chamber of Commerce of the United States, on "Swedish Commercial and Industrial Organization"; Mrs. W. I. Thomas, national executive secretary of the Woman's Peace Party, on "After the War—What?"; Mr. William Poel, founder and director of the Elizabethan Stage Society, London, on "Shakespeare's Theater"; Dr. Ng Poon Chew, Chinese statesman and journalist; Dr. Carol Aronovici, director of Bureau for Social Research, Philadelphia, on "The Social Value of Community Surveys"; Mr. C. R. Woodruff, secretary of the National Municipal League, Philadelphia; Dr. Eric Mjöberg, secretary to the Natural Science Society, Stockholm, on "Travels in the Interior of Australia"; Mr. L. O. Armstrong of the Bureau of Commercial Economics, Washington, D. C.; Monsieur Ferdinand Buisson, honorary director of elementary education of the French Republic. The annual Phi Beta Kappa address was delivered by Professor Oscar W. Firkins of the University of Minnesota on the subject, "Poetry Insurgent and Resurgent." The Sigma Xi address was given by Dean George C. Comstock of the University of Wisconsin. His subject was "Science and the War."

### THE UNIVERSITY AND THE WAR

*The Military Department.*—For several years the University of Minnesota has been strengthening its military department. In 1915 the Regents voted to require military drill of all first- and second-year men in all schools and colleges of the University. Minnesota was the first American institution to establish a compulsory cadet encampment. The budget set aside for the military department has been fairly liberal. With the creation by Congress in June, 1916, of a new system of training, the University of Minnesota at once met the requirements and established a unit of the Reserve Officers' Training Corps. Several of the colleges of the University readjusted their requirements to include academic credit for certain courses of the military training curriculum. For a fuller description of the reorganization of the Military Department, see *Nineteenth Biennial Report of the Board of Regents*, pages 72 and 73. As a result of the attitude

of the University authorities and because of the character, ability, and fidelity of the army officers in charge, the University of Minnesota has for four years been designated as one of the ten colleges rated by the Department of War as "distinguished" for the efficiency of their cadet organizations.

*Official war policy of the University.*—The readiness of the Regents promptly to cooperate with the Government is evidenced by the following measures:

1. Regulations were adopted to guarantee members of the faculty and employees of the University against loss of income up to July 31, 1917, in case they entered the service of the United States Government.

2. Arrangements were sanctioned by which students who joined the Army and Navy, or undertook other essential war work, should, under reasonable conditions, receive credit toward their degrees.

3. The staff of the Agricultural Department was put at the service of the state and federal authorities to encourage the production and conservation of food.

4. Special exemptions were granted to members of the medical staff and to medical students connected with the Minnesota Base Hospital.

5. A course in military medicine, under government officers, was conducted in the School of Medicine.

6. University laboratories and other facilities were in many ways made available for national purposes.

7. Apparatus not absolutely needed or in actual use was loaned to the Minnesota Base Hospital.

8. An increase in the number of medical freshmen from 80 to 90 was authorized to meet war conditions.

9. Extension classes in different types of war work were organized.

10. A special bulletin was issued for the guidance of students with respect to enlistment in various forms of war service.

11. The University calendar was so revised as to leave students free to be of maximum usefulness in agriculture.

12. The University was represented at conferences held in Washington with reference to the participation of colleges and universities in war preparations.

13. Patriotic addresses by members of the faculty were arranged under the auspices of the Extension Division.

14. University convocations designed to foster intelligent patriotism were held.

*The faculty and the war.*—Members of the faculty of the University have shown devotion to the national cause. Twenty-four members of the teaching staff either enrolled in the Reserve Officers' Training Camp or received commissions in various technical branches of government duty. Thirteen members of the University Medical School faculty were commissioned and assigned to the Minnesota Base Hospital. Other instructors have joined various government departments in different capacities. Several Minnesota professors, under the leadership of the Dean of the Graduate School, have rendered notable service in preparing and editing official documents for the Bureau of Public Information in Washington. Numerous addresses have been delivered throughout the state of Minnesota by members of the teaching staff of the University.

*The undergraduates.*—The students of the University were eager to respond to the call for men. By the end of the University year 386 students had entered the Army and Navy of the United States. Six hundred ninety-seven other undergraduates, during the spring, withdrew from the University to undertake agricultural work of a clearly defined nature. Students in the Medical School and in the School for Nurses volunteered promptly for membership in the Minnesota Base Hospital. The women of the institution showed from the outset a keen interest, and gave their time and energy freely in connection with different forms of war work. A considerable number entered special classes which were organized in Red Cross work, social service training, etc.

*The alumni.*—Hundreds of recent graduates have joined the colors in various branches of the service. Under the auspices of the General Alumni Association all the graduates of the University have been asked to fill out cards with data concerning the special training and experience which alumni are ready to put at the disposal of the Government. These cards have been filed with the Intercollegiate Bureau of Information in Washington, which is constantly called upon to make suggestions to the federal authorities with reference to specialized personnel.

## EDUCATIONAL POLICIES

*Graduate work in medicine and surgery.*—The organization of a system of graduate teaching conducted by the University through its own staff and that of the Mayo Foundation was fully described in the *Nineteenth Biennial Report*, pages 62-64. Fair-minded opposition to this plan resolved itself into two points: (1) that endowment funds had not been turned over to the Regents by the founders of the Mayo Foundation who might at the end of the experimental period withdraw entirely, and (2) that no obligation to maintain medical work at Rochester in perpetuity should be assumed. In March, 1917, the Doctors Mayo publicly announced that they would renounce their right to terminate the arrangement, and would leave the decision wholly to the University. They also agreed to turn over at once the securities in which the endowment was invested. Later the founders assured the Board of Regents of a willingness to modify the so-called "Rochester clause" in such a way as to permit the University, after the lapse of a specified number of years, to remove the work from Rochester provided this town should no longer provide satisfactory opportunities for medical research and graduate study. Thus by May 1, 1917, it was evident that the last obstacles had been removed, and that a final agreement could be reached which would command the support not only of the public but of all reasonable and magnanimous physicians who are interested in the progress of medical science and in professional training of the highest modern type.

*The future of the Arts College.*—The tendency in state universities to multiply independent units for specialized vocational training raises sharply the question: What is to be the function of the Arts College? Shall it become merely a traditional organization for administering (1) the first two years of "pre-legal," "pre-medical," "pre-business" curricula, etc., the requirements of which are almost wholly determined by the professional schools that they serve, and (2) a four year course in languages, literatures, mathematics, natural sciences, social sciences, philosophy, for (a) students who are preparing to teach these subjects, and (b) for the relatively decreasing number of those who desire a liberal education for its own sake, or as a means of "finding themselves," or as a fuller preparation for professional

study, or for the sake simply of "going to college" as a source of personal enjoyment and of social standing? Or shall the Arts College frankly recognize the inevitable, readjust its policies by creating specialized groups of administration and instruction within its own organization, and seek to invest professional training with a liberal and socially-minded spirit? The separatist demands will be loud and insistent. In the end they may prevail. But certainly they ought not to be granted until it has been demonstrated that the Arts College is incapable of readjusting its traditions to the new situation. The University of Minnesota has decided to give its Arts College an opportunity to show whether or not it can solve this problem.

*The Arts curriculum and vocational training.*—Changes have been made during the years in the curriculum of the College. The significant features of the new plan are: (1) recognition of the first two years as a Junior College which shall provide a foundation and discipline, (2) requirement of certain courses extending over an entire year, (3) completion of the Junior College work as a condition of entering upon Senior College courses, which (4) are based upon prerequisites and are of an intensive character. (5) The College has also provided groups of courses of a vocational or professional character. The plan includes: (a) a director in charge, (b) a small executive committee, (c) a faculty made up of teachers immediately concerned, and representatives of allied departments which shall have (d) initiative in formulating curricula and (e) a large measure of autonomy in controlling the affairs of the particular vocational unit together with, through the director and committee, (f) oversight of its students. In addition to the Business Training Courses organized in 1915, the Regents have authorized the creation of a five-year course in Training for Social and Civic Work, the last year of which will consist largely of practical studies, field work, and investigation of problems. Dr. Arthur J. Todd has been appointed director.

*Additional tests for admission.*—A special committee representing the Arts faculty and high-school superintendents and principals has been appointed to consider tests which in addition to high-school records may be used to select students who are actually fitted to undertake University work. The wastefulness

and hardship of eliminating students after admission, the limited funds available, the necessity of confining training to those who are of more than average ability, make this problem of admission insistent and unescapable. One of the stern lessons of war is that the common welfare must take precedence over individual preference and privilege. This and kindred matters are discussed more fully in the *Nineteenth Biennial Report*, pages 69-72.

*A center for the study of Scandinavian culture.*—It is agreed that the University of Minnesota should be the recognized center for the study of various phases of Scandinavian history and culture. Plans for the development of Scandinavian languages and literatures have been under discussion. A proposal to secure a special building which should be a center for work of this character, has been considered for some time. One of the problems of the University is to deal in a large way with this whole question. Realizing the importance of this problem, the Regents voted to request the President of the University and the Dean of the College of Science, Literature, and the Arts, to make a canvas of the country with a view to recommending the appointment to the Department of Scandinavian Languages and Literatures, of a man distinguished for productive scholarship in this field.

*Courses in biblical history, literature, and ethics.*—Question having been raised as to granting, in the University of Minnesota, credit for courses in biblical and religious subjects given in other institutions; hearings having been granted and the problems involved discussed, the Regents adopted the following action:

“Voted to recommend to the faculty of the Sciences, Literature, and the Arts, that an estimate be made to work out a course in biblical history and ethics; that these be offered in the college, and that university credit be given for equivalent courses conducted by other institutions of collegiate grade.”

*Conferences on teaching of secondary subjects.*—It is essential that the University staff that deals with subjects which are taught in the high schools should maintain sympathetic relations with secondary school teachers. Many of the difficulties which arise between high schools and universities may be traced directly to the lack of intercourse and understanding. Under the auspices of the College of Education, the University has sought to foster more intelligent coöperation between these two groups. A second conference, held last spring at the University, dealt with



the subjects of English, history, mathematics, and commercial studies. Significant progress was made and the conference as an institution vindicated itself.

*Bureau of Coöperative Research.*—Under the auspices of the College of Education a promising experiment has been carried on during the past year. Certain objective standards of school work which have been devised by educational experts have been applied to the arithmetic and spelling attainments of pupils in 105 schools in the state of Minnesota. Unit costs of high-school instruction have also been determined. The carrying on of these tests and inquiries in so large a number of schools has had a stimulating educational effect. When the experiment was undertaken assurance was given that the results would be made public. It is to be hoped that funds will be available for the publication of the findings.

*The Social Service Department of the Hospital.*—The standing of the University Hospital as an institution of the first rank has been strengthened by the development of its social service department. During the past year four regular workers have supervised 3,000 outpatients of the hospital; 2,497 visits have been made. This humane work represents a valuable educational resource. With the establishment of the new course of training for social workers, this department of the University Hospital will provide laboratory experience for students who are preparing themselves for different kinds of community work.

*Psychologic and psychiatric clinic.*—A significant scientific contribution has been made and an important civic service rendered by the establishment of a clinic for the examination of defective children. The Department of Educational Psychology of the College of Education, the Department of Pediatrics, and the Department of Mental and Nervous Diseases in the Medical School have coöperated. Approximately two hundred defective children have been examined, important data have been secured, and valuable suggestions as to treatment and readjustment have been made. This undertaking represents a characteristic application of university methods to the problems of the community.

*Minnesota Law Review.*—This publication, edited by the teaching staff of the University Law School, with the coöperation of a committee of law students, appeared first in the autumn of

1916. The *Review*, from the outset, was made the official organ of the State Bar Association. The Regents of the University assumed no responsibility for the financing of this publication, which is sustained by receipts from subscriptions and guaranteed against deficit by a group of members of the Minnesota bar. This periodical has already proved its value, both as a review of legal problems, and as a means of stimulating the interest of advanced students in the Law School who prepare abstracts of cases, notes, etc., for publication.

*A Federal Bureau of Mines Station.*—The United States Government has designated the University of Minnesota School of Mines as the center for one of the Federal Mines Stations which have been created by Congress. The station at Minnesota will be known as the Lake Superior Station. It will specialize upon the problems connected with the mineral resources of the Lake Superior region. This station will be of value to the School of Mines and to the University. It will bring to the institution a group of investigators who will contribute to the spirit of research which has of late been making steady gains. The station will increase the educational opportunities of students of the School of Mines, of the School of Chemistry, and of the College of Engineering. Many of these young men will participate in the laboratory experiments and in the field work which the station staff will carry on. The establishment of this federal station imposes upon the University an honorable obligation to secure as soon as possible satisfactory quarters and equipment for the experimental work of the School of Mines and of the group of federal investigators.

*Natural history museum.*—With the opening of the new biological laboratory, museum space has been made available for the new material which has been presented to the University, in addition to certain parts of the former collections which are worthy of preservation. Under the direction of Dr. Thomas S. Roberts, whose expert and whole-hearted services the University is fortunate in securing, a good beginning has been made in the establishment of a thoroly modern museum of natural history. Friends of the University have given groups of animals mounted and arranged in accordance with the most approved museum methods. Generous sums of money have been given for other

needs. Even in its unfinished condition the museum is attracting large numbers of outside visitors. Popular illustrated lectures have been delivered to general audiences. The museum's summer expeditions to northern Minnesota have secured unique films of wild animal life. It is to be hoped that public funds will be forthcoming to make this museum an institution worthy of the state.

*Honors in Agriculture.*—On the recommendation of the Department of Agriculture, the Regents in March, 1917, conferred Honors in Agriculture upon the following persons: Everett Ford Irwin, a pioneer in the breeding of dairy cattle; James Jerome Hill, a constant advocate of agricultural progress; Mathew Henry Hegerle, a leader in founding the canning industry of Minnesota; Finley McMartin, a breeder of fine cattle; Sidney M. Owen, an early promoter of Agricultural Education; Henry Schroeder, a pioneer in the raising and marketing of potatoes; Hans Peter Hansen, the originator of the coöperative creamery in Minnesota; Seth Harmon Kenney, the man who introduced the sorghum syrup industry in the state; Charles M. Loring, a lover of trees and flowers, "The Father of Parks."

### ADMINISTRATIVE POLICIES

*Senate Committee on Relations with Other Institutions.*—A distinct step in advance has been made in the creation of a Senate committee which represents in a single group the relations of the University with secondary schools and with colleges and universities. Under the auspices of this committee, first-hand inspections have been undertaken and the system of accrediting is being put upon a much more satisfactory basis. While in accordance with the principles of the Senate organization, there has been no attempt to interfere with the autonomy of the different colleges with respect to their quantitative entrance requirements, the initiative in passing upon the quality of the work done in secondary schools and in institutions of higher education has been definitely entrusted by the Senate to this new committee on relations with other institutions. In order to make the work of this committee effective, it should be provided with sufficient funds to defray traveling expenses of inspectors, and with a salaried official who can serve at the same time as secretary of

the committee, and in the Registrar's Office as the designated person in charge of the whole question of credit for advanced standing for students who enter the University from other institutions.

*An appointments committee.*—In harmony with the policy of reasonable centralization in the administrative machinery of the University, a Committee on Appointments has been established. It is a function of this committee to gather information with regard to all candidates for teaching positions and to deal with those who are seeking from the University suggestions as to graduates for high-school appointments. The Committee has at its disposal a paid secretary, and is in a position to cooperate with the various departments and colleges in serving both University graduates and the school authorities in the most authoritative and successful way.

*Reorganization of Agricultural Division.*—In order to coordinate and unify all divisions and sections which have to do with dairy and animal husbandry and veterinary medicine, the Regents voted to approve the recommendations of the Department of Agriculture to establish a single group subdivided into the following divisions: (1) Animal Husbandry, (2) Dairy Husbandry, (3) Animal Nutrition, (4) Poultry Husbandry, and (5) Veterinary Medicine. Animal Husbandry is further subdivided into three sections, Dairy Husbandry into two, and Veterinary Medicine into six, each dealing with a special phase of the general subject matter of the division. It is believed that this reorganization represents a forward step, both in the work of investigation and that of instruction.

*Partition of the Department of Philosophy and Psychology.*—On the recommendation of the Arts College, the Regents voted to abolish the Department of Philosophy and Psychology and to create in its stead two departments, namely, a Department of Psychology and a Department of Philosophy. With the appointment of one of the most distinguished psychologists in the United States as Chairman of the new Department of Psychology, to which the present members of the staff also lend distinction, the Department of Psychology at the University of Minnesota at once takes a leading place among the university departments of the United States in this field. The head of the original depart-

ment was appointed Chairman of the Department of Philosophy, which will maintain its standing in academic circles.

*Dean of Student Affairs.*—On the recommendation of the President, with the approval of the Administrative Board of the University Senate, the Regents voted to create the office of Dean of Student Affairs. The status and duties of this deanship are defined in the following statement:

“(1) The Dean of Student Affairs shall be a University officer responsible to the central administration, from which he shall derive his status and authority; (2) he shall be ex officio a member of all faculties and of all committees which deal with student affairs, delinquencies in studies, and disciplinary measures; (3) as a member of any college faculty or committee he shall be subject to the rules and administration of the educational unit concerned; (4) he shall be a member of the Administrative Committee of the University Senate and ex officio of all Senate Committees which deal with student affairs; (5) it shall be the duty of the Dean of Student Affairs under the President and the various officers responsible for the different educational units of the institution to: (a) oversee student activities; (b) cooperate with the organs of student self-government; (c) administer general University regulations concerning eligibility for public appearances; (d) seek so far as possible to give consistency to disciplinary procedures; (e) to do all in his power to promote among students and faculty a spirit of mutual understanding and good will.”

*Vocational Adviser for Women.*—On the recommendation of the Arts College, and with reference chiefly to the women students of that college, the Regents voted to create the position of Vocational Adviser for Women, whose duties were defined as follows:

1. To make a study of vocations open to college women, the qualifications required, the opportunities, the remuneration, the conditions of work, etc.
2. To study the qualifications, interests, and preparation of women students upon entering and during their course in the University.
3. To confer personally with students about their plans and to advise them in their choice of studies in preparation for their vocations.
4. In every way possible (by lectures, public conferences, and otherwise), to promote among women students seriousness of purpose and an intelligent appreciation of their duties and responsibilities as University graduates.

*Codification of University regulations.*—It is highly desirable that the federal and state laws which bear upon the University, together with the rules and regulations adopted by the Board of

Regents, should be put in permanent printed form. The existence of such a publication is essential to consistent administration and should form the basis of any proposed changes in regulations or procedure. For the last three years such a publication has been under consideration. The administrative and educational readjustments within the institution have gone on so rapidly that it has seemed best to postpone the issuing of the proposed volume. During the last year, however, the material has been put in preliminary form, and in the early spring was referred to a special committee under the chairmanship of the Dean of the Law School. The preliminary manuscript includes complete federal and state statutes which bear upon the status and powers of the University, together with a provisional codification of the principles and regulations under which the Board of Regents conducts the business and administration of the institution. It should not be difficult to put this material in final form for early publication.

*Representation of the University at association and other meetings.*—It has been difficult to determine upon a policy with respect to sending representatives at University expense to meetings of scientific and other academic societies. It is estimated that to send delegates to all the meetings at which the University might well be represented, would cost about ten thousand dollars per annum. Since for such purposes hardly one fifth of this sum is available in the budget, some method of discrimination must be employed. For the last two years with almost complete consistency, representation at University expense has been limited to the meetings of the organizations of which the University, or one of its constituent colleges, is an official member. The effect of this has been to limit representation very largely to administrative officers, to the possible neglect of members of the faculty who stand for the investigative and teaching activities. An attempt is being made by the Administrative Committee of the Senate to draw up a list of meetings of national societies at which the University should be officially represented, and to keep the expense involved within the financial limits which budget conditions impose. The importance of having either a fixed principle or a definitely determined official list is obvious.

*Study of occupancy of buildings.*—In the autumn of 1917 the Administrative Board of the University Senate authorized a special inquiry into the degree to which space in University buildings was then being occupied. While the investigation was not completely satisfactory on the score of accuracy, it reemphasized certain facts: (1) the percentage of utilization varies widely from building to building; (2) the specialized character of buildings and equipment makes complete utilization impossible; (3) the size of the campus makes it difficult to utilize vacant space in one building which may be remote from the headquarters of the department which needs rooms; (4) the fact that so many students live at long distances from the campus minimizes the occupancy of rooms at early and late hours, and creates a "peak load" during the period from 9 a.m. to 12 noon; (5) the assigning of laboratory work to afternoons leaves much recitation room space unoccupied at that time. All these difficulties having been admitted, it remains true that a careful study of the needs of the various divisions of the University and a well-considered program adopted at the beginning of the new era, would have effected appreciable savings in capital cost and in maintenance expense. This should be taken into account in the future construction policy of the University.

*Public health administration.*—An effective University health organization should include: (1) a trained sanitarian as director; (2) an adequate staff of assistants, visiting nurses, housing inspectors; (3) proper physical examinations and periodic re-examination; (4) systematic records; (5) a dispensary; (6) a diagnostic laboratory; (7) an infirmary, including contagious wards; (8) inspection and sanitary standardizing of students' living quarters; (9) reporting of cases of illness; (10) a health fee collected from all students who should be guaranteed free dispensary service, and for a fixed period, free use of the infirmary. Judged by this standard the University of Minnesota makes a poor showing. Thanks to the prompt and excellent coöperation of the State Board of Health authorities, the Medical School, the Deans, and the Registrar's Office, cases of contagious diseases are handled on the whole successfully. Laboratory service is available; any student may have typhoid and other prophylaxis treatment free of charge; initial physical examinations are

fairly thoro; one visiting nurse is at the disposal of the women students; boarding-houses are inspected, superficially at least; disease record cards are required on admission; public health lectures have been given to somewhat recalcitrant student audiences. These various activities lack the coherence and persistence which only a responsible director can give them. Dispensary and infirmary facilities are wholly absent. The requests to the last legislature included an item for a health director, but until the autumn registration should determine the income from student fees it seemed unwise to make an appointment to this position. Whether opposition to a compulsory health fee will prove insuperable, only the future can tell.

## THE STUDENTS

*Various items concerning students.*—Annual expenses of students, annual earnings of students, scholarship and loan funds, the supervision of boarding houses, intramural sports, student self-government, the auditing of student finances, a system of senior advisers for freshmen, methods of oversight for Arts students, the status of fraternities and sororities are rather fully dealt with in the *Nineteenth Biennial Report*, pages 49-58. For references to student response to the appeal of the war, see page 12 of this report.

*Inspection of lodging houses for men.*—During the year a careful inspection of boarding and lodging houses which are occupied by men students of the University was carried out. A detailed card record was made for each house. From the data thus secured a standard or norm was drawn up and put in printed form. This was distributed to the proprietors of the establishments concerned. The report of the inspectors disclosed a fairly satisfactory condition on the whole. It is evident, however, that there is room for improvement. A regularly employed inspector constantly at work could not only enforce a better standard of sanitation and service for lodgers, but could also do much to protect boarding-house keepers against such hardships as breaking of agreements, wanton damage to property, and boisterous conduct on the part of students. A good many complaints of such injustices were made to the inspectors. The Secretary of the State Board of Health was good enough to inspect the houses



of the academic fraternities. His suggestions for improvement were transmitted to the different organizations. The report as a whole was presented to the senate and printed as a University document.

*Additional coöperative clubs for women.*—Two more houses, 303 Washington Avenue and 201 State Street, have been set aside by the Regents as coöperative clubs for women. These houses will be repaired by the University, and, then, under the auspices of the Faculty Women's Club and a Committee of Alumnae, will be decorated and furnished. Mrs. Charles M. Loring has given \$1,000 toward the equipping of one of the houses, both of which will be ready for occupancy in September, 1917. With the opening of these new clubs, the University will have provided in four houses quarters for sixty-five women students who live at minimum cost under conditions which many prefer to dormitory life.

*Free and service scholarships.*—When for the year 1916-17 the tuition fees were slightly increased in certain colleges, the Regents created 100 free semester scholarships, and also 50 semester service scholarships in return for the latter of which recipients would be required to render a given number of hours of service in libraries, etc. It was believed that these scholarships would meet the needs of students to whom an increase in fees would be a hardship. The report of the Committee which administered these scholarships shows that of the 100 free scholarships 82 were awarded, and of the 50 service scholarships 43. These facts seem to show that the provision was sufficient, and that no serious hardship was created by an increase in fees which netted a substantial sum for the pressing requirements of the University. The Regents voted in May to continue the scholarships for at least one year longer.

*The Minnesota Union.*—This institution has made substantial progress. The ball-room on the third floor has been completed and offers at lowest costs the best of facilities for entertainments. The room serves also as a special dining room. The cafeteria plan, which was substituted in the main restaurant for the expensive and unsatisfactory system of waiter service, proved a marked success. The daily attendance increased to a notable degree. The Sunday table d'hôte at twenty-five cents, open to

both men and women, was increasingly popular; it was patronized by a number of faculty families. Various groups, including the Administration Board of the University Senate, held luncheon meetings regularly in one or another of the four private dining-rooms. The Union will gradually complete and equip the building which will become increasingly a center of social life, a source of institutional loyalty, and an agency for creating and giving force to student standards and opinion.

*Intramural sports.*—The reports of the Senate Committee on Intramural Sports shows that during the year 1916-17, a total of 1,761 students, i.e., 1,214 men and 547 women, participated in competitive games. Even the enlistments in the spring did not seriously reduce the number of men who took part in games as compared with the previous year. Thirteen per cent of the men joined the Army and Navy, while the group engaged in intramural sports fell off only  $7\frac{1}{2}$  per cent from 1,312 in 1915-16 to 1,214 in 1916-17. To be sure these figures are misleading because the same individual may be included twice. But to get even 1,200 different students to engage in athletic competitions is something of an achievement. The glamour which attaches to intercollegiate teams, their monopoly of playing fields, the scattered, urban character of the University student constituency, the absence of adequate gymnasium facilities for men, are serious obstacles to overcome. In spite of discouragements of this kind, the movement for intramural sports at Minnesota has during recent years acquired a real momentum.

*Resolutions of the Minnesota Engineering students.*—The following resolutions, originally adopted by the students of the College of Engineering and Architecture, and later formally endorsed by the students of Dentistry, Pharmacy, and Medicine, have to the honor of the University been widely quoted throughout the country:

First: We stand to respond to the call of the country in ready and willing service.

Second: We undertake to maintain our part of the war, free from hatred, brutality or graft, true to American purpose and ideals.

Third: Aware of the temptation incident to camp life and of the moral and social wreckage involved, we covenant together as college men to live the clean life and to seek to establish the American uniform as a symbol and guarantee of real manhood.

*Fraternalities.*—The principle of student self-government has again vindicated itself. For several years those who have been interested in improving fraternity standards and policies have urged that a ban be put upon the pledging of high-school students. It has not been deemed wise for the University authorities to impose upon the fraternities a formal regulation which it would be difficult, if not impossible, to enforce. Reliance has been placed upon the growing sense of responsibility of the fraternities themselves. This confidence has not been misplaced, for during the year the Interfraternity Council has voted to abolish the practice of offering membership in the fraternities to boys who are still in their high-school years. The fraternities are to be congratulated upon the adoption of this wise policy. A slight decline in scholarship standing among the fraternities is to be attributed largely, if not wholly, to the inevitable distractions which came with the declaration of war.

#### STATISTICS OF REGISTRATION

Table I shows the comparative registration figures for students of collegiate grade enrolling for the years 1915-16 and 1916-17. This group includes only those schools and colleges which require high-school graduation for entrance. The total for this group, 6,311, should be used in comparing the registration of the University of Minnesota with that of other colleges and universities. There are no startling changes from the preceding year. The largest numerical gain is in the College of Liberal Arts, despite the loss of 159 unclassified students in that group. This loss is not one of fact but of classification, as the large number of students heretofore counted in this College were this past year classified in the College of Education and appear as "unclassified" in that department. The largest percentage gain, not counting Education, whose increase was explained by the transfer of unclassified students from the Liberal Arts College, is in the School of Chemistry, this department having an increase of thirty-six per cent, explained, no doubt, by the increased demand for industrial chemists, due to war conditions. The Summer Session increase shows the effect of the policy of raising the standard of instruction and offering advanced courses.

TABLE I. COLLEGIATE STUDENTS BY SCHOOLS AND COLLEGES, 1915-1917

COLLEGE OR SCHOOL	YEAR 1915-16			YEAR 1916-17			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
<b>SCIENCE, LITERATURE, AND THE ARTS:</b>								
Seniors	81	191	272	62	197	259	.....	13
Juniors	148	213	361	181	236	417	.....	56
Sophomores	310	246	556	365	354	719	.....	163
Freshmen	496	384	880	520	419	939	.....	59
Unclassed	54	226	280	38	83	121	.....	159
Total	1089	1260	2349	1166	1289	2455	106	.....
<b>ENGINEERING AND ARCHITECTURE:</b>								
Post-seniors	28	.....	28	26	.....	26	.....	2
Seniors	67	.....	67	63	.....	63	.....	4
Juniors	65	.....	65	82	.....	82	17	.....
Sophomores	144	.....	144	173	1	174	29	.....
Freshmen	201	2	203	161	3	164	.....	39
Irregular	16	3	19	18	3	21	3	.....
Total	521	5	526	523	7	530	4	.....
<b>AGRICULTURE:</b>								
Seniors	74	50	124	85	73	158	34	.....
Juniors	91	72	163	95	91	186	23	.....
Sophomores	114	82	196	107	77	184	.....	12
Freshmen	129	91	220	119	70	189	.....	31
Unclassed	12	17	29	13	16	29	.....	.....
Total	420	312	732	419	327	746	14	.....
<b>LAW:</b>								
Third-year	33	.....	33	47	.....	47	14	.....
Second-year	41	.....	41	59	1	60	19	.....
First-year	74	.....	74	112	.....	112	38	.....
Unclassed	1	.....	1	3	.....	3	2	.....
Academic seniors taking law	22	.....	22	25	1	26	4	.....
Total	171	.....	171	246	2	248	77	.....
<b>MEDICAL:</b>								
Sixth-year	35	1	36	43	2	45	9	.....
Fifth-year	46	2	48	65	2	67	19	.....
Fourth-year	71	2	73	78	1	79	6	.....
Third-year	88	2	90	67	7	74	.....	16
Unclassed	22	.....	22	14	1	15	.....	7
Total	262	7	269	267	13	280	11	.....
<b>SCHOOL FOR NURSES:</b>								
	.....	63	63	.....	68	68	5	.....
<b>DENTISTRY:</b>								
Seniors	86	1	87	94	5	99	12	.....
Juniors	94	4	98	84	.....	84	.....	14
Sophomores	96	.....	96	89	.....	89	.....	7
Freshmen	92	.....	92	97	1	98	6	.....
Irregular	2	.....	2	2	.....	2	.....	.....
Total	370	5	375	366	6	372	.....	3
<b>MINES:</b>								
Seniors	11	.....	11	15	.....	15	4	.....
Juniors	16	.....	16	21	.....	21	5	.....
Sophomores	28	.....	28	20	.....	20	.....	8
Freshmen	17	.....	17	21	.....	21	4	.....
First-year	7	.....	7	3	.....	3	.....	4
Specials	1	.....	1	.....	.....	.....	.....	1
Total	80	.....	80	80	.....	80	.....	.....

TABLE I—Continued

## COLLEGIATE STUDENTS BY SCHOOLS AND COLLEGES, 1915-1917

COLLEGE OR SCHOOL	YEAR 1915-16			YEAR 1916-17			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
<b>PHARMACY:</b>								
Graduates .....	2		2	2		2		
Seniors .....	32	5	37	34	3	37		
Juniors .....	56	7	63	13	4	17		46
Sophomores .....				5		5		5
Freshmen .....	2	1	3	38	5	43		40
Specials .....				3		3		3
Total .....	92	13	105	95	12	107	2	
<b>ANALYTICAL AND APPLIED CHEMISTRY:</b>								
Post-seniors .....				1		1		1
Seniors .....	11		11	18	1	19		8
Juniors .....	14	1	15	14		14		1
Sophomores .....	9	1	10	22		22		12
Freshmen .....	20	2	22	42	1	43		21
Irregular .....	8		8	4		4		4
Total .....	62	4	66	101	2	103	37	
<b>EDUCATION:</b>								
Seniors .....	20	21	41	17	24	41		
Juniors .....	19	15	34	8	32	40		6
Unclassed .....	7	27	34	14	109	123		89
Total .....	46	63	109	39	165	204		95
GRADUATE: .....	237	98	335	285	98	383		48
<b>SUMMER SESSION:</b>								
College sections .....	511	490	1001	592	654	1246		245
Agricultural .....	87	52	139	134	67	201		62
Total .....	598	542	1140	726	721	1447		307
General totals .....	3948	2372	6320	4313	2710	7023		703
Less duplicates .....	401	94	595	454	258	712		117
Grand total—net .....	3547	2178	5725	3959	2462	6311		586

Table II records the enrollment of students in those departments which do not require high-school graduation for admission. The students of the University High School are included this year for the first time. In the past it was the policy not to count recognized preparatory students, but to include all technical students. The University has no preparatory department other than the University High School, which is the practice school of the College of Education. The large gains in the Farmers' Short Course are probably due to the reduction of time for this work from a month to a week. This change gives the course more of the nature of a convention. The large increase in the Junior Short Course enrollment may possibly be explained

TABLE II. SUBCOLLEGIATE STUDENTS, 1915-1917

SCHOOL	YEAR 1915-16			YEAR 1916-17			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
<b>CENTRAL SCHOOL OF AGRICULTURE:</b>								
Senior year.....	99	62	161	154	60	214	53	.....
Junior year.....	165	67	232	121	52	173	.....	59
Freshman year.....	293	73	366	187	49	236	.....	130
Unclassed.....	3	.....	3	63	3	66	63	.....
Normal Course.....	.....	19	19	.....	12	12	.....	7
Total.....	560	221	781	525	176	701	.....	80
<b>NORTHWEST SCHOOL OF AGRICULTURE, CROOKSTON:</b>								
Students.....	157	50	207	147	53	200	.....	7
<b>WEST CENTRAL SCHOOL OF AGRICULTURE, MORRIS:</b>								
Students.....	70	45	115	88	49	137	22	.....
<b>UNIVERSITY HIGH SCHOOL:</b>								
Students.....	.....	.....	.....	82	56	138	.....	.....
Total, Schools.....	787	316	1103	842	334	1176	73	.....
<b>SHORT COURSES:</b>								
Traction Engineering....	23	.....	23	26	.....	26	3	.....
Dairy School.....	96	.....	96	104	.....	104	8	.....
Rural Life Conference....	34	4	38	136	34	170	132	.....
Graduate Veterinarians....	26	.....	26	.....	.....	.....	.....	26
Editors' Week.....	.....	.....	.....	58	2	60	60	.....
Extension Gymnasium.....	.....	.....	.....	25	.....	25	25	.....
<b>Teachers' Training School</b>								
Central.....	124	990	1114	135	1007	1142	28	.....
Crookston.....	14	207	221	14	175	189	.....	32
Morris.....	9	159	168	8	139	147	.....	21
<b>Farmers' Short Course:</b>								
Central.....	969	282	1251	1324	307	1631	380	.....
Crookston.....	477	25	502	477	25	502	.....	.....
Morris.....	72	1	73	53	.....	53	.....	20
<b>Junior Short Course:</b>								
Central.....	344	145	489	666	314	980	491	.....
Crookston.....	49	31	80	51	9	60	.....	20
Morris.....	36	8	44	15	17	32	.....	12
<b>Mothers' Week:</b>								
Morris.....	.....	6	6	.....	36	36	30	.....
Embalmers.....	52	3	55	40	2	42	.....	13
Total, Short Courses..	2325	1861	4186	3132	2067	5199	1013	.....
Grand total, (less duplicates).....	3081	2176	5257	3791	2356	6147	890	.....

by the increase in the number of boys' and girls' clubs throughout the state, for which federal interest and encouragement are in a measure responsible.

Table III shows the groups of extension students. It is significant to note the increase despite the curtailment of the Extension budget.

Table IV briefly summarizes under the three main headings, Collegiate, Subcollegiate, and Extension, the total enrollment of the University.

Table V is a recapitulation of the Tables I, II, III, and IV.

## THE PRESIDENT'S REPORT

TABLE III. EXTENSION STUDENTS, 1915-1917

COURSES	YEAR 1915-16			YEAR 1916-17			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
General .....	1180	909	2089	1257	1025	2282	193	.....
Correspondence .....	136	72	208	113	120	233	25	.....
Total .....	1316	981	2297	1370	1145	2515	218	.....

TABLE IV. SUMMARY, 1915-1917

DIVISION	YEAR 1915-16			YEAR 1916-17			GAIN	Loss
	Men	Women	Total	Men	Women	Total		
Collegiate students.....	3547	2178	5725	3859	2452	6311	586	.....
Subcollegiate students.....	3081	2176	5257	3791	2356	6147	890	.....
Extension students.....	1316	981	2297	1370	1145	2515	218	.....
Grand total.....	7944	5335	13279	9020	5953	14973	1691	.....

TABLE V. COMPARATIVE REGISTRATION FIGURES 1915-1917

DEPARTMENT	1915-16			1916-17			GAIN		Loss	
	Men	Women	Total	Men	Women	Total	Men	Women	Men	Women
Science, Literature, and the Arts.....	1089	1260	2349	1192	1289	2481	103	29	.....	.....
Engineering and Architecture .....	521	5	526	523	7	530	2	2	.....	.....
Agriculture .....	3504	2527	6031	4184	2656	6840	680	129	.....	.....
Law .....	171	.....	171	221	.....	222	50	.....	.....	.....
Medical (including nurses and em- balmers) .....	346	73	419	307	83	390	10	39	.....	.....
Dentistry .....	375	5	380	366	6	372	1	9	.....	.....
Mines .....	80	.....	80	80	.....	80	.....	.....	.....	.....
Pharmacy .....	92	13	105	95	12	107	3	.....	.....	1
Chemistry .....	62	4	66	101	2	103	39	.....	.....	2
Education .....	46	63	109	121	221	342	75	158	.....	.....
Graduate .....	237	98	335	285	98	383	48	.....	.....	.....
Summer Session (net) .....	177	338	515	256	461	717	79	123	.....	.....
Total .....	6700	4386	11086	7731	4836	12567	1031	450	.....	.....
Less duplicates....	72	32	104	81	28	109	9	.....	.....	4
Net total.....	6628	4354	10982	7650	4808	12458	1022	454	.....	.....
EXTENSION:										
General .....	1044	907	1951	1169	1022	2191	125	115	.....	.....
Correspondence ..	136	72	208	113	120	233	.....	48	23	.....
Merchants' Short Course .....	136	2	138	88	3	91	.....	1	48	.....
Total .....	1316	981	2297	1370	1145	2515	54	164	.....	.....
SUMMARY:										
Total, resident stu- dents .....	6628	4354	10982	7650	4808	12458	1022	454	.....	.....
Total, extension students .....	1316	981	2297	1370	1145	2515	54	164	.....	.....
Grand totals..	7944	5335	13279	9020	5953	14973	1076	618	.....	.....

Table VI is the complete chart showing the number and kinds of degrees granted during the past nineteen years.

Table VII continues the chart showing the number and kind of degrees granted in 1915-16 and 1916-17.

TABLE VII. DEGREES CONFERRED, 1915-1917

COLLEGES AND DEGREES	YEAR 1915-1916			YEAR 1916-1917		
	Men	Women	Total	Men	Women	Total
SCIENCE, LITERATURE, AND THE ARTS:						
B.A.	84	148	232	87	166	253
B.A. in Music		4	4	1	4	5
B.S.	33		33	46	1	47
ENGINEERING AND ARCHITECTURE:						
C.E.	8		8	7		7
E.E.	10		10	13		13
M.E.	7		7	4		4
B.S. in Engineering	57		57	50		50
B.S. in Architecture	4		4	8		8
AGRICULTURE:						
B.S. in Agriculture	51		51	75		75
B.S. in Home Economics		37	37		55	55
FORESTRY:						
B.S.	10		10	3		3
LAW:						
LL.B.	30		30	34		34
MEDICINE:						
M.D.	33	1	34	15		15
Certificates				22	2	24
Graduates in Nursing		9	9		12	12
DENTISTRY:						
D.D.S.	79	1	80	88	5	93
MINES:						
E.M.	9		9	9		9
E.M. in Geology				5		5
Met.E.				1		1
PHARMACY:						
B.Ph.m.	1		1			
Ph.m.G.	22	5	27	30	2	32
M.S. in Phm.		2	2			
CHEMISTRY:						
Chem.Eng.				1		1
B.S.	1		1	8		8
B.S. in Chem.	3		3	8	1	9
EDUCATION:						
B.A. in Educ.	15	24	39	16	21	37
GRADUATE:						
M.A.	20	15	35	26	20	46
M.S.	19		19	20	5	25
Ph.D.	6	1	7	9	2	11
Ph.D. in Surgery				1		1
D.S.				1		1
D.S. in Neurology				1		1
D.S. in Pediatrics				1		1
Total	502	247	749	590	296	886

Table VIII enumerates the preparatory schools from which students entering the freshman classes of the various colleges and schools were received during the year 1916-17, and also shows which schools sent no matriculants this year. Of the 260 approved high schools, 189 sent students. Seventy-one were not represented. Of the seventy that sent no matriculants last year, forty-five were represented this year. The largest number from any school outside of St. Paul, Minneapolis, and Duluth, is ten,



which number came from each of the following towns, Alexandria, Rochester, and Stillwater. Two sent 9, one 8, two 7, three 6, twelve 5, eighteen 4, sixteen 3, forty-six 2, and seventy-four 1. Thirty-five private schools and the University High School were represented. One sent 11, one 8, two 7, three 6, one 5, three 4, five 3, four 2, and fifteen 1. Twenty-nine states are represented this year in the freshman class. Iowa, North Dakota, Wisconsin, South Dakota, and Montana in the order given lead in non-resident representation. Compared with last year, the Dakotas change places. Three states represented last year sent none this year. Eight states not represented last year sent students this year. Of the foreign countries, only 3 were represented each year, and these were not the same countries. Canada sent 2, India 1, and Japan 1.

TABLE VIII. SCHOOLS FROM WHICH ENTRANTS WERE ACCEPTED,  
1916-1917

	Science, Literature, and the Arts	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nurses	Special Law	Agriculture	Total
MINNESOTA										
Ada	1									1
Adrian										1
Aitkin	1						1			2
Akeley	1									1
Albert Lea		1	1							2
Alden								1		1
Alexandria	5	1			2				2	10
Amboy			1							1
Annandale	1									1
Anoka	2									2
Appleton	4		1							5
Argyle	1									1
Arlington	2									2
Atwater	1	1								2
Aurora										1
Austin	7	1					1			9
Bagley	1									1
Barnesville	1									1
Battle Lake										1
Baudette										1
Beardsley										1
Belle Plaine	1	1								2
Bemidji	1									1
Benson	1	2							2	3
Bird Island										1
Biwabik	1									1
Blackduck	2					1				3
Blooming Prairie	1				1					2
Blue Earth										1
Brainerd	1			1						2
Breckenridge										1
Brooten										1
Brown Valley	1		1						1	3







TABLE VIII—Continued

	Science, Literature, and the Arts	Engineering	Chemistry	Mines	Dentistry	Pharmacy	Nurses	Special Law	Agriculture	Total
Starbuck .....	1									1
Stephen .....	1			1						2
Stewartville .....					1					1
Stillwater .....	7	1			1			1		10
Thief River Falls .....	2	1						2		4
Tower .....	2									2
Tracy .....										
Truman .....										
Two Harbors .....	1									1
Tyler .....					1					1
Virginia .....	1									1
Wabasha .....		2	1		2					5
Waconia .....										
Wadena .....		1			2			1		4
Wahkon .....										
Walker .....										
Walnut Grove .....										
Warren .....		3						2		5
Waseca .....	3				1		1			5
Waterville .....	1									1
Watertown .....	1					1				1
Wayzata .....								1		1
Welcome .....	1									1
Wells .....	1	1								2
Westbrook .....	1									1
West Concord .....	1									1
Wheaton .....	1		1		1			1		4
White Bear .....	2									2
Willmar .....	1	2			1		1			5
Windom .....										
Winnebago .....						1				1
Winona .....		1						1		2
Winthrop .....										
Worthington .....	3	1								4
Zumbrota .....						1				1
High School Exam- inations .....	6				1		1	5		13
MINNESOTA										
Albert Lea College .....								1		1
Backus School .....	3									3
Bethel Academy .....							1			1
Blake School .....	2			1				3		6
Concordia College .....	1	1								2
Crookston School of Agriculture .....								1		1
De La Salle Institute .....						2				2
Duluth Normal .....								1		1
Gustavus Adolphus .....								1		1
Loomis School .....	1									1
Luther Ladies' Sem. .....								1		1
Macalester Academy .....	3									3
Mankato Normal .....							1	1		2
Minnesota College .....	3	1			2					6
Northrop Collegiate .....								1		1
Norwegian Seminary .....	1									1
Park Region Luther College .....	1									1
Pillsbury Academy .....	6	1								7
Red Wing Seminary .....								1		1
St. Benedict .....	1									1
St. Catherine .....	4									4
St. Clare Seminary .....	2									2
St. Cloud Normal .....								1		1
St. John's University .....	3									3
St. Joseph's Academy .....	3							1		4











SUMMARY

Iowa .....	47	Michigan .....	5	Idaho .....	1
North Dakota.....	35	Nebraska .....	5	Kansas .....	1
Wisconsin .....	32	Wisconsin .....	4	Maine .....	1
South Dakota.....	31	Ohio .....	3	Maryland .....	1
Montana .....	27	Pennsylvania .....	2	New Jersey.....	1
Illinois .....	9	Texas .....	2	Tennessee .....	1
New York.....	8	District of Columbia.....	2	Virginia .....	1
Indiana .....	7	California .....	1	West Virginia.....	1
Missouri .....	6	Colorado .....	1	Wyoming .....	1
Massachusetts .....	5	Georgia .....	1		
Total number of entrants for Minnesota.....					1131
Total number for United States, outside of Minnesota.....					242
Total for foreign countries.....					5
Grand total.....					1378

Table IX shows the geographical distribution of all students of collegiate grade exclusive of the Summer Session, and should not be confused with Table VIII which shows the distribution of entrants only. Iowa, North Dakota, Montana, Illinois, Missouri, Massachusetts and New York, Michigan, and Indiana, in the order named lead in the enrollment of out-of-state students. Of foreign students, 31 per cent come for Liberal Arts courses, 19 per cent for Engineering, 11 per cent for Graduate study, 8 per cent each for Dentistry and Agriculture, and the remainder are distributed in Chemistry, Mines, Pharmacy, Medicine, Law, and Nurses.

Of out-of-state students, 44 per cent come for Liberal Arts courses, 11 per cent for Agriculture, 10 per cent for Engineering, 6.5 per cent for Dentistry, 5.8 per cent for Graduate work, the remainder being distributed among the other colleges in the following order: Dentistry, Law, Education, Chemistry, Pharmacy, Mines, Nurses, and Forestry.

TABLE IX. GEOGRAPHICAL DISTRIBUTION OF COLLEGIATE STUDENTS, 1916-1917

STATE	Science, Literature, and the Arts	Engineering	Chemistry	Mines	Law	Pharmacy	Medical	Nurses	Dentistry	Agriculture	Forestry	Education	Graduate	Total
Arizona	2													2
Arkansas	2													2
California	2						1						1	4
Colorado	2												1	3
Florida									1					1
Georgia													1	1
Idaho			1				2							3
Illinois	9	1			6		1			3	1		6	27
Indiana		3					1					1		14
Iowa	56	17	5		5	1	12	1	7	8	1	5	9	129
Kansas	1	2											1	4
Kentucky							1						2	3
Louisiana													1	1
Maine													1	1
Maryland							1							1
Massachusetts	8	1							1	1			5	16
Michigan	5	4					1		1				1	14
Minnesota	2132	487	90	69	192	89	213	55	313	667	31	182	217	4737
Mississippi	4													4
Missouri	5	2					4						9	20
Montana	27	8	2		2	2	1	1		3			1	47
Nebraska	2				2					2			4	10
Nevada			1											1
New Jersey	2													2
New York	3						1			2		2	8	16
North Dakota	51	9		3	5	1	10	5	17	2		1	5	109
Ohio	2				1		1					1	7	12
Oregon	4													4
Pennsylvania					1					1			4	6
Rhode Island													3	3
South Carolina													1	1
South Dakota	50	16	1		4	3	4		5	7		1	2	87
Tennessee							1						2	3
Texas	1													1
Utah							1						3	4
Vermont												1		1
Virginia	2				1								2	5
Washington	4	1					6		3	1			3	18
Washington, D.C.	2	2											1	5
West Virginia	1													1
Wisconsin	35	12	1	6	5	5	8	6	12	1	2	8	8	109
Wyoming													1	1
U. S. POSSESSSIONS														
Alaska							1							1
Cuba	1	1												2
OTHER COUNTRIES														
Africa										1				1
Brazil		1												1
Canada	10	4	1		1				2	3			1	22
China	4	2	1	4			1						2	14
Egypt														1
England	2	1												3
India	2					1	2			1			2	8
Japan	2	1						1	1				1	6
Korea						1								1
Mexico													2	2
Norway			4						3					7
Russia	2									1				3
Siberia			2											2
Grand total	2439	573	105	82	224	106	273	69	365	707	35	205	324	5507

Table X shows the distribution of collegiate grade students (not including the summer session) of Minnesota by counties. Every county of the state is represented but one, Cook.

TABLE X. GEOGRAPHICAL DISTRIBUTION, BY COUNTIES, OF MINNESOTA STUDENTS OF COLLEGIATE GRADE (OTHER THAN SUMMER SESSION) 1916-1917

COUNTIES	Science, Literature, and the Arts	Engineering	Chemistry	Mines	Law	Pharmacy	Medical	Nurses	Dentistry	Agriculture	Forestry	Education	Graduate	Total
Aitkin	4	..	..	1	2	..	..	..	..	2	..	..	1	10
Anoka	5	1	..	..	..	1	1	..	1	2	..	..	..	11
Becker	9	1	..	..	4	..	1	1	3	6	..	..	..	25
Beltrami	5	3	..	..	..	1	..	..	1	3	..	..	..	13
Benton	2	1	..	..	1	..	1	..	..	..	..	2	..	7
Big Stone	5	..	..	..	2	..	..	..	1	3	..	..	..	13
Blue Earth	13	3	4	..	7	..	..	2	9	11	..	3	2	54
Brown	12	4	..	..	..	..	4	1	1	5	..	..	..	27
Carlton	12	1	1	..	..	..	..	..	2	2	..	..	1	17
Carver	6	..	..	..	..	..	3	..	2	1	..	..	..	12
Cass	3	..	..	..	..	..	..	..	1	2	..	..	..	6
Chippewa	8	2	..	..	..	1	..	..	1	2	..	..	..	13
Chisago	1	2	1	..	..	..	..	..	5	4	..	2	2	17
Clay	4	1	..	..	2	1	1	..	1	..	..	..	..	10
Clearwater	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Cook	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Cottonwood	11	..	..	..	2	..	1	1	1	4	..	..	..	20
Crow Wing	4	3	..	4	1	..	1	..	3	3	..	..	..	19
Dakota	9	2	..	..	2	..	1	..	1	5	..	1	2	23
Dodge	2	..	..	..	..	..	..	..	1	3	..	1	..	7
Douglas	8	3	..	..	2	..	..	..	2	6	..	..	..	21
Faribault	8	2	..	..	..	..	1	1	1	2	..	..	2	17
Fillmore	8	6	1	1	3	4	1	..	9	7	..	..	..	40
Freeborn	4	1	1	..	..	..	2	..	1	2	..	..	..	11
Goodhue	11	10	1	..	2	4	1	1	4	7	..	..	2	43
Grant	3	1	..	..	..	..	..	..	..	5	..	..	1	11
Hennepin	1116	192	38	27	82	24	90	17	103	228	20	90	144	2171
Houston	4	1	..	..	..	1	..	..	2	4	1	3	1	17
Hubbard	3	..	..	..	1	1	..	..	..	1	..	..	..	6
Isanti	3	..	..	..	..	1	..	..	2	..	..	1	..	7
Itasca	8	2	1	..	2	2	..	..	2	4	..	..	1	22
Jackson	4	..	2	1	2	..	..	1	3	10	..	..	2	25
Kanabec	4	1	..	..	..	..	1	..	2	1	..	..	..	9
Kandiyohi	15	7	1	..	1	2	2	1	4	6	..	2	..	41
Kittson	5	..	..	1	5	..	..	..	2	1	..	..	..	14
Koochiching	1	..	..	..	..	..	..	..	1	2	1	..	..	5
Lac qui Parle	4	1	..	..	3	3	3	1	2	3	..	..	..	20
Lake	4	2	..	..	2	..	1	..	..	2	..	2	1	14
Le Sueur	14	1	..	..	..	1	3	2	2	6	..	2	1	32
Lincoln	4	3	..	1	..	3	..	..	1	1	..	..	..	13
Lyon	4	..	1	..	..	1	1	..	5	1	..	..	1	14
McLeod	21	4	..	..	1	1	4	2	4	6	..	2	..	45
Mahnomen	2	..	..	..	..	..	..	..	1	..	..	..	..	3
Marshall	1	4	..	1	1	..	..	..	..	5	..	..	1	14
Martin	3	2	..	..	2	1	3	..	2	2	..	1	..	16
Meeker	10	7	1	..	..	1	..	..	6	1	..	..	..	26
Mille Lacs	2	3	..	1	..	2	2	1	..	..	..	1	..	12
Morrison	7	3	1	1	..	..	..	..	..	5	..	2	..	19
Mower	18	6	..	..	..	..	2	..	..	6	..	..	1	33
Murray	5	3	..	..	..	1	1	..	..	5	..	..	..	15
Nicollet	2	..	..	..	2	..	1	..	1	5	..	..	..	12
Nobles	6	3	..	..	2	1	1	..	1	4	..	..	..	18
Norman	1	..	..	..	..	1	..	1	3	5	..	..	..	15
Olmsted	14	5	2	..	..	2	1	1	2	5	..	4	34	70

TABLE X—Continued

	Science, Literature, and the Arts	Engineering	Chemistry	Mines	Law	Pharmacy	Medical	Nurses	Dentistry	Agriculture	Forestry	Education	Graduate	Total
Otter Tail.....	12	2	...	1	2	3	4	1	10	4	...	2	...	41
Pennington.....	5	...	...	...	1	...	1	...	3	...	...	...	1	11
Pine.....	14	...	1	...	1	...	...	...	1	2	1	...	1	21
Pipestone.....	6	1	...	...	...	...	1	...	3	...	...	...	...	12
Polk.....	6	2	2	...	3	1	3	3	1	8	1	1	...	31
Pope.....	6	2	...	1	...	2	1	3	3	1	...	3	...	22
Ramsey.....	389	79	18	16	25	6	37	63	30	118	3	35	...	762
Red Lake.....	1	1	...	...	...	...	...	1	...	...	...	...	...	2
Redwood.....	14	2	...	...	2	...	1	...	1	7	...	1	1	29
Renville.....	12	1	...	...	1	...	3	...	8	10	...	...	...	35
Rice.....	15	1	...	...	1	...	6	...	4	8	1	...	1	37
Rock.....	8	3	...	...	...	...	1	...	1	3	...	...	1	17
Roseau.....	1	1	...	...	...	...	...	...	...	...	...	...	...	2
St. Louis.....	62	35	5	8	8	7	3	1	8	22	...	5	1	169
Scott.....	8	1	...	...	1	...	4	1	4	2	...	...	2	23
Sherburne.....	1	2	...	...	...	1	...	...	...	4	1	...	...	9
Sibley.....	3	2	...	...	2	...	1	...	1	3	...	...	...	12
Stearns.....	11	4	2	2	1	...	3	1	8	12	1	2	1	48
Steele.....	10	2	...	...	...	1	1	...	1	8	...	1	...	24
Stevens.....	...	1	...	...	...	1	...	...	...	...	...	1	...	3
Swift.....	11	5	1	...	1	...	...	...	1	1	...	...	...	20
Todd.....	6	4	...	...	...	...	...	...	1	5	...	2	1	19
Traverse.....	1	1	1	...	...	...	1	...	1	3	...	1	1	10
Wabasha.....	9	5	1	...	...	...	1	...	5	3	...	...	1	25
Wadena.....	2	...	...	...	1	...	1	...	2	1	...	...	...	7
Waseca.....	10	2	1	...	...	4	2	3	4	2	...	...	1	29
Washington.....	21	6	1	2	1	1	...	...	3	3	...	1	3	42
Watonwan.....	7	3	...	...	1	...	...	...	1	7	...	...	...	19
Wilkin.....	3	...	...	...	1	...	...	...	1	1	...	...	...	6
Winona.....	8	5	...	...	...	...	...	...	6	5	...	3	1	28
Wright.....	15	12	1	...	1	...	...	2	5	7	...	...	...	43
Yellow Medicine.....	9	4	...	...	2	2	1	...	2	4	...	...	...	24
Total, 86	2132	487	90	69	192	89	213	55	313	667	31	182	217	4737

## A SURVEY OF THE COLLEGES, ETC.

*College of Science, Literature, and the Arts.*—(1) Increase in enrollment, women 2.3 per cent, men 9.4 per cent, total increase in College 5.6 per cent; (2) increase in members of faculty 14.0 per cent; (3) requirements for graduation simplified; (4) sharper distinction between first two years, known as Junior College, and last two years, known as Senior College; (5) new five-year course established in Training for Social and Civic Work; (6) division of Department of Philosophy and Psychology into separate departments.

*College of Engineering and Architecture.*—(1) Enrollment the same as for previous year: 125 students withdrew for war service; (2) faculty increased by six instructors; (3) quality of students' work unfavorably affected by war; (4) Francis C. Shenhon resigned as Dean, John R. Allen of University of

Michigan succeeded him; (5) research problems new and old received attention; (6) recommendations—increased salaries, electrical laboratory, experiment station.

*Department of Agriculture.*—(1) The special course of study in Dairy and Animal Husbandry replaced by two new courses of study permitting specialization in either Animal Husbandry or Dairy Husbandry; (2) the time for selection of the line of specialization changed from the close of the sophomore year to the close of the freshman year; (3) compulsory physical education for freshmen in Agriculture introduced; (4) farm experience requirement for admission to collegiate courses in Agriculture replaced by a no-credit course in Farm Practice required of those who enter with insufficient farm experience; (5) two summers of Home Practice work following the freshman and sophomore years required of students in Home Economics; (6) Short Course for Graduate Veterinarians discontinued and Short Course for Editors introduced; (7) ten Station bulletins (including 1 reprint); 4 bulletins, Farmers' Library Series; 6 bulletins, special series, and 24 articles in scientific journals, published during the year; (8) organization of the Animal Husbandry Group including the Divisions of Animal Husbandry, Nutrition, Dairy Husbandry, Poultry, and Veterinary Medicine; (9) special courses offered for extension field assistants, mess sergeants, and two extra short courses for traction engineers.

*Law School.*—(1) Increase of 30 per cent in enrollment; (2) interruption of school work by enlistment in spring, 54 students entered the service; (3) since 1913, Library has grown from 18,540 volumes to 25,785 volumes; (4) scholarship statistics show large percentage of conditions and failures: students do not realize that their entire time is necessary: poor preparatory work the cause of large percentage of failures: college work is necessary to carry on the law work; (5) urgent need of fireproof law building to provide classroom facilities and protect library.

*Medical School.*—(1) Encouraging progress in Graduate Medical work; (2) scholarship and fellowship gifts; (3) limitation of numbers improves quality of students; (4) medical students are purchasing microscopes; (5) Social Service Department extending its work; (6) School of Embalming successful in raising standards; (7) important service of Psychologic and

Psychiatric Clinic; (8) full-time system for clinical teachers being developed; (9) war service and the Minnesota Base-Hospital; (10) reports of progress of Hospital and School for Nurses.

*College of Dentistry.*—(1) Four-year course became obligatory this year; (2) more freshmen applicants than could be matriculated; (3) emphasis placed on clinical and laboratory research in bacteriology and pathology of mouth diseases; (4) 78 seniors enlisted in Dental Reserve Corps.

*School of Mines.*—(1) State Mining Experiment Station made 375 tests; (2) *Bulletin* No. 5 being printed as result of Cuyuna manganiferous iron ore investigations; (3) work for Minnesota Tax Commission continued; (4) coöperation in testing ores for Minnesota, Wisconsin, and United States Geological Surveys; (5) Federal Bureau of Mines, to be known as Lake Superior Station, established at University of Minnesota for coöperation with United States Bureau of Mines.

*College of Pharmacy.*—(1) Three year course proved successful; (2) enrollment same as 1915-16, a total of 105; (3) 17,980 prescriptions filled at Free Dispensary Drug Room; (4) 27 papers given before state and national associations by faculty members; (5) departmental librarian needed.

*School of Chemistry.*—(1) Certain pressing needs in laboratory equipment; (2) difficulty encountered in securing certain rare chemicals on account of the war; (3) large increase in enrollment in lower classes; (4) 42 research problems were under investigation by faculty.

*College of Education.*—(1) An increase of 94.3 per cent in enrollment, due in part to transfer of unclassified students from Arts; (2) fourth Annual Short Course for principals and superintendents held April 4 to 7; (3) Bureau of Coöperative Research published *Bulletins* 44 and 49; (4) material received from 105 city and village schools, mimeographed copies of the compiled data distributed; (5) University High School enrollment increased 39 per cent; age limit of 20 years: pupils comparable with those of average public high school; (6) physical training required of all girls; (7) usual high-school subjects offered.

*Graduate School.*—(1) An increase of 23.4 per cent in registration; (2) 68 Master of Arts degrees granted, 11 Doctor of Philosophy, 1 Doctor of Philosophy in Surgery, 3 Doctor of

Science; (3) numerous works in the field of research publications; (4) \$6,400 allotted to various faculty members for the purpose of research work; (5) value of Graduate School lies in ardor and zeal of graduate students which can not be set forth in discussions or figures.

*Women of the University.*—The report of the Acting Dean of Women: (1) Dean of Women absent on sick leave: her duties assigned to other officers and office assistant; (2) 2,443 women enrolled, 2,051 in regular session, 492 in summer; (3) of regular enrollment, 1,318 lived at home or with relatives and friends; (4) Women's Self-Government Association active; (5) vocational conference for women students successfully carried through; (6) Sanford Hall filled, 100 applicants turned away; (7) 86 lodging houses inspected, visiting nurse's services available; (8) \$918 loaned to students from Dean's Fund; (9) 10 scholarships of \$100 each given for 1917-18.

*Agricultural Extension.*—(1) Sixteen county agents now employed; (2) 25 Farmers' Short Courses held, enrolling 6,253 students; (3) cow testing work carried on by 25 associations; (4) attention given to improvement of dairy stock; (5) farm management demonstrations continued and 280 individual farm records taken: 4,000 farm record books distributed; (6) Farmers' Club work increasing, a total of 1,200 clubs in state; (7) extension work in Home Economics placed stress on public health and food conservation; (8) increased interest in Boys' and Girls' Club work, evidenced by exhibits at Fair; (9) 68 regular and 218 special Farmers' Institute Meetings held with an attendance of 45,110; (10) livestock shipping associations and coöperative creameries promoted; (11) continued demonstrations show that alfalfa can be grown in any section of the state with profit; (12) potato disease control continued in 7 counties.

*General Extension.*—(1) Reduction of appropriation to \$25,000 necessitated extreme economy; (2) evening classes in Collegiate, Business, and Engineering subjects continued, enrollment increased from 2,854 to 3,830; (3) certificates for completion of these courses granted to 17 students; (4) fourth Merchants' Short Course successful with 125 registrants; (5) lyceum courses increased from 37 in 1913-14 to 136 in 1916-17; (6) plans



for coöperative Chautauqua system postponed; (7) correspondence courses in Business Law and Business English given to 247 students; (8) University debating squads not sent out; (9) University Weeks discontinued; (10) Municipal Reference Bureau gaining in favor with city officials: bi-monthly magazine issued by League of Minnesota Municipalities; (11) University Drama Service helped schools select and produce plays; (12) short courses given in Red Cross work, including Home Nursing, Home Dietetics, and First Aid.

*Department of Physical Education for Men.*—(1) During the year 1,575 physical examinations were made, 740 medical inspections, 270 emergency examinations, and 147 of candidates for the Reserve Officers' Training Camp; (2) special lectures on sex hygiene given to 1,142 students; (3) 1,110 disease census cards compiled; (4) 693 students in regular gymnasium classes; (5) corrective gymnastics given 3 periods each week; (6) intramural sports and intercollegiate gymnastics and wrestling promoted; (7) new gymnasium and more ground for intramural sports urgently needed.

*Department of Physical Education for Women.*—(1) Full examinations were given to 715 women students, 90 seniors who were candidates for teachers certificates, 426 reëxaminations: all students at schools of agriculture, and 42 in University High School also examined; (2) health consultations with all sophomores and juniors and weekly hygiene records kept; (3) courses in principles of Physical Education offered for prospective high school teachers; (4) all new students (577) took the work in Elementary Physical Training; (5) total enrollment in department 1,706 as compared with 923 in 1915-16; (6) recommendations (a) that requirements in Physical Education include sophomore year, (b) that professional training course in Physical Education leading to a degree be offered, (c) that additional instructors be employed to take charge of work for University High School girls.

*Department of Intramural Sports.*—(1) Every form of athletics was taken up in interclass, intercollege, interfraternity, and all-University contests; (2) Women's Athletic Association and Department of Physical Education for Women promoted athletic contests in tennis, hockey, swimming, etc.; (3) total number of men competing was 1,214, of women 501; (4) urgent need for

increased playground space and gymnasium facilities; (5) need of an expert to maintain outdoor playgrounds.

*Military Department.*—(1) Four regular Army officers and six sergeants of United States Army on department roll; (2) regular work of a Reserve Officers' Training Unit organized; (3) nearly 400 men of Cadet Corps entered United States service; (4) Cadet Corps inspected by United States Army officer and continued in the "distinguished" class; (5) commandant recommends increased appropriation for Military Department; (6) attitude of University authorities warmly commended.

*Geological Survey.*—(1) Coöperation with U. S. Geological Survey and Bureau of Mines, etc., continued; (2) need of funds for continuation of topographical survey; (3) detailed survey of portion of Mesabi range carried out; (4) survey of Cuyuna range continued; (5) studies made in the secondary concentration of iron ores by weathering; (6) samples of natural gas found near Le Sueur Center analyzed; (7) list of recent publications and of others in preparation.

*Botanical Survey.*—(1) Ecological work continued in the northern part of the state.

*Zoological Museum.*—(1) Museum collections installed in new Biological Laboratory; (2) list of 6 groups of animals given to the museum by citizens of Minnesota; (3) 3 other groups in process of construction; (4) friends have given \$6,731.96 for museum purposes; (5) illustrated lectures given to general audiences; (6) many outside visitors to the museum.

*University Library.*—(1) Work of Library hampered by inability to secure foreign publications; (2) opening of new reading room giving added facilities; (3) 147,543 volumes loaned out during year; (4) total expenditure of \$35,567.29 for books, periodicals, and binding; (5) copy for minor list of periodicals completed: plan under way to consolidate lists of various universities; (6) difficult to secure efficient assistants in departmental libraries; (7) large addition to collection of maps by Mr. Andrew Benton, Law, '95; (8) first number of proposed bibliographical series ready for publication in field of seventeenth century English history.

*Academic Fraternities.*—(1) Rule passed prohibiting pledging of men in high school or preparatory school before graduation; (2) fewer freshmen eligible for initiation in February, 1917,

than in 1916; (3) scholarship record not compiled because so many men entered war service; (4) large percentage of fraternity men in government service.

*The General Alumni Association.*—(1) *Alumni Weekly* meets higher production costs without curtailing volume of news; (2) Secretary chairman of committee which issued the *Hand-Book of the Association of Alumni Secretaries*; (3) endowment fund reaches \$30,226.09; debt reduced by \$591.90; (4) new constitution adopted; (5) information gathered about alumni available for war service.

*Registrar's Office.*—(1) Proposal to employ additional tests for admission being considered; (2) calendar readjusted to release students for agricultural service; (3) dropped students to be readmitted only with permission of the faculty which originally dismissed them; (4) three schools added to accredited list; (5) Junior College work of certain schools recognized; (6) St. Thomas College admitted to full collegiate standing; (7) appointment of an advanced standing officer recommended.

## PHYSICAL PLANT AND EQUIPMENT

*The new Biological Laboratory.*—This building was completed and occupied in the summer of 1916. It contains laboratories, classrooms, offices, storerooms, a large aquarium, a lecture amphitheater, preparation rooms, animal cages, a small audience room for the display of films and slides, and considerable space for the Zoological Museum collections. The laboratory provides quarters for all the teaching and investigation carried on by the Department of Animal Biology. The proximity of the Institute of Anatomy offers opportunities for coöperation in the use of library facilities and in other ways. The Museum is easily accessible to the general public.

*New wing of Home Economics Building.*—This addition to the building at the University Farm was ready for use in the autumn of 1916. It furnishes additional laboratory and classroom space needed for the rapidly growing Department of Home Economics. A large lecture room can accommodate assemblies of considerable size. A spacious and tastefully furnished reception room which by the sliding back of a partition can be thrown

together with a commodious dining room serves both as a practice apartment for serving meals and conducting receptions, and as a club room for the college women on the Farm campus.

*Progress in the Minnesota Union.*—When the legislature authorized the conversion of the Chemistry Laboratory into a club house for men students, an appropriation of \$17,500 was granted for fundamental renovation. With this sum the lower dining room was finished, the kitchen was equipped, and certain plumbing work was completed. Year by year out of University funds and from the membership fees of the students, betterments have been steadily carried through. The Little Theater has served a useful purpose. During 1916-17 the ballroom on the third floor, together with a dressing room for women, has been completed under the supervision of Professor Roy C. Jones of the Department of Architecture. The room is admirably adapted to the purpose, and the finish and decorations are in the best taste. As the years pass the building will grow into a convenient and well-appointed club house.

*Contract for electric current.*—The University has entered into a new contract with the Minneapolis General Electric Company by which the rate falls from 3 cents per kilowatt hour to 1¾ cents. Altho the contract extends over a period of ten years, provision is made by which the Regents may cancel the agreement, paying retroactively, however, a higher rate if this is done. If it were ever deemed best for the University to produce power and light in its own plant, the new contract would not stand in the way.

## SIX YEARS OF TRANSITION

(This summary of the evolution and development of University policy and administration during the period from April 1, 1911 to June 30, 1917, records changes which are traceable to the influence of no one individual, but to the initiative of scores of persons and to the coöperation of Regents, faculties, students, graduates, state officers, and other citizens.)

### UNIFYING THE UNIVERSITY

*Centralization of organization* has made steady progress.

1. A University Senate created by the Regents on recommendation of a faculty commission; assertion of central authority with recognition of group autonomy in characteristic essentials.

2. Senate committees appointed to deal with problems from the standpoint of the University as a whole; an Administrative Committee of Deans and University officers; Committees on Library, Relations with Other Institutions, Appointments (to teaching positions in high schools, etc.), University Extension, Intercollegiate Athletics, Intramural Athletics, Student Publications, Student Affairs, Audit of Student Finances.

3. University officials recognized and increased in number. Dean of Women explicitly given jurisdiction over all women students; University status of Librarian, Registrar, and Comptroller insisted upon; deanship of student affairs and vocational advisership of women established.

4. Uniformity secured in: a University marking system, rating of secondary schools and colleges, qualitative credit for advanced standing, regulations concerning student eligibility for participation in athletics and other activities, regulation of student organizations; approximation to uniformity in student discipline.

5. Weekly meetings of the Administrative Committee serving as a clearing-house of information and a means of unified, consistent administration of the University.

6. A summer session organized on a University basis with approximate uniformity in scale of compensation, hours of teaching, credits, etc.

7. University ownership of all buildings and equipment explicitly asserted; centralization of purchasing; concentration of supplies in University storehouse; partial consolidation of mechanical shops, etc.

8. An All-University Student Council and a Women's Self-Government Association organized on a University-wide basis to deal with problems which affect all students and University women as a group.

*Budget making and legislative policy have a unifying effect.*

1. Budget making a coöperative process; every administrative unit represented in the budget committee, i.e., the Administrative Board of Senate.

2. Dean of every college familiar with problems and needs of other colleges; full and frank discussion of relative requirements.

3. Complete budget printed and accessible to all members of the faculty.

4. Biennial budget making and presentation of requests to Legislature a University function; attempts of individuals and groups to make independent appeals officially discountenanced, and practically eliminated.

5. Legislative recognition of University unity; substitution of one large maintenance appropriation for many specific funds.

*College and departmental interrelations have grown closer and more coöperative.*

1. Exchange of instruction between University teaching units, e.g., Arts, Education, Agriculture, Engineering, Medicine; Human Anatomy and Physiology recognized as departments in Arts College; Home Economics in Agriculture serves women in Arts, etc.

2. Combined curricula in Arts and Law and in Arts and Medicine involve conference and understanding; new courses in Business and in Training for Social Work call for coöperation of different colleges and departments.

3. The development of the University Library supervised by a University Committee, the Graduate School which includes all teaching units, the allotment of research funds and of special apparatus funds by similar groups, all make for unity.

*University public and social exercises, clubs, etc.*, lay stress upon the collective character of the institution.

1. Convocations, especially the opening Convocation in the autumn, give students and faculty a sense of the University as a whole.

2. University lectures by members of the faculty tend to give individual men and women a University standing rather than merely a college position.

3. Senate meetings, faculty welcome to new members, meetings with Regents, entertainments at University Farm and in the Minnesota Union foster a University spirit.

4. The formation of interdepartmental conferences on subjects of common interest, e.g., Biology, Chemistry, etc., promotes wider association.

5. The Minnesota Union draws together the men students of the institution irrespective of registration groupings.

6. The Faculty Club, on the campus, promotes social intercourse on other than college or departmental lines.

*University publications* give expression to the idea of institutional unity.

1. Standardized official Bulletins of Information; duplication of material minimized; official *University Address Book*.

2. Research publications issued in the name of the University as a whole.

3. Handbooks for students as a body; a weekly University Calendar posted throughout all buildings and on University bulletin boards.

*Improved means of communication* draw the parts of the University together.

1. The University Post-Office and Information Bureau operate a system of postal deliveries to and from all buildings and between campuses.

2. The telephone system has been greatly enlarged under favorable contracts with the telephone companies.

3. A University interurban trolley service, with cars leaving each campus every fifteen minutes, has saved large sums otherwise required for duplication of buildings, equipment, and instruction; unifying influence of easy communication obvious.

## GRADUATE STUDY AND RESEARCH

*The Graduate School* has been reorganized and standardized.

1. Administration by a Dean and Committee of seven who represent chief groups of departments.
2. Conferring of all higher (non-professional) degrees put in charge of the Graduate School.
3. The granting of credit for work done *in absentia* abolished.
4. Regulations concerning theses and examinations rigidly enforced.
5. Many departments strengthened so as to be capable of giving advanced courses of standard value.
6. Graduate work in Medicine established on a high plane under most favorable conditions; the resources of the Mayo Foundation; three new Doctorates of Science in Medicine conferred in 1917.
7. New fellowships and scholarships created; teaching fellowships in Medicine and Surgery and in Arts; five special scholarships for graduates of Minnesota colleges, and eight for graduates of colleges in the University.

*Research and the spirit of investigation* have been promoted as essential to a true university.

1. A fund of \$10,000 annually for "research and publication" apportioned by a faculty committee to persons who give most promise of making new contributions to knowledge.
2. Increased library funds used in part for building up special book collections essential for successful research and graduate work.
3. Research Bureau in Agricultural Economics and a Statistical Bureau created: important studies in marketing, coöperation, etc.; significant rural surveys.
4. Bureau of Coöperative Research in Education established; studies of schools in Minnesota.
5. Special clinics opened for the study of defective and backward children.
6. Series of research publications issued in several important fields of scholarship.

## OTHER EDUCATIONAL POLICIES

*Admission to the University* made a subject of careful consideration.

1. Attempt to limit admission to students with high record in secondary schools abandoned; normal graduation from accredited high schools admits to the University.
2. Sifting process in the University more carefully supervised: special committee in Arts College; student advisers for freshmen; no automatic rules: attention to individual cases.
3. Committee appointed to consider tests for discovering before admission candidates who are capable of profiting by a college education.

4. Limitation of numbers in Medicine and Dentistry leads to devising of tests physical, manual, and psychological, in addition to high-school records.

5. Simplification of entrance requirements in both substance and form; larger recognition of vocational subjects.

*The standard of scholarship* has been measurably raised.

1. Classes in many cases reduced in size.

2. The marking system made a subject of inquiry; attempts to eliminate wide variations in practices of instructors.

3. Limitation of numbers adopted in Medicine and Dentistry to insure high standards.

4. Insistence upon primary importance of University work; no suspension of exercises for mass meetings, celebrations, etc.

*Significant changes in various curricula* made during period under consideration.

1. Arts College makes progress; faculty strengthened; curriculum liberalized; recognition of Junior and Senior Colleges; provision for professional and vocational training; departments increased in number; courses in other colleges recognized.

2. Engineering course made more flexible; a five-year advanced course introduced; architecture reintroduced; general engineering course offered; greatly improved quarters for part of the work; substantial gains in equipment.

3. Agricultural courses improved; teaching and research staff strengthened; curricula modified; practical experience required; Agricultural Education introduced and Home Economics put on genuine college basis; animal industry group unified; buildings and equipment increased and improved; close coöperation between two campuses developed.

4. Law course reorganized; faculty reconstructed; standards raised; library improved and enlarged; number of hours increased; no degrees for night class work; practice courses elaborated; practical experience in Legal Aid Bureau; *Law Review* established.

5. Medical school progresses: clinical faculty reorganized; full-time plan introduced; system of teaching fellows established; University Hospital enlarged; arrangements with local hospitals improved; access to State Hospital for Deformed and Crippled Children granted; electives introduced; limit put upon number of students; research encouraged; dispensary moved to campus; Social Service Department organized.

6. Dental course extended to four years; building and equipment improved; number of students limited; high standard maintained.

7. School of Mines in new quarters; relations with mining areas cultivated; opportunities for students improved; testing work greatly increased; important research done; U. S. Mines Experiment Station to be established.

8. Pharmacy course put upon a high-school graduation basis; course extended from two to three years; building and equipment improved.



9. College of Education reorganized; a new administration; all teacher training coordinated in the College; curriculum modified, modernized, and enriched; research spirit fostered; University High School improved, new quarters, over-age pupils excluded, teaching-staff enlarged and strengthened.

10. Military Department strengthened and heartily supported; drill required of all first- and second-year men; summer camp required; under new law, unit of Reserve Officers' Training Corps established; credit for military courses granted in various colleges.

*New courses and departments* introduced or reorganized in several colleges.

1. Architecture reintroduced; four-year course; associated with engineering; already recognized by Association of American Architects as an acceptable standard course.

2. Agricultural Education; four-year course for teachers; originally in College of Agriculture, now administered as a part of the University teachers' training system under College of Education.

3. Four-year Business Course organized in Arts College under a special director.

4. Five-year Course in Training for Social and Civic Work under same type of organization as 3 above.

5. Courses in Journalism introduced; headquarters on Agricultural Campus; open to Liberal Arts students; practice paper maintained; general grounding in newspaper work; special emphasis on agricultural journalism.

6. Political Science reorganized as a separate department in the Arts College.

7. Department of Philosophy and Psychology divided into Department of Philosophy and Department of Psychology.

8. Pediatrics, and Ear, Eye, Nose, and Throat recognized as separate departments in the Medical School.

9. Natural History Museum entirely reorganized; special curator appointed; modern methods introduced; notable gifts made by friends of the University.

*Vocational tendency: practical work* increasingly emphasized.

1. Curricula specialized for purpose of giving professional training. (See above.)

2. Vocational conferences held; pamphlets issued on various callings open to college graduates; series of addresses given on subject; vocational adviser for women appointed.

3. Practical training and experience correlated with college work increasingly required of students in Agriculture, Medicine, Dentistry, Engineering, Mines, Architecture, Law, and Education.

*University Extension: Honors in Agriculture.*

1. University Extension, both General and Agricultural greatly widened in scope; interest shown in every phase of rural life, viz., farm

bureaus, coöperative enterprises, production, marketing, boys' and girls' clubs, rural schools, farmers' clubs, etc.: many methods employed, bulletins, lectures, short courses, farm life plays, institutes, fairs, demonstration farms, exhibit trains, etc.

2. Under auspices of General Extension Division many activities were carried on; evening classes, correspondence courses, film and slide service, "University Weeks" (i.e., Chautauquas), Municipal Reference Bureau; debating contests, drama service, lyceum lecture courses, etc.

3. "Honors in Agriculture" conferred by the Regents, on the recommendation of the Department of Agriculture, upon persons who have made conspicuous contributions to the progress of agriculture, especially in the State of Minnesota. Honors conferred on two groups in 1916 and 1917.

4. Plans proposed but not carried out; School of Public Health, Normal Training Course for Teachers of Physical Education, Course for Librarians.

## ADMINISTRATIVE PROCEDURES

*The Board of Regents:* organization, meetings, presentation of business, etc.

1. Committees reorganized and individual consulting members appointed.

2. Frequent Board meetings held. Executive Committee meetings as often as business requires.

3. Preliminary docket of business sent out a week in advance of meeting; final docket a detailed presentation of items with essential information.

4. All meetings open to the public, save for executive sessions for dealing with personal matters.

5. Full minutes printed and made public soon after each meeting.

6. A "Supplement to the Minutes" established in the form of volumes which contain various documents, memoranda, agreements, correspondence, etc., referred to in the minutes and thus made a part of the official records.

7. Card index made, and currently maintained, of all actions of the Board and its committees, for ready reference.

8. Codification of the rules of the Board put in preliminary form and referred to a committee for final revision.

*Statistical inquiries* as a basis for administrative policy.

1. Bureau of Statistics established for training in statistical methods, and for making studies of University conditions.

2. Studies made of occupancy of University buildings, unit costs of instruction, exchange of instruction between different teaching units of the University, "full-time" of college teachers, per capita cost of maintaining the institution, etc.

3. Statistics gathered as to local distribution of registered students, expenditures of students, occupations and earnings, etc.

4. Regular annual statistics gathered by the Registrar's Office extended in scope and elaborated in detail.

5. Stated returns as to classes, instructors, hours, numbers, etc., made every semester to the President's Office.

6. Classified accounts of expenditures and other financial data supplied by the Business Office.

*Official reports* made at stated periods on progress and needs.

1. *Annual President's Report* which contains detailed reports of University officers on all divisions of the institution, with statistics, financial statements, and a bibliography of books and articles published during the year by members of the faculty.

2. *Biennial Reports* to the Legislature on the condition and needs of the University: full details with tables, charts, and illustrations included; carefully worked out budget requests presented; every item explained as clearly as possible; a small pocket edition of the Budget is issued for the use of Legislative committees and for the information of alumni and others.

*Policies explicitly announced* as a means of consistent administration.

1. Regulations governing "outside work" by members of the staff, formulated by a faculty committee and adopted by the Board of Regents.

2. A statement of policy with respect to rural organization, e.g., cooperative enterprises of various kinds, adopted by the Board, put in printed form and distributed through extension agents and others as a guide to the University staff and as an official notice to the public.

3. Similar declarations of policy occasionally included in the minutes: e.g., as to the use of University buildings by religious organizations.

*Policies implicit* in the attitude of the Board and made the basis of administration.

1. The initiative in formulating educational policies lies with the teaching body.

2. The responsibility for the appointment and promotion of members of the teaching staff rests upon the faculties, Deans, and the President. Political or personal influence plays no part.

3. The appointment of no member of the faculty of rank above instructor is terminated or allowed to lapse without the knowledge of his colleagues, or before their judgment has been secured. (N.B. This principle can not be stretched to cover cases which involve questions of personal morality or of national loyalty.)

4. Any member of the faculty or a group of members may on request have a hearing before the Board or one of its committees, but any attempt to "lobby" with individual Regents is discountenanced.

## THE TEACHING STAFF

*Appointment and tenure of position in conformity with best usage.*

1. Professors and associate professors appointed for indefinite periods.

2. All other appointments for specified terms; systematic card record kept; questions of reappointment, promotion, salary increases, taken up as terms expire.

3. Promotions made conservatively on basis of demonstrated scholarship, teaching ability, and personality; former rule giving Arts faculty power to vote on promotions rescinded; counsel of elected advisory committee of faculty provided for.

4. Rank of associate professor reestablished as: (a) a further test of candidates for full-professorship and (b) final status for men and women deserving of recognition but not sufficiently outstanding for the highest rank.

5. Dismissals (or failure to reappoint) never take place without the knowledge and approval of the Deans and departmental or faculty groups immediately concerned. (See Administrative Procedures, page 58.)

*A salary scale: increases of salary:* changes and tendencies in late years.

1. No fixed, inflexible scale or increases by mere lapse of time, except as approximated in case of instructors in first three years.

2. General tendency toward a maximum and minimum salary for each academic grade; professional school scale, e.g., in Law and Medicine, higher than that in Arts.

3. Appreciable increases in the average salary of each rank in last six years; the average misleading; men of unusual ability increased by large sums; many of ordinary capacity in receipt of small increments; increases have not kept pace with living costs.

4. No promotions in rank made in *lieu of salary*; every promotion carries with it at least the minimum salary for the grade.

*Participation of faculty* in University administration has developed.

1. Arts College elects an Advisory Committee with large influence upon appointments, promotions, salary increases, educational and administrative policies, etc.

2. Engineering College through an elected committee nominated to President and Regents a new Dean.

3. The Research Committee determines the annual distribution of \$10,000 for research and publication.

4. A similar committee apportions the use of a special fund for scientific apparatus.

5. The departmental chairmanship plan introduced in the Arts College, rapidly superseding the headship system, gives faculty members a larger share of influence.

6. The Senate organization gives men and women of professorial rank a real control over University policy; committees deal with important administrative questions.

7. A share in budget making given to enlarged number through chairmanship system in departments and through college advisory committees.

*Private work of professors; full-time; etc., subjects of definition or inquiry.*

1. Regulations governing so called "outside work" or private practice of professors, drawn up by a faculty committee, adopted by the Regents.

2. Statistical inquiry made as to the time which an instructor devotes to various phases of his University work; comparisons with other institutions.

3. The ratio of teachers to students carefully studied, and set up as one criterion of University efficiency.

### STUDENT INTERESTS

*Health of students promoted and safeguarded in increasing measure.*

1. Boarding-houses inspected to insure reasonably good sanitary conditions.

2. Trained visiting nurse provided for University women in Sanford Hall and boarding-houses.

3. Prophylaxis against typhoid, etc., administered without charge.

4. Lectures on personal and sex hygiene given to all entering students.

*Cost of living, employment, scholarships, earnings, etc., made subjects of inquiry.*

1. Biennial inquiry made as to cost of living and earnings of students; results of value in determining needs and reflecting standards of living.

2. Employment Bureau maintained by the University to aid students to secure remunerative work.

3. Student loan funds increased by (a) favorable lease of real estate and (b) the raising of a special fund to be administered by the Dean of Women. Funds now sufficient to meet normal demands; about \$15,000 annually.

4. Special semester scholarships (150) created to assist students unable to pay tuition fees. Ten scholarships (of \$100 each) given by private donors for women students in 1917-18.

*Minnesota Union: coöperative clubs, etc., have enlarged facilities for students.*

1. Former Chemistry Laboratory transformed into a club for men: lounging and study rooms, pool, billiards, and bowling, large cafeteria, private dining rooms, etc.

2. Four campus houses equipped as coöperative clubs for women: maintained at very reasonable rates for lodging and meals.

3. Facilities for women increased by new gymnasium connected with Shevlin Hall.

4. Practice houses in Home Economics maintained in St. Anthony Park; groups of women students live coöperatively and keep careful account of costs; houses wholly self-sustaining on a business basis.

*Student self-government* encouraged and extending steadily.

1. An All-University Council which deals with general interests of students; cases referred to this Council by administrative officers for investigation and recommendation; findings as a rule accepted; in some cases modified by mutual agreement. "Point" system to limit individual participation in college activities adopted. "Honor system" in examinations urged, and in certain colleges accepted. Council issues a student handbook, *The Minnesota Code*.

2. College councils established in many of the colleges to deal with college affairs and to cooperate with the All-University Council.

3. Senate Committees on all matters which affect students have a majority of student members, four to three faculty members.

4. The Women's Self-Government Association, an organization for creating and giving expression to the opinions and standards of University women. Took initiative in establishing annual vocational conferences for women.

5. Deepening sense of student responsibility for the life and conduct of the men and women of the institution; high standards of order and public behavior maintained; support for rigid enforcement of eligibility rules in intercollegiate athletics.

6. Efforts to limit social activities during the week; by student decision University social affairs limited to Friday and Saturday evenings and evenings before holidays. Committee on student affairs issues a directory of societies, regulations, etc., *The Blue Book*.

7. All-University Student Council takes charge of many University affairs, notably the alumni home-coming in the autumn.

8. Self-government in Sanford Hall and in boarding-houses for women enforces University rules and student regulations concerning dormitory and lodging-house life of women.

*Fraternities and sororities* recognized as social groups capable of cooperation and service.

1. Scholarship records of fraternity men carefully kept; lists of relative standing of different groups published; stimulating effect upon undergraduates and alumni; fraternity standard raised to average level of all students.

2. Inter-Fraternity Council and Pan-Hellenic (for sororities) secure agreements on various points; pledging of high-school pupils abolished; fraternities initiate members in second semester, and even then only candidates who have passed in 75 per cent of the work of the first semester; sorority requirement 100 per cent; other reforms adopted.

3. Fraternity credit improved through Senate Committee on student finances; business systems introduced; cooperation with tradesmen to secure settlement of bills; complaints against business dealings of fraternities decrease in number.

## FINANCES AND BUSINESS METHODS

*A modern budget system* installed to insure against deficits and to apportion expenditures.

1. Conservative estimate of receipts from all sources made in advance.
2. An apportionment, with the aid of departments, colleges, and Deans, made of revenue to all the purposes of the University. Each department knows upon how much money it may count.
3. A safe margin or reserve fund provided to meet emergencies and to prevent a deficit.
4. Adoption of the budget by the Regents and the printing of it in full detail.
5. No expenditure made unless it can be apportioned to some division of the budget; no changes in budget except by action of the Regents.
6. Budget system recognized by law by the Legislature of 1917.

*Supervision and handling of University property* put upon a systematic basis.

1. An inventory clerk appointed to check over and mark all University equipment, furniture, etc.; central records periodically compared with the actual items of property; departments relieved of routine.
2. List of lands owned by the University throughout the state made up from the original records; some of the "Salt Springs" lands personally inspected by representatives of the University.
3. Special report on the University's iron ore lands; made by staff men of School of Mines.
4. Central storehouse established; purchasing in large lots; standardizing of supplies; motor car distribution to all departments; special express trolley service between campuses; economies effected; quick service insured; central control secured.
5. Centralization of shops partially carried through; a University printing office established; multigraphing and mimeographing largely brought into one office.

*Business office reorganized* to care for budget and business requirements.

1. A University Comptroller appointed in charge of business administration.
2. Staff of clerks enlarged to give effect to business methods.
3. Purchasing Agent's Office reorganized and a new system installed.
4. Cashier's position and handling of cash completely rearranged and safeguarded.
5. Budget and storehouse put upon an adequate accounting and clerical basis.
6. Recommendations as to voucher check system and consolidation of funds, long urged by University, carried out by Legislature of 1917.

*University receipts (1911 to 1917)*. See Chart A, page 64.

1. The increase of state support (including mill-tax and interest from endowment funds, the proceeds of state land sales and leases) from \$1,058,940 in 1911 to \$1,808,500 in 1917, an advance of 80 per cent represents the interest at 5 per cent on \$16,000,000.

2. The increase in student fees from \$180,448 in 1911 to \$374,858 in 1917 reflects not only a marked growth in number of students, but a somewhat higher scale of tuition fees. Generous loan funds and 150 free scholarships have protected students of limited resources.

3. The decline of appropriations for buildings and equipment from \$1,102,814 in 1911 to \$131,250 in 1917 not only discloses the fact that material needs have been largely met for a time (not to mention war conditions), but that the tendency has been increasingly to invest in teachers' salaries, books, and apparatus, rather than in buildings, janitors' wages, coal, and electric light.

TABLE SHOWING THE RELATION OF THE BUDGET OF THE DEPARTMENT OF AGRICULTURE TO THAT OF THE UNIVERSITY AS A WHOLE

YEAR	Total main- tenance of University of Minnesota	Total main- tenance of Dept. of Agric. incl. substations	Per cent Dept. of Agric. of total main- tenance	Total main- tenance of substations	Per cent substations of Dept. of Agriculture	Per cent substa- tions of total main- tenance
1911-12....	\$1,274,157.44	\$342,700.93	.268	\$ 79,413.43	.231	.062
1912-13....	1,486,726.52	475,755.13	.320	87,512.20	.183	.058
1913-14....	1,759,732.03	647,975.85	.368	113,432.64	.175	.064
1914-15....	1,926,231.86	708,395.43	.367	122,781.14	.173	.063
1915-16....	2,005,419.87	674,362.38	.336	146,752.18	.217	.073
1916-17....	2,390,423.00	719,345.29	.313	152,836.78	.212	.064

The question as to whether Agricultural interests are being exploited by the rest of the institution has been in the past a subject of sometimes rather bitter discussion. The above table shows that for five years the Agricultural Budget has included on the average one third of the total income of the University. The decline from 36 per cent in 1914-15 to 31 per cent in 1916-17 is more apparent than real. The transfer of much of the Farm business office administration to the Main Campus, the budgeting of a large part of Agricultural Education expenses under the College of Education, and the fact that 90 per cent of the \$30,000 increase in student fees was in colleges on the Main Campus, largely if not wholly account for the decline in the Agricultural Department's percentage of University funds.

## BUILDINGS AND EQUIPMENT

*New buildings, remodeling projects, authorized between 1913 and 1917.*

1. Appropriations made for the following new buildings: Biology Laboratory, School of Mines building, Home Economics laboratory, Women's Gymnasium, Farm Gymnasium, Hospital service building, wing for Farm Dining Hall, cold storage building at Farm, Engineering building and dormitory at West Central School, minor buildings at Farm and sub-stations.

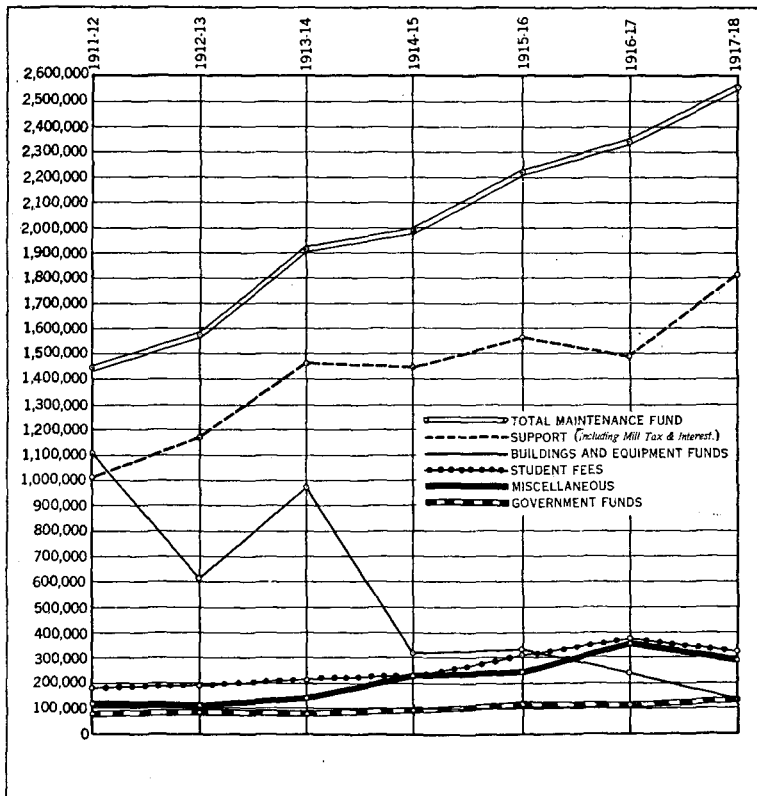
2. New central heating plant erected for the main campus; remodeling and extension of the Farm heating plant; central plants built at Crookston and Morris.

3. Old Mines building rebuilt for College of Education and University High School; Old Millard Hall, which had been damaged by fire, reconstructed for use of College of Pharmacy; vacated Chemistry Laboratory



## THE PRESIDENT'S REPORT

TABLE OF RECEIPTS



renovated and remodeled as club house for the Minnesota Union; chapel remodeled and equipped as stackroom and reading room annex for the main Library; electrical laboratory slightly remodeled; basement of New Millard Hall remodeled to accommodate the Outpatient Department of the University Hospital; large number of minor changes in buildings at Farm and substations.

4. Intercampus trolley line with spur tracks to Farm heating plant and cold storage building constructed.

5. Experimental Farms near Duluth and at Waseca purchased and equipped.

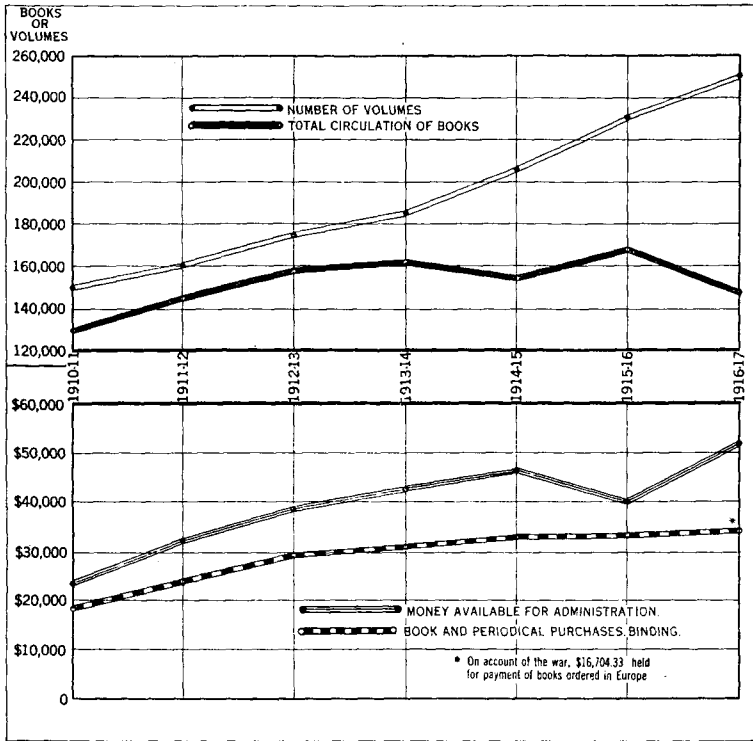
*Growth of library resources, apparatus, etc., during last six years.*

1. Number of volumes in University Library increased from 145,000 in 1910-11 to 250,361 in 1916-17, an advance of 70 per cent. (See Chart B.)

2. Circulation of volumes increased from 125,266 in 1910-11 to 168,774 in 1915-16. The decline to 147,543 in 1916-17 reflects the influence of the war upon attendance and upon concentration upon college work.

LIBRARY REPORT

For Years 1910-1917,  
Inclusive.



3. Annual appropriation for the purchase of books and periodicals and for binding increased from \$23,614.96 in 1910-11 to \$35,567.29 in 1916-17. (The latter sum does not include \$16,704.33 held to pay for books ordered in Europe.)

4. Amount spent for administration of Library (librarians, attendants, cataloging, etc.) rose from \$18,581.96 in 1910-11 to \$34,565 in 1916-17.

5. Substantial additions made to apparatus in many departments, notably in Physics, Electrical Engineering, Mechanical Engineering.

In concluding this my last report as President, I desire to express appreciation of the courtesy, friendliness, forbearance, and coöperation of Regents, Legislature, faculty, students, alumni, and public. Whatever of progress has been made is due to the team-work which the University has developed. For the opportunity to share in this comradeship I am grateful.

Respectfully submitted,

GEORGE E. VINCENT, *President*

# THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

To the President of the University:

SIR: I submit herewith my report for the year 1916-17.

The following changes occurred in the professorial ranks of the faculty:

*Retirement.*—J. Corrin Hutchinson, having reached the retiring age, was appointed Professor of Greek and Head of the Department, Emeritus.

*Resignations.*—Carl Becker, Professor of History, to go to Cornell University; Frederic E. Clements, Professor of Botany and Head of the Department, to accept a research appointment under the Carnegie Institution; Margaret Sweeney, Dean of Women and Professor of Rhetoric, on account of ill health. Five instructors resigned to accept better positions elsewhere.

*Leaves of absence.*—Professors E. E. Stoll of the Department of English and J. S. Young of the Department of Political Science, and Assistant Professors F. K. Butters of the Department of Botany, Daniel Ford of the Department of Rhetoric, and Thomas W. Mitchell of the Department of Economics, were absent on sabbatical leave for the year, and Professor John H. Gray of the Department of Economics for the second semester. Professors Craig and G. S. Ford, Assistant Professors Northrop and Underhill, Instructors Bean, Coburn, Colby, Downs, and Stevens were given leave of absence in May and June to enter the service of the nation in connection with the war.

*New appointments.*—Professors: Carleton Brown, English; Willard E. Hotchkiss, Economics and Director of Business Education; Irville C. Le Compte, Romance Languages; Robert M. Yerkes, Psychology. Associate Professors: Luther L. Bernard, Sociology. Assistant Professors: William Anderson, Political Science; Francis B. Barton, Romance Languages; James Davies, German; A. W. Johnston, Geology and Mineralogy; Alfred E. Koenig, German; Henry T. Moore, Psychology; Terence T. Quirke, Geology and Mineralogy; E. C. Robbins, Economics; Edward H. Sirich, Assistant Professor of Romance Languages; John T. Tate, Assistant Professor of Physics.

*Enrollment.*—The following table shows the attendance during the past two years:

	1915-16			1916-17		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
Seniors .....	81	191	272	88	197	285
Juniors .....	148	213	361	181	236	417
Sophomores .....	310	246	556	365	354	719
Freshmen .....	496	384	380	520	419	939
Unclassed .....	54	226	280	38	83	121
	1,089	1,260	2,349	1,192	1,289	2,481

Registered in other colleges  
and taking work in this col-  
lege equivalent to.....

566

658

*Faculty.*—The number of members of the faculty in the various ranks for the past two years was as follows:

	1915-16	1916-17
Professors .....	34	37½
Associate Professors .....	6	6
Assistant Professors .....	27	35
Professorial Lecturers .....	2	3
Instructors .....	49	58
Teaching Fellows and Assistants equivalent to full time	17	15
	<hr/>	<hr/>
Absent on leave.....	135	154½
	<hr/>	<hr/>
In residence .....	3½	5½
	<hr/>	<hr/>
	131½	149

*Curriculum changes.*—The requirements for graduation have been modified with a view to securing more adequate foundation and discipline in the first two years and the opportunity for the more complete development of the individual student's powers during the third and fourth years. The work of the first two years constitutes the Junior College. During these years the student devotes himself to the study of languages including English, social sciences, and natural sciences or mathematics. In each of these groups the student must take each year a course extending through both semesters. As compared with semester courses, it is believed that these long courses will give the student a better foundation for future work and a better basis for choice of studies and vocations, while they also secure more thoro discipline and afford the faculty better means of judging the student's worth and aptitudes. The student is expected to complete two full years of work in the Junior College in a satisfactory manner before being allowed to enter courses of study designed for students of the third and fourth years. Courses which are open only to juniors and seniors constitute the work of the Senior College. For these courses a certain amount of freshman and sophomore work is prerequisite. These courses are intensive in their method and prepare the student for exhaustive studies in seminar and research courses. Special courses are planned which will offer to the more capable students work which will challenge their utmost effort, and thus develop their powers to the highest degree possible.

*The new curriculum requirements.*—Following is the new statement of curriculum requirements as to distribution and grade of work:

REQUIREMENTS FOR FRESHMEN AND SOPHOMORES

Rhetoric 1-2 to be taken in the freshman year, and one year-course each year in each of the following groups of subjects.

A year-course consists of the continuous study of closely related subject matter through the year. When two courses are designated by a department to serve as a year-course both semesters must be completed to meet this requirement. Either in the freshman or the sophomore year the subject chosen from Group C must be a laboratory science.

## THE PRESIDENT'S REPORT

<i>Group A</i>	<i>Group B</i>	<i>Group C</i>
Foreign Languages Rhetoric and Public Speaking	Open to Freshmen and Sophomores History	Mathematics Animal Biology Botany Chemistry *Physics
English	Additional Subjects Open to Sophomores Economics Philosophy Political Science Psychology Sociology and Anthropology	Astronomy Geology and Mineralogy Physics
Subjects for which freshmen register must be continued throughout the year.		

## REQUIREMENTS FOR JUNIORS AND SENIORS

Thirty credits in starred courses of which twelve credits must be in one department.

Continued residence in the college is conditioned on reasonable advance toward graduation. The Administrative Board will at any time drop from the rolls of the college any student who does not make such reasonable advance. A student so dropped will not be allowed to reënter the University until a full semester has elapsed.

The student must secure, in any semester, credit in at least 60 per cent of the work carried, together with as many honor points as the Administrative Board may prescribe.

No student will be considered to have a wholly satisfactory standing who fails to secure in the course of any year the normal advance of one honor point for each credit hour carried. Students who fall below this normal standard will be subject to special consideration as individual cases by the Administrative Board.

Any student who either in speaking or writing habitually uses bad English will be reported by his instructor to the Dean with all available evidence. If this evidence seems to the Dean sufficient he will require the student to take without credit such further work in rhetoric as the head of the Rhetoric Department may designate.

The former requirement of a major study consisting of twenty-four credits has been replaced by the requirement of twelve credits in starred courses in one subject. The minor requirements have been dropped, since students take the equivalent of the requirements of their own choice. The requirement of a year of biological science and a year of physical science has been discontinued because it apparently worked to prevent or discourage the election of advanced studies in sciences.

*An additional test for admission.*—During this year the faculty instructed its Advisory Committee to work out some form of examination or test to be used in addition to the high-school records as a means of determining the fitness of students to undertake University work. The object is to relieve so far as possible those students who have not the capacity for college work of the expense and disappointment of failure after a period of study at the University. A committee representing the faculty and the high-school superintendents and principals is engaged in studying tests that will secure these results without injustice to any.

*University can not educate whole people directly.*—It should be pointed out further that the whole plan of increased requirements for graduation

\* Physics open to a limited number of freshmen under special conditions. See departmental statement.

and the attempt to select students more carefully both at entrance and during their college course, bears a significant relation to the supply of funds for higher education. There has developed a clear tendency in the last fifteen years for the enrollment of students in this college, and in the high schools which prepare for college, to outgrow available funds for their education. During the last few years students have increased far more rapidly than the funds actually provided, and quite as rapidly as the wealth of the state from which funds must be derived. Under these conditions it appears to be the duty of the University, as the trustee of state resources devoted to higher education, so to employ these funds that capable students shall have full opportunities to acquire knowledge and skill, while the energies of the faculty and the facilities of library and laboratory shall not be used up in the attempt to train youths who are lacking in ability. It is not the business of the University to educate the whole people directly. The kind of training which the University has to offer is to be used either in teaching or in leading and directing industrial and social life through the professions, public service, or the management of business. Only men and women whose natural endowments make them capable of these functions of leadership in society are proper students in a state university. All such persons the state should welcome to the fullest enjoyment of its facilities for higher education.

*New courses and departments.*—The decision made two years ago to provide training in various vocations not provided for in the professional schools of the University has led to the announcement of some new courses of study.

*Training in business* has been offered in a four years' course. The first two years are devoted to laying a broad foundation in history, economics, languages, and such scientific studies as the students' purposes may require. In the third and fourth years advanced work in economics, finance, banking, and business administration, together with political science and various elective subjects offered in the college, give the student the requisite training to enable him to think clearly and to work out successfully the problems presented to him in his future business career. Professor Willard E. Hotchkiss, formerly Dean of the School of Commerce of Northwestern University, has been appointed Director of Business Education. The great demand for trained workers in social, civic, and philanthropic undertakings has led to the establishment of a five-year course in *Training for Social and Civic Work*, with Professor Arthur J. Todd as Director. The first two years of this course conform to the regular requirements of the Junior College. The third and fourth years include carefully selected courses in economics, political science, psychology, sociology, sanitation, and public health. The technical training for specific social service work is deferred to the graduate year, which consists largely of practical studies, field work, and investigation of problems. This graduate year may lead to the master's degree.

*The Department of Philosophy and Psychology* has been divided. The subject of psychology has gradually taken on the character of an experi-

mental science, for the proper treatment of which it is now necessary to use the laboratory method both in teaching and in research. For the new Department of Psychology a staff has been provided consisting of a professor, an associate professor, two assistant professors and an instructor.

*Vocational advice for women.*—The old system of faculty advisers for students was successful only in the hands of a few men. Most faculty advisers found that students seldom came to them for consultation except when they were in trouble of some kind. The average faculty member knows his own field and the subjects allied to it, and is an excellent adviser in the case of students who wish to master the subject for purposes of research and teaching. Most students to-day, however, want to know for what work their native talents fit them, and what is involved in a given vocation in the way of effort, of conditions of work, and of the rewards for success. Having developed an active interest in a certain field, they will readily follow the direction of their instructors in making the necessary preparation to achieve their purpose. The need of advice is peculiarly felt in the case of women students for whom, in the past, universities have done little more than merely open the doors of men's colleges, and to whom society is presenting at a rapidly increasing rate the opportunity and the need to engage in all sorts of employment. Young women ask to know what vocations are open to them, the conditions of work, the qualifications and the preparation required, and the rewards that may be expected. Women are rightly seeking this information and are insistently demanding the opportunity to prepare themselves for successful work in the new fields that are opening.

*A vocational adviser appointed.*—In view of this situation the college has created the position of Vocational Adviser for Women, and Miss Katharine Ball has been appointed to this position. The duties of her office are thus defined in the action of the Board of Regents:

1. To make a study of vocations open to college women, the qualifications required, the opportunities, the remuneration, the conditions of work, etc.
2. To study the qualifications, interests, and preparation of women students upon entering and during their course in the University.
3. To confer personally with students about their plans and to advise them in their choice of studies in preparation for their vocations.
4. In every way possible (by lectures, public conferences, and otherwise), to promote among women students seriousness of purpose and an intelligent appreciation of their duties and responsibilities as University graduates.

The question of making similar provision for the advice of men students is to be seriously considered.

Respectfully submitted,

J. B. JOHNSTON, *Dean*

## THE COLLEGE OF ENGINEERING AND ARCHITECTURE

*To the President of the University:*

SIR: During the college year 1916-17, my part in the activities of the College of Engineering and Architecture was so short-lived that the things which need to be set down in an annual report may be more adequately stated by the Acting Dean, so far as these are matters of history and statistics; and recommendations for the future of the College are properly the privilege of the incoming Dean.

During the college year, I was absent on leave something over two months, and my resignation as Dean and Professor became effective May 1, 1917. Professor William E. Brooke, Head of the Department of Mathematics and Mechanics, in accordance with my recommendation, was made acting Dean.

Respectfully submitted,  
FRANCIS C. SHENEHON, *Dean*

*To the President of the University:*

SIR: I have the honor to submit the report for the College of Engineering and Architecture for the college year 1916-17.

*The growth of the College.*—During the year 1916-17 the number of students enrolled is practically the same as in the previous year. The records show an enrollment of 529 students this year as compared with 526 students enrolled the past year. However, the actual number of students has diminished, since 125 students cancelled their registration during the second semester to enter military, agricultural, or other public service. Six new instructors were added to the instructional staff at the beginning of the year. During the latter part of the second semester three members of the staff entered the service of the Government. Their class work was transferred to other members of the staff as an additional load, and all classes were thus carried successfully to the close of the semester.

*Scholarship.*—During the second semester the scholarship fell below the usual standard. The disturbing influence incident to our entrance into the war was the main cause of this retrogression. However, an intangible influence which seems to have been spreading gradually over the whole country, was no small contributing factor. The staff felt this lack of application of the students and exerted their best efforts to minimize it. The spirit of patriotism and also the attraction of a new sort of life were strong incentives to draw a young student from his daily tasks of college life. In the first semester 45 students were dropped from the College or permitted to transfer to other colleges. In the second semester 11 students were dropped for poor scholarship and 1 for dishonesty.

*A change in the Deanship.*—Early in the year Dean Francis C. Shenehon resigned his position as Dean of the College of Engineering and



Architecture to devote his entire attention to his consulting practice. A committee, of which I was made chairman, was elected by the faculty to act with President George E. Vincent in selecting a new Dean of the College of Engineering and Architecture. To this committee was also entrusted the preparation of the budget for the ensuing year, the codification of the rules of the College, and the formation of plans for unifying and improving the College. The committee selected Professor John Robins Allen, Head of the Department of Mechanical Engineering of the University of Michigan, for Dean of the College of Engineering and Architecture. This action of the committee met with the unanimous approval of the faculty.

*Faculty changes.*—The following promotions in rank have been made: Mr. J. H. Forsythe, Mr. R. W. French, and Mr. G. C. Priester from the rank of Instructor to that of Assistant Professor. The following appointments have been made: Mr. F. X. Keally as Instructor in the Department of Architecture, Mr. E. R. Martin as Instructor in the Department of Electrical Engineering, Mr. R. Skagerberg, Mr. L. J. Mortenson, and Mr. H. D. Myers as Instructors in the Department of Drawing and Descriptive Geometry, and Mr. F. W. Hoorn as Instructor in the Department of Mathematics and Mechanics. The following have resigned or have left for military service: Mr. L. J. Mortenson resigned, Mr. E. Dow Gilman resigned to enter the Bureau of Yards and Docks at Washington, Assistant Professor R. C. Jones, Instructors H. D. Myers, R. Skagerberg, and F. W. Hoorn have been granted leave of absence to enter military service.

*General.*—Several new problems in research have been undertaken and many of the problems mentioned in the report of last year are being continued. The courses in Engineering and Architecture under the direction of the Extension Division have been continued substantially as they were last year. No large changes have been made in equipment and buildings. The course in Military Engineering, advocated in the report of last year, has now become more urgent.

TABLE I. REGISTRATION IN THE COLLEGE, 1873-1917

Year	No.	Year	No.	Year	No.
1873-74	4	1888-89	25	1903-04	395
1874-75	7	1889-90	33	1904-05	399
1875-76	4	1890-91	74	1905-06	412
1876-77	3	1891-92	78	1906-07	458
1877-78	5	1892-93	154	1907-08	473
1878-79	3	1893-94	147	1908-09	467
1879-80	2	1894-95	149	1909-10	407
1880-81	2	1895-96	201	1910-11	420
1881-82	9	1896-97	186	1911-12	378
1882-83	15	1897-98*	129	1912-13	393
1883-84	8	1898-99	143	1913-14	438
1884-85	7	1899-1900	195	1914-15	475
1885-86	None	1900-01	246	1915-16	526
1886-87	15	1901-02	312	1916-17	529
1887-88	28	1902-03	371		
Total					8,725

\* Prior to 1897-98 students in Mining and Chemistry are included.

TABLE II. SCHOLARSHIP STATISTICS, 1916-1917

1. Total number of students.....	529
2. Number of conditions.....	366
3. Number of failures.....	413
4. Number of students dropped.....	65*
5. Number of students cancelled.....	171†

\* In the first semester 45 students were dropped from the University or required to transfer to some other College. Out of this number 11 were later reinstated after having done certain work. In the second semester 11 students were dropped from the University, 8 were told they could not return until the second semester unless they made up certain work, and one student was suspended for one semester on account of dishonesty.

† In the first semester 34 students cancelled. In the second semester 137 students cancelled, 125 of this number entered military, agricultural, or other public service.

TABLE III. GEOGRAPHICAL DISTRIBUTION OF STUDENTS

DISTRIBUTION BY COUNTIES IN MINNESOTA

County	No.	County	No.	County	No.
Anoka .....	1	Kandiyohi .....	6	Rice .....	3
Becker .....	1	Lac qui Parle.....	1	Roseau .....	1
Beltrami .....	3	Lake .....	2	St. Louis .....	36
Benton .....	1	LeSueur .....	2	Scott .....	1
Blue Earth.....	8	Lyon .....	2	Sherburne .....	2
Brown .....	2	McLeod .....	4	Sibley .....	2
Carlton .....	1	Marshall .....	3	Stearns .....	3
Chippewa .....	2	Martin .....	1	Steele .....	2
Chisago .....	2	Meeker .....	7	Stevens .....	1
Clay .....	1	Mille Lacs .....	3	Swift .....	5
Crow Wing.....	2	Morrison .....	1	Todd .....	4
Dakota .....	3	Mower .....	4	Traverse .....	1
Douglas .....	2	Murray .....	2	Wabasha .....	4
Faribault .....	2	Nobles .....	3	Waseca .....	2
Fillmore .....	5	Norman .....	1	Washington .....	4
Freeborn .....	1	Olmsted .....	5	Watonwan .....	3
Goodhue .....	10	Pipestone .....	1	Wilkin .....	1
Grant .....	1	Polk .....	2	Winona .....	3
Hennepin .....	192	Pope .....	2	Wright .....	2
Houston .....	1	Ramsey .....	68	Yellow Medicine....	4
Itasca .....	2	Red Lake .....	1		
Kanabec .....	1	Redwood .....	1		
Total .....					450

DISTRIBUTION IN OTHER STATES

States	No.	States	No.	States	No.
District of Columbia.	2	Massachusetts .....	2	North Dakota.....	7
Illinois .....	5	Michigan .....	3	South Dakota.....	9
Indiana .....	3	Missouri .....	1	Washington .....	1
Iowa .....	14	Montana .....	8	Wisconsin .....	9
Kansas .....	2	Ohio .....	1		
Total .....					67

## THE PRESIDENT'S REPORT

## DISTRIBUTION OUTSIDE OF UNITED STATES

Country	No.	Country	No.	Country	No.
Brazil .....	1	China .....	2	Japan .....	1
Canada .....	4	Cuba .....	1	Norway .....	3
Total .....				12	
Aggregate registration.....		529	Gain over last year.....		3

NOTE: This distribution shows the student body made up of 85 per cent Minnesota men.

*Recommendations.*—Salaries should be placed on a more adequate basis. The instructional staff should be increased so that it may be possible for each man to find some time for research.

The need of a new Electrical Laboratory must again be emphasized. A sufficient fund should be given to start an Experiment Station in connection with the Experimental Laboratory.

Respectfully submitted,

W. E. BROOKE, *Acting Dean,*

May 1 to August 1, 1917

## THE DEPARTMENT OF AGRICULTURE

*To the President of the University:*

SIR: I herewith submit my report as Dean of the Department of Agriculture for the year 1916-17:

### THE DEVELOPMENT OF THE DEPARTMENT

*The original act.*—Agricultural education was provided for in the organization of the University by the territorial legislature in 1851. In 1858 a State Experimental Farm was established in the western part of the state under a special board, and provision was made also for a College of Agriculture to be located on the same land. These acts were confirmed in substance in the State Constitution ratified in 1858. About this time the subject of agricultural education had become an important subject of discussion in the National Congress. A bill donating public lands to the states for the organization of Colleges of Agriculture and Mechanic Arts was passed in 1858 and 1859 but was vetoed by President Buchanan, February 24, 1859. Senator Morrill, however, continued to press the needs and the bill known by his name became a law when signed by President Lincoln, July 2, 1862.

*The Morrill Bill.*—This act made large donations of public land to each state on condition that the proceeds from the sale or use of such land should always be used "for the endowment, support, and maintenance of at least one college where the leading objects shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts in such manner as the Legislature of the states may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The provisions of this act were accepted by the State Legislature January 27, 1863. In 1865 the Legislature passed an act amending the provisions of the act of March 10, 1858, establishing an agricultural college, to make the act comply with the provisions of the National Land Grant Act.

*Act reorganizing the University.*—In 1868 the Legislature passed an act reorganizing the State University and providing for a College of Agriculture and Mechanic Arts in conformity with the National Land Grant Act, and transferred all of the lands granted and to be granted by the National Government and the proceeds from them to the University for this purpose. The act also instructed the Board of Regents to secure suitable lands for an experimental farm to be located somewhere in the vicinity of the University, and all previous acts not in conformity with this act were repealed. A tract was purchased near the University grounds, but little progress was made with it as it was not suitable for experimental purposes. Authority to sell it and purchase a more suitable farm was granted by the Legislatures of 1881 and 1883. This was the beginning of the present University Farm and Experiment Station.

*A period of apathy.*—From 1871 to 1876 not much progress was made in agricultural education. The course in agriculture in the University was the same as Literature, Science, and the Arts, during the first two years. The application of science to agriculture came during the last two years. The trouble was not so much with the course as the lack of interest in it. This was true all over the United States. Land was too cheap and plentiful to warrant much attention being given to scientific agriculture. In addition to the college courses, Farmers' Short Courses were introduced, but there was not much interest in them until about 1881. One hundred ninety-one students enrolled in the ten weeks' course in 1881 and two hundred eighty-one the next year. In 1883-84 it is reported that more than one thousand attended one or more lectures. The interest then dwindled to ten between 1884-87.

*Agricultural Experiment Stations established.*—The next important step in agricultural progress was the recognition by the Congress of the United States of the importance of agricultural investigation. Minnesota had long before begun this work but had made little progress. By an act of the Congress of the United States, approved March 2, 1887, provision was made for establishing Agricultural Experiment Stations in connection with the College of Agriculture established under the Land Grant Act of 1862. The act provides "That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotation cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures natural and artificial, with experiments designed to test their comparative effects on crops of different kinds, the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable having regard to the varying conditions and needs of the respective states or territories." The bill further provides for the coöperation in this work with the United States Department of Agriculture and for the publication of bulletins and reports, and appropriated \$15,000 a year to each station. The Legislature of Minnesota accepted the provisions of this act in 1889. As previously stated, Minnesota had already started similar work in connection with its College of Agriculture. The Adams Act, passed by Congress in 1906, provided an additional \$15,000 a year for research work.

*A School of Agriculture created.*—At a meeting of the Board of Regents, April 1, 1887, an advisory board of seven members made up of practical farmers was designated to confer with Professor Porter, Superintendent of the Experimental Farms, and draw up plans for an indus-

trial school of agriculture. This advisory board presented the following resolution at the next meeting of the Regents:

*Resolved.*—That the Board of Regents be advised to make such appropriations as may be necessary to provide suitable accommodations for the students of the School of Agriculture on the Experimental Farm.

*Resolved.*—That the proposition to establish a School of Agriculture on the Experiment Farm be approved and endorsed by this advisory committee as promising the best possible solution of the problem of agricultural education in Minnesota.

The Board of Regents approved the report and the School was thus officially recognized and established by the Board. The plan as stated at the time was to provide "a good business education (in agriculture) of high school grade, fair mechanical skill, with the habit of themselves making and mending rather than buying; a practical knowledge of the alphabet of the natural sciences so that they (the students) can read and observe intelligently in the lines of their work. All this in the School of Agriculture: beyond this is our College of Agriculture, in which these subjects will be continued to meet the demands of the fewer and that most important class in agriculture, lecturers, professors, physicians, and statesmen." The School as thus recognized was opened October 18, 1888. The course was three winter terms of six months each. The first year there were 47 students; the second year, 78; and the third year (1890-91), 104.

*A period of progress.*—In 1890 the Congress of the United States increased the appropriations \$25,000 a year to each state for the more complete endowment of the colleges of agriculture and mechanic arts. This was accepted by the State, April 20, 1891. There were 5 students in the College of Agriculture, 1890-91, and 104 in the School. Women were admitted beginning with 1894-95. The Butter and Cheese Makers' Short Course was started in 1891-92 with 28 students. The Farmers' Short Course was started in 1900-1901 with 28 students. The first home economics work was offered in the College during this same year with two students registered, making a total of 27 students in the College; 381 men and women in the School; 101 in the Butter and Cheese Makers' Course, or a grand total of 543 in the various courses in agriculture and home economics. From 1901 to 1909 there was a gradual growth in all these courses. The College of Agriculture and Home Economics numbered 192; the School, 644; Dairy School, 107; Farmers' Short Course, 169. Two new short courses were started that year, a Teachers' Training School with 90 students and a Traction Engineering Course with 18 students.

*Demand for agricultural teacher training.*—About this time there was great interest all over the United States in better training of teachers of agriculture and home economics and mechanic arts for the secondary schools. There was a rapidly increasing demand that these subjects should be efficiently taught in the secondary schools. Senator Nelson, of Minnesota, was the author of an act by the National Congress increasing the direct appropriations to the colleges of agriculture and mechanic arts to \$50,000 a year, and providing especially that they should train teachers

in these subjects for the secondary schools. The State of Minnesota accepted this provision, and it was thus the duty of the College of Agriculture to undertake this work.

*Minnesota subsidy for agricultural teaching.*—About this time also the State of Minnesota passed legislation providing for county schools of agriculture and two years later, 1909, for the teaching of agriculture in the high schools. A later amendment introduced by Senator Holmberg, a graduate of the School of Agriculture of the University of Minnesota, greatly enlarged the benefits and scope of the act. The schools at once took advantage of the law, and the demand for trained teachers of agriculture and home economics was far greater than the supply. Most of these teachers had to be imported from other states. Young men and women at once registered for these courses in the College of Agriculture and Home Economics, but the College has not yet been able to keep up with the demand for teachers of these subjects.

*A career for the agricultural teacher.*—There are already approximately 200 schools in the state requiring these teachers. There is also an increasing demand for college-trained men and women in extension work recently established in conformity with the terms of a national law making large government grants of money on condition that the states appropriate an equal amount for this purpose. The demands for expert farm managers and specialists in soils, livestock, veterinary science, farm crops, dairy manufacture, plant diseases, insect pests, marketing, etc., is increasing rapidly. There is opportunity in all these lines to render efficient service for which the people are willing to pay attractive salaries. For young men without farms, it offers a fine chance to get a start. Many save enough in a few years to start buying farms; others continue in the professional fields. Thus the work of the Department of Agriculture has grown until the state now possesses one of the largest and most efficient agricultural departments in the world, registering in all its courses at University Farm and the branch schools at Crookston and Morris more than 7,000 students, over 6,000 of these at University Farm, 745 being in the College of Agriculture, Forestry, and Home Economics, 701 in the School of Agriculture, and the balance in short courses.

*Value of Department's land and buildings.*—The total value of the land, buildings, and equipment, for the whole department is nearly two million dollars, \$1,345,000 of which is at University Farm, and the balance at the substations and branch schools.

*Annual maintenance.*—The general maintenance expenses in operating this plant total in round numbers \$675,000 a year, of which \$136,000 is at the branch schools and substations, and \$539,000 at University Farm. The general government appropriates approximately \$86,000 a year of this amount, and a large sum is secured from student fees, station and farm receipts, income from land grants, etc., all of which goes to reduce the net cost to the state by about \$250,000.

*Organization of the Department.*—The work of the Department involving this large investment and expenditure is divided into fourteen principal groups as follows:

At University Farm

- I. The College of Agriculture and Home Economics
- II. The College of Forestry
- III. Central School of Agriculture
- IV. Agricultural Extension Service
- V. Agricultural Experiment Station
- VI. Short Courses

Branch Schools and Substations

- VII. Northwest School and Substation—Crookston
- VIII. West Central School and Substation—Morris
- IX. North Central Substation and Demonstration Farm—Grand Rapids
- X. Northeast Substation and Demonstration Farm—Duluth
- XI. Southeast Substation and Demonstration Farm—Waseca
- XII. Cloquet Forest Experiment Station
- XIII. Forest School at Itasca
- XIV. Fruit Breeding Farm—Zumbra

The work of each of these principal groups is under the immediate supervision of an officer designated as Dean, Director, Principal, or Superintendent, as the case may be. These officers report to the general Dean and Director of the Department of Agriculture, who is responsible to the President of the University and the Board of Regents. In order to handle efficiently the immense amount of work involved, the work at each place has to be organized so as to provide for the fullest cooperation in the use of buildings, equipment, and staff. This necessitates centralizing all work common to all the branches such as Business Office, Registration and Statistics, Library, General Service, Publications, under a general administrative group supervised by the Dean and Director of the Department.

*Research and teaching staff.*—The educational and research staffs are similarly organized on the basis of subject matter as follows:

- Agricultural Biochemistry
- Agricultural Engineering
- Agronomy and Farm Management
- Bee Culture
- Economic Zoology
- Horticulture
- Plant Pathology and Botany
- Agricultural Economics
- Home Economics
- Soils
- Animal Industry, including the Divisions of
  - Animal Husbandry
  - Dairy Husbandry
  - Poultry
  - Veterinary Science



These divisions are supervised by a chief or chairman, and are further subdivided into sections to handle better the various phases of the work of the College, School, Station, or Extension. It is the duty of the chief of each division to arrange with the Assistant Dean of the College for all the work required in the College in the field of that particular division, and with the Principal of the School for all the work required in the School, with the Director of the Experiment Station for all the work required in the Station, and with the Director of Extension for all work required of the Extension Division. Certain men may be assigned wholly to one branch of the work, or they may be assigned to work in several branches. By this system we are able to secure the very best teachers and investigators, make them available wherever and whenever needed, keep them fully employed, and keep them interested in the whole department.

Every member of a division assigned wholly or in part to College, School, or Station, is a member of the faculty or staff of each group to which assigned. Each faculty or staff has its own organization for the conduct of its own work. The Deans, Directors, Principals, and Chiefs of Divisions constitute the General Department Executive Committee. This organization, while at first sight apparently complex, is simple in operation. Responsibility is centralized and fixed. It is sufficiently elastic to meet sudden changes in registration or other emergencies, reduces expense to a minimum, and insures the fullest cooperation.

*Unification versus segregation.*—The separate organization system which has been advocated by some may be contrasted with the unified system as follows:

*Unified Organization*

1. Promotes cooperation of all interested in agricultural education and development.
2. It places every facility possessed by the Department of Agriculture at the service of all its students whether College, School, or Short Course, at the lowest possible cost to each.
3. The cooperative plan of organization enables us to secure and hold the most expert teachers in each subject.

*Separate Organization*

1. Promotes friction and competition instead of cooperation.
2. It would require duplication of staff and equipment, thus greatly increasing expense.
3. It would not attract or hold the best specialists or teachers.

## STATISTICS OF REGISTRATION

	MEN		WOMEN		TOTAL	
	1916-17	1915-16	1916-17	1915-16	1916-17	1915-16
<b>I. COLLEGE OF AGRICULTURE</b>						
<b>Agriculture</b>						
Seniors .....	82	64	....	....	82	64
Juniors .....	85	86	....	....	85	86
Sophomores .....	96	104	1	....	97	104
Freshmen .....	104	113	1	1	105	114
Unclassed .....	13	10	....	....	13	10
Total .....	380	377	2	1	382	378
<b>Home Economics</b>						
Seniors .....	....	....	73	50	73	50
Juniors .....	....	....	91	72	91	72
Sophomores .....	....	....	76	82	76	82
Freshmen .....	....	....	69	90	69	90
Unclassed .....	....	....	16	17	16	17
Total .....	....	....	325	311	325	311
<b>Forestry</b>						
Seniors .....	3	10	....	....	3	10
Juniors .....	10	5	....	....	10	5
Sophomores .....	11	10	....	....	11	10
Freshmen .....	15	16	....	....	15	16
Unclassed .....	....	2	....	....	....	2
Total .....	39	43	....	....	39	43
Total for college year....	419	420	327	312	746	732
Summer Session .....	134	87	67	52	201	139
Total collegiate registration	553	507	394	364	947	871
Duplicates .....	38	32	36	10	74	42
Net total .....	515	475	358	354	873	829
<b>II. SCHOOL OF AGRICULTURE</b>						
<b>Three-Year Course</b>						
Seniors .....	154	99	60	62	214	161
Juniors .....	121	165	52	67	173	232
Freshmen .....	187	293	49	73	236	366
Unclassed .....	63	3	3	....	66	3
Total .....	526	560	163	202	689	762
Normal Course .....	....	....	12	19	12	19
Total School Courses..	526	560	175	221	701	781
<b>III. SHORT COURSES</b>						
<b>Dairy School Short Course</b>						
<b>Butter and Cheese Makers' Course</b>						
Course .....	77	82	....	....	77	82
Advanced Creamery Course	....	12	....	....	....	12
Ice Cream Course.....	27	25	....	....	27	25
Total .....	104	119	....	....	104	119
Duplicates .....	18	23	....	....	18	23
Net total .....	86	96	....	....	86	96

## THE PRESIDENT'S REPORT

	MEN		WOMEN		TOTAL	
	1916-17	1915-16	1916-17	1915-16	1916-17	1915-16
Farmers' and Home Makers' Week Short Course.....	1324	969	307	282	1631	1251
Editors' Week Short Course	58	....	2	....	60	....
Boys' and Girls' Week Short Course .....	666	344	314	145	980	489
Traction Engineering Short Course .....	26	23	....	....	26	23
Teachers' Training School..	135	124	1007	990	1142	1114
Rural Life Conference.....	136	34	34	4	170	38
Extension Gymnasium .....	25	....	....	....	25	....
Graduate Veterinarians' Short Course .....	....	26	....	....	....	26
Total of Short Courses.	2474	1639	1664	1421	4138	3060
Duplicates .....	42	23	7	....	49	23
Net total .....	2432	1616	1657	1421	4089	3037
Total registration at University Farm .....	3554	2706	2233	2006	5787	4712
Duplicates .....	223	55	76	10	299	65
Net total .....	3331	2651	2157	1996	5488	4647
IV. NORTHWEST SCHOOL OF AGRICULTURE						
School Course						
Advanced class .....	5	....	....	....	5	....
Seniors .....	19	....	8	....	27	....
Juniors .....	20	....	5	....	25	....
Freshmen .....	103	....	33	....	136	....
Teachers' Training .....	....	....	7	....	7	....
Total .....	147	157	53	50	200	207
Farmers' Week .....	*	477	*	25	*	502
Junior Short Course.....	51	49	9	31	60	80
Teachers' Training School..	14	14	175	207	189	221
Total of Short Courses.	65	540	184	263	249	803
Total registration Northwest School .....	212	697	237	313	449	1010
Duplicates .....	....	....	3	....	3	....
Net total .....	212	697	234	313	446	1010
V. WEST CENTRAL SCHOOL OF AGRICULTURE						
School Course						
Fourth year .....	2	....	1	....	3	....
Seniors .....	15	....	14	....	29	....
Juniors .....	12	....	11	....	23	....
Freshmen .....	59	....	23	....	82	....
Total .....	88	70	49	45	137	115
Farmers' Week .....	53	....	....	....	53	....
Boys' and Girls' Week....	15	36	17	8	32	44
Teachers' Training School..	8	9	139	159	147	168
Mothers' Week .....	....	....	36	6	36	6
Total of Short Courses.	76	45	192	173	268	218

\* Record of attendance was not made.

	MEN		WOMEN		TOTAL	
	1916-17	1915-16	1916-17	1915-16	1916-17	1915-16
Total registered at West						
Central School .....	164	115	241	218	405	333
Duplicates .....	.....	.....	1	.....	1	.....
Net total .....	164	115	240	218	404	333
Total registration, Department of Agriculture...	3930	3518	2711	2537	6641	6055
Duplicates (including those noted above) .....	223	55	80	10	303	65
Net total registration...	3707	3463	2631	2527	6338	5990

### THE WORK OF THE SECRETARY'S OFFICE

Since the organization of the office in February, 1916, the work has been enlarged in scope to include in addition to the registration of College, School, and Short Course students, the following functions:

*General secretarial work.*—The Secretary is the recording secretary for the Executive Committee of the Department, the College faculty, the School faculty, and the Experiment Station staff.

*Program and room assignment.*—The School program and, after August 1, the College program and assignment of rooms for class and other purposes will be centralized in this office. By this means the proper articulation of School, College, and Short Course programs, and the efficient use of classroom space can be more effectively accomplished than when these programs are arranged by separate faculty committees.

*Reports on delinquent students.*—Regular monthly reports on delinquent students of both School and College are made to this office. This phase of the work has been organized in such a way that tho the relation of the students to the respective Students' Work Committees has not been changed, the faculty committees have been relieved of practically all of the clerical work in connection with these reports. It should be emphasized that this has been done without requiring any duplication of records.

*Routine work of the College Students' Work Committee.*—The Secretary, as a member of the College Committee on Students' Work, passes on a large number of the students' petitions, more than half of those submitted. Unusual and refused petitions are referred to the chairman of the committee. This plan greatly facilitates registration and in many cases obviates the delay which would be necessitated by requiring committee action on all routine cases.

*College admission and advanced standing.*—The Secretary is chairman of the Enrollment Committee of the College, and passes on applications for admission and advanced standing in accordance with the general principles approved by the faculty committee.

*School admission.*—Routine applications for admission to the School of Agriculture are passed on by this office. Special cases are referred to the School Enrollment Committee, the Principal of the School, or the Dean as the case may require.

*Preparation of bulletins.*—The College and School bulletins are prepared for publication in the Secretary's office under the general direction of the respective Curriculum Committees. The Secretary is secretary of the College Committee on Curriculum and Catalog.

*Statistics.*—Educational statistical work is centralized in the Secretary's office. During the past year the old records of registration have been checked and put on a basis comparable with the present records. It is planned during the coming year to make a detailed study of the effect of "extra work" on scholarship. There are a large number of problems in connection with student administration that will be undertaken as rapidly as the routine work of the office will permit.

*Other activities.*—The study of the routine of other faculty committees is being continued with a view to relieving members of the teaching faculty of such work as can equally well be handled by clerks under the supervision of the Secretary. An important project which should be undertaken at as early a date as possible is organized work with the alumni of the College and School of Agriculture in order to enlist their assistance in solving many of the problems in connection with the development of the various curricula. This work will be in coöperation with the respective Alumni Associations.

#### COLLEGES OF AGRICULTURE AND OF FORESTRY

*Registration in agricultural service.*—The opportunity offered to students of the University to cancel their registration and obtain credit for the balance of their semester's work by engaging in productive agriculture resulted in nearly total depletion of the registration for the agricultural courses. Practically every student in these courses enlisted either for active military service or for food production before the first of May.

The following table shows the purposes for which cancellation was allowed and the number of students who entered each group:

1. Agricultural Service:		
Work on Farms.....	225	
Traction Engineering Course.....	46	
Extension Field Assistants Course.....	16	
Departmental Work at University Farm....	13	
Forest Patrol .....	3	
White Pine Blister Rust Campaign.....	13	
		316
2. Military:		
Enlistment .....	33	
Reserve Officers' Training Corps.....	10	
		43
Total .....		359

In addition to the 316 students cancelling from the Department of Agriculture for agricultural service, 408 students from other colleges of the University have been enrolled for agricultural service.

All of the students are required to report regularly to the Secretary's office and, with the exception of seniors, their credits are suspended pending satisfactory reports up to September 1. Seniors will be certified for diplomas when reports show satisfactory work up to June 1, altho they are under the same obligation as underclass men to continue in agricultural service or service of equivalent value until the close of the season.

*Concentration courses.*—For students remaining in the agricultural courses on May 1, 1917, two concentration courses were offered—each requiring the full time of the student for the balance of the semester. One of these courses was the usual Traction Engineering Short Course. The other was an especially arranged course for the preparation of extension field assistants. The registration for these courses follows: Traction Engineering Course, 21; Extension Field Assistants' Course, 16.

Students were allowed to transfer their registration to one of these courses, and on the satisfactory completion of the concentration course, full credit was allowed for the semester's work.

*Changes in College curricula.*—(1) In accordance with the general policy of the University, all of the curricula in Agriculture and Forestry have been modified to provide for the acceptance of eighteen credits in the Reserve Officers' School for those who desire to elect those courses in their junior and senior years. (2) The special curriculum in Dairy and Animal Husbandry has been replaced by two new major courses of study offering opportunities for specializing in either Animal Husbandry or Dairy Husbandry. (3) Students are now required to decide upon their major line of work at the close of the freshman year. This is a year earlier than has been the practice heretofore. (4) Physical Education has been made compulsory for all freshman men for the coming year. (5) The farm experience requirement for admission has been replaced by a no-credit course in farm practice in the freshman year. This will be required of those who enter with insufficient farm experience. (6) The work in Rhetoric required of all students has been modified. One semester of Argumentation has been replaced by a semester of Public Speaking. A course in Elementary Rhetoric has also been provided and will be required as preparation for the two years' work in Rhetoric and Public Speaking in the case of those students who enter the college with insufficient preparation for the first year's work in Rhetoric. (7) Students in Home Economics courses will be required to obtain home practice work following the freshman and sophomore years as a prerequisite to graduation. This will be administered on practically the same basis as that prescribed for farm practice for students in agriculture.

### SHORT COURSES

To facilitate the coördinating of faculty, funds, and equipment, and to promote uniformity of procedure, all short courses at University Farm have been placed under the administration of a Director of Short Courses who acts under the Dean and Director of the Department of Agriculture. The following have been conducted during the year:

SHORT COURSE	PERIOD	ENROLLMENT
Butter and Cheese Makers.....	Nov. 20 to Dec. 16, 1916.....	77
Ice Cream Makers.....	Dec. 18 to Dec. 22, 1916.....	27
Farmers and Home Makers.....	Jan. 1 to Jan. 6, 1917.....	1,631
Editors.....	Feb. 12 to Feb. 15, 1917.....	60
Boys and Girls.....	April 2 to April 6, 1917.....	980
Traction Engineers.....	May 1 to June 1, 1917.....	36
Summer Session College.....	June 12 to July 22, 1916.....	201
State Teachers Training School.....	June 12 to July 21, 1916.....	1,142
Rural Life.....	July 24 to July 28, 1916.....	170
Total.....		4,324

An additional special course in Traction Engineering was held June 12 to July 13, 1917, to prepare men for army service. During the Summer Session of 1917, a short course was held for the preparation of mess sergeants and cooks for the army.

## THE EXPERIMENT STATION

### THE CENTRAL STATION

*Organization.*—The changes in organization of the work of the Station which were mentioned in the last report were completed early in the beginning of the current year and have facilitated the closer administrative supervision which was desired. Considerable progress has been made in the more definite formulation of the experimental projects in several of the Divisions.

*Publications.*—The Station publications during the year include the following:

*Bulletins* nos. 151-159 inclusive, and 129 reprinted, total 472 pages, 98,500 copies.

Special Series nos. 3-8 inclusive, total 94 pages, 65,000 copies.

Farmers' Library Series nos. 57-60 inclusive, total 44 pages, 290,000 copies.

Articles in Scientific Journals, 24, total 304 pages.

An increasing number of articles embodying the results of researches conducted at this Station is being accepted each year by the leading journals of agricultural science of this country. This affords an economical and efficient means of getting these results before large audiences of interested readers, and permits the expenditure of a larger proportion of the funds available for publications in the printing of bulletins which will be of interest chiefly to the farmers of the state.

*Experimental work.*—The experimental work on the various approved projects of the Station was carried on as usual until the development of the war situation made large demands upon the several Divisions for increased advisory and extension work, and for the study of special food production and conservation projects. Immediately after war was declared, the experimental work of the Station was directed to be subordinate to the emergency needs of the crisis in the nation's food supply. Committees were appointed to cooperate with similar committees of the State Food Production and Conservation Committee, and a very large amount of general propoganda work for increased crop production, and of advisory information in methods of food conservation was carried out.

*Bearing of research on the war.*—At the same time, those research and experimental projects of the Station which have for their immediate purpose the increasing of agricultural production are being pushed forward as rapidly as possible. It is the belief of the Station Staff that the maintenance of a well-organized research institution in the Agricultural Department is one of the most efficient war measures which can be adopted. Special care has therefore been taken to avoid any disorganization of the research forces or facilities of the Department in the present emergency.

SOUTHEAST DEMONSTRATION FARM AND EXPERIMENT STATION,  
WASECA

*Building and drainage work.*—The farm has been further built up by the addition of a second silo connected with the main barn on the farm unit. A pumphouse and milkroom with icehouse attached have been completed, and the old machine shed has been moved to the new farm unit and repaired. Some additional drainage has been put in, but further work must be done before the farm is all under control. Nearly all of the old meadow and swales have been drained on the part that we contemplate farming, and practically all of it will be in crop this year. The farm is now in condition to produce a good crop under almost any circumstances.

*Livestock secured.*—During the last year a herd of twenty grade Shorthorn cows have been added to the place, and a pure bred Shorthorn bull has been purchased. Some additional livestock is needed, but we have a foundation for satisfactorily stocking the farm. Pure bred Poland China brood sows were purchased during the year and have given a reasonable increase. The farm is now fully equipped with pure bred Poland China hogs. The flock of sheep has been enlarged through the natural increase. We now have quite a number of pure bred Shropshire ewes which will serve as a foundation for fully equipping the farm with pure bred sheep.

*Experimental work begun.*—There has been no change in the organization except to set aside more definitely the forty-acre experimental tract. This tract is given over to soils plots in cooperation with the Soils Division, and to variety tests and to the increase of some of the improved seeds. We plan to enlarge on the experimental work just as rapidly as the land can be subdued and put under control.

THE NORTHEAST DEMONSTRATION FARM AND EXPERIMENT STATION,  
DULUTH

*Clearing of land continued.*—The farm is developing satisfactorily. During the year about fifteen acres of land have been cleared and subdued sufficiently to put into crops. The soils plots on the east side of the farm have been partially drained and the plots laid out. Considerable stone has been picked from them, and in the course of the next year they should be brought into satisfactory shape for the plot tests. Additional plot land has been laid out on the southwest forty of the farm



on newly cleared land. Considerable land surrounding the poultry house has been cleared. The orchard has been replanted and a considerable increase has been made to the lowland meadow on the northwest corner of the farm.

*Dairy herd and poultry.*—The dairy herd has been built up by the purchase of a few young animals and by the natural increase of the herd. There is a very good income from the sale of butterfat. The poultry plant has been quite thoroly equipped and is being operated very successfully. We have continued the plan of keeping mainly White Leghorns with a few of the other breeds of poultry represented for the purpose of providing material for the short course work rather than for making any breed studies.

*Institute hall completed.*—Since last year an institute hall has been completed which affords ample and satisfactory room for local gatherings and for short courses such as have been held in the past. While no short course was held in the spring of 1917 on account of the lack of transportation and the unfinished condition of the building, it is planned to hold a short course emphasizing land clearing methods during the early fall. There has been no change in the organization of the farm, but considerable effort has been expended in improving and developing the place and in perfecting the organization formerly planned.

#### THE NORTH CENTRAL EXPERIMENT STATION AT GRAND RAPIDS

The development of a high grade Guernsey herd from the original foundation stock of common cows, which was begun in 1905, is being continued. A complete and continuous record of feed and production of each cow has been maintained throughout the twelve years. The average production of butterfat per cow has increased from 196.0 pounds for 1905 to 300.7 pounds for 1916.

Experimental projects with field crops, garden crops, orchard crops, soils and fertilizers, the use of peat as barn litter, preservative treatment of fence posts, and experiments in land drainage are in active progress.

#### THE FRUIT BREEDING FARM AT ZUMBRA HEIGHTS

The season of 1916-17 was one of the most successful in the history of the farm. More of the new varieties which are under test fruited during the past season than in any previous year. Among the apples, seedlings nos. 90, 207, 237, and 300 from the original Malinda stock are very fine keeping apples of good quality. Four hundred and twenty-five plum seedlings fruited last year; nos. 12 and 21 are very promising varieties. Minnesota no. 4 raspberry is now recommended for extensive planting and no. 3 and no. 1017 strawberries, which were developed at the Farm, are now widely used throughout the country. Selected seedling gooseberries, currants, and grapes are giving promising results.

## NORTHWEST SCHOOL AND STATION, CROOKSTON

*Enrollment.*—Enrollment statistics for the current year as compared with 1915-16 will be found in the registration statistics of the Department of Agriculture, page 82.

*School faculty.*—There have been very few changes in the school faculty and station corps during the past two years. Miss M. Lucille Holliday was appointed in charge of the work in Music for the current year in the place of Miss Grace Gunderson. The work has been divided more definitely, permitting the hiring of instructors who have specialized in their various lines, resulting in better teaching, and in raising the standard of the school.

*New courses.*—To allow greater freedom in choice of subjects and greater opportunity to specialize along desired lines, a number of changes were made in the courses offered by the school. The boys' course was made 44 per cent elective. One hundred and forty-four credit hours of work were made the requirement for graduation, a credit hour being equivalent to one hour recitation or two hours of laboratory work each week for one semester. In order to meet a growing demand on the part of many girls for a longer course with more academic work and a demand from another group for a shorter course along home training lines, the former three-year course was replaced by two new courses. One is a four-year course of nine months each, including as much domestic science as formerly but more of English, history, and science. The fourth year is made elective so that girls may prepare for college entrance or for teaching. The other is a two-year course of six months each, intensely practical along home economics lines.

*Success of new plan.*—The wisdom of the new courses inaugurated at the beginning of the year was more and more apparent as the year progressed. Less difficulty than formerly was experienced in giving new students just what work they desired, and the high standard of work done in the classes during the year was no doubt due largely to the greater interest resulting from such satisfactory classification. The students made good use of the elective system in arranging their courses. The general disposition was to take as much as possible rather than as little as possible. The selections made were generally well balanced and directed toward a definite purpose. A large number of students eagerly availed themselves of the opportunity to work toward college interests in electing an extra academic subject.

*Practice work in Agriculture.*—The summer practicum work required of the boys attending the Northwest School has been conducted since it began in 1911, and has been successfully carried out. While it is not possible for all students to carry on a definite project, about 80 per cent of them do so. This summer work is being supervised. In this home supervision, the members of the school faculty get into touch with the home conditions of the students, and also with the agricultural conditions in the communities from which our students come. A closer relationship is established which is of value to the farmers and school alike. A care-

ful survey was made of the opportunities that the school affords for doing actual practice work along all lines of instruction. Careful plans have been worked out providing for actual field work with crops and soil tillage, practice work in feeding and caring for livestock of all kinds, practice work in greenhouse and orchard with plant propagation and disease and pest control, field and shop work giving practice in the care and management of farm machinery, and practical exercises in the shop dealing with farm building and construction.

*A study of our School problems.*—The monthly faculty meetings for the intensive study of our particular school problems resulted in definite progress and standardization. The opportunities for training are clearly appreciated and more clearly grasped with well laid plans than ever before. The following progress has been made: (1) Closer coöperation exists between different departments and the work of one is made to supplement the work of the others more definitely; (2) Systematic coöperation of all departments with the department of English has been arranged; (3) Classroom work was also the subject of careful investigation and general standards have been adopted for conducting the recitation; (4) Because the conditions surrounding the students in their everyday life afford peculiar opportunities for personal instruction in matters of health, conduct, and general welfare, plans have been formulated dealing with this problem under the heads of dress, speech, and manners. Definite plans provide for systematic coöperation among the members of the faculty in carrying out this work.

*Student activities.*—Through the supervision of the Schedule Committee of the faculty, the social activities were judiciously distributed throughout the year so as to avoid any interference with the school work of the students by depriving them of study hours. Two active debating societies, under faculty guidance, strongly supplemented the public speaking work of the English department. The Home Economics Club, a girls' organization, was a strong supplement of the domestic science work. The work of the music department was supplemented by a strong band, a fine orchestra, a boys' glee club, a girls' glee club, and several minor groups. Athletics were maintained on a high plane. Football was inaugurated in the fall and basket-ball continued during the winter, as formerly, with a school team playing outside schools and class teams playing an interclass series of nine games. Flourishing organizations of Y. M. C. A. and Y. W. C. A. were maintained. School life was made interesting and a fine school spirit prevailed.

*Teachers' Training Course.*—Four years of this work have been done. While the enrollment has not been large, the work is making a place for itself in Minnesota. The plan of organization, the ungraded elementary school used in conducting this course, the correlation between pedagogical work and both Home Economics and Agriculture, and the distinctly professional attitude of the students in this department, make it a successful contribution to rural educational effort. The summer courses for teachers have been well attended.

*Junior Short Course.*—The Junior Short Course is awakening greater interest each year, as is shown by the enrollment table.

*Farmers' Week.*—Farmers' Week held in connection with the Farm Crops Association continues to engage the attention of large numbers annually. While it is impossible to hold these meetings at the School on account of lack of transportation facilities and rooms, the close relationship existing between the Farm Crops Association and the School makes the present arrangement entirely satisfactory. The Superintendent of the School is the general chairman of the Farmers' Week, and arranges the entire program. During this week the various organizations for the promotion of agriculture in Northwestern Minnesota hold their meetings at Crookston. Through a chain of farmers' clubs and local associations throughout Northwestern Minnesota, the ideas brought out at this meeting are spread to every corner of the district.

*Coöperative work.*—The School and Station is already closely identified with various organizations through which much is being done in various fields. The Station poultryman is president of the Northern Minnesota Poultry Association, and does considerable field work in connection therewith. The horticulturist and agronomist are connected with the Red River Valley Horticultural and Pure Seed Associations, and are conducting coöperative trials in these fields. The agricultural instructors in high schools, the Red River Valley Livestock Breeders' and Dairymens' Association, and the Development Associations are all closely allied with our work here, and the finest kind of coöperation is manifest on all sides. Through the county superintendents and the teachers' training department, the rural schools are being helped. Farmers' clubs call constantly, and increasingly for services that help build up this part of the state.

The field work taken up by Mr. Kiser this year, is proving to be very acceptable to the farmers. It will require all of his time to follow up this work, especially as the demand for farm account books is so great. The coöperative seed work is another feature of extension work that is in great demand. We should greatly extend our field services to the people. There are no county agents in this part of the state, which renders it more imperative that these closer relationships should be increasingly fostered.

The following table shows the extent of Station Coöperators' work:

County or State	Alfalfa	Pure Seed	Farm Management
	Coöperators 1917	Coöperators 1917	
Kittson .....	25	6	16
Norman .....	130	8	85
Polk .....	121	9	82
Mahnomen .....	10	4	..
Marshall .....	71	3	44
Red Lake .....	16	6	13
Pennington .....	8	5	20
Clay .....	195	2	2
Roseau .....	33	6	3
Becker .....	20	6	..
Totals .....	629	55	265

*Interest in the school by citizens and organizations.*—The past year has been the most fruitful in the manifestations of interest in the work of the School and Station since its organization. A meeting was held at Crookston in September at which plans were formulated to provide a scholarship and a loan fund for students of the School.

Through the generosity of Crookston business men and other friends of the School, \$1,350 in scholarships were offered. Half of these were awarded at the close of the school year for diligence and progress along different lines of work during the year. The others will be awarded in the fall of 1917 for summer practicums or various lines of home work. These scholarships were a great incentive to good work, and will no doubt have a strong effect in increasing enrollment in the future.

*Extension service.*—Calls upon the School and Station for extension work have been very numerous during the year. The full time of one person is devoted to this service, and for three months beginning at the first of the year, the full time of one other person in addition was necessary. Besides this, it has been necessary to call upon various members of the faculty very often. In this way, a great variety of interests have been served, including farmers' clubs, farmers' institutes, teachers' institutes, women's clubs, coöperative associations, fairs, and school meetings. From May 1, 1916, to April 30, 1917, the following meetings, etc., were held: Farmers' Club meetings, 127; Corn Club meetings, 28; Agricultural fairs, 45; Agricultural meetings, 25; Teachers' Institute addresses, 17; School meetings, 26; Short Course appointments, 17; Community picnics, 10; Women's meetings, 8; Bread Club meetings, 8; Farmers' Institute meetings, 14; total, 325.

#### THE WEST CENTRAL SCHOOL AND STATION, MORRIS

*The work of the year.*—Courses offered during 1916-17 were regular school course of three sessions, of six months each; Farmers' Short Course, one week in February; Vacation for Farm Women, one week in June; Junior Short Course, one week in April; Teachers' Training Session in coöperation with the State Department of Education, six weeks in June and July. All sessions were well attended. Regular school course in 1916-17 had the largest attendance in the history of the School. Elective system instituted one year ago is proving very satisfactory. New engineering building in use and new courses now available in this work are attracting many students. First annual report of the West Central Sub-Station issued. Inauguration of Summer Visiting Day for farmers proved very successful.

*Resignation of the superintendent.*—The superintendent, Mr. E. C. Higbie, under whose direction the School and Station have been organized and developed, resigned at the close of the year to continue special studies in agricultural education. Mr. P. E. Miller was designated as acting superintendent.

Respectfully submitted,

A. F. Woods, *Dean*

## THE LAW SCHOOL.

To the President of the University:

SIR: I herewith submit my report as Dean of the Law School for the year 1916-17:

*Attendance.*—From Table I it will be observed that the registration during the session just closed showed a sudden increase of 30 per cent above that of the preceding year. The number of special students appears to be unduly large, altho it is to be borne in mind that quite a number of those so registered have taken full two years of college work, and are precluded from being regular because of conditions in some phase of gymnasium work or other non-academic requirement. It is manifest, however, that registrations of special students must be further restricted.

TABLE I. REGISTRATION

	REGULAR		SPECIAL		TOTAL	
	1915-16	1916-17	1915-16	1916-17	1915-16	1916-17
Unclassed .....					3	
First year .....	61	68	31	44	92	112
Second year .....	38	52	7	8	45	60
Third year .....	29	40	5	7	34	47
					171	222

*Faculty.*—It is with deep regret that I report the resignations of Professors E. M. Morgan and E. G. Lorenzen, who leave the University to accept professorships in the Yale Law School. Both Professors Morgan and Lorenzen are inspiring and able teachers who have rendered a real service to legal education in this state. During the session just closed, on account of the unexpected increase in registration, an unduly heavy burden of instruction was placed upon all members of the faculty.

*Instruction.*—The different phases of instruction in the Law School, as mentioned in preceding reports, progressed with gratifyingly favorable results until the outbreak of the war in April, which necessarily caused much confusion and undoubtedly seriously affected the quality of the work done during the remainder of the session. No fewer than 54 students in the Law School were actually enlisted in the service of the United States, while nearly all of the others made earnest efforts to enter the service. Ten left the Law School to engage in agricultural service.

*Library.*—The growth of the library during the last five years is shown by the figures given immediately below:

## THE PRESIDENT'S REPORT

Volumes in library August 1, 1913.....	18,540
Volumes added during 1913-14.....	1,760
Volumes added during 1914-15.....	2,702
Volumes added during 1915-16.....	1,639
Volumes added during 1916-17 (to date).....	1,144
Total .....	25,785

At the present time the shelves of the library are filled, and it will be necessary to make temporary provision for accessions that may be expected during the next biennium.

*A new law building.*—The need of a new law building in order to provide adequate facilities for the work of the Law School, and especially fireproof housing for the law library, as stated in my last report, grows more pressing. Undoubtedly this need must be cared for as soon as the restoration of normal conditions makes it possible to do so.

*Statistics of scholarship.*—The tables given below, in a manner comparable with information given in preceding reports, show the scholastic work of the past session. Two striking facts stand out: first, the unduly large percentage of conditions and failures, indicating, I think, that our students do not yet fully appreciate the fact that the work of the Law School requires a man's whole time and strength; secondly, that, disregarding a few unusual cases, students who have had inadequate college training, or none at all, are unable to do the work accomplished by those who have had the benefit of more extensive preliminary education.

TABLE II. SCHOLARSHIP STATISTICS

	FIRST YEAR		SECOND YEAR		THIRD YEAR	
	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
1. Total enrollment.....	111	86	60	52	46	39
2. Number taking examinations .....	101	80	56	50	43	38
3. Number passing all examinations .....	34	45	22	28	28	35
4. Number delinquent in one subject only.....	23	10	12	15	12	0
5. Number delinquent in three or more subjects.....	26	13	9	4	4	1
6. Percentage of conditions and failures to total examinations .....	30	19	21	12	13	2
7. Percentage of successful students to total enrollment .....	22	52	37	54	60	92

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 sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
1. Total enrollment.....	24	24	44	32	43	30
2. Number taking examinations.....	24	23	39	31	38	28
3. Number passing all examinations.....	14	19	12	18	8	10
4. Number delinquent in three or more subjects.....	3	2	9	5	14	6
5. Percentage of failures and conditions to examinations taken.....	17	10	25	16	45	26
6. Percentage of successful students to total enrollment.....	58	79	27	58	18	33

TABLE IV. CONDITIONS, FAILURES, AND INCOMPLETES

	REGULAR STUDENTS	SPECIAL STUDENTS	TOTAL
First semester			270
Incompletes.....	9	3	12
Conditions.....	139	86	225
Failures.....	21	12	33
Second semester			165
Incompletes.....	16	32	48
Conditions.....	63	33	96
Failures.....	12	9	21

Respectfully submitted,

W. R. VANCE, *Dean*



## THE MEDICAL SCHOOL

*To the President of the University:*

SIR: I submit the reports of the Medical School and its allied interests, the University Hospital, the School for Nurses, and the School of Embalming, for the year 1916-17.

*Graduate work.*—The outstanding event in medical education in Minnesota for 1916-17 has been the further development of graduate work to the point of granting the first advanced degrees in the medical specialties. While this work from the standpoint of registration of students and educational requirements is administered by the Graduate School, as a problem in teaching it engages the attention of the departments of the Medical School and may properly be dealt with in this report. We have now completed three years under the plans adopted by the School in 1914 for the training of specialists. These plans, in brief, called for three years of study after the ordinary medical course and intern year. This period of study was planned to lead to an advanced degree coordinate with the doctorate of philosophy. This was an entirely new enterprise in medical education.

*Graduate fellowships.*—The first students were teaching fellows—young physicians appointed as assistants in the clinical departments. They are full-time men receiving progressively increasing annual stipends during the three-year period. They register in the graduate school, and their teaching duties are of a kind intended to increase their knowledge and practical experience in their chosen specialty. Each man works under an adviser who maps out his course of study. Much of the fellow's time is left free for advanced work and research. At the close of 1916-17, four of these men had completed their three years of residence together with their scholastic and thesis requirements. These men received the advanced Doctor's degree—three of them that of Doctor of Science, and one that of Doctor of Philosophy. Meanwhile the session 1916-17 completed two years of the period of temporary affiliation between the University and the Mayo Foundation. None of the fellows at that institution has, therefore, been registered in the University more than two years. However, prior service on the Foundation has been received as equivalent to residence in the University. Two candidates have been examined and granted Masters' degrees.

*Progress encouraging.*—The Medical School feels increasing satisfaction with the experiment it has undertaken. It has demonstrated that graduate work in practical medicine can be carried on with the same ideals and under the same regulations as in any other branch of knowledge. We feel that this step will tend to systematize and standardize graduate medical education. We are convinced that qualified and enthusiastic young doctors will more readily undertake serious advanced study when they see a distinct goal in the form of an advanced degree, which to them will be a certificate of special qualification. We believe

that we have set a standard for the training needed to make a competent specialist, and that the days of the self-announced and untrained specialist are coming to a close. We see our plan helping the people in the choice of competent consultants. We are certain that progress in research will be hastened by the high place the thesis holds in our estimate of candidates, and by the impetus given our faculty by the presence of these young investigators. In all these respects we are rendered the more sure of our ground by the cordial acceptance of our ideas in other universities. Finally, in the completion and acceptance of the Mayo gift we contemplate a great power in advancing medicine in this state and this University.

*The faculty deaths.*—Within the past year Dr. Everton J. Abbott,\* Professor Emeritus of Clinical Medicine, and Dr. Burnside Foster,† Lecturer in the History of Medicine, have died. Both served the school well in the years past as teachers of ability and scholarship.

*Resignations.*—The following resignations from faculty positions have been accepted: Dr. Soren P. Rees, as Assistant Professor of Medicine; Dr. Robert A. Hall, as Assistant Professor of Pharmacology; Dr. William C. Johnson and Mr. W. Ray Shannon, as Instructors in Pathology; Dr. Earle R. Hare, as Instructor in Surgery; Dr. C. A. Boreen, as Instructor in Dermatology.

*Promotions.*—The following promotions have been approved by the Board of Regents during the year: Dr. H. E. Robertson, as Director of the Department of Pathology, etc.; Dr. J. F. McClendon, as Associate Professor of Physiology; Dr. S. E. Sweitzer, as Associate Professor of Dermatology; Dr. Henry L. Ulrich, as Associate Professor of Medicine; Dr. Harry G. Irvine and Dr. John Butler, as Assistant Professors of Dermatology; Dr. Alexander R. Hall, Dr. E. T. F. Richards, and Dr. J. P. Schneider, as Assistant Professors of Medicine; Dr. Arthur T. Henrici, as Assistant Professor of Pathology and Bacteriology; Dr. Francis B. Kingsbury and Dr. C. J. V. Pettibone, as Assistant Professors of Physiologic Chemistry; Dr. C. A. Reed, as Assistant Professor of Orthopedic Surgery; Dr. Archibald H. Beard, as Instructor in Medicine; Dr. Paul W. Geissler, as Instructor in Orthopedic Surgery; Dr. J. W. Kremer and Dr. Anton J. Wethall, as Instructors in Urology; Dr. W. C. Rutherford, as Instructor in Obstetrics and Gynecology; Dr. Henry C. Stuhr, as Instructor in Surgery; Dr. Percy A. Ward, as Instructor in Pathology and Bacteriology.

*New appointments.*—The following new appointments to the faculty have been made during the year: Dr. Francis G. Blake as Assistant Professor of Medicine; Drs. J. F. Avery, Benjamin Kramer, R. E. Morris, C. B. Wright, and J. R. Turner, as Instructors in Medicine; Dr. G. M. Olson, as Instructor in Dermatology; Dr. J. C. Staley, as Instructor in Surgery; Mr. Martin B. Chittick, as Instructor in Pharmacology.

\* Date of death, February 25, 1917.

† Date of death, June 13, 1917.

*Fellowships.*—The following teaching fellows have been appointed: Albert G. Alley, in Pediatrics; Lee W. Barry, in Obstetrics; Gordon M. Clark, in Obstetrics and Gynecology; Charles E. Connor, in Ophthalmology and Oto-Laryngology; Robert S. Gutsell, in Anatomy; Charles E. Nixon, in Nervous and Mental Diseases; Hjalmar L. Osterud, in Anatomy; Naboth O. Pearce, in Pediatrics; Byron L. Robinson, in Anatomy; Taylor B. Smith, in Surgery; Anna B. Yates, in Physiology; the Shevlin Fellowship in Medicine has been filled by Martin B. Ott.

*Scholarship and fellowship gifts.*—A scholarship in Otology has been created under a gift tendered to the School by Dr. Horace Newhart. Millard F. Smith and Erling W. Hansen have shared this scholarship during the past year. Two teaching fellowships in Ophthalmology and Oto-Laryngology have been established and funds for their support, in the total sum of \$2,250 each, have been provided by Dr. Frank C. Todd and Dr. Frank E. Burch. Dr. H. P. Wagener has been appointed to the first of these special fellowships.

*Limited registration.*—In the first year of its application, the limited registration of the Medical School has given the novel opportunity for a selective choice of students. Academic scholarship, personal, school, and college references, a physical examination, a test of general knowledge, and psychologic tests have served as the competitive bases of selection. Seventy-three students were registered under this system. The total registration in the Medical School for 1916-17 was 264.

*Microscope rule.*—In the operation of the new rule requiring students to provide their own microscopes, the University has served the student body by the purchase, in their behalf and through the partial aid of the loan funds, of 200 microscopes at a cost of approximately \$11,000. All obligations incurred by medical students in this purchase during the year have been discharged in full.

*Social Service Department.*—Four workers are employed in the service. Intensive work has been done in the control of venereal disease and in pre-natal instruction. The department has been in personal contact with some 3,000 patients; has visited 1,095 families, making a total of 2,497 visits; has instructed, advised, or assisted 1,643 patients in the clinic; has cooperated with 51 social organizations, and has issued to these some 670 reports.

The department has undertaken the inspection of boarding and rooming houses for University men, and has reported the results of its inspection of 247 places.

*School of Embalming.*—The third annual session of the School of Embalming was held in January and February, with a registration of 41 students. Applicants for this course are showing improved preparation and a higher average of results of study.

*The Psychologic and Psychiatric Clinic.*—The establishment of a Psychologic and Psychiatric Clinic in Millard Hall through the coöperation of members of the departments of educational psychology, pediatrics, and nervous and mental diseases, is an event of interest. It has made

mental and physical tests of some 200 children, and has afforded material for study to a number of students of social service and education, as well as medicine.

*Emergency hospital.*—The School has rendered a minor, but valued, service to the state in the maintenance of an emergency hospital at the Minnesota State Fair.

*University Hospital extension.*—A committee of the Medical School has been active, during the latter part of the year, in the projection of plans for the extension of the University Hospitals and the endowment of graduate and research work. The denial by the Legislature of the repeated request for another hospital building has stimulated the determination of the School to secure this much-needed development by the super-addition to legislative appropriations of endowment and building funds.

*Clinical teachers.*—As an important step in the direction of a larger clinical development, the school has accepted, and is working out the principle of a full-time clinical teaching staff, not to the exclusion, but to the reinforcement of the part-time clinical service of the past. The problem of an adequate clinical service and of sufficient compensation for these full-time teachers is yet to be solved, and is closely associated with the question of clinical development and endowment as a whole.

*War service.*—The response of the faculty of the Medical School to the war call has been quick and earnest. Several of the teaching staff have already accepted commissions in the medical service of the Army and Navy. The chiefs of two departments, Dr. Harold E. Robertson, of the Department of Pathology, Bacteriology, and Public Health, and Dr. J. P. Sedgwick, of the Department of Pediatrics, have left for important posts in France.

*The Minnesota Base Hospital.*—The University of Minnesota Base Hospital was conceived by Dr. William J. and Dr. Charles H. Mayo, who contributed \$15,000 to its support. Citizens of Minneapolis have warmly responded to this opportunity and have completed the required fund of \$50,000. The hospital has been well manned and thoroly equipped. Its staff of 28 commissioned officers chosen from the faculty of the Medical School and the Mayo Foundation with Major Arthur A. Law, Associate Professor of Surgery, as Director; its enlisted personnel of 153 members, many of whom are students of the University; its force of 65 trained nurses, among them many graduates from the University School, and 6 non-enlisted women, is enrolled and awaiting mobilization orders.

Following are the reports of Dr. L. B. Baldwin, Superintendent of the University Hospital, and of Louise M. Powell, Superintendent of the School for Nurses.

Respectfully submitted,

E. P. LYON, *Dean*

## THE UNIVERSITY HOSPITALS

The report of the Superintendent is submitted as follows:

TABLE I. SUMMARY

	1914-15	1915-16	1916-17
Patients in hospital, beginning of period, August 1	121	138	163
Patients admitted during year	1,905	2,216	2,627
Patients treated during year	2,026	2,354	2,790
Total days hospital care	47,450	55,266	59,130
Average days per patient	23.42	25.00	21+
Highest daily census	147	181	183
Daily average number patients	130	151	162
Daily average cost per patient	1.573	1.439	1.467
Daily cost per capita for provisions for all persons supported	.252	.239	.269

TABLE II. OUTPATIENT DEPARTMENT

	1914-15	1915-16	1916-17
New patients treated	14,361	12,325	15,860
Total patients' visits made	52,681	45,251	55,997
Average visits per day	173.86	151.37	184.80
Average cost per patient's visit, gross		.259	.277
Average cost per patient's visit, net (after deducting receipts)		.095	.057
Total prescriptions issued			
Drug	19,997	18,324	21,604
Optical	1,152	893	1,344

TABLE III. SHOWING NUMBER OF PATIENTS ADMITTED, DISCHARGED, AND DIED, AUGUST 1, 1916, TO JULY 31, 1917

	In Hospital August 1, 1916	Admitted	Discharged	Died	Remaining July 31, 1917
Medicine	50	570	461	52	51
Neurology	13	117	120	4	7
Dermatology	3	13	17	0	3
Pediatrics (including new-born)	22	452	426	37	17
Surgical	43	566	575	40	47
Eye and Ear	8	110	108	1	7
Nose and Throat	0	197	190	0	1
Urological	2	44	40	2	3
Gynecology	5	141	138	4	8
Obstetrics	17	417	415	1	15
Total	163	2,627	2,490	141	159

As shown in Tables I and II there was an increase during the year 1916-17 over the year 1915-16 in: (1) the number of cases admitted of 411; (2) the total number of cases treated of 436; (3) the total number of days of hospital care of 3,864; (4) the daily average number of patients of 11; (5) the daily per capita cost of maintenance of \$0.28;

(6) the daily cost per capita for provisions for all persons supported of \$.03; (7) the number of new patients treated in the Outpatient Department of 3,535; (8) the total number of patients' visits to the Outpatient Department of 10,746; (9) the average number of patients' visits per day to the Outpatient Department of 33; (10) the gross cost per patient's visit to the Outpatient Department of \$.018; (11) the number of prescriptions filled at the Outpatient Department of drug, 3,380; optical, 451.

There was a decrease in: (1) the average number of days' hospital care per patient amounting to over 3 days per patient; (2) the net average cost per patient's visits to Outpatient Department of \$.038.

The increase in the number of patients treated in both the Hospital and Outpatient Department noted is the product of natural growth and development. The number of beds in the Hospital has not been increased during the year, but the average number of days of hospital care per patient was reduced, thereby permitting the admission of a larger number of patients.

A tuberculosis clinic established in the Outpatient Department has grown rapidly.

A division of the work in the clinic in internal medicine in the Outpatient Department was made to promote efficiency and better work in the clinic.

The increased per capita cost was due almost wholly to the increased cost of supplies of all kinds.

Respectfully submitted,

L. B. BALDWIN, *Superintendent*

### THE SCHOOL FOR NURSES

The report of the Superintendent is submitted as follows:

Applications received .....	46
Student nurses matriculated.....	28
Student nurses withdrawn or dropped (preliminary).....	6
Student nurses withdrawn or dropped (undergraduates).....	4
Students graduated .....	12
Accredited nurses accepted.....	16
Certificates to accredited nurses.....	9

#### *Nursing Staff in Hospital and Outpatient Department*

##### Registered Nurses

Superintendent, School for Nurses.....	1
Assistant Superintendent and Instructor.....	1
Operating Department .....	1
Obstetric Department .....	1
Night Supervisor .....	1
Pediatric Department .....	1
Surgical floors .....	2
Medical floors .....	2
Outpatient Department .....	3

## Student Nurses

Seniors .....	15
Intermediates .....	17
Juniors .....	15
Accredited .....	11

The health of the nurses has been unusually good. There have been among the nurses one operation for appendicitis, and six operations for the removal of tonsils; including these the total number of days of illness has been 218 days during the year.

The nurse instructors of the school are being called on for extra teaching increasingly, and if they are to meet these demands something must be done to conserve their time and strength, both of which are being needlessly wasted at the present time, owing to the necessity of dividing the classes into small sections because of lack of room. Either we will have to provide more instructors, or provide a demonstration room fully equipped to accommodate at least twenty students.

Respectfully submitted,

LOUISE M. POWELL, *Superintendent*

## THE COLLEGE OF DENTISTRY

*To the President of the University:*

SIR: I herewith submit my report as Dean for the year 1916-17.

*The four-year course.*—This course became obligatory in Minnesota with the year 1916-17, one year in advance of all other schools in the United States. It is significant that we had more freshmen applicants than could be matriculated. It is also worthy of notice that the curriculum of the four-year course, after a test of two years, seems to fulfill our expectations. Other classes also show capacity enrollment, with a number of foreign students.

*Progress of research.*—Emphasis the past year has been especially placed upon clinical and laboratory research in the bacteriology and pathology of mouth diseases. Dr. Hartzell and Dr. Henrici have presented several papers in this connection during the year.

*Enlistment of dental students.*—When the call for the country's service came, 78 members of the senior class immediately signed for the Dental Reserve Corps. The large majority of these will no doubt be appointed first lieutenants.

Respectfully submitted,

ALFRED OWRE, *Dean*



## THE SCHOOL OF MINES

To the President of the University:

SIR: I herewith submit my report as Dean for the year 1916-17.

*Registration.*—The total registration during the year was 77, distributed as follows:

Seniors .....	15
Juniors .....	20
Sophomores .....	19
Freshmen .....	20
First-year .....	3
	77

*Geographical distribution of students.*—The above students were registered from Minnesota counties as follows:

Aitkin .....	1	Otter Tail .....	1
Crow Wing .....	4	Pope .....	1
Fillmore .....	1	Ramsey .....	14
Hennepin .....	28	Stearns .....	2
Kittson .....	1	St. Louis .....	8
Lincoln .....	1	Washington .....	2
Morrison .....	1		

Students registered also from outside the state as follows:

China .....	3
North Dakota .....	3
Wisconsin .....	6

*Withdrawals.*—During the year five students withdrew. These students were distributed by classes as follows:

Seniors .....	0
Juniors .....	1
Sophomores .....	1
Freshmen .....	2
First-year .....	1

The reasons for such withdrawals are as follows:

Entered military service .....	2
Financial .....	2
Transferred to another college within the University of Minnesota .....	1

5

*The faculty.*—Upon the resignation of Mr. George J. Young, as Professor of Mining, the classes formerly taught by him were taken by the present members of the Mining Department. In order to make this possible, additional assistance was furnished to carry on the ore estimating work for the Tax Commission. Mr. C. H. Clevenger was secured as instructor in Mathematics and Mechanics for one year to take the classes of Mr. E. W. Davis, on leave of absence.

*The curriculum.*—As mentioned in my report for 1915-16, it has proved to be exceedingly difficult to provide for military drill. Owing to the fact that all evening drill hours were dropped and no drill held after half past four, it became necessary to drop two hours of drawing from the freshman course, and two hours of physics laboratory from the sophomore course.

The course leading to the degree of Metallurgical Engineer has been modified to some extent to make it conform to the advances in actual practice, as well as to our increased equipment. Owing to the crowded condition of the Testing Works, and the impossibility of further expansion, some contemplated changes were abandoned for the present.

*The State Mining Experiment Station.*—During the period covered by this report, 375 tests were made as against 196 of the preceding year. Eighty-four of the samples required only sight examinations or simple tests. Many citizens took advantage of the privilege of appearing in person, submitting their samples, and receiving professional advice.

The following concentration tests were made:

COMPANY	MINE	RANGE	WEIGHT OF SAMPLE POUNDS
White Iron Lake Iron Company....	White Iron Lake....	Vermilion ..	2,000
Rogers, Brown Iron Company.....	Kennedy .....	Cuyuna .....	30
Sultana Mine Company.....	Cuyuna-Sultana .....	Cuyuna .....	40,000
Judson Mining Company.....	Judson .....	Menomonie ..	50
Cuyuna-Mille Lacs Iron Company..	Cuyuna-Mille Lacs..	Cuyuna .....	80
Hoch Mining Company.....	Hoch .....	Cuyuna .....	50
Mr. Clement K. Quinn.....	Madrid .....	Mesabi .....	310
Mr. A. R. McGuire.....	.....	Cuyuna .....	5
Rogers, Brown Iron Company.....	Kennedy .....	Cuyuna .....	500
Interstate Iron Company.....	Hill Annex.....	Mesabi .....	5,200
Doris Mining .....	Doris .....	Mesabi .....	5,700
Adbar Development Company.....	Adbar .....	Cuyuna .....	47
Mr. T. H. Keating.....	Thompson .....	Cuyuna .....	4,000

In addition to the above work, various experimental tests were carried on in order to determine possible improvements in the present methods of testing as well as improvements in methods of beneficiation.

*Cuyuna manganiferous iron ores.*—The study of the present and future economic possibilities of the manganiferous iron ores of the Cuyuna Range has been continued throughout the present year, and much valuable data has been secured. The results of this investigation will appear in *Bulletin no. 5, Manganiferous Iron Ores of the Cuyuna District, Minnesota*, by Edmund Newton, which is now in press.

*Service to Tax Commission.*—The work of making ore estimates for the Minnesota Tax Commission, begun in June, 1909, still continues. The ore estimates are used as a basis for the valuation of mineral properties in the State of Minnesota.

On 100 of these properties our reports show an estimated tonnage of 170,431,516 tons of merchantable iron or manganiferous ore, and 13,308,990 tons of material that is of too low a grade or is too difficult to mine to make it of merchantable value at the present time. On 13 properties we

show 6,768,901 tons of non-merchantable ore only. Six properties were visited and inspected in the field where development work has not reached such a stage that a tonnage estimate was possible. A written report covering present conditions and possibilities was furnished the Tax Commission in this case. In addition to the above a number of properties, which have been explored and show no mineral value, were mapped, recorded, and the results filed as a record of the property. Seven trips were made to the mining districts of Minnesota, requiring 37 days actual field work for two men. During the months of July and August, and the first half of September, three men devoted their time exclusively to this work, and in addition throughout the remainder of the year divided their time between this and educational work as conditions required.

*Minnesota Geological Survey.*—In connection with the problems under consideration by our State Survey, the Experiment Station is cooperating by testing all samples submitted to ascertain the possibility of improving the grade of metallurgical treatment.

*Wisconsin Geological Survey.*—The cooperation between the Experiment Station and the Wisconsin Geological Survey effected a year ago continues in force and has been mutually beneficial.

*United States Geological Survey.*—Informal cooperation between the United States Geological Survey and the Experiment Station has been effected, by which the Experiment Station shall, in connection with its metallurgical investigations, make such chemical and physical analyses, concentration tests, and other metallurgical studies of iron and manganese ores, and other ores and rocks submitted by the United States Geological Survey as may have a direct practical bearing upon the study of the economic geology of these ores by the federal survey. And, in turn, the United States Geological Survey shall upon request, make petrologic or geologic determinations or classification of samples of rocks and ores, give consideration to manuscripts for publication by the School of Mines Experiment Station, which involve references to geology of ore deposits, and extend in other ways informal cooperation in the study of joint problems concerning the exploration, prospecting, and development of the iron, manganese, and other ore deposits of the state. All data obtained by either party shall be made available to the other party as soon as practicable, and, if published, acknowledgment shall be made of the assistance rendered in obtaining the results.

*The United States Bureau of Mines.*—The Secretary of the Interior and the Director of the Federal Bureau of Mines have designated the University of Minnesota as the site for a Federal Bureau of Mines Station to be known as the Lake Superior Station. This action is particularly gratifying in view of the fact that the last Legislature failed to make an appropriation for the construction of such a building as would meet the requirements of the Bureau. On the assumption that the appropriation was not made on account of the war, the Station is established in cooperation with the University of Minnesota with the express

understanding that the Legislature will provide a suitable building at the earliest opportunity. The formal agreement setting forth the express conditions under which the Station is established and the principles governing the coöperation between the Federal Bureau of Mines and the State Mining Experiment Station will be entered into at an early date.

*Future needs.*—On account of the unsettled conditions incident to the war as well as the need for strict economy, it seems inadvisable to make any formal statement as to the immediate needs of the School.

Respectfully submitted,

W. R. APPLEBY, *Dean*

## THE COLLEGE OF PHARMACY

*To the President of the University:*

STR: I herewith submit my report as Dean for the year 1916-17:

*Registration.*—The College completed its twenty-fifth year on July 31, 1917. Thirty-one students graduated from the course leading to the degree Graduate in Pharmacy (Phm.G.). The total registration during the year reached 105—42 first-year students, 2 special first-year students, 48 second-year students, 10 third-year students, 1 fourth-year student, and 2 sixth-year students. The total enrollment of last year was 105, of the year before 101, and of the year before that 98. The faculty did not expect the enrollment to reach that of last year because this was the first year of the new minimum course of three years, and it was expected that the first-year enrollment would drop perceptibly. This, however, was not the case. The total number of graduates this year exactly equals the total number of last year, namely 31. The faculty gave instruction to a total of 180 students, including 75 medical students. Several lectures on medicinal plants were given to high-school students, nurses, and to the botany classes of the Arts College.

*Enlistment of students.*—Four first-year men and four seniors enlisted in various services of the Army and Navy. Two first-year men went into war work in agriculture.

*Geographical distribution of students.*—The student body represented the following political divisions: China, 1; Egypt, 1; India, 1; Korea, 1; and United States, 101, distributed among states as follows: Iowa, 1; Minnesota, 87; Montana, 2; North Dakota, 1; Pennsylvania, 1; South Dakota, 3; Wisconsin, 6. From Minnesota counties: Anoka, 1; Beltrami, 1; Chippewa, 1; Clay, 1; Fillmore, 4; Goodhue, 4; Hennepin, 24; Houston, 1; Isanti, 1; Itasca, 2; Kandiyohi, 2; Lac qui Parle, 3; Le Sueur, 1; Lincoln, 3; Martin, 1; McLeod, 1; Meeker, 1; Mille Lacs, 2; Mower, 1; Murray, 1; Nobles, 1; Norman, 1; Olmsted, 2; Otter Tail, 3; Polk, 1; Pope, 2; Ramsey, 6; St. Louis, 6; Steele, 1; Stevens, 1; Waseca, 4; Washington, 1; Yellow Medicine, 2.

*Special lectures* were given during the year by: Mr. F. A. Upsher Smith on "Current Pharmaceutical Literature"; Dean Lucius E. Sayre, of the School of Pharmacy of the University of Kansas, on "The Textbook and the College"; Dean William B. Day, of the College of Pharmacy of the University of Illinois, on "The Affirmative Influence of Pharmaceutical Organization"; Dr. Henry Kraemer, of the Philadelphia College of Pharmacy, on "Higher Pharmacognosy"; Dean Edward Kremers, of the School of Pharmacy of the University of Wisconsin, on "The Apothecary in Literature." Dean R. A. Lyman, of the School of Pharmacy of the University of Nebraska, Dean W. J. Teeters, of the College of Pharmacy of the University of Iowa, and Dean C. E. Mollett, of the College of Pharmacy of the University of Montana, addressed the student body and faculty on May 4, the three men joining in a symposium on pharma-

ceutical practical ideals. Mr. F. A. Upsher Smith gave a course in Pharmaceutical Latin to those members of the freshman class who, altho graduates of recognized high schools, had not had Latin when they entered the College.

*Dispensary practice, field trips, etc.*—The usual instruction in dispensary practice in the actual dispensing of physicians' formulated prescriptions was again a part of the year's work. The several classes made the usual number of botanical and pharmacognostical trips under the guidance and field instruction of members of the faculty. One local drug mill was visited by the classes. The instruction relating to medicinal plant cultivation and the harvesting, curing, and preparation of vegetable drugs was somewhat increased. A much larger area was given to the planting of digitalis this spring, because, at the request of the Council of National Defense, the College took steps to provide the Government with an ample supply of digitalis to be harvested next fall. This additional cultivation afforded means of increased garden instruction. The instruction in the subjects of the graduating year was of the usual amount and quality, but the instruction given to students of the first year of the three-year course, tho not less than heretofore given in the first year of the two-year course, was somewhat strengthened by certain rearrangements and adjustments that permitted more intensive work in some subjects and less in others. The freshmen, according to this new arrangement, did not begin laboratory work in subjects taught in the pharmaceutical laboratory until the beginning of the second semester.

*Faculty changes.*—Mr. Charles W. Wulling, who had helped out temporarily the past two years, was not available at the beginning of the year, and therefore the work of the rest of the faculty was heavier than usual because all courses, despite the existence of the two vacancies in the faculty, were carried as usual. Mr. Charles H. Rogers, who was a member of the faculty in 1913-14 of the rank of instructor, was secured and began service as Assistant Professor on February 1, 1917. Mr. Charles E. Smythe was again made a permanent addition to the assistant instructional staff with additional duties as departmental librarian. Associate Professors Newcomb and Bachman had opportunities to better themselves elsewhere, but preferred to remain.

*Free Dispensary Drug Room.*—Up to June 1, lacking two months of the full University year, the Free Dispensary Drug Room dispensed 17,980 prescriptions as against a total of 18,324 for the year before and 19,997 for the year preceding that. No doubt the total for the year ending July 31, will exceed that of the preceding year. Practically all of the prescriptions, except those written during the vacation months, were dispensed by senior pharmacy students under Instructor Blossmo's direction and supervision.

*Outside activities.*—The outside demands upon faculty members again was heavy. The various members of the faculty gave a total of twenty-seven addresses and papers before state and national associations and locally. The College provided two medicinal plant exhibits. The other

usual outside activities of the faculty, such as the identification of medicinal or supposedly medicinal plants, advice and suggestion on medicinal plant culture, the formulation and conduct of the proceedings of the Minnesota State Pharmaceutical Association Scientific Section, the editing of the *Northwestern Druggist* through its twelve monthly issues, the editing and publication of the annual proceedings of the Minnesota State Pharmaceutical Association, the giving of advice upon difficult prescriptions and formulae, were carried on to the limit of the time and ability of the respective members of the faculty.

*Important offices held by faculty members.*—The presidency of the American Pharmaceutical Association, vice-presidency of the Minnesota Academy of Sciences, secretaryship of the Minnesota State Pharmaceutical Association, secretaryship of the Northwestern Branch of the American Pharmaceutical Association, membership on the Council of the American Pharmaceutical Association and on the Committee on Publication of the A. Ph. A., chairmanship of the Scientific Section of the Minnesota State Pharmaceutical Association, chairmanship of, or membership in, twelve important associational committees.

*Departmental library.*—Ever since the establishment of the departmental pharmaceutical library, the College has been hoping for a departmental librarian, but since such could not be afforded, the College has arranged to release Mr. Charles E. Smyithe from some of his other duties to enable him to act as librarian during certain hours of the day. The resources of the library were opened to the entire student body with the beginning of the second semester, the library hours having been from eight to nine in the morning and four to five in the afternoon daily and from nine to twelve on Saturday mornings. Because of the very heavy schedule of work, students have not used the library as extensively as they otherwise would. Some seminar work was carried on in the library occasionally during the year.

Respectfully submitted,

FREDERICK J. WULLING, *Dean*

## THE SCHOOL OF CHEMISTRY

*To the President of the University:*

SIR: I herewith submit my report as Dean for the year 1916-17:

*Building.*—As pointed out in my previous reports, the new laboratory was left in an unfinished condition in spite of the fact that practically all of the equipment from the old laboratory was installed in the new. This was made necessary on account of lack of funds. While the new building is equipped so as to carry on regular laboratory work in a fairly satisfactory manner, there are some pressing needs, especially for the completion of all the building equipment. The small appropriation made by the last Legislature will enable us to supply some of the pressing needs.

*Apparatus and chemicals.*—Notwithstanding war times and the practical exclusion of nearly all materials formerly obtained from Europe, we have suffered less for want of these materials than might have been expected. Many of the rare and technical substances are not obtainable, but the simpler substances, such as are used in our large classes, have been obtained with little difficulty.

*Faculty.*—Few changes have occurred in the personnel of the faculty despite war times. Among the important changes may be mentioned the promotion of two of our members to the professorial rank.

*Students.*—There has been a material increase in the number of students in the School of Chemistry since my last report to you. While there has not been an increase in the number of students taking the general courses, there has been an increase in advanced students. The most notable increase, however, has been in the School of Chemistry itself. The lower classes have been nearly trebled in the last year.

*Research work.*—As indicated in previous reports, special efforts have been made to encourage research work. The following list of research problems has been presented by the various members of the faculty:

- (1) The phase rule—continuation of work;
- (2) the chemistry of aurous gold;
- (3) the action of steam on the metals which form insoluble oxides;
- (4) a new outline of general inorganic chemistry;
- (5) the determination of the transition point by the measurement of electromotive force;
- (6) the identification of the different glycerides in linseed oil;
- (7) catalysis by means of aluminum chloride, (a) condensation of the carbohydrates in the presence of benzene and its homologues, (b) condensation of the celluloses in the presence of benzene;
- (8) a complete mineral analysis of the different flour streams produced in the milling of a batch of wheat;
- (9) the percentage distribution of lecithin, phytin, and nucleo-protein in the different flour streams;
- (10) the percentages of the principal food stuffs, namely, water, ash, fat, proteins, and carbohydrates in the different flour streams;
- (11) a complete mineral analysis of the different market brands of desiccated milk powders;
- (12) the percentages of the principal food stuffs, namely, water, ash, fat, proteins, and carbohydrates in the various market brands of desiccated milk powders;
- (13) an improved method for the determination of benzene in coal gas;
- (14) the chemistry of the halogen ethers;
- (15) the chemical relationship between the terpenes and the resins—continuation of work;
- (16) the polymerization of the terpenes—continuation of work;
- (17) menthose and its derivatives;
- (18) the swelling or imbibition process with special reference to the swelling of rubber in various liquids;
- (19) studies in the formation of lead carbonate;
- (20) studies in absorption;
- (21) a study of the solu-



bilities of some of the difficultly soluble salts of radium; (22) an investigation into the possibilities of separating radium from barium by fractional precipitation of the chromates of these elements; (23) a study of metallic solutions in liquid ammonia; (24) the absorption of acids and bases by filtering materials; (25) a study of the silver-silver chloride equilibrium; (26) the catalytic decomposition of salts of halogenated phenols—continuation of work; (27) a study of trichlorophenolbromide; (28) the Reimer-Tiemann reaction; (29) a study of the viscosity of lubricating oils; (30) condensation products formed from acetone and aluminum chloride; (31) equation of state for gases and liquids—continuation of work; (32) an investigation of the Nernst Heat Theorem; (33) a study of the conditions of temperature of the type of material to use and of the proper apparatus for the manufacture of anhydrous ferric chloride; (34) the availability of anhydrous ferric chloride as a substitute for anhydrous aluminum chloride as a dehydrating agent and as a catalyzer; (35) a study of the lime process in soap making as applied to the recovery of glycerol; (36) the availability of the ammonium salts of certain fatty acids as cleansing agents; (37) the effect of adding solutions of soluble silicates to Portland cement on the breaking strength, permeability to moisture, and surface hardness of the finished material; (38) a new type of electric furnace; (39) the production of metallic beryllium and the alloys of that element; (40) the chemistry of oil and the nitrogen compounds of *Juglans cinerea* or the American butternut; (41) the corrosion of underground lead and iron pipes; (42) the preservation of wood.

Respectfully submitted,

GEORGE B. FRANKFORTER, *Dean*

## THE COLLEGE OF EDUCATION

*To the President of the University:*

SIR: I herewith submit my report as Dean of the College of Education for the year 1916-17:

*Registration.*—The College of Education registers: (1) students who have completed at least the freshman and sophomore years of the College of Science, Literature, and the Arts, or some other college at the University of Minnesota or elsewhere; (2) graduates of the advanced course of approved normal schools, to whom it grants sixty credits of advanced standing; (3) graduate students; (4) unclassified students, chiefly teachers who are engaged in service and who do not yet possess a Bachelor's degree.

The following table shows the registration for the years 1915-16 and 1916-17:

TABLE I. REGISTRATION IN COLLEGE OF EDUCATION

	1915-16	1916-17
Juniors .....	39	47
Seniors .....	41	38
Graduate students .....	14	29
Unclassed .....	12	92
Total .....	106	206

*Registration according to courses.*—The total number of registrations in all courses was 1,111, distributed as follows: History of Education, 186; Technique of Teaching, 195; Social Aspects, 242; Practice Teaching, 125; Educational Psychology, 38; Educational Diagnosis, 36; Theory of Supervision, 12; Methods of Educational Research, 12; School Sanitation, 32; School Curricula, 49; School Supervision, 34; Industrial Education, 14; Educational Classics, 14; German Schools, 5; French Schools, 3; Seminar Courses, 19; Mental Tests, 9; Mental Diagnosis, 24; History of Religious Education, 6; Psychological Clinic, 4; Methods of Teachers in Normal Training Departments, 12. There were 251 registrations in education courses at the College of Agriculture and 279 registrations in special methods courses.

*Sources of enrollment.*—Students registered in the College of Education come chiefly from the following sources: (1) colleges within the University of Minnesota; (2) colleges outside the University of Minnesota; (3) normal schools; (4) theological schools. Table II shows the students classified on the basis of these types of institutions:

TABLE II. INSTITUTIONS FROM WHICH COLLEGE OF EDUCATION STUDENTS CAME, 1916-17

1. Colleges of the University of Minnesota	
Science, Literature, and the Arts.....	37
Agriculture .....	1
Law .....	1
	39
2. Colleges outside the University of Minnesota	
Dakota University .....	1
Knox College .....	1
Carleton College .....	2
Bates College .....	1
South Dakota University.....	2
Emporia College, Kansas.....	1
University of Oregon.....	1
Iowa State Teachers College.....	3
Macalester College .....	1
Bethlehem Academy .....	1
Dixon College .....	1
	15
3. State Normal Schools	
Mankato .....	11
Winona .....	11
St. Cloud .....	11
Moorhead .....	1
Duluth .....	8
St. Paul Normal.....	2
	44
4. Normal Schools outside Minnesota	
Fitchburg Normal .....	1
North Adams, Mass.....	1
La Crosse, Wis.....	1
Ashland, Wis. ....	1
Warrensburg, Mo. ....	1
Whitewater, Wis. ....	3
Cedar Falls, Iowa.....	1
East Illinois State Normal.....	1
Stevens Point, Wis. ....	3
River Falls, Wis.....	4
Oshkosh, Wis. ....	2
Buffalo, New York.....	1
Superior, Wis. ....	3
Michigan State Normal.....	1
Milwaukee, Wis. ....	1
Valparaiso, Ind. ....	1
Los Angeles, Cal.....	1
	27
5. Theological schools .....	1
6. High schools (unclassified).....	80

*Professional training for students in other colleges.*—The College of Education furnished instruction for students registered in other colleges of the University of Minnesota and in the Extension Division.

Extension and Correspondence Courses.....	75
College of Agriculture.....	57
College of Science, Literature, and the Arts.....	775
Graduate students .....	126

TABLE III. PRACTICE TEACHERS

	U. H. S.	Bot. Dept.	City Schools	Total
<b>1915-1916</b>				
First semester .....	15	1	10	26
Second semester .....	57	6	41	104
	72	7	51	130
<b>1916-1917</b>				
First semester .....	21	0	2	23
Second semester .....	89	0	19	108
	110	0	21	131

*Superintendents' and Principals' Short Course.*—The College of Education, in conjunction with the State Department of Education, offered at the University during the spring meeting of the Superintendents' Section of the Minnesota Educational Association, April 4 to April 7, a fourth annual short course for city and county superintendents, and high-school and graded-school principals. Addresses were delivered by Dr. Leonard P. Ayres, Director of the Division of Education, Russell Sage Foundation, New York City, and Dr. Thomas D. Wood, College Physician and Professor of Physical Education, Teachers College, Columbia University, New York City.

*Conference of teachers of secondary subjects.*—The second annual conference of teachers of secondary subjects was held at the College of Education, April 3 and 4, 1917. This year, representatives of English, history, mathematics, and commercial subjects were present. The general purpose of these conferences is to devise problems for cooperative work. Committees were appointed whose business it is to arrange definitely for specific problems upon which the teachers of the state are to work during the year 1917-18.

*Bureau of Coöperative Research.*—In August, 1916, *Bulletin* no. 44 was issued by the Bureau of Coöperative Research as a program of work for the school year. The bulletin was mailed to all superintendents and principals of schools in the state of Minnesota, and also upon request to officials of other schools in Minnesota and in other states. In December, *Bulletin* no. 49, was issued, indicating the program for the second series of measurements.

One hundred five cities and schools responded to these bulletins by ordering material for making educational tests in their school systems.

The results of these tests have been returned to the Bureau of Coöperative Research by more than a hundred city and village schools. Members of the Department of Education collated the reports of the separate schools and prepared mimeographed bulletins for distribution. These bulletins deal with the Minnesota standards in arithmetic, Minneapolis standards in arithmetic, Minnesota standards in spelling, unit cost of high-school instruction in Minnesota.

It was understood and agreed by the University that this report would be published in the form of a monograph and distributed to the schools of this state. It is a matter of regret that at the time the report was prepared the University felt that it could not stand the cost of publication. The favorable opinion attending the establishment of the Bureau of Coöperative Research has been lessened because of our failure to carry out our promise with reference to publication.

#### UNIVERSITY HIGH SCHOOL

*Enrollment.*—The enrollment by classes was as follows:

	1915-16			1916-17		
	Boys	Girls	Total	Boys	Girls	Total
Freshmen .....	24	8	32	29	27	56
Sophomores .....	21	5	26	20	9	29
Juniors .....	12	2	14	17	8	25
Seniors .....	15	11	26	15	11	26
Total .....	72	26	98	81	55	136

It will be observed from the statistics of enrollment that there has been an increase in total enrollment of 39 per cent.

A large part of this increase was in the freshman year. For the first time the school has had what might be called a normal freshman class. One class was admitted in September and a second one in February.

The large increase in the number of girls is gratifying.

Last spring the faculty voted to exclude from the University High School all students over twenty years of age and all students who were at the same time enrolled in any other institution or in any other department of the University. As a result of the age limit the High School now has practically students of normal high-school age.

By maintaining high standards of scholarship and conduct as entrance requirements, the quality of the student body has been improved.

*Courses offered.*—Physical training is now required of all girls. This work is conducted in the Woman's Gymnasium of the University. No instruction in music or domestic science has been offered this year. Instruction has been offered in English, public speaking, Latin, German, history, civics, economics, manual training, mechanical drawing, general science, physics, chemistry, mathematics, physical training for girls.

*Teaching staff.*—Seven full-time instructors and two part-time assistants are employed. They act as high-school teachers and as critic teachers directing the work of the practice teachers. The following changes in staff have occurred this year: W. S. Miller, Principal, vice Raymond A. Kent; S. R. Powers, Science, vice Carl J. Pieper; Frances Morehouse, History, vice Ray L. Leland; G. A. McGarvey, Manual Training, vice John A. Shoemaker; Blanche Oswald, Physical Training and English part time, vice Maude Shafer; Nathalie Smith, Assistant in Science.

*Needs of the College of Education.*—The future of the College of Education will depend upon the following things: (1) a recognition of the College as a professional school; (2) a clearer definition and understanding as to who should constitute the faculty; (3) control of the student body; (4) increased financial support.

The College is in need of increasing its instructional staff. Instructors in the field of secondary education and in many of the special subjects are needed badly. In addition, courses must be organized and an instructional staff secured for the purpose of carrying out the provisions of the Smith-Hughes Act.

*Needs of the High School.*—(1) Instruction should be provided another year in the biological sciences and in commercial subjects. To do this will mean that at least two, and perhaps three, persons should be added to the high-school staff. (2) The building is already overcrowded. Room must be secured in other quarters if the High School is to serve as a model for the public high schools of this state, and if efficient work is to be done by members of the instructional staff in the College of Education. The High School needs additional space for shop and laboratory work and physical training for the boys. Gymnasium facilities for the boys have been secured in the men's gymnasium of the University with much difficulty.

Respectfully submitted,

L. D. COFFMAN, *Dean*

## THE GRADUATE SCHOOL

*To the President of the University:*

SIR: I herewith submit my report as Dean of the Graduate School for the year 1916-17:

My absence from the University since May 10, in connection with the work of the Committee on Public Information in Washington, has made it practically impossible to render this year anything but a statistical report. I do feel, however, that the experiment in graduate medical work is so important that I shall, if possible, submit an additional memorandum on that subject.

This report, thus limited to a condensed summary, conveys no adequate account of all that is worth while in the graduate work of the past year. The body of graduate students with their quickened ardor for learning and service, and the teaching faculty of the Graduate School laboring with enlightened zeal to carry forward their students and their science, are the realities of our Graduate School not pictured in any mere tabulation of figures nor revealed by any added discussion, no matter how elaborate. The spirit of such students and such instructors can not be chronicled or tabulated. Its full testimony will be the garner of the coming years devoted to scholarship and service in a land that will need consecrated and trained leadership such as it has never needed or used before.

It has meant much to the successful conclusion of this year's work that Dr. C. M. Jackson was on hand ready and willing to carry it to a conclusion and contribute to it his energy and wise guidance. I speak for the graduate instructional force and the student body in this expression of gratitude and appreciation, to which I would add my sincere personal testimony.

### REGISTRATION 1912-17

Year	Graduate study	Master	Doctor	Men	Women	Totals
1912 .....	54	84	21	101	58	159
1913 .....	52	103	28	114	69	183
1914 .....	10	123	42	118	57	175
1915 .....	22	159	56	160	77	237
1916 .....	31	206	139	270	106	376
1917 .....	29	328	107	347	117	464

GRADUATE STUDENTS DOING FULL OR PART TIME WORK

	Full time	Part time	Total
Men .....	157	190	347
Women .....	79	38	117
Total.....	236	228	464

DISTRIBUTION ACCORDING TO YEARS OF GRADUATE WORK DONE

First year	Second year	Third year	Fourth year and over
259	153	38	14

MEMBERS OF STAFF REGISTERED IN GRADUATE SCHOOL

	Men	Women	Total
Instructors doing graduate work*.....	42	4	46
Graduate students serving as assistants.....	44	6	50
Graduate students holding scholarships.....	22	8	30
Teaching fellows .....	75	9	84
Total.....			210

\* Five Assistant Professors.

GRADUATE STUDENTS MAJORING IN DIFFERENT DEPARTMENTS

DEPARTMENT	Men	Women	Total
Agricultural Chemistry .....	9	1	10
Agricultural Economics .....	2	..	2
Agricultural Education .....	1	..	1
Agronomy and Farm Management.....	2	..	2
Anatomy .....	9	..	9
Architecture .....	1	..	1
Animal Biology .....	6	2	8
Astronomy .....	1	..	1
Bacteriology .....	8	4	12
Botany .....	7	8	15
Chemistry .....	29	5	34
Comparative Philology .....	1	..	1
Dairy and Animal Husbandry.....	3	..	3
Economics .....	14	2	16
Education .....	57	14	71
Electrical Engineering .....	3	..	3
English .....	13	30	43
Entomology .....	5	..	5
Forestry .....	2	..	2
Geology and Mineralogy.....	8	..	8
German .....	9	5	14
Greek .....	1	1	2
History .....	12	11	23
Home Economics.....	..	2	2



GRADUATE STUDENTS MAJORING IN DIFFERENT DEPARTMENTS—*Con't.*

DEPARTMENT	Men	Women	Total
Horticulture	4	..	4
Latin	1	9	10
Mathematics	3	1	4
Medicine	13	..	13
Metallography	1	..	1
Nervous and Mental Diseases	2	..	2
Obstetrics	1	..	1
Ophthalmology and Oto-Laryngology	7	..	7
Pathology	1	3	4
Pediatrics	5	..	5
Physics	5	..	5
Physiology and Physical Chemistry	3	..	3
Philosophy	2	4	6
Plant Pathology	6	..	6
Political Science	4	..	4
Psychology	6	2	8
Rhetoric	1	2	3
Romance	9	2	11
Scandinavian	6	3	9
Sociology	7	6	13
Soils	5	..	5
Structural Engineering	1	..	1
Surgery	46	..	46
Total	347	117	464

## MASTERS' DEGREES GRANTED IN 1917 BY DEPARTMENTS

	MINNESOTA GRADUATES		OTHER COLLEGES		TOTALS		
	Men	Women	Men	Women	Men	Women	Total
Agricultural Chemistry	..	..	3	..	3	..	3
Agronomy and Farm Management	1	..	2	..	3	..	3
Anatomy	1	..	1	..	2	..	2
Astronomy	1	..	..	..	1	..	1
Botany	2	1	..	1	2	2	4
Chemistry	1	2	3	..	4	2	6
Comparative Philology	1	..	..	..	1	..	1
Dairy and Animal Husbandry	1	..	..	..	1	..	1
Economics	1	..	2	..	3	..	3
Education	..	2	2	..	2	2	4
Electrical Engineering	..	..	1	..	1	..	1
English	2	4	1	3	3	7	10
Geology	..	..	1	..	1	..	1
German	..	..	2	..	2	..	2
History	..	1	..	3	..	4	4
Latin	..	1	..	1	..	2	2
Mathematics	2	..	..	..	2	..	2
Medicine	..	..	1	..	1	..	1
Pathology	..	..	..	2	..	2	2
Physics	..	..	1	..	1	..	1
Physiology	..	..	1	..	1	..	1
Plant Pathology	1	..	..	..	1	..	1
Political Science	1	..	..	..	1	..	1
Psychology	..	1	..	..	..	1	1
Romance	..	1	3	1	3	2	5
Sociology	..	..	1	1	1	1	2
Soils	2	..	..	..	2	..	2
Surgery	..	..	1	..	1	..	1
Totals	17	13	26	12	43	25	68

THE GRADUATE SCHOOL

121

EDUCATIONAL INSTITUTIONS REPRESENTED IN GRADUATE SCHOOL

1916-17\*

Albert Lea .....	1	Northwestern .....	10
Allegheny .....	1	Oberlin .....	2
Amherst .....	1	Ohio .....	4
Antwerp .....	1	Ohio Wesleyan .....	1
Atlanta .....	1	Oklahoma .....	1
Augsburg .....	1	Oregon .....	1
Augustana .....	1	Oregon State Agricultural College .....	1
Bates College .....	1	Ottawa .....	1
Beloit .....	3	Otterbein .....	1
Brown .....	1	Paris, University of .....	1
Calcutta .....	1	Park Region .....	1
Carleton .....	12	Pennsylvania .....	18
Chicago .....	14	Petrograd .....	1
(including 8 Rush)		Puget Sound .....	1
Colby .....	1	Radcliffe .....	2
Colorado .....	4	Randolph-Macon .....	1
Columbia .....	8	Redfield College .....	1
Connecticut Wesleyan .....	1	Santo Domingo .....	1
Cornell College .....	1	Saint Catherine .....	3
Cornell .....	3	St. Louis .....	2
Drake .....	1	St. Olaf .....	12
Drury College .....	1	St. Teresa .....	2
Earlham College .....	2	South Dakota .....	2
Edinburgh .....	1	South Dakota State College .....	1
Fargo .....	1	South Dakota Wesleyan .....	3
Genoa, Italy .....	1	Smith .....	1
Grinnell College .....	1	Texas .....	1
Hamline .....	4	Toronto .....	1
Harvard .....	6	Trinity College .....	1
Illinois .....	5	Tulane .....	1
Indiana .....	6	Union College .....	1
Iowa .....	5	Upper Iowa .....	5
Iowa State College .....	3	Utah Agricultural College .....	2
Jefferson .....	1	Utah .....	2
Johns Hopkins .....	9	Ursinus College .....	1
Kansas .....	2	Vanderbilt .....	2
Knox .....	2	Vassar .....	2
Leander Clark .....	1	Virginia .....	4
Lombard .....	1	Virginia Medical College .....	3
Louisville .....	1	Wabash .....	1
Macalester .....	5	Wartburg .....	2
Marquette .....	1	Washington .....	2
Maryland .....	6	Washington, George .....	1
Massachusetts Institute Technology .....	1	Wellesley .....	1
Mexico .....	1	Wells College .....	2
Miami University .....	1	Western Jewel .....	1
Michigan .....	6	Western Reserve .....	1
Minnesota .....	182	Wisconsin .....	12
Missouri .....	10	Wittenberg .....	2
Morningside .....	1	Wofford .....	1
Mount Allison .....	1	Wooster .....	1
Mount Holyoke .....	1	Worcester .....	1
Munich .....	1	Yale .....	1
Nanyang, China .....	1	Yale College .....	1
Nashville .....	1		
Nebraska .....	7	Total colleges represented .....	113
Nebraska Wesleyan .....	1	Minnesota registration .....	182
New Hampshire .....	1	Other colleges .....	282
North Dakota Agricultural College .....	1		
North Dakota .....	3	Total registration .....	464

\* 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*

- Julius Boraas, B.L. '95, M.L. '98, Minnesota. Major, Education; Minor, Psychology; Thesis: *Formal English Grammar and the Practical Mastery of English.*
- Thomas Monteith Broderick, B.A. '13, Minnesota, M.S. '14, Wisconsin. Major, Geology; Minor, Analytical Chemistry; Thesis: *The Relation of the Iron Ores in Northeastern Minnesota to the Duluth Gabbro.*
- Elmer Anson Daniels, B.S. '12, M.S. '13, Minnesota. Major, Organic Chemistry; Minor, Bacteriology; Thesis: *The Action of Butyl Chloral on Benzene and Its Homologues in the Presence of Aluminum Chloride.*
- Donald Folsom, B.A. '12, Nebraska, M.A. '14, Minnesota. Major, Botany; Minor, Agricultural Chemistry; Thesis: *The Experimental Modification of Ranunculus under Control.*
- Paul Darwin Foote, B.S. '09, M.A. '11, Western Reserve. Major, Physics; Minor, Mathematics; Thesis: *Some Characteristics of the Marvin Pyrheliometer.*
- Frances Louise Long, B.A. '06, B.S. '06, Nebraska, M.A. '13, Minnesota. Major, Botany; Minor, Plant Pathology; Thesis: *The Quantitative Determination of Photosynthate in Relation to Light in Various Species.*
- Marie Caroline Lyle, B.A. '11, M.A. '12, Minnesota. Major, English; Minor, Comparative Philology; Thesis: *The Original Identity of the York and Tounley Cycles.*
- Edgar Kirke Soper, B.A. '08, M.A. '14, Leland Stanford. Major, Economic Geology; Minor, Geology; Thesis: *The Origin, Occurrence, and Uses of Minnesota Peat.*
- Harvey Stallard, Ph.B. '09, Ottawa. Major, Botany; Minor, Chemistry; Thesis: *Secondary Succession in the Climax Formations in Northern Minnesota.*
- Chester Arthur Stewart, B.A. '14, Missouri, M.A. '15, Minnesota. Major, Anatomy; Minor, Pathology; Thesis: *Studies on the Effects of Inanition upon Growth in the Albino Rat.*
- William Dorney Valteau, B.S. '13, Minnesota. Major, Horticulture; Minor, Plant Pathology; Thesis: *A Study of Sterility in the Strawberry.*

*Doctor of Philosophy in Surgery*

- Golder Lewis McWhorter, B.S. '11, Chicago, M.D. '13, Rush Medical. Major, Surgery; Minor, Anatomy; Thesis: *Some Clinical and Experimental Observations on Gastric Acidity.*

*Doctor of Science*

Ralph Edwin Morris, M.D. '02, Colorado. Major, Experimental Medicine; Minor, Experimental Pharmacology; Thesis: *The Graphic Recording of Reflexes, Clonus, and Tremors.*

*Doctor of Science in Neurology*

Henry William Woltmann, B.S. '11, M.D. '13, Minnesota. Major, Neurology; Minor, Pathology; Thesis: *The Brain Changes Associated with Pernicious Anemia.*

*Doctor of Science in Pediatrics*

Rood Taylor, M.D. '10, Michigan. Major, Pediatrics; Minor, Chemistry; Thesis: *Hunger in Infants.*

*Shevlin Fellowships 1916-17*

Science, Literature, and the Arts: Sybil Isabelle Fleming, B.A. '15, Minnesota.

Agriculture: Freeman Weiss, B.S. '15, Minnesota.

Medicine: Charles Cullom Gault, B.A. '14, Randolph-Macon.

Chemistry: Orin David Cunningham, B.S. '14, Northwestern

*The Albert Howard Scholarship*

Morris Roberts, B.A. '16, Minnesota

*Class of 1890 Fellowship*

Ruth Wilson, B.A. '16, Minnesota

*Research publications.*—It is a source of gratification to record our steady activity in the field of publication in the Research Publications. Since my last report the following have appeared:

*Studies in the Social Sciences*

C. D. Allin, A History of the Tariff Relations of the Australian Colonies.

Frances H. Relf, The Petition of Right.

Gilbert L. Wilson, Agriculture of the Hidatsa Indians: An Indian Interpretation.

*Studies in Language and Literature*

Paul Edward Kretzmann, The Liturgical Element in the Earliest Forms of the Medieval Drama.

Arthur Jerrold Tije, The Theory of Characterization in Prose Fiction prior to 1740.

In press are the following issues:

*Studies in the Social Sciences*

Notestein and Relf, *Editors*, Commons Debates for 1629.

*Current Problems*

William Watts Folwell, Economic Addresses.

Several other manuscripts have been submitted and accepted by the Publication Committee, but have been held temporarily for lack of funds.

*Allotments of Research Funds.*—Grants from the Research Funds have been made during the past year to the following persons for the purposes stated with results as here summarized:

- C. M. Jackson, \$250 for assistant in research on the effect of inanition upon the ductless glands of the albino rat. Work of previous year completed and two papers published, making a total of four papers. Investigations to be continued.
- E. T. Bell, \$125 for assistant and materials on research bacteriological work on the pneumococci. Illustrations made and one paper published, another ready for press in medical journal.
- F. E. Clements, \$100 for materials for research topographical mappings botanical. Photographic mappings botanical completed to be used in monograph on Bad Land vegetation.
- Hal Downey, \$250 for assistant on haematology. Investigation on problem of vital staining with acid colloidal dyes. One paper appeared in *Anatomical Record*, 1917, 11: no. 6. Another paper in May *Anatomical Record*. Work to be continued.
- Henry A. Erikson, \$300 for research assistant on ionic mobility—ionization of Beta particles. Investigations made and data worked up for a paper. Work to be continued.
- W. S. Davis, A. B. White, W. Notestein, \$300 for assistants and rotographs of parliamentary diaries and medieval English history. Work has progressed. Minnesota now has better facilities for work in seventeenth century parliamentary history than any other library outside the British Museum. Work to be continued.
- S. L. Hoyt, \$300 for assistant on research of copper-rich kalchoids. Work has progressed with successful results. Several papers will very soon be published. More valuable research to be continued next year.
- A. D. Hirschfelder, \$450 for assistants and materials. Investigation upon pharmacology of infections, diseases, and allied subjects. Work has progressed and one paper published in *Journal of American Medical Association*, another in press. War problems have presented more important work and the "louse" problem is being investigated. Work to continue.
- R. E. Scammon, \$200 for materials for investigation of topographic anatomy of the late fetus and newborn. Work has progressed. Paper ready to go to press. Work to be continued.
- W. P. Kirkwood, \$75 for materials for report on printing industry in Minnesota. Questionnaire sent out and valuable information procured. Will be published later.
- G. B. Frankforter, \$500 for research assistant on the action of aluminum chloride on the carbohydrates in the presence of hydrocarbons. Paper

read at meeting of American Chemical Society at Kansas City, April, 1917. An enormous amount of work done in preparation, purification, analysis, and molecular weight determination. New compounds have been obtained, chiefly anthracene and diphenyl methane derivatives. This reaction first observed here in this investigation. Results to be published soon.

- T. B. Hartzell, \$200, materials for investigation in dental infection. Three articles published as a result of investigation—one in May *National Dental Journal* "Histo-Pathology of Chronic Periodontitis and the Pathogenesis of Dental Root Cysts," another on "The Pathogenicity of Mouth Streptococci." Another paper in press.
- F. R. McMillan, \$500, assistant for research in reinforced concrete floors. Investigations have been exceptionally fruitful of results. One paper read before St. Louis Engineers' Club and published in their journal, another read before the American Society of Civil Engineers for 1916, and published in the transactions of the society for 1916, another paper read before the American Concrete Institute in Chicago, another before the Minnesota Society of Engineers and Surveyors. In addition to these tests, a test of a model bridge has been made in cooperation with the Minnesota State Highway Commission; this will make a paper of about one hundred pages. Work to be continued.
- E. W. Olmsted, \$200 for books on research in French literature; the drama of Lope de Vega. Books purchased on Spanish drama; one paper published in *Romanic Review*, other papers being prepared.
- Alfred Owre, \$200 for materials for research on root canal problem in dentistry. Apparatus and microscopes purchased for investigation. Work to be continued.
- J. F. McClendon, \$125 for materials and apparatus for physiological research. Paper published as a result of Research Funds; work still in progress.
- W. H. Emmons, \$400 for research assistant on chemical studies in secondary ore concentration. Investigation on secondary enrichment of copper, silver, and gold—results to be published in *American Institute of Mining Engineers*.
- Colbert Searles, \$150 for books on research in French literature of sixteenth and seventeenth centuries. Books purchased in the late sixteenth and seventeenth century drama in France. One paper to appear in the *Romanic Review* and another nearly ready for publication in the Minnesota Research Publication Series.
- J. F. Corbett, \$150 for research assistant on the suprarenal gland. Work progressed rather slowly on account of war conditions. Three papers published, one in *St. Paul Medical Journal*, one in *Northwestern Lancet*, and one in the *Surgical Journal*. Work to be continued.

## THE PRESIDENT'S REPORT

- A. E. Jenks, \$500 for research assistant on Indian-White amalgamation. Satisfactory progress made in investigation. Results to be published later.
- F. H. Swift, \$100 for research assistant, history of public permanent common school funds in the United States. Work has progressed. Considerable data has been gathered from every state. Investigation to be continued next year.
- E. D. Gilman, \$90 for testing of Hennepin County sands and gravels for concrete and road building. Materials have been collected and tested and data gathered for a paper to be prepared later.
- M. E. Haggerty, \$500 for materials and assistance in reading tests. Remarkable success in giving tests to elementary and high schools and also to measuring efficiency in university freshmen. Several papers have already been published in *Journal of Administration*, *Psychological Clinic*, *School and Society* and *English Journal*. Work to be continued next year.
- Josephine E. Tilden, \$150 to procure drawings and photographs to illustrate vol. 2 of *Minnesota Algae*. Work on drawings and photographs has progressed. Book to be published next year.
- F. W. Springer, \$50 for materials on investigations in electrical ignition. A dual ignition system has been installed in the laboratory. Many tests have been made. Work to be continued.
- Dr. W. P. Larson, \$75 for materials and assistant in investigation on infection. Investigation in progress. Work to be continued.
- William Moore, \$200 for research assistant on investigation of the "louse" problem as regards soldiers and horses. Investigation and experiments in progress.

Respectfully submitted,

GUY STANTON FORD, *Dean*

## REPORT OF THE DEAN OF WOMEN

To the President of the University:

SIR: I herewith submit my report as Acting Dean of Women for the year 1916-17:

*Registration.*—During this year there were registered in the University 2,051 women. The distribution is as follows:

Science, Literature, and the Arts.....	1,289
Engineering .....	7
Agriculture .....	2
Home Economics .....	325
Law .....	1
Medicine .....	13
Nurses .....	31
Dentistry .....	6
Pharmacy .....	12
Chemistry .....	2
Education .....	165
Graduates .....	98
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Total, regular session.....	2,051
During the Summer Session, 1916.....	492
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Total .....	2,443

The distribution as to residence during the regular session of 1916-17 is as follows:

At home .....	1,248
In lodging houses.....	325
Sanford Hall .....	90
Coöperative cottages .....	26
Sorority houses .....	97
Friends or relatives.....	70
Private families .....	77
Hospital .....	1
University Farm dormitory.....	3
<hr/>	
Total .....	1,937

This leaves a discrepancy in total numbers, compared with the figures from the Registrar's office, of 114.

*Absence of the dean.*—During this past year, the Dean of Women has been absent on leave, the routine work of the office being handled the first semester by the secretary, and the second semester under my direction, as Acting Dean. Because of this irregularity in office organization and the absence during the first semester of an advisory head, some of the duties which usually devolve upon a dean of women were assumed by other administrative officers. Such were the duties of interviewing delinquent women students, altho those women who were placed on probation or who were to be dropped from the University were sent to me for counsel.



*The Women's Self-Government Association.*—This organization has been very active under the efficient direction of its president and board, perhaps its most noteworthy accomplishment being the planning and holding of a Vocational Conference for the women students. Miss Helen M. Bennett, manager of the Chicago Collegiate Bureau of Occupations, who was secured to give the principal addresses, also held private conferences with many of the young women on questions of vocations for women.

*The University dormitory.*—Sanford Hall, as usual, was filled to its capacity this year, and approximately one hundred women students have been refused admission. The health of the students in the dormitory was under the careful supervision of the resident nurse, and a good record was maintained. This health supervision extended to the students in the lodging-houses as well, and many cases of illness were taken care of.

*Lodging-house inspection.*—Eighty-six lodging houses were carefully inspected during the year at least once, and the majority of them twice, with a view to ascertaining whether they were being kept up to the general standard set by the University.

*Scholarships and loan fund.*—Loans ranging from ten to one hundred dollars have been made to needy students from the loan fund for women students of the University, the total amount lent being \$918. Through the efforts and personal generosity of Mr. George H. Partridge, ten scholarships of one hundred dollars each were obtained for the year 1917-18.

Respectfully submitted,

JESSIE S. LADD, *Acting Dean of Women*

# UNIVERSITY EXTENSION

## THE AGRICULTURAL EXTENSION DIVISION

*To the President of the University:*

SIR: I herewith submit my report as Director of Agricultural Extension for the year 1916-17:

*County agent work.*—Sixteen county agents are now employed in the following counties: Anoka, Clay, Crow Wing, Dakota, Faribault, Grant, Hennepin, Jackson, Lac qui Parle, Otter Tail, Ramsey, Renville, St. Louis, Steele, Traverse, and Washington. Anoka County began the work under very favorable conditions May 7. Rather effective county organizations have been established in nearly all of the counties. This is a decided advantage in conducting the work. Work was discontinued in two counties owing to withdrawal of support by county commissioners. Funds are now available to increase the number of counties to 22, and 10 or more counties are actively agitating the question. It is hoped to increase the number of county agents to 22 during the coming year.

*Farmers' week short course.*—During the winter, twenty-five farmers' short courses were held for 3,577 men and 2,676 women, or a total of 6,253 persons were in attendance at these courses this season. Livestock, coöperative production, farm buildings, farm management, home economics, and public health were the chief topics presented.

*Cow testing associations.*—The cow testing work has continued with very gratifying results. Some remarkable records have been made and the records of about 6,000 cows have been kept for the year. These records show conclusively the advantage of better breed dairy stock, advantages of good feeding, and especially the advantages of the silo. They also emphasize the importance of having good clover and alfalfa hay to feed. There are now twenty-five associations in operation and two more ready to begin work as soon as testers can be found. One of the difficulties with the cow testing association work is to get competent testers at the wages it is possible to pay. We believe that it is highly desirable to work out some plan by which college students may get credit for a year's work in the field as cow testers. This will give the young men an interest in the cow testing work aside from the wages they get, and will enable us to get better men in the field.

*Dairy extension.*—Special attention has been given to encouraging better feeding and care of dairy cattle and the improvement of common cattle through the use of pure bred dairy sires. Coöperative creameries have also received considerable attention, especially the smaller creameries which are in need of help. These smaller creameries have strong competition from large centralized creameries, and unless they are exceedingly well managed they are in danger of failure. A careful investigation shows that the average coöperative creamery is able to pay from four to six cents more for butter-fat than is paid by centralizers.

The above dairy subjects have been presented at short courses, farmers' institutes, county fairs, farmers' clubs, and cooperative creamery meetings.

*Farm management demonstrations.*—Work in this line has continued in the same manner as formerly. Two hundred and eighty individual farm records in nine different counties have been taken, and the data carefully compiled and reports made to the farmers. Publicity of results has been disseminated through newspaper articles, attendance at short courses, farmers' clubs, and farmers' institutes. Between three and four thousand farm account books were given out to as many farmers through county agents, high-school men, and the special farm management demonstrators. Large numbers of these books have been returned showing a rather complete record of the farmers' business for the year.

*Farmers' clubs.*—This movement has progressed satisfactorily. A large number of new clubs have been organized. Over 1,200 clubs are now in existence. About thirty-five counties have formed county federations, and the State Federation has become an important factor in the state. The local clubs are the most active agencies in the state in developing agriculture.

*Home economics.*—Extension work in this field has continued along the same lines as in the past with somewhat more emphasis given to public health. Work has been conducted through county fairs, farmers' club meetings, short courses, and farmers' institutes, and also through the girls' club work. During the last half of the year special emphasis has been placed on the conservation of food, especially on economy in the use of wheat flour and meat, and the canning and preserving of fruits and vegetables.

*Boys' and girls' clubs.*—One of the most effective lines of extension work is the boys' and girls' club work. Thousands of boys and girls have been interested in pig growing, corn, potato, garden, sewing, canning, and bread-making clubs. A great many local exhibits, county fair exhibits, and state fair exhibits and demonstrations have shown the effectiveness of the training these young people have gained through the club work. This line of work should be greatly increased.

*Rural plays.*—*Back to the Farm*, the rural play owned by the Extension Division, and *Partners*, a new play written by Miss Estelle Cook of the Agricultural College, were each presented at three places by a dramatic company composed of students of the College of Agriculture. We have received nothing but favorable reports on the way in which these plays have been put on. *Back to the Farm* is also used to great extent by the farmers' clubs of Minnesota, and in many places outside of this state.

*Demonstration farms.*—Twenty-two demonstration farms have been operated under the supervision of the Division. One of the men left during the year, but on April 1 Mr. George Baker returned, after over a year's leave of absence to operate his own farm, to take charge of this work. The reports from the different farms show a material increase in the productiveness and profitableness of the farms.

*Publications.*—The following new bulletins were issued:

*Farmers' Library Series*

No. 61. House Equipment for Running Water, by J. L. Mowry, 8 pp., 75,000 copies.

No. 62. The Care of the Baby, a reprint of Supplement No. 10 to the Public Health Reports, Washington, D. C. 8 pp., 75,000 copies.

These bulletins were sent to a list of about 52,000.

The following were reprinted:

No. 17. The Farm Vegetable Garden, by LeRoy Cady, with a chapter on Canning, by R. S. Mackintosh. 20 pp., 25,000 copies.

No. 38. Potato Growing in Minnesota, by A. R. Kohler, 16 pp., 25,000 copies.

No. 53. Sausage Making, by W. C. Kalash, 8 pp., 25,000 copies.

*Special Series*

No. 8. Boys' and Girls' Clubs: Bread Making Contest for 1916-17. 8 pp., 15,000 copies.

No. 10. Tree Planting in Minnesota, by E. G. Cheney. 8 pp., 10,000 copies.

*Farmers' institutes.*—This work, altho sustained by separate funds, is handled through the same organization as the Agricultural Extension work. Sixty-eight farmers' institutes were conducted, with a total attendance of 27,460; 218 special meetings were taken care of by institute men, with an attendance of 17,650. In addition to these meetings the institute fund contributed largely to the cow testing association work, toward the maintenance of farmers' clubs, the organization of livestock shipping associations, and the alfalfa and soil demonstration work. The success of the institutes was greatly interfered with by the heavy snows of the winter. Fourteen institute dates were cancelled because of inability of the speakers to reach their towns, and in many other instances farmers were unable to attend the sessions on account of blocked roads.

*Coöperative organizations.*—During the year coöperative livestock shipping associations have been especially encouraged through correspondence, the farmers' clubs, and the general meetings held throughout the state. There has been a great growth in this line of coöperative effort. There are now about four hundred of these associations in the state. Coöperative creameries have received considerable attention; also coöperative elevators and farmers' clubs.

*Poultry extension work.*—This work has been continued along the line of improving the quality of poultry in the state, better methods of feeding, better methods of marketing the product, and better housing. A very valuable demonstration has been continued at Barnum, Minnesota, and a similar demonstration is under way in Aitkin County. There is a growing interest in the poultry industry and quite general recognition of the great value of this industry.

*Alfalfa demonstrations.*—These have been continued as formerly, with considerable new territory represented. Tests show the importance of liming in certain sections of the state where the soils are acid. They

show also the advisability of the inoculation. The superior hardiness of grimm over common alfalfa has been conclusively shown. The division has given many demonstrations that alfalfa if properly handled may be successfully grown in any section of the state.

*Potato disease control.*—The plots in Clay, Otter Tail, and Hennepin counties were checked up last fall. The demonstrations showed marked improvement in both yield and quality; in fact, the results were so encouraging that large numbers of farmers have planted their entire fields in accordance with the plan of disease control, and many have adopted the plan of growing a seed plot for raising their own seed, according to the plans suggested by the Division. Additional demonstrations have been started, in 1917, in St. Louis, Clearwater, Hubbard, and Crow Wing counties, and the work is being continued in Clay, Otter Tail, and Hennepin counties. The importance of methods of disease control and the growing of standard varieties of potatoes have been urged at short courses, farmers' clubs, and farmers' institutes.

Respectfully submitted,

A. D. WILSON, *Director*

## THE GENERAL EXTENSION DIVISION

*To the President of the University:*

SIR: I herewith submit my report as Director of the General Extension Division for 1916-17:

*Limited funds.*—The year under review is the second year of the biennium in which the appropriation from the State of Minnesota was reduced from \$40,000 a year to \$25,000. By close economy and unremitting industry the work of the Division has, nevertheless, been maintained without noticeable impairment of service, and in some directions notable expansions have been effected. The Legislature of 1917 was asked for an appropriation of about \$50,000 a year for this Division, but because of war conditions and other adverse circumstances, the amount for the coming biennium has again been limited to \$25,000 a year. This means that no new projects can be undertaken and that the Division must confine itself to intensive work in the fields which have already been pre-empted.

*Evening extension classes.*—One of our most important activities is the work of the evening extension classes in the Twin Cities, Duluth, and at one or two other points. For purposes of administration and reporting these classes are divided into Collegiate, Business, and Engineering classes. In this work there has been a steadily increasing public interest as is well shown by the registration. It may suffice to state here that the registration for 1916-17 was 3,830 as compared with 2,854 in 1915-16. This year for the first time a class of students completed the work prescribed for a University certificate in business. This certificate may be obtained by any student who obtains twenty-four semester hours of credit. This can be accomplished by a student who attends evening

classes three nights a week for two years, or two nights a week for three years. On May 25, at exercises held for this purpose, certificates in Accounting were granted to ten students; in Finance to four students; in General Business to three students; seventeen in all.

*The Short Course for Merchants* was held for the fourth time in February, 1917. This year for the second time the experiment was tried of adding a second section of three weeks devoted to more intensive work at the close of the regular one week short course. On the whole this second section was not successful, and probably no further attempts will be made to conduct this longer course. The short course of one week, however, has established itself and has the cordial support of the wholesalers and jobbers of the Twin Cities.

*Lyceum service.*—The report of the University Lyceum will show a continuation of the increase in the demand for the services of this department. From year to year a constantly increasing number of Minnesota communities have availed themselves of this service. The number of towns which engaged their courses from the University has increased from 37 in 1913-14 to 136 in 1916-17, the year under review. For the season 1917-18, 175 towns have contracted for courses. As an evidence of satisfaction with the services rendered by the University, it may be noted that, including bookings for 1917-18, 6 towns have engaged from us their lyceum courses for 5 years, 32 towns for 4 years, 44 towns for 3 years, and 73 towns for 2 years.

*A plan for community Chautauquas.*—While the University appropriation was still before the Legislature of 1917 Mr. R. B. Oshier, Secretary of the Lecture and Lyceum Department of this Division, proposed that the services of the Extension Division be proffered to the several communities of the state which were in the habit of conducting annual Chautauquas. Under the present system each town has to take what the commercial bureaus send it on the circuit system, or else by the independent system each town has to go individually into the open market and buy whatever talent it may find available. Mr. Oshier's proposal was that his department should act as a central booking agency for a co-operative Chautauqua association which should be organized throughout the entire state. The association would be owned and governed by the membership towns, and by pooling their interests they could offer attractions more time, and thereby be enabled to secure a higher grade of talent. This plan would involve some additional expense in the Extension Division by way of clerical help, but it promised great things for the future of the Chautauqua movement in this state. It is a matter of keen regret to the management of this Division that so promising a plan fell through because of the lack of necessary funds. It may be that the whole plan may be kept in abeyance for another biennium when the Legislature may see fit to make a more liberal appropriation for such purposes.

*Visual instructions.*—As funds permit, our Bureau of Visual Instruction is equipped with additional sets of lantern slides for circulation.

These sets of slides meet with such general acceptance and the demand for additional sets is becoming so insistent that it seems a great pity that we can not devote at least \$1,000 a year to the purchase of new sets. The money now provided for this purpose is squeezed out of the budget here and there. This is a field of activity which the University should cultivate much more intensively than it has been able to do in the past. It is planned in the near future to send out these slides on a circuit system rather than on call, as is the present plan. It is believed that a circuit system will keep the sets of slides more continuously in service. One hundred and eight towns were served this year as against 80 last year and 343 sets of slides were used as against 205 last year. These sets are sent as loans to schools and societies, the only expense to the borrowers being the cost of transportation.

*Correspondence study.*—The year 1916-17 has recorded a slow but steady advance in the work of correspondence instruction. A course has been written and mimeographed in the subject of Business Law A, which comprises contracts and agency. This course is issued for evening extension classes in the subject as well as for correspondence students. It is hoped within the next year to put this course in printed form. A course has also been developed in Business English which is to be issued also for a correspondence course and evening extension classes. This course is now in the hands of the printer and will be ready to issue as a text to our classes next October. The development of texts specially prepared for correspondence and extension students is an essential factor in the success of this kind of work. Such texts, however, can not be written in the study. They must be the fruit of actual experience with the type of student for whom the text is prepared. We hope to add special texts in other branches from time to time. The correspondence work has not developed more rapidly in the past three or four years largely because there has been no one in this Division to give it personal and exclusive attention. If a competent person were to devote his energies to building up the correspondence work in this state, the results would richly repay his efforts. As it is, the correspondence work is managed and supervised by various persons out of such time as may be spared. Moreover, the preparation of lessons and the correction of students' papers is largely done by members of the regular faculty out of spare time with quite inadequate compensation. We need funds from which to pay members of the faculty for preparing correspondence courses that will be worthy of comparison with regular textbooks on the same subject.

The registrations of new students did not quite reach the number of the preceding year. However, it will be a significant commentary on the excellence of the instruction that 110 courses were completed during the year as against 86 the preceding year. Four hundred seventy-seven courses were carried as against 309 of the preceding year. The active students who sent in regular work during the year numbered 247 as against 182 the preceding year. On August 1, 1917, there were 143

students actively working as against 96 the preceding year. A fair conclusion therefore is that the work during this past year virtually held its own in numbers of registrations, while a distinct advance in the quality of instruction is shown by the ability to hold the students.

*The University debating squads* were not sent out this year at all. So many objections were raised by members of the faculty because of neglect of University duties on the part of the debaters, that it was deemed wise to abandon the practice of sending out debating squads of students to the communities of the state.

*University Weeks.*—A notable omission in the work of the Extension Division for this year is found in the abandonment of University Weeks. Contracts had already been made with the towns, and active preparation of the programs was going forward when the entrance of the United States into the European War brought up the consideration as to whether it would be wise to attempt to carry out this enterprise considering the preoccupation of the public mind with other matters. It was known that appeals would be made to the public for service as well as for funds in connection with the Red Cross work and with the bond issues of the Government. After consultation with the President it was finally decided to abandon University Weeks for this year at least, and to leave the matter of the continuation of this enterprise in coming years to future consideration. It should be stated here, however, that unless the University is prepared to support this enterprise strongly and whole-heartedly, it would on the whole be better not to revive this particular form of activity.

*The Municipal Reference Bureau* under its new secretary, Mr. Emmett L. Bennett, has been doing consistent work and is winning favor with the city officials of the state. The bi-monthly magazine of the League of Minnesota Municipalities which is edited in the Bureau is winning a place for itself as a medium for the diffusion of municipal information. The above mentioned League which is fostered by our Bureau is notably successful.

*University Drama Service.*—A new form of activity was established during this year under the leadership of Dr. Raymond V. Phelan. This was called the University Drama Service. This service was established in an effort to assist schools and societies throughout the state in selecting and producing plays. It was felt that it was a worthy enterprise to attempt to stimulate community self-expression through amateur theatricals. Through the courtesy of several publishing houses we have accumulated a large collection of plays which are suitable for amateur production. When calls come in for this service, a few plays are picked out which seem to be suitable and are sent out for reading. The school or society then selects a play which it wants and orders from the publisher the number of copies needed. This service is also supplemented with advice on scenery, staging, costuming, and other details connected with production.



*Red Cross courses.*—When the United States entered the European War in April, 1917, the Extension Division sought to make its services available in the preparation of the country for the conflict. In accordance with this purpose three classes in Red Cross work were organized in early June. These classes were short courses in Home Nursing, Home Dietetics, and First Aid. The teaching was done by members of the University Medical staff. In pursuance of the same purpose the Extension Division proffered its services to the committee on public information which was organized in the University for the purpose of furnishing speakers on patriotic subjects connected with the war to Minnesota communities. The Director of the Extension Division was made secretary of this committee and was thereby instrumental in placing some 39 of these patriotic addresses.

In addition to the services just mentioned, through the Municipal Reference Bureau two different circular letters were sent out to commercial clubs, mayors, school superintendents, and newspapers in the interest of home gardening for the stimulation of food production. Nearly 4,000 of these letters were sent out and indications are that they had some effect on the general public.

*Arrangement with St. Paul Institute given up.*—In 1912 an arrangement was made with the St. Paul Institute to the effect that all extension classes of this University in St. Paul should be conducted in coöperation with the St. Paul Institute and, indeed, under Institute auspices. For various reasons this working arrangement proved increasingly unsatisfactory. By mutual consent the agreement was dissolved in the spring of 1917. With the beginning of the teaching year 1917-18 the evening classes in St. Paul will be conducted directly by the University.

*Development of community spirit and coöperation.*—An effort was made during the latter half of this year to stimulate and foster community development and coöperation in this state. For this purpose Judge Frank T. Wilson of Stillwater was engaged for a period of six months beginning February 1, 1917, at a salary for the entire period of \$500. Half of this salary was furnished by the General Extension Division and the other half by the Agricultural Extension Division. Judge Wilson devoted, therefore, half of his time to lecturing at farmers' institutes and the other half of his time to lecturing in the various Minnesota communities on invitation. His lectures were devoted to the problems of community coöperation and upbuilding with special reference to such problems as transportation, marketing, and the cultivation of friendly and coöperative relations between the people of the countryside and their marketing centers. Judge Wilson's work was successful and might well have been continued in the coming biennium. We need such a man continuously in the field doing this kind of work. It is a question whether we have a more important work to do than that of developing cordial and profitable relations and a feeling of community solidarity between the people of the country and the people of the towns. Unfortunately our meager appropriation for the coming biennium does not

permit us to retain the valuable services of Judge Wilson. We shall endeavor to do, through our Municipal Reference Bureau, some of the work formerly undertaken by him.

*An illustrated extension bulletin.*—As a part of the preparation for submitting our needs to the Legislature of 1917 an illustrated bulletin was issued entitled *University Extension; What and Why*. This attempted to state in popular language and with suitable illustrations information and statistical matter showing the scope and functions of University Extension work. This pamphlet was sent to all members of the Legislature, to state officials, newspaper editors, mayors, selected alumni, and school superintendents. The book proved to be popular since it set forth in unacademic language the scheme of activities about which the general public has only vague ideas.

*Spirit of the Extension staff.*—The members of the Extension staff, while they regret that the Legislature has not yet seen fit to support this work more adequately, are by no means cast down or discouraged. We anticipate for the coming biennium increasing demands which will have to be met under a heavy handicap because of the lack of funds and also the abnormal condition of the country. Our aim is to make our services so valuable and so necessary that future Legislatures will give this type of work in the University ungrudging support.

Respectfully submitted,

RICHARD R. PRICE, *Director*

## DEPARTMENT OF PHYSICAL EDUCATION FOR MEN

*To the President of the University:*

SIR: I herewith submit my report as Director for the year 1916-17:

*Staff.*—The staff of the Department of Physical Education for Men consists of a director, an assistant director, an instructor in gymnastics, an assistant in swimming and corrective gymnastics, three assistant medical examiners, a clerk, and a locker-room attendant.

*Chief tasks undertaken by the Department.*—

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. Disease census of all new matriculants.
4. Conducting organized classes in personal hygiene and gymnastics for freshmen students in the College of Science, Literature, and the Arts.
5. Conducting organized classes in personal hygiene for all freshmen in the colleges of Agriculture, Engineering, Mines, Dentistry, Chemistry, and Pharmacy.
6. Conducting of special classes for defectives in all colleges of the University.
7. Promoting of intramural sports, such as football, baseball, basket-ball, handball, tennis, swimming, etc.
8. Promotion of minor intercollegiate athletics.
9. Organization and administration of special features of physical education.
10. Promotion of miscellaneous sports and physical activities including gymnastics, wrestling, swimming, soccer, and Sigma Delta Psi.

*Physical examination.*—I. A careful medical and physical examination is given all students entering the University for the first time. This required examination includes a personal history of the student; inspection and examination of heart, lungs, nose, throat, teeth, eyes, ears, skin, and body in general, and prescription of corrective exercises.

2. Medical inspection is required of all students using the department privileges, such as shower baths, swimming pool, towel exchange, gymnasium, training quarters, and athletic fields.

3. A second physical examination, at the end of the school year, is required of all students registered for the regular gymnasium course. During the year a total of 2,615 examinations were made, divided as follows: 1,411 original examinations with measurements, 464 reexaminations, 740 medical inspections, and 270 emergency examinations of students temporarily disabled for gymnasium, drill, or other work, or desiring first aid treatment for injury. In addition to the above examinations the Director of the Department examined 147 candidates for the first officers' reserve training camp, and also 45 students in the West Central School and Station in Morris, Minnesota. Seventy-one students in the University High School were examined by the staff. No records were kept of a large number of conferences with individual students concerning matters of personal health.

*Special lecture.*—A total of 1,142 students attended the special lecture on sex hygiene, as required of all students entering the University

and Farm School for the first time. This lecture was given in six divisions, five of which were at the University, and one at the University Farm. The following staff delivered the lectures: at the University, Drs. J. C. Litzenberg, C. A. Erdmann, S. Marx White, H. L. Williams, Earl R. Hare; at the Farm School, Mr. A. J. (Dad) Elliott, Western Secretary, Y. M. C. A., International Committee.

*Disease census.*—A total of 1,110 disease census cards, properly filled out and signed, as required of all new matriculants, was collected. The cards were sent to the Epidemiological Division of the State Board of Health for recordation of data, and later were returned to the files of the Department of Physical Education for Men.

*Gymnasium classes.*—Six hundred and ninety-three students were enrolled in organized gymnasium classes. Regular classes were conducted twice each week as required by the curriculum. These classes were given in four sections, each containing from 100 to 150 students. During the first six weeks of the school year, the work consisted of a course of lectures on personal hygiene, with a written examination at the end of the course. The remainder of the year was devoted to regular gymnasium class work, which included calisthenics, elementary apparatus drills, marching, class tactics, running, and athletic games. All students taking this course are required to pass eight efficiency tests for credit in gymnasium. Three of these tests are required in the first semester, and five the second. The former are swimming, bar vaulting, and set exercises on apparatus; the latter are life-saving, running, jumping, and apparatus work. The standards required in all the exercises are such that the average student, with training, can meet, and are the result of careful study by the Department.

*Personal hygiene.*—During the first six weeks of the second semester, a course of twelve lectures on personal hygiene was given to freshmen in the College of Engineering and the School of Mines and to the applied chemists, who on account of conflict of program could not arrange to take the course in the first semester. This course was a repetition of the lectures given as a part of the regular gymnasium course, and was given for the benefit of those students who were matriculating in colleges where gymnasium is not required.

*Corrective gymnastics.*—All defectives are grouped according to condition, and are under the direction of an instructor, who directs the execution of corrective exercises, as indicated. These defectives are excused from the qualifications required of other students, but are required to come three periods each week for exercise. All students whose petitions are granted for excuse from military drill on account of physical disability are assigned to one of these classes.

*Intramural sports.*—Interclass contests were held in basket-ball and baseball, and intercollege contests were held in football, basket-ball, baseball, handball, hockey, swimming, and track. (See report of Intramural Sports Committee.)

*Miscellaneous physical activities.*—1. Special classes were held in elementary, intermediate, and advanced gymnastics, and most of the students registered in these classes (about 60) participated in the Northwestern Gymnastic Meet, which is held annually at the University, and is composed of gymnastic teams from colleges, normal schools, high schools, Y. M. C. A.'s, turnvereins, settlement houses, etc., from various parts of the state. 2. Sigma Delta Psi, the honorary athletic fraternity, is well established at Minnesota. The candidates enrolled for the society during the year numbered about 125. 3. The Department had an organized leader's corps as in former years. The work consisted of coaching leaders for elementary apparatus work. Such of these 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. 4. The Director of the Department is western member of the National Collegiate Basket-Ball Rules Committee, and compiles all collegiate statistics in his territory of ten states, besides collecting photographs of teams, lists of names of captains, managers, and coaches, and writing up the Middle West Conference season for publication in the basket-ball guide. 5. This Department has been active in the promotion of the Middle West Intercollegiate Basket-Ball Association, which meets annually in Chicago for interpretation of rules, making of the conference schedule, and selecting officials for the games, and the Director of the Department is secretary of the association. 6. A tri-state basket-ball organization, patterned after that of the Western Conference, is promoted by this Department, and the Director is president of this organization. The annual meeting was held on Saturday of Thanksgiving week, and was attended by twenty-seven college representatives and seventeen officials. This organization has become very popular with all of the schools in Minnesota, North and South Dakota, Northern Iowa, and Western Wisconsin, and its regulations govern the administration of rules in this section. The meeting is now held in connection with the Minnesota-Dakota Athletic Conference, and is an official interpretation and schedule-making organization.

*Intercollegiate competition* in the University is of two kinds; one, including football, baseball, basket-ball, and track, is carried on by the Athletic Association without connection with this Department. The other is promoted by this Department, but is financed by the Athletic Association, and includes gymnastics and wrestling. 1. The University gymnastic team competed in the Northwestern Gymnastic Meet, which was held at the University of Minnesota. The team also competed in the Western Intercollegiate Meet, at the University of Iowa, but their showing was not up to former years. 2. The wrestling team participated in an intercollege meet and competed in five weights. The team competed in the Western Intercollegiate meet but their showing was also poor.

*Recommendations for the future.*—In view of the physical well-being of all men in the University, two urgent needs are called to your attention: (a) a new gymnasium; (b) more ground for intramural sports.

The gymnasium for men is located in the Armory. This building also houses the Military Department, with an enrollment of 1,500 students, and has a drill schedule requiring the use of the building  $30\frac{1}{2}$  hours per week. The building also houses the Athletic Department with offices, storerooms, baths, and locker rooms, and schedules calling for daily use of a considerable part of the building for track, football, basket-ball, etc., during the winter months. In addition, this building is used for various mass meetings, convocations, and social gatherings regularly throughout the college year. This leaves a limited amount of time for the Department of Physical Education to take care of about 1,500 students, 700 of whom are taking the required course and the remaining 800 making optional use of the department privileges. We must also care for intramural sports, comprising interclass, intercollege, and interfraternity contests, and various activities such as gymnastics, boxing, wrestling, fencing, swimming, etc. We are overcrowded and unable to do efficient work; the present building is not now, and never has been, able to meet the needs of the University. It is not adapted for physical education either from the standpoints of utility or sanitation. In view of these facts it is recommended that, as soon as conditions permit, provision be made for the physical welfare of the large and growing male student body of the University, commensurate with present needs, and that a new gymnasium be provided for that purpose.

More ground for intramural sports must be provided if the development of a variety of games for the large mass of students is to be realized. The present facilities are wholly inadequate. At the present time, practically all of the outdoor games are played on the parade grounds, when not in use by the Military Department, and on the east river flats, by courtesy of the Minneapolis Park Board.

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 1916-17.

*Physical examinations and consultations.*—Full examinations were given to the following groups of students: 1. In all colleges, 715 examinations of newly entering students. 2. Ninety seniors who were candidates for teachers' certificates in the College of Education were examined, and careful estimates of their vigor, dependent on their examination and on their health history during their college life, were furnished to the college for its guidance in placing teachers in positions where they might be expected to render efficient service. 3. Reëxamination was made in the spring of all students in the required and credit classes, 426 in all. 4. By request of the Schools of Agriculture at St. Paul, Morris, and Crookston, the Director of this Department visited each school as in former years and assisted the staff in conducting physical and medical examinations of the newly entering students, and also (at Morris and Crookston) gave lectures in hygiene. Four days were spent in this work and 118 students were examined.

*Examinations for high school.*—The girls of the University High School were examined this year (as in 1915-16) at the request of the principal of the school. Their instructor in physical training assisted the staff of this Department in the work. The number of examinations was 42. Examinations carried on for the various high schools of the University are not an integral part of the work of this Department, but so long as this service shall be possible without interfering with college work, it will be gladly given.

*Required health consultations.*—1. All applicants for a reduction of college program on account of physical weakness or ill health were interviewed, and if their request was approved they were required to carry out definite prescriptions of exercise or rest, or to put themselves under proper medical guidance. They were required to report in person weekly to the appropriate member of the Department, who took this opportunity to advise with them. 2. All sophomores and juniors were interviewed in personal consultation and were given advice for the promotion of their health, 697 in all. 3. The weekly hygiene records are assuming more importance all the time in serving as a basis for personal consultations with freshman students who have not yet learned how to take proper care of themselves.

*Notification of illness.*—The nurse at Sanford Hall coöperated with this Department in keeping it informed so far as she had knowledge of cases of serious illness in the dormitory and boarding houses, and in following up cases that the Department referred to her. Records of her visits and consultations with girls were filed with the other data concerning the student's health at the end of the year.

*Courses in hygiene.*—The same courses were offered as in 1915-16.

*Course in principles of physical education.*—There is a real need for teachers in the high schools of the state who have had education in the fundamentals of the theory as well as the practice of physical education. To help meet the need, this Department has organized an abridged course in the theory of gymnastics, play, and dancing, the component parts of which are distributed among members of the Department according to their special interest. The course has consisted of lectures, recitations, and practice teaching. Six students were registered for the course.

*Courses in exercise.*—1. Required: All newly entering students took Elementary Physical Training. The procedure adopted last year of dividing each class group into three sections proved entirely successful, and was continued this year. The three groups were the strong, the fairly vigorous, and the group which for special reasons needed such careful supervision as could be given them in a small class of ten to fifteen members. Five hundred fifty-seven students were registered in these courses as against 476 in 1915-16.

2. Elective courses were taken advantage of as follows:

	1916-17	1915-16
Intermediate gymnastics .....	39	45
Advanced gymnastics .....	17	16
Social dancing .....	63	130
Elementary gymnastic dancing.....	41	32
Intermediate gymnastic dancing.....	28	*
Advanced gymnastic dancing.....	14	15
Organized games .....	40	15
Field hockey .....	50	30
Basket-ball .....	150	86
Baseball .....	125	60
Swimming		
Beginners' classes .....	211	*
Advanced classes .....	70	*
General swimming .....	286	*
This represents 1,332 "swims." In addition, 194 girls swam once apiece.		
Fencing .....	15	18
	<hr/>	<hr/>
Total elective enrollment.....	1,149	447
Total required enrollment.....	557	476
	<hr/>	<hr/>
Total enrollment .....	1,706	923

\* Not given in 1915-16.

*The Woman's Athletic Association.*—The report of the Committee on Intramural Sports deals with details of the contests held by the Woman's Athletic Association. One new activity which has been taken up this year deserves special mention. Four ice hockey teams were organized by the Woman's Athletic Association and coached by the courtesy of four men students, and at the end of the skating season, a tournament was held. So far as information is available, this is the first instance of the organization of an ice hockey tournament among college women. The interest in it was so keen that ice hockey has been adopted by the Woman's Athletic Association as a recognized sport.



*Officers employed.*—The staff of the Department has consisted of the director, three full-time instructors, one part-time instructor, a secretary, a pianist, a matron, and an auxiliary staff of three women physicians. During the summer, additional clerical service was employed for tabulating statistics.

*Extension of the requirements.*—I would repeat my recommendation that the requirement in physical education be extended to include the sophomore year. An addition of two instructors to the staff would be adequate for this purpose. With our gymnasium and playground equipment, we ought to be reaching a much larger proportion of the students than at present is the case. Elective classes and freedom to use the swimming pool help the situation, but our health consultations with sophomores and juniors disclose a marked lack of exercise of any sort in a majority of cases. A large number of sophomore classes should be offered in order (1) to minimize the students' difficulties in arranging programs, (2) to permit a wide choice in the type of exercise, (3) to make it possible to limit the group to that size which is favorable to the acquirement of skill. Skill in any form of exercise tends not only to create a permanent interest in that form, but also to develop greater interest in exercise in general, an interest which we should hope would show itself in more active habits after leaving college.

*Need of a professional training course.*—I would repeat the recommendation made in my report of 1913-14 concerning the organization of a professional training course in physical education leading to a degree. The basic scientific and educational training could well be carried on in the departments which are equipped for that work, while the theoretical and practical courses in exercise and the supervision of practice teaching, for the women, could be handled by this Department, using the equipment of the new gymnasium and a somewhat increased staff. Both from the standpoint of offering an opportunity within this state for young people to receive thoro training in this specialty, and from the standpoint of providing well-trained teachers for the schools of the state, there is real need for the careful organization of such a course. I would add that apparently only the unfortunate financial stringency of the country prevented an appropriation last spring which would have assured the carrying out of these two recommendations.

*Another instructor required.*—The gymnasium was offered this year at certain hours for classes of girls from the University High School. Since it is impossible to secure the best development of these girls without an instructor whose full time is devoted to physical education, and since only the minor portion of an instructor's time is needed at present for the high-school classes, I would recommend that an additional instructor be employed whose time shall be distributed between high-school and college work. This instructor should have the ability and experience necessary for a successful critic teacher, and should be able to take her place in the professional training course in physical education.

Respectfully submitted,

J. ANNA NORRIS, *Director*

## COMMITTEE ON PHYSICAL EDUCATION AND INTRAMURAL SPORTS

*To the President of the University:*

SIR: I have the honor to report as follows on intramural sports for the year ending August 1, 1917. Separate reports on Physical Education for Men and Women will be submitted by Drs. Cooke and Norris as heads of these departments and members of the Committee on Physical Education and Intramural Sports.

*Tournaments.*—Under the supervision of the committee, tournaments are played in the following sports: Football, intercolleage and interfraternity; basket-ball, men—interclass, intercolleage, interfraternity; girls—interclass, intersorority; baseball, men—class, colleage, fraternity; girls—class; handball, men—intercolleage, all-University, intercampus, faculty; swimming, men—intercolleage, interfraternity; girls—contests for points; hockey, men—intercolleage, interfraternity; girls—interclass (field hockey); wrestling, all-University, intercolleage; tennis, men—all-University, intercolleage; girls—championship tournament, mixed doubles; soccer, managed through the Department of Physical Education; track, men—indoor and outdoor, all freshman, freshman, sophomore, Agricultural College class meet, all-University, novice meet, interfraternity relay racing, cross country and hare and hound; gymnastic contests, men—all-University and northwestern gymnastic meet; girls' field day—baseball, Newcombe, volley-ball, cricket; Sigma Delta Psi: all-round athletic trials.

Detailed reports on these contests by men and women students follow:

<i>Football.</i> —Intercolleage, five teams. Championship won by the College of Engineering. Total .....	95
Interfraternity. Men .....	20
	115
<i>Basket-ball.</i> —Intercolleage, eight teams. Championship won by College of Engineering. Total, men.....	80
Interfraternity, twenty-three teams, won by A. T. O. Fraternity with Phi Kappa Psi runner-up.....	184
<i>Baseball.</i> —Five teams entered. Championship won by College of Medicine..	60
No fraternity tournament.	
<i>Handball.</i> —Tournament in the spring broken up by enlistments. But eight men competed. No intercolleage or fraternity tournament was played.....	8
Intercampus faculty tournament .....	20
<i>Swimming.</i> —Intercolleage .....	35
Interfraternity relay .....	24
<i>Hockey.</i> —Interfraternity tournament. Ten teams. Won by Delta Tau Delta.	
S. A. E. runner-up.....	100
Intercolleage. Three teams competed. Championship won by College of Engineering .....	30
<i>Wrestling.</i> —Intercolleage and all-University.....	20
<i>Tennis.</i> —Fall tournament.	
Men's Singles. Won by E. B. Pierce. Widen, runner-up. Entries.....	86

Doubles—won by Pierce and Poucher. A. J. Carlson and Hauser, runners-up. (32 teams) .....	64
Spring Tournament.	
Mixed doubles. Eight teams. Tournament not completed owing to weather..	16
Men singles. Won by W. Widen, Norton runner-up.....	34
Men's doubles. Sixteen teams. Tournament not completed on account of weather, sixteen teams.....	32
Soccer.—Outside games played with minor colleges. Men out for team....	15
Track.—Freshman-sophomore indoor meet; freshman-sophomore outdoor meet	70
All-freshman indoor meet; all-freshman outdoor meet.....	25
All-University indoor meet; all-University outdoor meet.....	50
Indoor Agricultural meet .....	10
Carling Cup cross country.....	35
Sigma Delta Psi.—Athletic fraternity. Trials held under the supervision of the Committee. Individuals .....	101

It should be noted that all interfraternity athletics were discontinued late in the season on account of the war, and the number of entrants in nearly all branches of sport was cut down considerably by enlistments.

#### REPORT OF INTRAMURAL SPORTS FOR WOMEN, 1916-17

Under the auspices of the Woman's Athletic Association, and with the aid of the Department of Physical Education for Women, the following contests were held during the year.

*The fall tennis tournament* began October 4. Forty-six girls entered, and the tournament was played off in six rounds. The spring tournament was finished May 30. Forty girls entered..... 40

*Field hockey.*—Further progress was made in developing this sport, and a larger number of girls took part in it than last year. There were four full teams, and from three to five substitutes for each. A tournament of three games was played off just before Thanksgiving..... 40

*Basket-ball.*—One hundred fifty girls were out for basket-ball. The season began December 6 and lasted through March 16, when, after a preliminary tournament of eight games, the seniors and sophomores competed for the championship. The fact that the class teams were not chosen until March 3 insured a heavy attendance at practice throughout the winter..... 150

*A successful device* for stimulating greater interest among those who might not be material for class teams was a tournament of odd-even games in January and February, and in which a team composed of freshmen and juniors would play a team composed of sophomores and seniors.

*Skating.*—A notable advance was made in this sport. Four full ice hockey teams, of which three had regular substitutes, were organized, and at the end of the season a tournament of three games was played. So far as is known, this is the first instance of ice hockey as a recognized sport for women in college. The championship was won by the sophomores..... 51

*Baseball.*—Practice began immediately after the Easter recess. Four full teams with substitutes were chosen about the middle of May. The tournament consisted of six games, and ran from May 16 to May 26..... 40

*Swimming.*—Thirteen hundred thirty-two "swims" were taken by girls who visited the pool in the open hours at 12:00 Tuesdays and Thursdays. Not many of the girls considered themselves good enough for contests, but two contests were held, an elementary and an advanced. Twelve girls entered the elementary contest, which was held May 17, and comprised nine events. Eleven girls entered the advanced contest which was held May 10, and comprised eleven events of which six had to be chosen of a girl expected to count her "points."..... 23

*Walking.*—Fifty-seven girls were on the Woman's Athletic Association files as having reported walking for "points." No walk of less than five miles could be reported. The highest total for any girl was 150 miles..... 57

*At the field day*, on May 26, the final game of interclass baseball was played, and also the final game of "house" baseball (in which dormitory, self-governing houses, and sorority houses competed). The physical training classes also had their final games in Newcombe, batball, cricket, and field hockey..... 100

*The Woman's Athletic Association* continued its practice of making awards which are symbolic in value rather than of intrinsic value. Felt arm bands decorated with emblems symbolic of the sports in which the girl has won points are striven for and worn with pride. The Woman's Athletic Association seal in burnt leather (the final award) carries with it distinction for the girl who wins it. The spirit of sportsmanship which pervades the contests is notable.

Respectfully submitted,

J. ANNA NORRIS

SUMMARY

Number of men competing (including duplicates).....	1,214
Number of girls competing (including duplicates).....	501
<hr/>	
Total number .....	1,715

These figures indicate a falling off of about 10 per cent from the numbers of the year 1915-16.

*Notes and recommendations.*—The Committee has been handicapped by a lack of financial support and a lack of proper playgrounds. The Athletic Association has given about \$500 per year to defray expenses that were unavoidable, and has given \$500 for the coming year. This year the University has voted \$400 per year for two years. With this sum of \$900 intramural sports are in the best condition financially that they have ever been.

*Tennis courts.*—The upkeep of tennis courts has been taken care of by the Superintendent of Buildings and Grounds under the supervision of the Committee.

*Playing field.*—The most urgent need is for playgrounds for almost every branch of sport. There are but two football fields on the two campuses that are safe for games, and one of these is the Varsity field which can not be used during the conference season. The other field is on the Agricultural College campus and is used for both school and college. Practically the only space available for intramural football is the University parade ground which is used four afternoons per week for drill and is also the site of the only University soccer field. The parade is in such bad condition that it is unsafe for football. The need of more grounds for such games as baseball, soccer, football, and tennis and more gymnasium space for such games as handball and basket-ball is urgent.

*Handball*, one of the most popular and most generally played sports is housed on the Main Campus in four very small and poorly ventilated courts. The Farm Campus has three good courts that are frequently used by men from the Main Campus.

*Basket-ball* on the Main Campus, for both varsity and intramural teams, is confined to one floor which is also used for gymnasium classes and indoor military drill.

In closing I should like to repeat the recommendation of last year, that the University employ an expert in the building and maintenance of all outdoor playing grounds, who would devote his entire time to the work.

Respectfully submitted,

OTTO S. ZELNER, *Chairman, Committee on Intramural Sports and Physical Education*

## THE MILITARY DEPARTMENT

*To the President of the University:*

SIR: I herewith submit a report of the Military Department for the year 1916-17:

*Staff.*—During the college year 1916-17, Military Instruction was in charge of Major George W. Moses, Cavalry, assisted by Captain Taylor, Cavalry, and Captain Woolnough and Lieutenant Meredith, Infantry, all of the United States Army. In addition to these officers six sergeants from the United States Army were detailed as assistant instructors in drill.

*Reserve Officers' Training Corps unit.*—The work was carried on as prescribed by existing orders of the War Department until December 5, 1917, when the University entered into an agreement with the Government to maintain a senior division Reserve Officers' Training Corps at the University under General Orders 49, 1916. This agreement automatically merged the cadet corps into a federal unit and made military training compulsory for all physically fit freshmen and sophomores—three hours per week. This order also prescribed an advanced course in Military Science for which juniors and seniors were to be selected by the commandant, and which juniors and seniors might elect. This advanced course extends over two years for five hours per week. The course of training is designed to fit students at the end of their sophomore year for good privates and non-commissioned officers and to fit the advanced class for officers of the army or of the reserve corps upon their graduation from college.

*The cadet corps.*—At the beginning of the college year the cadet corps was organized as five battalions of infantry and two bands. The declaration of war greatly disorganized the military work for the remainder of the year, but the drills were continued. After war was declared on April 6, nearly 400 men of the corps enlisted in the United States service. The corps was regularly inspected on May 21, 1917, by Colonel Julius A. Penn, United States Infantry, and the University continued in the distinguished class of military colleges. Owing to the war there was no summer encampment of the cadets as is usually held. There were present for inspection 565 cadets.

*Named as showing special aptitude.*—The following named men were reported to the adjutant general of the army, and the adjutant generals of their states as having shown special aptitude for the military service: Gunther Orsinger, White Bear; Addison H. Douglass, Minneapolis; Mark M. Serum, Jackson, Minnesota; Elmer J. Croft, Minneapolis; Donald Timmerman, Minneapolis; Elmer L. Mott, Pine Island, Minnesota; Walter D. Luplow, Cottonwood, Minnesota; Henning Linden, Minneapolis; Lawrence W. Marshall, Glencoe; John E. Hartigan, St. Paul.

*Federal funds received by the University.*—Income received from the United States during the fiscal year:

Under land grant, act of 1862, (Morrill).....	\$22,746
Under other land grants.....	39,704
Under act of August 30, 1890, (Morrill).....	50,000
Under act of March 2, 1887 (Hatch).....	15,000
Under act of June 30, 1906 (Adams).....	15,000
Total .....	\$142,500

*Comments from Major Moses.*—"The authorities of this Institution stand squarely behind the Military Department and lend it cordial and loyal support and cooperation. The institution is perhaps not so liberal with financial support as many of the others, but this is due to shortage of funds appropriated, rather than to lack of desire. It would seem that, if the military instruction is to be continued in this and similarly aided institutions, a reasonable percentage of income received from the United States should be required by law to be expended under control of the Board of Regents, or other governing board, for the benefit of the Military Department. This would insure the United States that the state Legislature shall always place the necessary funds at the disposal of the institution. Probably largely due to international conditions, great interest has been shown during the year among the students in everything military. At the time war was declared the corps was in as high a state of efficiency as could be hoped for. At the time of the inspection almost all the enthusiasts had either enlisted, engaged in agriculture, or entered the training camp.

"Again, I wish to refer to the loyalty and public-spirited attitude of the faculty and the Board of Regents and invite attention to the fact that the depleted condition of the corps of cadets at inspection was due to the patriotic spirit which they had been instrumental in disseminating among the student body."

Respectfully submitted,  
 Captain STARKEY Y. BRITT, *Commandant*

## THE GEOLOGICAL SURVEY

*To the President of the University:*

SIR: I submit herewith my report as Director for 1916-17:

*Organization and coöperation.*—The Minnesota Geological Survey was allotted \$16,500 for the biennial period, begun August 1, 1915. 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. The Minnesota Geological Survey is co-operating with the United States Geological Survey, the United States Bureau of Mines, and with the Mines Experiment Station, the School of Chemistry, and the Bureau of Soils of the University of Minnesota.

*Topographic work.*—For several years the State Drainage Commission has coöperated with the United States Geological Survey in making topographic maps. The work has been done by the federal bureau, the two organizations sharing equally the expense. With few exceptions Minnesota has a smaller percentage of its area topographically surveyed than other states in the Union. It is vitally important that the appropriation for this work be restored.

*Field work.*—During the past field season, from about June 15 to October 20, the following field work was carried on:

1. Detailed survey of the Mesabi iron range from Mesabi station to Birch Lake. This work, which covers about twenty miles of the Mesabi iron range, was done by Professor F. F. Grout and Mr. T. M. Broderick. It included detailed mapping of the iron ore formation and its separation into several subdivisions, some of which are much richer in iron than others. This part of the Mesabi range has produced practically no ore, and by many it has long been considered valueless. The iron-bearing rock, which carries from 20 to 30 per cent iron, is too low grade to be shipped to the iron furnaces as mined. For two years a company, strongly financed and ably officered, has been making experiments to ascertain whether this material can be concentrated to a marketable product. The area, within the past few years, has been cut over and could be traversed only with difficulty because of the undergrowth and slash. In the spring of 1917 a forest fire burned over the area, clearing it and making exposures of rock more easily accessible. As a result the conditions for work have been much better than ever before. Certain beds of the iron-bearing formation, on account of their mineral composition, are readily concentrated, while other beds are valueless. The work of the survey has made it possible to outline the position of these beds with a considerable degree of accuracy, and has shown that the volume of concentrating ore is very large. This ore will probably become more and more available in the future as the higher grade, direct smelting ores become exhausted, and promises to add to the life of iron mining in Minnesota.

2. The detailed survey of the Cuyuna iron range, in coöperation with the United States Geological Survey, was continued. Mr. A. W. Johnston of the Minnesota Geological Survey, assisted by Mr. R. W. Gannet,



was engaged in the examination of drill cores, and the compilation of maps and cross sections. A considerable part of the field season was spent in Carlton and St. Louis counties, mapping the area of the Carlton slates to determine their relation to the Cuyuna ore bodies. On account of the demand for its manganiferous ores in connection with war preparations, the Cuyuna range has assumed great importance. A report on the geology and ore deposits of the Cuyuna range is in press and will soon be available for distribution.

3. Studies in the secondary concentration of iron ore by weathering were made by W. H. Emmons and T. M. Broderick. Deposits in the Virginia and Eveleth districts were visited and some of them mapped in detail. The laws of concentration were studied in several small mines where the results of the processes are clearly shown.

4. In the autumn of 1916 natural gas was encountered in wells drilled for water near Le Sueur Center and Kiester. These were visited by W. H. Emmons, who took samples of the gas. Analyses of the gas were made by Professor E. P. Harding of the School of Chemistry. Both of these wells were sunk in the drift, from which the gas flows have doubtless originated.

*Examination of specimens, etc.*—In addition to the more comprehensive investigations outlined above, many inquiries concerning the geological structure in various places are received in the offices of the Survey 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. Requests of this kind are increasing. Six years ago about two hundred specimens were examined and reported on annually. The use of this service has grown so that now more than one thousand specimens are sent in every year.

*Publications.*—The following publications have recently been issued by the Survey and are for sale by the Librarian of the University:

*Bulletin* No. 11, 1914. Preliminary report on the clays and shales of Minnesota, by F. F. Grout and E. K. Soper. 8vo, 172 p., illus., pl., charts. Bd. \$1.00; unbd. \$.75; postage 7 cents additional.

*Bulletin* No. 12, 1915. Surface formations and agricultural conditions of northwestern Minnesota, by F. Leverett and U. G. Purssell. \$.25; postage 5 cents additional.

*Bulletin* No. 13, 1916. Surface formations and agricultural conditions of northeastern Minnesota, by F. Leverett and F. W. Sardeson. \$.25; postage 5 cents additional.

The following publications are in press and will probably be available in 1918:

*Bulletin* No. 14. Surface formations and agricultural conditions of southern Minnesota, by F. Leverett and F. W. Sardeson.

*Bulletin* No. 15. Preliminary report on the geology and iron ore deposits of the Cuyuna district, Minnesota, by E. C. Harder and A. W. Johnston.

A report on the peat deposits of Minnesota.

The building and ornamental stones of Minnesota.

Final report on the clays and shales of Minnesota.

Accompanying Bulletins 12, 13, and 14 are maps of the northwestern and northeastern quarters, and of the southern half of Minnesota, showing the surface formations with particular attention to the soils. Arrangements have been made with the Topographic Engraving Company, of Washington, D. C., who printed these maps for the Survey, to supply them in quantities at low cost to county organizations, immigration bureaus, or others interested in furthering the settlement of the state. The cost of the field work and of making the plates has already been met by the Survey. It is hoped that more extensive use will be made of the privilege of purchasing these maps at cost of printing.

Respectfully submitted,

W. H. EMMONS, *Director*

## THE BOTANICAL SURVEY

*To the President of the University:*

SIR: During the year 1916-17 geological work was continued in the northern part of Minnesota. Part 4 of Volume IV (including an index) of Minnesota Botanical Studies was published.

Respectfully submitted,

JOSEPHINE E. TILDEN,

*For the Department of Botany*

## THE ZOOLOGICAL SURVEY

*To the President of the University:*

SIR: I herewith submit my report as Associate Director of the Zoological Survey and Museum for 1916-17:

*Introduction.*—The purpose of the Zoological Division of the Geological and Natural History Survey is to make a thoro investigation of the animal life of the state, both from the economic and purely scientific standpoints. Such surveys have been made by many of the other states and the results are of great material and educational value to the commonwealths. This work is only in its incipiency in Minnesota. The Geological and Botanical Divisions of the Survey have taken precedence, and their work has reached an advanced stage. The original legislative act creating the Survey and making the Board of Regents of the University responsible for its execution, directed that the geology and botany of the state receive first attention. It is now full time that zoology receive the active attention that it deserves.

The Zoological Museum is the depository of the material results of the Zoological Survey. It and the published reports of the Survey activities constitute the evidence and guarantee to the public of what is being done. The collections gathered in the Museum should first and foremost represent the animal life and resources of our own state. Aside from the portions reserved for special study, these collections should be so placed that they are freely open to the entire public, and so presented that they are of the fullest educational value. In addition to its exhibits, the Museum should reach the whole people through lectures, loan collections, correspondence, and in all possible ways.

The Survey Bill drawn by Dr. W. W. Folwell, in 1872, specifically directed that a Natural History Museum be established and that it should be developed along such lines. Now, after the lapse of forty-six years, the wisdom and foresight displayed in the drafting of this bill is made the more apparent by reason of the growing recognition of the indispensable part that modern museums of all kinds play in the formal education and the enlightenment of the people generally. Argument is scarcely needed as to the wisdom of carrying out the provisions of the bill. Ways and means are the only questions.

The subject of the Zoological Museum and Survey as they exist at present, may perhaps be more clearly and tersely considered under separate heads.

### ZOOLOGICAL MUSEUM

*Former Museum.*—A considerable general Museum was assembled and installed, first in the old Main Building, and later in Pillsbury Hall by Professor N. H. Winchell and Professor H. F. Nachtrieb in connection with the work of the Survey. Birds, especially, were fairly well represented and there were a number of large mammals. Space was limited

and with the subsequent crowding that took place, it was impossible to display the collection satisfactorily. The Caribou Group presented by Mr. James F. Bell was originally placed in these contracted quarters.

*Présent Museum.*—When the transfer to the new quarters in the Animal Biology Building was made in the summer and fall of 1916, it was found necessary to destroy much of the bird, mammal, and alcoholic collections, as the old methods of preservation, combined with inadequate means of protection had led to irremedial deterioration. Most of the material had served its natural lifetime. Many of the birds that had been under cover were saved, cleaned, and are in storage awaiting cases to display them. The serviceable portions of the Philippine Island collection acquired from the Minnesota Academy of Natural Sciences are also in storage. The alcoholic collections of the old Museum consisting of fish, batrachians, and reptiles is stored in the basement. The entomological collection belonging to the Survey is in Professor Oestlund's hands and needs new cases to display it properly. A considerable portion of these collections, especially the birds and small mammals, can be used when cases are provided, as the basis of mounted synoptical displays, which have a special educational value. But in modernizing an old museum, these things, stuffed and preserved in the unattractive and inadequate manner of former years, must be given a secondary place and provisions accorded the much more realistic and artistic products of the methods of to-day.

*Habitat groups.*—A habitat group is an assemblage of plants or animals, or both, exhibited amid surroundings made to resemble as nearly as possible the natural environments under which they live. The products of the painter, the artificer, the artist-taxidermist, and real accessories collected in the field, all combine to accomplish the results. If well and skillfully done, the whole produces the same mental picture as a look into nature itself.

Thanks to the interest and generosity of a few friends, the Museum has been able to make a notable beginning in this direction. There are already on exhibition three large groups of this description, each installed by itself in a room specially constructed for the purpose. The background canvasses were painted by Mr. Charles A. Corwin, of Chicago, a well-known artist in this kind of work. The groups were constructed by Mr. Charles E. Brandler, of Milwaukee. The groups are fully the equal of those in the larger eastern museums. Each represents a construction cost of about \$3,000. They are as follows:

Newfoundland caribou group.—Presented by Mr. James F. Bell. Formerly in Pillsbury Hall; now in Room 20, Animal Biology Building.

White mountain or Dall's sheep group.—Presented by Mr. James F. Bell in the name of his father, the late Mr. James S. Bell. But recently completed and open to the public in Room 18.

White-tailed or Virginia deer group.—Presented by Mr. Frederick G. Atkinson. Completed in the early summer of 1917. A beautiful group of our native deer. In Room D on the third floor.

There are also four smaller habitat groups as follows: Chickadee group, room 20; snow bunting and redpoll group, Room 20; red squirrel group, third floor; chipmunk group, third floor.

The cases for these were presented by Mr. James F. Bell. The groups were constructed by the Museum taxidermist, Mr. Jenness Richardson. The backgrounds are photographic enlargements colored in oil and illuminated by diffused transmitted electric light. The latter important feature is unlike anything existing elsewhere. Two other groups are well advanced in course of construction:

Beaver group.—A large group representing a scene in Itasca Park is being installed in one of the four spaces provided for groups on the third floor. It promises to be a most attractive and instructive exhibit of one of our native animals that arouses the interest and admiration of nearly everyone. The expense is being paid out of the donation fund.

Passenger pigeon group.—A smaller group that will include a genuine nest, the single egg, and a beautiful pair of this now extinct bird. The cost is being paid by Mr. T. S. Roberts.

A small collection of horns has been mounted on shields and hung on the walls on the third floor. Among them is a series illustrating the shedding and regrowth of the horns of our common deer.

In the absence of cases for exhibiting mounted birds, series of bird skins are being shown in flat cases on the third floor for the instruction of the students and visitors. These include seasonal collections, species of special interest, etc.

*Study collections.* Birds.—The Museum possesses a collection of between five and six thousand bird skins. Fifteen hundred specimens representing the Lano Collection were purchased by the University several years ago. The remainder have been donated by various persons at different times. This collection is used as a reference collection by teachers, students, and others, and is made use of in giving the annual course in Ornithology offered by the Department of Animal Biology.

Birds' Eggs.—There is a fairly representative collection of the eggs of our native birds obtained by donations from various sources. These have been classified and arranged of late through the volunteer services of Mr. William Kilgore, Jr.

Mammals.—A beginning has been made toward a study collection of mammal skins which is under the immediate care of Mr. C. E. Johnson, who makes use of the collection in his course in Mammalogy.

Insects.—As stated above the Survey collection of insects is in the care of Professor Oestlund and used by him in the Entomology courses. If suitable cases could be had these could be satisfactorily displayed in the Museum.

Other collections.—There is a fair collection of skeletons and alcoholic specimens belonging partly to the Museum, partly to the Department of Animal Biology, that is available for study and class purposes.

*Publications.*—During the past three years only a single publication has been issued by the Zoological Division of the Survey—an illustrated

pamphlet of twenty pages on the winter bird life of Minnesota. Several short magazine articles, chiefly on birds have appeared, with credit given to the Survey as the source of the material. This lack of publication is due entirely to insufficient funds.

*Donations to collections.*—In addition to the groups mentioned, 261 specimens have been received by the Museum from Minnesota donors. These were almost entirely birds and small mammals. The most considerable gift was 123 bird skins from Mr. Dan Smidt of Excelsior. An accession catalog has been kept wherein every gift is described in detail and credited to the donor.

*Photography.* (a) Negatives.—During the past three years, 547 negatives dealing with natural history subjects have been added to a private collection of some 2,000 brought to the Museum by Mr. T. S. Roberts.

(b) Slides.—There is at this date a library of 1,002 lantern slides, most of them hand-colored, belonging to the Museum. Seven hundred seventy-six of these constituted the private collection of Mr. T. S. Roberts and may now be considered as a part of the Museum educational resources. Of the remainder, 222 have been made from negatives taken during the past three years, two were presented by Mr. Huff of the Botanical Department, and two by Professor Wentling of the Forestry School. These 226 slides have been carefully colored by Miss Clara K. Carney, the Museum assistant.

(c) Moving picture film.—About 3,500 feet of moving picture film have been taken during the past two years by Mr. Richardson and Mr. T. S. Roberts for the Museum. This is chiefly ornithological. About 2,500 feet have been printed and are in frequent use for lecture purposes. By request, copies of certain portions have been furnished the American Museum of Natural History, New York City, the National Association of Audubon Societies, and the United States Department of Agriculture, at cost of printing.

A new model Powers moving picture projection machine was installed in the basement lecture room of the Biology Building in the fall of 1916. This was provided by Mr. James F. Bell and has made possible the many entertainments that have been given in the Museum lecture room.

*Lectures.*—Forty-two lectures under the auspices of the Zoological Museum have been given by Mr. T. S. Roberts. Twenty-one of these were given in the Museum lecture room, six in the Public Schools of Minneapolis and Saint Paul, one at Hutchinson, one at the Glen Lake School for boys, one in the regular course of University scientific lectures, one at the Agricultural School Auditorium, and the remainder before various clubs and societies. These were almost all on ornithological subjects and for the most part illustrated by lantern slides and moving picture films. Mr. C. E. Johnson of the Department of Animal Biology was associated on two occasions, exhibiting the big game films taken by him in the northern part of the state. These films are the property of Mr. James F. Bell and Mr. Johnson, and are not controlled

by the Zoological Museum. The National Association of Audubon Societies loaned the Museum for several months three reels illustrating the wonderful bird life on the Florida and Gulf coasts. These were shown to several thousand children and adults in the public schools and at the Museum.

*Aquarium.*—The aquarium in the basement is an especially attractive adjunct to the Museum. It is under the direct control of Professor H. F. Nachtrieb, and is the property of the Department of Animal Biology and not of the Museum.

*Attendance.*—Considering the limited exhibits, there has been a surprising number of visitors to the Museum. No accurate count has been possible. Groups of school children accompanied by teachers from all the grades, including even kindergarten classes, have appeared at the Museum. There are also many out of town visitors. Everything possible has been done to make these visitors welcome. Frequently they have been accompanied about the building and short talks given upon the groups and various other features of the Museum. Students from all departments of the University come to the Museum and take great interest in the exhibits and work in progress.

Two live beavers living in an outside pool beside the building have proved a great attraction to a large number of people. They were presented to the Museum in August, 1917, by Mr. Carlos Avery.

*Correspondence.*—A considerable correspondence has been maintained with residents throughout the state, chiefly in regard to birds. Assistance has been rendered in the identification of specimens, revision of lists submitted, supplying references to literature, and in a variety of directions. Incidentally this correspondence has brought frequent donations to the Museum and a considerable fund of information in regard to the wild life of our state.

#### FIELD WORK

A rather limited amount of field work has been done during the past three years, as the resources at hand would not permit any extensive operations. What effort has been made has been largely directed to ornithological investigation in various parts of the state, with attention chiefly centered on photographic work and securing material for Museum groups.

*Work in 1915.*—During June and July four weeks were spent in the field divided between Mille Lacs Lake, Isanti County, and Lake of the Woods. The bird life of these localities was investigated and much new information was obtained. Also a considerable number of photographs was secured from which lantern slides have been made for lecture purposes.

*Work in 1916.*—In January, Mr. Richardson, the Museum taxidermist, who began work in the Museum in October, 1915, was sent to Isanti County to obtain material for winter groups. The chickadee and the snow bunting and redpoll groups were the result. Other material then obtained has



not yet been worked up. During June, Mr. Richardson and Mr. T. S. Roberts spent three weeks in Rock County and at Heron Lake, Jackson County, securing specimens, photographs, moving pictures, and studying the bird life of the localities visited. July was spent at Cass Lake studying the bird life, collecting specimens of birds and mammals, making photographs, and securing material for small habitat groups. The red squirrel and chipmunk groups, with their exquisite north woods environment, resulted. Material for several other similar groups awaits development. Assistance was rendered on this trip by Mr. Richardson, Mr. Lawrence L. Lofstrom, of Cambridge, Minnesota, and Mr. William Kilgore, Jr., of Minneapolis. A very complete record of the summer birds of the region containing some new and interesting features in regard to the geographical distribution of our bird life was made.

A short trip was made in mid-July to Lake of the Woods to secure moving pictures of the cormorants on Gull Rock, and material for a habitat group of these birds. This group still awaits construction.

*Work in 1917.*—After securing some excellent motion picture films of bird life in the vicinity of Minneapolis, Mr. Richardson and Mr. Roberts went to Itasca State Park on June 16. Nine weeks in all were spent in the Park during the summer and early fall studying the remarkable beaver conditions that have developed there since the stocking of the Park in 1901. The materials for the large Beaver group under construction in the Museum were collected at this time. Seven beavers were secured and all the necessary accessories for the group were brought out of the Park, this being made possible through the courtesy of Mr. Cox and Mr. Carlos Avery. A large number of photographs and considerable moving picture film were taken. The bird and mammal life of the Park was studied carefully.

Mr. C. A. Corwin, of Chicago, was with the party for two weeks making the sketches for the background of the Beaver group. Mr. Richardson of the Museum, was in the Park for a month and Mr. William Kilgore, Jr., of Minneapolis, acted as volunteer assistant for two weeks. The outcome of this expedition was especially profitable both in collections and in interesting and instructive lecture material.

*Finances.*—No appropriations by the state for the support of the Zoological Survey or Museum have been made of late years and the revenue from the sale of Survey lands has now ceased; so this work is at present without direct financial support from the state. During the nearly three years that I have been officially connected with the Survey and Museum, the University has had placed to its credit with the purchasing agent, a total of \$400 to be expended in the purchase of minor equipment and office supplies. The expense of moving the Caribou Group from Pillsbury Hall to the Animal Biology Building, amounting to \$200 was paid by the University. The expense of constructing three large storage cases for the Lano Collection of birds was provided by the Department of Animal Biology. Other than these items no expenditures have been made from University budgets.

The source of the money used for maintenance, construction, photography, field work, publications, postage, etc., has been from private donations. To date these donations have amounted in all to \$6,731.96 with several hundred dollars additional paid out for incidental and field expenses that have not been entered on the books. Direct contributions have been made by the following persons: James F. Bell, Mrs. George H. Christian, George H. Partridge, Drs. W. J. and C. H. Mayo, F. M. Prince, E. N. Osborne, George W. Porter, R. M. Bennett, R. R. Rand, A. T. Rand, John S. Pillsbury, A. F. Pillsbury, F. B. Snyder, T. B. Janney, A. S. Brooks, C. D. Velie, C. C. Bovey, H. V. Jones, E. C. Gale, Earle Brown, J. D. McMillan, C. C. Webber, H. E. Partridge, F. W. Commons, Howard W. Commons, W. O. Winston, and T. S. Roberts. The individual donations have ranged from \$50 to \$1,100. This financial aid has been secured largely through the personal efforts of Mr. James F. Bell and Mr. George H. Partridge. The largest items of expense have been the maintenance of a Museum taxidermist and a general office and Museum assistant. A careful itemized record has been kept and separate vouchers taken for all disbursements from this fund.

#### SUGGESTIONS

May I take the liberty of making the following suggestions which perhaps are more the expression of my hopes and aspirations for the future of the work in hand, than any attempt to advise.

1. Assuming that the Zoological Survey with its Museum is to be accorded the right to exist and to take its place among the educational and economic forces of the state, then it is necessary that some suitable provision be made as soon as possible for its support. State money is not needed and should not be spent for the large and expensive exhibits. These can be readily secured as donations to the full extent of our capacity. What is required is a reasonable appropriation for maintenance, equipment, minor exhibits, additions to collections, and lecture material, publications, and field work. It is hardly to be expected that a donation fund for maintenance can be secured for any considerable length of time.

2. The Zoological Survey and Museum should not be considered as an integral part of the Department of Animal Biology, but rather so far as its support and operation is concerned, as an independent charge of the Board of Regents. This is in accordance with the legislative act creating the Survey in 1872. The Museum should, however, be affiliated as closely as may be with the Animal Biology Department as its collections and activities are a valuable adjunct to much of the work of that Department.

3. If it is possible a specific appropriation for the Survey should be obtained from the Legislature and maintained as a separate budget, the several divisions of the Survey receiving their quota according to their needs.

4. In order that better and more diversified work may be done; that there may be a fuller understanding of its position, purposes, and activities by all concerned, especially the general public, it would seem ad-

visible that the Museum should have a separate organization composed of a board of supervisors, directors, or trustees, and a designated Museum staff. The board of supervisors should, of course, act under the Board of Regents. It would seem best that such a Museum board should be composed largely of representative citizens of the state, who have agreed or will agree to take an interest in the affairs of the Museum. The formation of such a board was authorized by the Board of Regents some time ago, but no further action in the matter was ever taken. The Museum staff would probably be made up largely of members of the Department of Animal Biology, but others should be eligible.

Such an organization would undoubtedly place the Museum in its proper relation to the state at large, would broaden its scope, would be an appeal to the public, and would be the first step toward the great general State Museum of Natural History that will most certainly appear upon the campus of the University in years to come.

5. Would it not be wise for the Board of Regents to reestablish the Survey Committee that existed for so many years? It seems reasonable to believe that a small group of men could better acquaint themselves with the peculiar needs and problems of such a department than the whole Board.

6. The Museum should get into closer touch with the schools of the state. Lectures constitute one way. But a better way would be through the construction of small portable groups. Almost everything can be objectively and incisively taught in this way. The Field Museum of Natural History, Chicago, through its Harris Public School Extension Department, has made a great success along this line. It can be carried out in a smaller way anywhere and would be one of the most profitable and instructive activities in which our Museum could engage.

7. Attention may be called to the fact that in any comprehensive field work that the Zoological Survey may be able to undertake, collaboration with the appropriate National Bureau in Washington could readily be obtained if desired. In this way the effectiveness of appropriations would be increased at least twofold, permitting a much broader scope in the work planned. Also the assistance of specially trained men both in the field and in working up the collections would be available.

Respectfully submitted,

THOMAS S. ROBERTS, *Associate Director of  
Zoological Survey and Museum*

## THE UNIVERSITY LIBRARY

*To the President of the University:*

SIR: I herewith submit my report as University Librarian for the year 1916-17:

*Influence of the war.*—The work of the University Library during the year 1916-17 has been necessarily very much hampered by conditions arising out of the war in Europe. To an increasing extent, we have been unable to get adequate service from our agents abroad, and since a date roughly at the beginning of the fiscal year, we have received no periodicals from Germany. A few Austrian periodicals reached us during the latter part of 1916, but since the beginning of the year 1917, nothing has come. It is quite certain that during the year now opening, conditions will continue to grow worse rather than better, and, as in almost every other line of university activity, we shall be obliged to do what we can with the material at hand.

*Reading rooms.*—During the first semester, and until the time when our relations were broken with Germany, the use of the reading room was larger than ever before. Following that time, however, the state of excitement prevailing nationally was reflected to a very great degree in the use of books as well as in every other phase of university activity. Consequently the total number of books, the use of which was recorded in the reading room, is considerably less than the preceding year. Notwithstanding this fact, the reading rooms were both used practically to capacity until about the first of April.

*Circulation of books.*—The opening of the new reading room resulted in a very considerable stimulation in the reading done in the building and in furnishing the student with very greatly increased facilities for work. The system by which books are issued in that reading room has, I believe, given general satisfaction. The same can not be said as to conditions prevailing in the upper reading room. The congestion about the loan desk, inevitable under present conditions, is most unsatisfactory both to the library staff and to the student body. It results in a very regrettable loss of time on the part of the student and in over-strain on the part of members of the staff who are compelled to work behind the desk.

Comparative statistics of circulation follows:

	Home use	Over-night use	Reading room	Total
1915-16 .....	20,914	20,239	127,621	168,774
1916-17 .....	20,376	19,761	107,405	147,543

*Extra campus loans.*—The number of books loaned to libraries, to extension students, and to individuals in various parts of the state has considerably increased. Scarcely a day passes when we do not make

loans of this character. They are made whenever the books can be sent without hampering the work of our own students. Transportation expense in both directions is met by the borrower and no deposit is required. In no single case has there been any loss or any difficulty in securing the return of the volumes loaned. I believe that this is a function of the University Library which should be developed and encouraged.

*Loan desk administration crippled.*—The work at the loan desk was further hampered by the absence of Mr. Donald B. Gilchrist, the head of that department, now captain in the 339th Field Artillery, during almost the entire year. He was able to be at his desk only during the month of March. During the earlier months his place was supplied by Miss Smith, formerly of that department who, at considerable personal sacrifice, substituted in his place, and when he was again called to service his work was taken over by Miss Gregory, who was transferred temporarily from the School of Mines Library and who, at the end of the year, resigned to accept a position with the Public Library of St. Paul.

*Inter-library loans.*—As in former years, we have been able to increase the facilities of the library through the system of inter-library loans. Many pieces of research have been completed by aid given in this way. In all we have borrowed 538 volumes from the institutions noted below:

Bryn Mawr, 1; Bussey Institute, 1; California University, 1; Columbia University, 15; Cornell University, 6; Harvard University, 13; Hennepin County Medical Library, 30; Illinois University, 5; Johns Hopkins University, 8; Leland Stanford Jr. University, 2; Library of Congress, 15; Mayo Clinic, 13; Michigan University, 2; Minnesota Department of Education, 2; Nebraska University, 1; Ohio State University, 1; Princeton University, 9; Ramsey County Medical Library, 1; Surgeon General's Library, 298; Toronto University, 1; United States Department of Agriculture, 48; Union Theological, 4; University of Chicago, 25; University of Washington, 3; Wisconsin Historical Society, 10; Wisconsin Library Commission, 1; Wisconsin University, 17; Yale University, 5.

We are under particular obligation to the Library of the Surgeon General's Office in Washington. It places its facilities at the service of the medical profession with a freedom and generosity almost unexampled. In return for these favors, the Library has been able to assist other institutions to a very considerable extent, tho no separate record of these loans has been made.

*Catalog.*—The work on the catalog has progressed steadily and, for the most part, satisfactorily. The record for the year is as follows:

	Central catalog	Departmental catalogs
Titles cataloged.....	9,522	2,290
Volumes cataloged.....	13,092	4,068
Printed cards added.....	25,695	5,349
Typewritten cards added.....	9,327	1,978
Printed shelf list cards added.....	3,654	786
Typewritten shelf list cards added.....	3,137	1,059
Volumes added.....	5,088	1,115
Total volumes recorded.....	203,603	
Agriculture author entry cards added.....		1,410

We were able to make very little progress, however, in the recataloging of that portion of the library not included in the new catalog. We have, however, practically completed the cataloging of such sets of periodicals as were not included in the record, and of a major portion of the collection in German literature. Some progress has been made in cataloging the books in the Monod library, and it is hoped that this may be completed before the end of another year. Four hundred and two dollars and ninety-one cents has been expended in the purchase of Library of Congress cards. The pressure of other work has prevented us from contributing materially to the coöperative cataloging done under the direction of the Library of Congress, and we have furnished to it copy for only nineteen titles.

*Additions.*—The total expenditure for books, periodicals, and binding for the year is \$35,567.29, distributed as follows:

	Books	Periodicals	Binding	Totals
General Library.....	\$19,391.67	\$4,494.97	\$3,503.65	\$27,390.29
Law Library.....	4,321.65	99.05	98.85	4,519.55
Agricultural Library.....	1,700.84	920.84	470.35	3,092.03
Crookston.....	264.59	.....	.....	264.59
Morris.....	300.83	.....	.....	300.83

The sum of \$16,704.33 is held in reserve to pay for books and periodicals ordered by us and held in Europe on account of war conditions. Nineteen thousand, five hundred and nineteen volumes have been added to the library, making the total approximately 250,000 volumes. Four thousand seventy-two dollars and eighty-five cents has been spent on binding and rebinding. No separate record of rebinding was kept up to November 29, but since that time the bill for rebinding has been \$188.95. An analysis of the binding done follows:

	General Library		Law Library		Agricultural Library	
	Number	Amount	Number	Amount	Number	Amount
Cloth, etc.....	2,897	\$2,223.31	164	\$98.85	387	\$289.90
Cowhide.....	512	583.99	...	.....	133	142.65
Morocco.....	491	638.55	...	.....	14	17.90
Pamphlets.....	578	57.80	...	.....	184	19.90

*Serials.*—The number of serials on our subscription list has increased to 1,377. This does not include a very large number received by gift and exchange. During the year a very large number of broken files has been completed and bound. A good deal of time has been given toward the completion of sets of state documents, altho any very systematic collection of these documents must wait for the employment of someone who can give the major portion of his time to the work. A new system of listing these documents has been adopted and is working very satisfactorily.

*A union list of periodicals.*—Our copy for the proposed union list of periodicals was completed, this work having been done, very largely, by Miss Gregory. It was originally proposed that this list should include the sets of periodicals in the Twin Cities and in Rochester, but the State Historical Society was unable to contribute a complete record of its own holdings. At a conference held in Chicago late in December, it was ascertained that lists, similar to ours, were in existence in the Universities of Wisconsin, of Illinois, of Nebraska, and at Washington University. The copy for a new edition of the Chicago list was also nearly complete. It was the consensus of opinion that the value of these lists would be very greatly increased by their consolidation and, during the remainder of the year, a committee was engaged in formulating plans for the publication of such a consolidated list. At the meeting of the American Library Association, at Louisville, in the month of June, the Committee reported that, as a preliminary step toward such an undertaking, the H. W. Wilson Company would undertake to print the Chicago list, and hold it in proof form for a year, during which time, the libraries in the midwest could annotate the list with their own holdings and such titles as were not already included in it. It is expected that this work will be accomplished during the current year. The list will then be printed as a unit. The value of such a list, once published, will be very great, as it will indicate the location of many sets of periodicals, the use of which is now confined to a single locality, and render them available for use in the entire district.

*Exchange and sale of publications.*—During the year the following publications were distributed by the Library:

- Studies in Language and Literature*, nos. 4, 5
- Agricultural Experiment Station Bulletins*, nos. 155-164
- Geological Survey Bulletin*, no. 13
- Contributions from the Department of Anatomy*, no. 4
- Contributions from the Department of Pathology*, no. 1
- Botanical Series*, volume 4, number 4
- Plant Studies* no. 1 (reprinted)
- Doctor's dissertations, 5 items
- President's Report*, 1914-15
- Regents' Report*, 1915-16

The list is shorter than for the preceding years, owing to the fact that a smaller number of Research Publications has been published.

Early in the year an arrangement was made whereby *Plant Studies* no. 1 was reprinted out of storehouse funds. This publication is readily saleable and almost the entire cost of the new edition was returned to the fund before the end of the year. About two thirds of the edition still remains, and a very satisfactory profit will result during the coming year. A similar arrangement should be made for the reprinting of the volume on *Minnesota Trees and Shrubs*, and for *Plant Studies* no. 5. A new edition of *Minnesota Mushrooms*, *Plant Studies* no. 4 is also called for and would, I believe, be a profitable publication.

The total receipts from sales of publications are \$728.84. This sum has been credited to the several budgets involved.

*College libraries and departmental collections.*—There has been, during the year, very little change in the situation of the libraries outside of the main building. The transfer of Miss Gregory, made necessary by Mr. Gilchrist's absence, and her resignation at the end of the year, was a serious blow to the Library of the School of Mines, but with that exception, all of the assistants in charge are still in the service of the Library. The experiment of using students who received student scholarship aid in the combined Botanical-Geological Library has not been a marked success, and will be discontinued during the coming year. It is impossible to secure satisfactory service from students whose major interest is, very properly, elsewhere, and who can give only a limited amount of time to the work. Where they can work under supervision, as they do in the College of Engineering, in the Medical College, in the School of Mines, and at the College of Agriculture, the results are much more satisfactory. The arrangement for the location of the Botanical-Geological Library in a single room, while it is an improvement on the conditions formerly prevailing, should not be regarded in any sense as permanent. I believe that the interests of the departments concerned would be very much better served if an arrangement could be made whereby the Geological Library is consolidated with the Library of the School of Mines in the Mines Building. The Winchell Library of Geology, a very valuable collection, is, in its present location in Pillsbury Hall, in danger of damage or loss by fire or, what is almost as bad, by water. The same thing is, of course, true of the even more valuable collection related to the Department of Botany.

The conditions as to the use of books by the College of Education are extremely unsatisfactory both to the college and to the administration of the Library. We have temporarily transferred to a room in the Education Building, a considerable number of major sets of educational periodicals as well as other books needed for graduate students in education. The separation of these books from the main Library has very largely prevented their use by other students, and the students in education have not had proper access to their material by reason of the fact that some of it is in one building, and some in another. No satisfactory solution of the difficulty seems possible, under present conditions, for until the College of Education can be provided with its own seminar room in connection with the main Library, its students will be very greatly hampered.

*Map collection.*—Mr. Andrew Arthur Benton, Law '95, has generously added a large number of maps to the very valuable collection which he deposited with the University. Financial conditions have been such that we have been unable, as we had hoped and expected, to provide for the proper installation and listing of these maps. It seems at present as if it will be impossible for us to carry out our part of the contract until the end of the war.



*Bibliographical publications.*—As the first number of the proposed bibliographical series, we have ready for publication the list of resources of the library in the field of seventeenth century English history. Our collection of books, pamphlets, and newspapers within the period from 1603-89 is one of the most valuable in the country, and the list of these publications will make a volume of between 200 and 300 pages. Included in the list is a record of such pamphlets as have been reprinted in the Somers collection, the Harlean Miscellany, *Archaeologia*, and similar collections. The publication will, therefore, serve not only as a catalog of our resources, but it will be of very considerable use as a reference list for other libraries.

A beginning has been made in the preparation of a census of copies belonging to American institutions of the publications of some of the more important book clubs. Such a list of the publications of the Roxburghe Club has already been prepared, and will be issued by the American Library Institute. The publications of this club are of very high scholarly value, but the fact that the editions issued were exceedingly small and anything like complete sets almost unobtainable, makes it in the highest degree essential that we should be able to locate quickly such copies as are in this country. Other similar lists are projected and would now be in progress were it not for the fact that since the beginning of May the Librarian has been devoting a large part of his time to the organization work of the Red Cross.

Respectfully submitted,

J. T. GEROULD, *Librarian*

## THE ACADEMIC FRATERNITIES

To the President of the University:

SIR: I herewith submit my report as President of the Interfraternity Council for the year ending July 31, 1917.

*Important changes in the by-laws of the Interfraternity Council.*—On March 15, 1917, Section 1 of Article III was amended to read as follows: No man who is not a graduate of an accredited high school or an accredited preparatory school shall be pledged by any fraternity. The above amendment automatically does away with Section 2 of Article III and also Article IV of the by-laws. No penalties for violation of this amendment were provided, since Section 2, Article III of the Constitution gives the Council disciplinary power.

*Scholarship of pledgemen—first semester 1916-17.*—The following table was compiled in February, 1917. The first column gives the total number of pledgemen at the end of the first semester; the second column, those who were eligible for initiation, i. e., those who had a grade of pass or higher in 75 per cent or more of the work for which they were registered (no man eligible unless carrying 11 or more hours work). The third column gives the number of men not eligible, the fourth column the percentage of men not eligible. For comparison, column five gives the percentage not eligible February, 1916, and the last column gives the percentage not eligible February, 1915.

FRATERNITY	TOTAL PLEGGED	ELIGIBLE	NOT ELIGIBLE	PER CENT	PER CENT	PER CENT
				NOT ELIGIBLE	NOT ELIGIBLE	NOT ELIGIBLE
				FEB. 1916	FEB. 1915	
Acacia .....	7	4	3	42.8	22.2	.....
Alpha Delta Phi.....	8	3	5	62.5	7.7	33½
Alpha Sigma Phi.....	7	5	2	28.6	....	.....
Alpha Tau Omega.....	9	3	6	66.7	33.33	33½
Beta Theta Pi.....	10	7	3	30	8.33	12.5
Chi Psi .....	5	4	1	20	37.5	18.2
Delta Chi .....	4	1	3	75	25	50
Delta Kappa Epsilon.....	10	4	6	60	46.1	16.67
Delta Tau Delta.....	9	7	2	22.2	58.3	25
Delta Upsilon .....	10	5	5	50	40	50
Kappa Sigma .....	12	6	6	50	30.8	12.5
Phi Delta Theta .....	8	4	4	50	40	66.67
Phi Gamma Delta.....	12	5	7	58.4	50	53.8
Phi Kappa Psi.....	10	9	1	10	40	27.22
Phi Kappa Sigma.....	11	5	6	54.6	66.67	.....
Phi Sigma Kappa.....	11	7	4	36.4	40	25
Psi Upsilon .....	8	5	3	37.5	28.6	44.41
Sigma Alpha Epsilon.....	8	5	3	37.5	58.3	33½
Sigma Chi .....	13	8	5	38.5	12.5	66½
Sigma Nu .....	14	9	5	36.7	80	66½
Sigma Phi Epsilon.....	14	8	6	42.9	....	.....
Theta Delta Chi.....	13	5	8	61.5	33.33	30
Zeta Psi .....	7	2	5	71.5	37.5	33½
	220	121	99	45	38	38.6

This table shows that a smaller percentage of pledgemen were eligible in February, 1917, than in February, 1916. Last March, the fraternities were seriously discussing the problem of the eligibility of freshmen and were taking steps to improve the situation when war was declared.

*Scholarship.*—Unfortunately I am unable to give a table showing the relative standing of the various fraternities for 1916-17. In the spring many of the fraternity men entered agricultural service, or other service having a direct bearing on the war. Due to the difficulty of obtaining complete returns on all these men, the making of the table of relative standings has been considerably delayed, and Dean Nicholson informs me that it is impossible to say just how soon the report will be out.

*Fraternities and the war.*—After the declaration of war, it was impossible to hold a meeting of the Interfraternity Council, during the remainder of the college year. A very large percentage of fraternity men entered the armed forces of the Government.

Respectfully submitted,

WILL F. HOLMAN, *President*

## THE GENERAL ALUMNI ASSOCIATION

*To the President of the University:*

SIR: I submit herewith the report of the General Alumni Association for the year ending July 31, 1917.

*Publications.*—The *Weekly* has been issued regularly and tho the increase in cost of production necessitated the giving up of the cover, we managed to furnish the usual amount of news without seriously increasing the total cost for the year. The handbook of the Association of Alumni Secretaries, a national organization, was completed last May. It will be remembered that Minnesota had the honor of heading the committee charged with the preparation of this publication. The book has been well received and is proving a welcome and useful addition to the libraries of the alumni associations of the country.

The endowment fund was increased last year to a total of \$30,226.09. The debt of the association was reduced by \$591.90.

The new constitution mentioned in the previous report has been adopted and the first election under its provisions will take place during the coming year. In spite of the war, prospects for the work of the coming year are most excellent. The war has brought us new lines of work and not a little time has been devoted to the work of gathering information concerning men available for government service and trying to get them placed where their efforts will be the most effective.

Respectfully submitted,

E. B. JOHNSON, *Secretary*

## REPORT OF THE REGISTRAR

*To the President of the University:*

SIR: I submit herewith a report of the work of the Registrar's office for the year 1916-17:

*Entrance requirements.*—While no specific modification of the requirements as stated last year has been made, the question as to the desirability of instituting mental tests as a factor in determining admission has been raised. Conferences have been had with committees representing superintendents of the state and various departments of the University. While nothing mandatory is contemplated for the ensuing year, it is likely that a beginning towards the selection of the students admitted to the University by some standard other than mere scholastic gradings will be made in the not distant future.

*Calendar for 1917-18.*—In view of the emphasis placed upon the need for agricultural service following America's entry into the war, the Senate voted that the college year for 1917-18 begin October 10, two weeks later than ever before, and close June 20.

*Re-admission of dropped students.*—On October 12, 1916, the Senate voted that no applicant for admission to the University who has previously been a student therein and has been dropped for deficiency in scholarship would be allowed to re-register without special permission from the faculty of the college in which he seeks admission. This action is intended to nullify a student's claim that he could enter a given college upon satisfying the entrance requirements, regardless of his previous status in another department of the University.

*Accredited schools and colleges.*—By Senate action the following schools have been recognized in the capacity indicated:

1. Preparatory. The following schools have been placed on the accredited list for one year, subject to their complying with certain regulations specified by the Committee on the Relation of the University to Other Institutions of Learning: Minnehaha Academy, Minneapolis; St. Mary's Academy, Graceville; Parker's College, Winnebago.

2. Junior College. Cloquet and Rochester have been given two years of advanced standing, subject to their complying with the regulations specified by the Committee. Stanley College, Minneapolis; Hibbing; Jackson; and Villa Sancta Scholastica, Duluth, have been approved for one year of work.

3. College. St. Thomas, St. Paul, has been recognized as an institution of full college rank, and graduates of the College and Seminary are to be admitted to the Graduate School.

*Changes in the office staff.*—During the year 1916-17, eight out of eleven of the permanent assistants have left for one reason or another. Two are married, five left to undertake other work offering larger opportunities, one because her family left the city. It is a rather common experience to have the work disrupted by members of the staff leaving,

but never before has there been such a disastrous effect upon the efficiency of the office. In the interests of the University, a higher level of salaries for the more expert clerks in the important positions such as record keeping must be fixed promptly in order to offer greater inducement to employees of a high grade of ability. The work itself is of such a character as to challenge the energy and efficiency of university graduates; the compensation, then, should be appropriate to the task.

*Advanced standing.*—The Administrative Committee has unanimously recommended that an advanced standing officer be appointed for the entire University under the direction of the Registrar, and it is understood that provision will be made for this appointment in the next budget.

*Enrollment.*—Tables and comments will be found on pages 26 to 44.

Respectfully submitted,

E. B. PIERCE, *Registrar*

## FINANCIAL REPORT

*To the President of the University:*

SIR: I submit herewith a report of the financial operations of the University of Minnesota covering the fiscal period ending July 31, 1916.

In accordance with your instructions, the tables given are but summaries of the year's business and additional tables and detailed statements are given in the Biennial Report as required by law.

Respectfully submitted,

G. H. HAYES, *Comptroller*

TABLE I. SUMMARY OF RECEIPTS

1916-1917		
<i>Receipts from Students</i>		
Tuition and Fees.....	\$364,798.47	
General and Military Deposits.....	60,059.80	
Dining Halls, etc. ....	219,370.64	
	<hr/>	\$ 644,228.91
<i>Receipts from Interest</i>		
Swamp Land Interest.....	27,986.15	
Land Contracts .....	9,865.33	
University Land Fund.....	49,345.66	
	<hr/>	87,197.14
<i>Receipts from Federal Government</i>		
Morrill Fund .....	25,000.00	
Nelson Fund .....	25,000.00	
Hatch Fund .....	18,750.00	
Adams Fund .....	18,750.00	
Smith-Lever Fund .....	18,657.41	
	<hr/>	106,157.41
<i>Receipts from State</i>		
23/100 Mill Tax.....	293,748.64	
Maintenance Appropriation .....	550,000.00	
Sundry Support Appropriation.....	562,025.00	
Buildings and Equipment Appropriation	92,250.00	
	<hr/>	1,498,023.64
<i>Receipts from Other Sources</i>		
Dental Infirmary .....	29,474.62	
Hospital and Free Dispensary.....	12,769.60	
Farm Products, Livestock, etc. ....	94,808.19	
Rent of Campus Houses.....	8,868.62	
Lyceum (Extension) .....	36,324.21	
Trolley System .....	10,413.73	
Printing Department .....	26,369.13	
Stock Testing Fees, University Farm		
Extension .....	9,195.96	
Sundry Items .....	138,215.69	
	<hr/>	366,439.75
Cold Storage .....	2,160.98	
Storehouse Sales .....	109,621.85	
Trust Fund Receipts .....	34,990.59	
	<hr/>	146,773.42
		<hr/>
		\$2,848,820.27



TABLE II. SUMMARY OF EXPENDITURES

*Maintenance*

Pay Roll .....	\$1,458,348.03	
Supplies and Miscellaneous.....	733,727.31	
	<hr/>	\$2,192,075.34
Buildings and Equipment.....		106,915.51
Storehouse .....		136,334.13
Sanford Hall .....		20,034.78
Sanford Hall, Summer Session.....		455.14
Shevlin Hall .....		17,965.13
Agricultural Hospital, Gymnasium, Photo Lab., etc...		25,103.04
Book Store .....		15,089.32
Minnesota Union .....		60,388.77
Agricultural Dining Hall.....		68,480.69
Dental Infirmary .....		30,553.53
Crookston Dining Hall.....		15,668.27
Morris Dining Hall.....		12,450.47
Breakage and Military Deposit Refunds.....		66,346.10
Breakage, Substations .....		2,178.00
Salary Refunds .....		1,043.23
Refunds of Fees.....		71,508.12
Fire Loss .....		165.92
Cancellation by State Auditor.....		16.27
		<hr/>
		\$2,842,771.76

## PUBLICATIONS OF THE FACULTIES, 1916-17

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

JOHN BLACK JOHNSTON, Ph.D., Dean of the College of Science, Literature, and the Arts, and Professor of Neurology

- Evidence of a motor pallium in the forebrain of reptiles. *Journal of Comparative Neurology* 26:475-79. 1916.
- The development of the dorsal ventricular ridge in turtles. *Ibid.* 26:481-505. 1916.
- Neutral red as a cell stain for the central nervous system. *Anatomical Record* 11:297-98. 1916.
- Methods of mounting sections in gelatin (with Edna G. Dyar). *Ibid.* 12:309-11. 1917.
- Certain ideals in education. *School and Society* 5:31-34. 1917.
- The university and the state. *Ibid.* 5:391-401. 1917.
- The future of the public schools. *Education* 37:337-50. 1917.

### ANIMAL BIOLOGY

THOMAS SADLER ROBERTS, M.D., Professor of Ornithology, and Assistant Curator of the Zoological Survey and Museum

- The yellow-headed blackbird. *Educational Leaflet* no. 57 issued by the National Association of Audubon Societies. 4 pages. Illus.
- Methods of controlling "vermin." *Fins, Feathers, and Fur* no. 10:1-3.
- A Minnesota springtime bird calendar. *The Minnesotan* no. 9:24-26. Illus.; no. 10:24-26. Illus.; no. 11:17-20. Illus.
- Baby week in bird-dom. *Ibid.* no. 12:20-21. Illus.
- The curious story of the hobo-bird, known commonly as the cowbird. *Ibid.*, no. 13:26-27. Illus.

HAL DOWNEY, Ph.D., Associate Professor of Animal Biology

- "Histiocytes" and "Macrophages" and their relations to the cells of normal blood in animals stained *intra vitam* with acid colloidal dyes. *Anatomical Record* 11:350-55. 1917.
- Reactions of blood- and tissue-cells to acid colloidal dyes under experimental conditions. *Ibid.* 12:429-53. 1917.

ELMER JULIUS LUND, Ph.D., Assistant Professor of Zoology

- Reversibility of morphogenetic processes in bursaria. *Journal of Experimental Zoology* 24:1-35. 1917.

CHARLES EUGENE JOHNSON, Ph.D., Instructor in Comparative Anatomy of Vertebrates

- As to beaver intelligence. *Fins, Feathers, and Fur* no. 7:719. 1916.
- A brief descriptive list of Minnesota mammals. *Ibid.* no. 8:1-8. 1916.
- Wild animals of Minnesota: a series of three articles. *The Farmer* 34:1520, 1559-60, 1596-97. 1916.
- The blue fox. *The Fur Farmer* 1:7-9. 1917.

## ASTRONOMY

FRANCIS P. LEAVENWORTH, M.A., Professor of Astronomy, and Head of the Department of Astronomy

Observations of comets (with Hugh Wilcox). *Astronomical Journal* 30:77-78. 1917.  
Micrometric measures of double stars (made at the Yerkes Observatory). *Ibid.* 30:108-14; 115-22. 1917.

## BOTANY

JOSEPHINE ELIZABETH TILDEN, M.S., Professor of Botany

Synopsis of the blue-green algae—myxophyceae. *Transactions of American Microscopical Society* 36:179-264. 1917.

Index algarum universalis: a universal card index of the marine, freshwater, epiphytic, and parasitic algae of the world. Minneapolis. 1917. 6,976 cards.

FREDERIC KING BUTTERS, Ph.D., Assistant Professor of Botany

*Pellaea atropurpurea* (L.) Link and *Pellaea glabella* Mett. ex Kuhn. *American Fern Journal* 7:77-87.

Taxonomic and geographic studies in North American ferns. I. The genus *Athyrium* and the North American ferns allied to *Athyrium Filix-femina*; II. *Botrychium virginianum* and its American varieties. *Rhodora* 19:169-216.

Studies in certain North American species of *Lathyrus* (with Harold St. John). *Ibid.* 19:156-63.

WILLIAM SKINNER COOPER, Ph.D., Instructor in Botany

Redwoods, rainfall, and fog. *Plant World* 20:179-89. 1917.

## COMPARATIVE PHILOLOGY

FREDERICK KLAEBER, Ph.D., Professor of Comparative and English Philology, and Head of the Department of Comparative Philology

*Review of*

Moritz Trautmann, Die altenglischen Rätsel (Die Rätsel des Exeterbuchs). *Modern Language Notes* 31:426-30. 1916.

## ECONOMICS

EDWARD DANA DURAND, Ph.D., Professor of Economics, Director of the Bureau of Statistics, and Chairman of the Department of Economics

Coöperative elevators in Minnesota, 1914-15 (with J. P. Jensen). The University of Minnesota, *Agricultural Experiment Station Bulletin* no. 164. 1916. 43 pages.

Coöperative creameries and cheese factories in Minnesota, 1914 (with Frank Robotka). The University of Minnesota, *Agricultural Experiment Station Bulletin* no. 166. 1917. 53 pages.

Coöperative buying by farmers' clubs in Minnesota (with H. B. Price). The University of Minnesota, *Agricultural Experiment Station Bulletin* no. 167. 1917. 44 pages.

Taxation versus loans for war finance. Report of joint conference of Western Economic Society and City Club of Chicago on War Finance. 1917.

Some problems of population growth. *Publications of the American Statistical Association* 15:129-48. 1916.

- Land as security for loans (with J. F. Ebersole). *Minnesota Farmers' Institute Annual* 29:84-89. 1916.
- The debenture bond system. *Ibid.* 29:71-74. 1916.
- Does the farmer incur risk in joining a federal farm loan association? *Ibid.* 29:81-84. 1916.
- Credit for the landless man. *Ibid.* 29:121-24. 1916.

ROY GILLISPIE BLAKEY, Ph.D., Assistant Professor of Economics

- The new revenue act. *American Economic Review* 6:837-50. 1916.
- Comparative cost of state governments. *Ibid.* 7:205-10. 1917.
- Comparative cost of state government. *Report of Minnesota Tax Commission* 10:153-228. Minneapolis. 1916. (Reprint, St. Paul, 1916. 78 pages.)
- Some misconceptions as to unearned increment in agricultural land values. *Proceedings of American Economic Association*. Columbus, Ohio. *American Economic Review* 7:43-46. 1917. (supplement).
- Wise and unwise war finance. General title for a series of eight articles as follows:  
 An argument for raising funds by taxation. *Minnesota Daily* 28 no. 115:4. 1917.  
 Fallacies regarding methods of raising funds. *Ibid.* 28 no. 116:3. 1917. Why bond issues mean higher prices. *Ibid.* 28 no. 117:4. 1917. Taxation adapted to war needs. *Ibid.* 28 no. 119:4-5. 1917. How everyone can help. *Ibid.* 28 no. 120:4-5. 1917. Objection to heavy taxation. *Ibid.* 28 no. 121:4. 1917. The taxation policy will promote national efficiency. *Ibid.* 28 no. 122:4. 1917. Petition of economists to congress. *Ibid.* 28 no. 123:5. 1917.
- The effects of bonds and taxes in war finance. *South Atlantic Quarterly* 16:236-47. July 1917.
- Reviews of*
- J. C. Stamp, British incomes and property. *American Economic Review* 6:675-77. 1916.
- United States Bureau of the Census. S. M. Grogan, Financial statistics of states, 1915. *Ibid.* 7:204-5. 1917.
- R. H. Montgomery, Income tax procedure. *Annals of the American Academy of Political and Social Science* 72:238-39. July, 1917.
- Yetta Scheffel, The taxation of land values. *National Municipal Review* 6 no. 4:526-27. July, 1917.
- Progress in municipal finance. An article in review of: T. S. Adams, The continued increase of public expenditures and taxes; J. C. Cloud, The financial problem of cities; Report of Pittsburgh Tax Commission, Pittsburgh, Pennsylvania, 1916; Report of the Commission for the Survey of Municipal Financing to the House of Assembly, New Jersey, 1917; and various articles and pamphlets on municipal finance published by *Municipalities*. *National Municipal Review* 6 no. 4:534-35. July, 1917.
- LLOYD MORGAN CROSGRAVE, M.A., Instructor in Economics
- Business men and the unemployment problem. *Proceedings of the Twenty-fifth Minnesota State Conference of Charities and Corrections* pages 71-84. 1917.
- Reviews of*
- W. Jett Lauck and Edgar Lydenstricker, Conditions of labor in American industries. *The Beilman* 22:726. 1917.
- W. E. Walling and H. H. Laidler, State socialism, pro and con. *Ibid.* 23:363. 1917.
- Homer Blosser Reed, Morals of monopoly and competition. *Indiana University Alumni Quarterly*. Pages 417-18. July, 1917.

## ENGLISH

RICHARD BURTON, Ph.D., LL.D., Professor of English, and Head of the Department of English

Bernard Shaw: the man and the mask. New York: Henry Holt and Company. 1916.  
Poems of earth's meaning. New York: Henry Holt and Company. 1917.

CARLETON BROWN, Ph.D., Professor of English

A register of Middle English religious and didactic verse, 1. Published for the Bibliographical Society. Oxford University Press. 1916. 528 pages.

OSCAR W. FIRKINS, M.A., Associate Professor of English

American verse. *Nation* 103:151-52. 1916.  
British poets. *Ibid.* 103:347-49. 1916.  
From Florence Coates to Amy Lowell: a glance at modernity. *Ibid.* 104:522-24. 1917.  
Lyre in Britain. *Ibid.* 105:66-68. 1917.  
Meteorites in verse. *Ibid.* 104:43-45. 1917.  
Percy MacKaye. *Ibid.* 103:562-64. 1916.  
Return to Parnassus. *Ibid.* 104:401-3. 1917.  
Singers and satirists. *Ibid.* 104:157-58. 1917.  
Tryst with the poets. *Ibid.* 104:709-10. 1917.  
War lyrics and others. *Ibid.* 104:236-38. 1917.  
The unabiding (poem). *Minnesota Magazine* 23:46. 1916.  
Maria (poem). *Minnesota Alumni Weekly* 16:7-8. 1916.  
*Review of*  
McDonald Clark. Maeterlinck. *Nation* 105:105. 1917.

JOSEPH WARREN BEACH, Ph.D., Assistant Professor of English

On the land: The black land, Succession, The red land (poems). *Poetry: a Magazine of Verse* 9:122-24. 1916.

## GEOLOGY AND MINERALOGY

WILLIAM H. EMMONS, Ph.D., Professor of Geology and Head of the Department of Geology and Mineralogy

The principles of economic geology. New York: McGraw Hill Book Company. 588 pages.

CHESSLEY JUSTIN POSEY, M.S., Assistant Professor of Geography

Work of Minnesota geographers. *Journal of Geography* 15:331-33. 1917.

TERENCE THOMAS QUIRKE, E.M., Ph.D., Instructor in Geology

Espanola area, Sudbury district, Ontario. Map 180 A. *Geological Survey of Canada*, Ottawa, Canada.

Measurements of the radioactivity of meteorites (with Leo Finkelstein). *American Journal of Science* 44:237-42. 1917.

Classification of ore deposits on the basis of origin, deformation, and enrichment. *Journal of Economic Geology* 12: no. 7. 1917.

## GERMAN

OSCAR CARL BURKHARD, Ph.D., Assistant Professor of German

German poems. New York: Henry Holt and Company. 1917. 129 pages.

Die Exposition bei Schiller. Menasha, Wisconsin: George Banta Publishing Company. 1916. 117 pages.

Die Behandlung der Vorgeschichte bei Schiller. Menasha, Wisconsin: George Banta Publishing Company. 1916. 68 pages.

The *Novelas Exemplares* of Cervantes in Germany. *Modern Language Notes* 32:401-5. 1917.

WALTER RALEIGH MYERS, Ph.D., Assistant Professor of German

Kleine deutsche Grammatik (with A. E. Koenig). Minneapolis: Perine Book Company. 1917. 126 pages.

Direct method helps (with A. E. Koenig). Pamphlet, reprinted from above. Minneapolis: Perine Book Company. 1917. 21 pages.

ALFRED EDMUND KOENIG, M.A., Dr. Theol., Instructor in German

Kleine deutsche Grammatik (with W. R. Myers). Minneapolis: Perine Book Company. 1917. 126 pages.

Direct method helps (with W. R. Myers). Pamphlet, reprinted from above. Minneapolis: Perine Book Company. 1917. 21 pages.

Der mündliche Vortrag. Minneapolis: The Perine Book Company. 1917. 30 pages.

Wider den Artikel "Die neuen Sprachunterrichtsmethoden." *Monatshefte für deutsche Sprache und Pädagogik* 18:165-68. 1917.

EDWIN HERMANN ZEYDEL, M.A., Instructor in German

The German theatre in New York City. *Deutsch-Amerikanische Geschichtsblätter. Jahrbuch der historischen Gesellschaft von Illinois* 15:1-55. 1915.

## HISTORY

GUY STANTON FORD, Ph.D., Professor of History, Head of the Department of History, and Dean of the Graduate School

*Reviews of*

Henry Johnson, The teaching of history. *Education Review* 53:100-102. 1916.

Fyfe, Germany between two wars. *The Bellman* 21:744-46. 1917.

Editor for the Committee on Public Information, Washington, D. C., of the following publications:

- I. Red, White, and Blue Series: How the war came to America (English, German, Polish, Bohemian, Italian, Spanish, and Swedish); National service handbook (primarily for libraries, schools, Y. M. C. A.'s, clubs, fraternal organizations, etc., as a guide and reference work on all forms of war activity, civil, charitable, and military); The battle line of democracy: prose and poetry of the Great War; The president's flag day speech with evidence of Germany's plans; Conquest and kultur. Aims of the Germans in their own words, by Wallace Notestein and E. E. Stoll; German war practices, by D. C. Munro, G. C. Sellery, and A. C. Krey; War cyclopaedia, a ready reference handbook of the Great War.
- II. War Information Series: The war message and facts behind it; The nation in arms, by Secretaries Lane and Baker; The government of Germany, by Professor Charles D. Hazen; The great war: from spectator to participant, by Professor A. C. McLaughlin; A war of self defense, by Secretary Lansing and Assistant Secretary of Labor Louis F. Post; American loyalty by citizens of German descent; Amerikanische Bürgertreue. A translation of No. 6; American interest in popular government abroad, by Professor E. B. Greene; Home reading course for citizen-soldiers; First session of the war congress, by Charles Merz.

WILLIAM STEARNS DAVIS, Ph.D., Professor of History

The war message and the facts behind it (with C. D. Allin and W. Anderson). Washington, D. C.: Committee of Public Information. 1917.

Editor and part contributor to Facts about the war. Minneapolis: Minnesota State Public Safety Commission. 1917.

Review of

Edward, Caesar's Gallic Wars, Loeb Classical Library, New York, 1917. *American Historical Review* 23:205-6. 1917.

ALBERT BEEBE WHITE, Ph.D., Professor of History

The Oxford meeting of 1213. *American Historical Review* 22:325-29. 1917.

### LATIN

JOSEPH BROWN PIKE, M.A., Professor of Latin, and Head of the Department of Latin

A Greek conception of the constitution of matter. *Classical Journal* 12:188-99. 1916.

JOHN EVENSON GRANRUD, Ph.D., Professor of Latin

Educational value of Roman constitutional history. *Classical Weekly* 10:33-35. 1916.

### MATHEMATICS

GEORGE NEANDER BAUER, Ph.D., Professor of Mathematics, and Chairman of the Department of Mathematics

Plane and spherical trigonometry (with W. E. Brooke). Second revised edition. New York: D. C. Heath and Company. 1917. 174 pages.

Logarithms and trigonometric tables (with W. E. Brooke). New York: D. C. Heath and Company. 1917. 139 pages.

WILLIAM HENRY BUSSEY, Ph.D., Associate Professor of Mathematics

The origin of mathematical induction. *The American Mathematical Monthly* 24:199-207. 1917.

### PHILOSOPHY AND PSYCHOLOGY

NORMAN WILDE, Ph.D., Professor of Philosophy and Psychology, and Head of the Department of Philosophy and Psychology

Rousseau's doctrine of the right to believe. *Mind* 26 (new series): 12-28. 1917.

Moral law. *Dictionary of Religion and Ethics* 8:833-34. 1916.

RUPERT CLENDON LODGE, M.A., Assistant Professor of Philosophy

Reproduction of prose passages (with J. L. Jackson). *The Psychological Clinic* 10: 128-45. 1916.

Review of

Various philosophical books. *The Bellman* 1916-1917.

H. Sturt, The principles of understanding. *Journal of Philosophy, Psychology, and Scientific Methods* 13:412-18. 1916.

## JOSEPH PETERSON, Ph.D., Assistant Professor of Psychology

- The effect of length of blind alleys on maze learning: an experiment on twenty-four white rats. *Behavior Monograph* 15. New York: Henry Holt and Company. 1917. 53 pages.
- Experiments in ball-tossing: the significance of learning curves. *Journal of Experimental Psychology* 2:178-224. 1917.
- Frequency and recent factors in learning by white rats. *Journal of Animal Behavior* 7:338-64. 1917.
- Some striking illusions of movement of a single light on mountains. *American Journal of Psychology* 28:476-85. 1917.
- The neglect of the modern languages in the public schools. *Journal of Proceedings and Addresses of the Minnesota Educational Association* pages 126-29. 1917. *Review of*
- Literature on instinctive tendencies in man. *Psychological Bulletin* 13:412-16. 1917.

## HERBERT WOODROW, Ph.D., Assistant Professor of Psychology

- Children's association frequency tables (with Frances Lowell). Lancaster, Pennsylvania: Psychological Review Company. 1916. 110 pages.
- The faculty of attention. *Journal of Experimental Psychology* 1:285-318. 1916.
- Practice and transference in normal and feeble-minded children. *Journal of Educational Psychology* Part I 8:85-96. Part II 8:151-65. 1917.

## PHYSICAL EDUCATION FOR MEN

## LOUIS JOSEPH COOKE, M.D., Director of Health and Physical Education for Men, Medical Examiner, and Director of Gymnasium

- Western conference and middle west basket ball. *Spaulding's Official Basket Ball Guide* 1916-17. Pages 175-98. New York: American Sports Publishing Co.

## PHYSICS

## ERNEST OTTO DIETERICH, Ph.D., Instructor in Physics

- The effect of temperature on the light sensibility curve of different types of selenium cells. *Physical Review* (series 2) 8:191-94. 1916.
- An effect of light upon the contact potential of selenium and cuprous oxide (with E. H. Kennard). *Ibid* 9:58-64. 1917.

## PAUL ERNEST KLOPSTEG, Ph.D., Instructor in Physics

- The measurement of time with a moving coil galvanometer. *Physical Review* (series 2) 8:195. 1916.
- The elementary treatment of force. *Science* 46:63. 1917.
- A new chronoscope and fall apparatus. *Journal of Experimental Psychology* 2:253. 1917.

## JOHN TORRANCE TATE, Ph.D., Instructor in Physics

- The ionization potential of mercury vapor. *Physical Review* (series 2) 10 no. 1. 1917.
- Prove-wire measurements of anode fall of potential (with Paul D. Foote). *Journal of the Washington Academy of Sciences* 7: no. 15. 1917.
- Resonance and ionization potentials for electrons in sodium vapor (with Paul D. Foote). *Journal of the Washington Academy of Sciences* 7: no. 17. 1917.



## POLITICAL SCIENCE

CEPHAS DANIEL ALLIN, M.A., LL.B., Professor of Political Science

The case of the Appam. *Minnesota Law Review* 1:1-10. 1917.

Continuous voyage and the carriage of contraband. *Ibid.* 1:269-72. 1917.

Belligerent interference with mails. *Ibid.* 1:293-314. 1917.

The English and German blockades, in Facts about the war. Pages 17-21. Minneapolis: Minnesota Public Safety Commission. 1917.

The war message and facts behind it (with W. S. Davis and W. Anderson). Washington, D. C.: Committee on Public Information. 1917.

*Review of*

Several reviews for *The Bellman*.

JEREMIAH SIMEON YOUNG, Ph.D., Professor of Political Science

The state and the government. Chicago: A. C. McClurg and Company. 1917. 180 pages.

WILLIAM ANDERSON, M.A., Instructor in Political Science

Facts about the war (with others). St. Paul: Minnesota State Public Safety Commission. 1917.

The war message and facts behind it (with W. S. Davis and C. D. Allin). Washington, D. C.: Committee on Public Information. 1917.

## RHETORIC AND PUBLIC SPEAKING

HALDOR B. GISLASON, B.A., LL.B., Assistant Professor of Rhetoric and Public Speaking

Elements of objectivity in the oratory of Wendell Phillips. *Quarterly Journal of Public Speaking* 3:125-34. 1917.

*Review of*

Stone and Garrison, Essentials of argument. *Quarterly Journal of Public Speaking* 2:417-18. 1916.

ERNEST PETER KUHL, Ph.D., Instructor in Rhetoric

Chaucer's Burgesses. *Transactions of the Wisconsin Academy of Sciences, Arts, and Letters* 18:652-75. 1916.

MARTIN BRONN RUUD, Ph.D., Instructor in Rhetoric

Knut Hamsun. *Publications of the Society for the Advancement of Scandinavian Study* 3:241-52. 1916.

An essay toward a history of Shakespeare in Norway. *Ibid.* 4:89-202. 1917.

## ROMANCE LANGUAGES

EVERETT WARD OLMSTED, Ph.D., Professor of Romance Languages, and Head of the Department of Romance Languages

First course in French. New York: Henry Holt and Company. 1917. 332 pages.

RUTH SHEPARD PHELPS, M.A., Assistant Professor of Italian

An Italian grammar. Boston: Ginn and Company. 1917. 328 pages.

A use for contemporary fiction. *North American Review* 204:745-50. 1917.

The lady in fiction. *Ibid.* 205:765-74. 1917.

*Reviews of*

J. A. Zahm, Great inspirers. *The Bellman* 22:555. 1917.

C. H. Grandgent, Dante. *Ibid.* 22:20. 1917.

PEDRO HENRÍQUEZ-UREÑA, Abogado, Professorial Lecturer in Romance Languages

Eleven poems of Rubén Darío. Translations by Thomas Walsh and Salomon de la Selva. Introduction by Pedro Henríquez-Ureña. New York and London: G. P. Putnam's Sons. 1916. xii+50 pages.

Bibliografía de Sor Juana Inés de la Cruz. *Revue Hispanique* no. 97:161-214. 1917.

La literatura dominicana. *Ibid.* no. 98:273-95. 1917.

Rubén Darío. *Minnesota Magazine* no. 4:129-32. 1917.

El primer libro de escritor americano. *The Romanic Review* no. 3:284-87. 1916.

Rioja y el sentimiento de las flores. *España* (of Madrid) no. 131:9-10. 1917.

La Republica Dominicana. *Cuba Contemporánea* 15 no. 1:38-46. 1917.

Introduction to Mariano Brull, La casa del silencio. Madrid: Imprenta de M. García y Galo Sáez. 1916. Pages v-xii.

NELSON F. COBURN, M.A., Instructor in Romance Languages

Spanish writers of the present day. *The Minnesota Magazine* October, 1916.

EDWARD HINMAN SIRICH, Ph.D., Instructor in Romance Languages

Lope de Vega and the praise of the simple life. *Romanic Review* 279-89. 1917.

ANDREW ADIN STOMBERG, M.S., Professor of Scandinavian Languages and Literature

Some aspects of the city government of Stockholm, with a review of official publications. *National Municipal Review*. Pages 443-45. May, 1917.

Various articles on Sweden in the *Minneapolis Journal*.

### SOCIOLOGY AND ANTHROPOLOGY

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## INDEX

	Page		Page
Administrative Committee.....	52	Agriculture, Honors in.....	18
Administrative policies.....	18-23	Alfalfa demonstrations .....	131
appointments committee.....	19	All-University Student Council..	52
codification of University regu-		Alumni and the War.....	12
lations .....	20	Alumni Association. <i>See</i> General	
Dean of Student Affairs.....	20	Alumni Association.	
Department of Philosophy and		Animal Industry .....	19
Psychology .....	19	Appointments .....	3
public health administration..	22	Appointments Committee .....	19
reorganization of Agricultural		Arts College. <i>See</i> Science, Lit-	
Division .....	19	erature, and the Arts.	
representation of the Univer-		Athletics	
sity at associations and		for women .....	142-44
meetings .....	21	intercollegiate .....	140
Senate Committee on Rela-		intramural .....	25, 48, 145-48
tions with Other Institutions	18	Attendance. <i>See</i> Registration.	
study of occupancy of build-		Biblical history courses.....	15
ings .....	22	Biennial reports .....	58
vocational adviser for women	20	Biological laboratory .....	50
Administrative procedures .....	57	Board of Regents.....	57-58
Admission .....	54, 172	Botanical Survey .....	49
College of Science, Literature,		report of .....	154
and the Arts.....	68	Boys' and girls' clubs.....	130
Department of Agriculture....	83	Budgets .....	52, 62
Medical School .....	98	Buildings. <i>See</i> Physical plant	
tests for .....	14	and equipment.	
Advanced standing, Department		Bulletins. <i>See</i> Publications.	
of Agriculture .....	83	Bureau of Coöperative Research	16, 115
Agricultural Extension. <i>See</i> Ex-		Bureau of Mines.....	17, 106
tension.		Business Office .....	62
Agriculture, Department of.....	45	<i>See also</i> Financial report.	
budget .....	63, 78	Business training .....	69
report of Dean and Director.	75-92	Cadet Corps .....	149
College of Agriculture.....	84-85	Chapel assemblies .....	9
Experiment Station .....	86-88	Chemistry, School of.....	46
Forestry .....	84-85	report of Dean.....	111-12
history of .....	75-77	apparatus .....	111
land and buildings.....	78	building .....	111
Northwest School and Sta-		faculty .....	111
tion .....	89-92	research .....	111-12
organization .....	79	students .....	111
research .....	79	Chautauquas .....	133
School of Agriculture.....	81	Clubs .....	53, 60
Secretary's Office .....	83-84	Commencement exercises .....	8
statistics of registration....	81-83		
teachers of agriculture.....	77-78		
teaching staff .....	79-80		
unification versus segrega-			
tion .....	80		
West Central School and			
Station .....	82		

Page	Page
Communication between parts of	Educational policies (continued)
University .....	<i>Minnesota Law Review</i> .....
53	natural history museum.....
Convocations .....	psychologic and psychiatric
8	clinic .....
Coöperative houses .....	16
24	Scandinavian study .....
Coöperative organizations .....	15
131	Social Service Department... 16
Correspondence study .....	Electric current, contract for... 51
134-35	Embalmng, School of..... 98
Cost of living..... 60	Engineering and Architecture,
Cow testing associations..... 129	College of..... 44
Curricula	report of Dean..... 71-74
Agriculture .....	change in deanship..... 71
85	faculty .....
changes in .....	72
55	general .....
Mines .....	72
105	growth of College..... 71
Science, Literature, and the	recommendations .....
Arts .....	74
67	registration .....
Dairy extension .....	72-74
129	resolutions of students..... 25
Deaths, 1916-17 .....	scholarship .....
7	71
Debating squads .....	Enrollment. <i>See</i> Registration.
135	Evening classes .....
Degrees granted .....	132
30, 31	Exercises, public and social.... 53
Doctors' .....	Expenditures, summary of.... 176
122-23	Experiment Station..... 86-88
Masters' .....	Central Station .....
120	86-87
Demonstration farms .....	experimental work .....
130	86
Dentistry, College of..... 46	organization .....
report of Dean..... 103	86
enlistment of students..... 103	publications .....
103	86
four-year course .....	research and the war..... 87
103	Fruit Breeding Farm..... 88
research .....	North Central Experiment Sta-
103	tion .....
Education, College of..... 46	88
report of Dean..... 113-17	Northeast Demonstration Farm
Bureau of Coöperative Re-	and Experiment Station.. 87-88
search .....	clearing of land..... 87
115	dairy herd and poultry... 88
conference of teachers of	institute hall .....
secondary subjects .....	88
115	Southeast Farm and Experi-
needs .....	ment Station .....
117	87
registration .....	building and drainage .....
113-15	87
superintendents' and princi-	experimental work .....
pals' short course..... 115	87
University High School... 116-17	livestock .....
116-17	87
Educational policies .....	Extension Service .....
13-18, 54-57	47, 56, 129-37
admission tests .....	Agricultural Extension, report
14	of Director .....
Arts College .....	129-32
13	alfalfa demonstrations .....
Arts curriculum and vocation-	131
al training .....	boys' and girls' clubs..... 130
14	coöperative organizations .. 131
Bureau of Coöperative Re-	county agent work .....
search .....	129
16	cow testing associations.... 129
conferences on secondary sub-	dairy extension .....
jects .....	129
15	demonstration farms .....
courses in biblical history,	130
literature, and ethics..... 15	
Federal Bureau of Mines Sta-	
tion .....	
17	
graduate work in medicine and	
surgery .....	
13	
Honors in Agriculture..... 18	

# INDEX

207

	Page		Page
Extension Service (continued)		Finances .....	62-63
farm management demon-		report of Comptroller.....	174-76
strations .....	130	summary of expenditures,	
farmers' clubs .....	130	table II .....	176
farmers' institutes .....	131	summary of receipts, table I.	175
farmers' week short course	129	Forestry, College of.....	84-85
home economics .....	130	registration in .....	81
potato disease control .....	132	Fraternities .....	26, 49, 61
poultry extension work....	131	Interfraternity Council, report	
publications .....	130-31	of .....	169-70
rural plays .....	130	fraternities and the war....	170
General Extension, report of		important changes in by-	
Director .....	132-37	laws of Council.....	169
arrangement with St. Paul		scholarship .....	169-70
Institute given up .....	136	General Alumni Association....	50
community Chautauquas ...	133	alumni and the war.....	12
correspondence study .....	134-35	report of the Secretary.....	171
development of community		General Extension Division. <i>See</i>	
spirit .....	136-37	Extension Service.	
evening extension classes...	132	Geological Survey .....	49
illustrated extension bulletin	137	report of Director.....	151-53
limited funds .....	132	examinations of specimens.	152
lyceum service .....	133	field work .....	151-52
Municipal Reference Bureau	135	organization and cooperation	151
Red Cross courses.....	136	publications .....	152-53
Short Course for Merchants	133	topographic work .....	151
spirit of Extension staff....	137	cooperation with School of	
visual instruction .....	133-34	Mines .....	106
University debating squads.	135	Graduate School .....	46, 54
University Drama Service..	135	report of Dean.....	118-26
University Weeks .....	135	allotments of Research	
Northwest School and Station	92	Funds .....	124-26
Faculties .....	58-60	degrees granted, 1917..120, 122-123	
Agriculture .....	79-80	publications .....	123
changes in .....	3-8	registration .....	118-121
Chemistry .....	111	scholarships and fellowships	123
Engineering and Architecture	72	graduate work in medicine	
Law School .....	93	and surgery .....	13, 54, 96
Medical School .....	97	Home Economics .....	130
Military Department .....	149	building .....	50
Mines .....	104	registration .....	81
Pharmacy .....	109	Honors in Agriculture.....	18, 56
Physical Education for Men..	138	Hospitals. <i>See</i> University Hos-	
publications of .....	177	pitals.	
Science, Literature, and the		Information Bureau .....	53
Arts .....	66-67	Interfraternity Council. <i>See</i>	
war .....	12	Fraternities.	
Farm management demonstra-		Interrelation of colleges and de-	
tions .....	130	partments .....	52
Farmers' clubs .....	130	Intramural sports. <i>See</i> Physical	
Farmers' institutes .....	131	Education and Intramural	
Federal Bureau of Mines.....	17	Sports.	
Fellowships. <i>See</i> Scholarships			
and fellowships.			



	Page
Law School .....	45
report of Dean .....	93-95
attendance .....	93
faculty .....	93
instruction .....	93
library .....	93-94
new building .....	94
scholarship .....	94-95
Leaves of absence.....	7
Library, General University....	49, 64
report of Librarian.....	163-68
additions .....	165
bibliographical publications..	168
catalog .....	164-65
circulation of books.....	163
college and departmental collections .....	167
exchange and sale of pub- lications .....	166
extra campus loans.....	163-64
inter-library loans .....	164
Law School library.....	93-94
loan desk administration crippled .....	164
map collection .....	167
Pharmacy Library .....	110
reading rooms .....	163
serials .....	165
union list of periodicals....	166
Loan funds .....	60
for women .....	128
Lodging houses, inspection of..	23, 128
Lyceum service .....	133
Medical School .....	45
report of Dean.....	96-102
base hospital .....	99
embalming .....	98
emergency hospital .....	99
faculty .....	97, 99
fellowships and scholarships	96, 98
graduate work in .....	13, 54, 96
psychologic and psychiatric clinic .....	98
registration .....	98
report of Superintendent of Hospitals .....	100-101
report of Superintendent of School for Nurses.....	101-2
Social Service Department..	98
war service .....	99
Military Department .....	10, 49
report of Commandant .....	149-50
cadet corps .....	149
comments from Major Moses	150

	Page
Military Department (continued)	
federal funds received by the University .....	149-50
named as showing special aptitude .....	149
Reserve Officers' Training Corps .....	149
staff .....	149
Mines, School of .....	46
report of Dean.....	104-7
curriculum .....	105
faculty .....	104
future needs .....	107
geological surveys .....	106
registration .....	104
State Mining Experiment Station .....	105
Tax Commission .....	105
U. S. Bureau of Mines.....	17, 106-7
<i>Minnesota Law Review</i> .....	16-17
Minnesota Union .....	24, 51, 60
Municipal Reference Bureau....	135
Museum, Zoological.....	17, 49, 155-59
New courses and departments..	56
Science, Literature, and the Arts .....	69
Northwest School and Station..	89-92
registration in .....	82
Nurses, School for report of Superintendent....	101-2
Occupancy of buildings.....	22
Officials of the University.....	52
Organization, centralization of..	51-52
Pharmacy, College of.....	46
report of Dean.....	108-10
dispensary practice, field trips, etc. ....	109
enlistment of students.....	108
faculty changes .....	109
free dispensary drug room..	109
geographical distribution of students .....	108
library .....	110
offices held by faculty mem- bers .....	110
outside activities .....	109
registration .....	108
special lectures .....	108
Philosophy and Psychology, De- partment of .....	19, 69

	Page		Page
Physical Education and Intra- mural Sports .....	25, 48	Psychology. <i>See</i> Philosophy and Psychology.	
report of Committee.....	145-48	Public health .....	22, 60
basket-ball .....	148	Public lectures .....	9
handball .....	147	Publications .....	53, 166
notes and recommendations..	147	Agricultural .....	84
playing field .....	147	Agricultural Extension .....	130-31
tennis courts .....	147	Alumni Association .....	171
tournaments .....	145	bibliographical .....	168
Physical Education for Men....	48	Botanical Survey .....	154
report of Director.....	138-41	faculties .....	177
chief tasks undertaken.....	138	Geological Survey.....	152-53
corrective gymnastics .....	139	research .....	123
disease census .....	139	Receipts, summary of.....	175
gymnasium classes .....	139	Red Cross courses.....	136
intercollegiate competition..	140	Regents. <i>See</i> Board of Regents.	
intramural sports .....	139	Registrar .....	50
miscellaneous activities .....	140	report of .....	172-73
personal hygiene .....	139	accredited schools and col- leges .....	172
physical examinations .....	138	advanced standing .....	173
recommendations for the fu- ture .....	140-41	calendar for 1917-18 .....	172
special lecture .....	138-39	changes in office staff.....	172
staff .....	138	entrance requirements .....	172
Physical Education for Women	48	re-admission of dropped stu- dents .....	172
report of Director.....	142-44	Registration, statistics of.....	26-44
another instructor required	144	Agriculture .....	81-83
course in principles of phys- ical education .....	143	collegiate students, 1915-17, table I .....	27-28
courses in exercise.....	143	comparative registration fig- ures, 1915-17, table V.....	30
courses in hygiene.....	142	degrees conferred, 1915-17, table VII .....	31
examinations for high school	142	degrees granted, 1889-1917, table VI .....	30
extension of requirements..	144	Education .....	113-15
need of a professional train- ing course .....	144	Engineering and Architecture..	72-74
notification of illness.....	142	Extension students, 1915-1917, table III .....	30
officers employed .....	144	geographical distribution of collegiate students, 1916- 1917, table IX .....	42
physical examinations .....	142	geographical distribution of students by counties, 1916- 1917, table X.....	43-44
required health consultations	142	Graduate School .....	118-21
Woman's Athletic Associa- tion .....	143	Law School .....	93
Physical plant and equipment	50-51, 52, 63-64	Mines .....	104
Plays, rural .....	130	Pharmacy .....	108
Post-Office .....	53	schools from which entrants were received, 1916-1917, table VIII .....	32-41
Potato disease control .....	132	Science, Literature, and the Arts .....	66
Poultry extension work.....	131		
Presidency, change in.....	3		
President's report .....	58, 3-65		
Promotions .....	6		
Property, University .....	62		
<i>See also</i> Physical plant and equipment.			
Psychological and psychiatric clinic	16, 98		

	Page		Page
Registration, statistics of (continued)		Short courses (continued)	
short courses .....	81, 82, 86	registration .....	81, 82, 86
subcollegiate students, 1915-		superintendents' and principals'	115
1917, table II .....	29	Social and Civic Work.....	14, 69
summary, 1915-1917, table IV	30	Social Service Department of the	
women .....	127	University Hospitals .....	16, 98
Representation of the University		Sororities .....	61
at meetings .....	21	Statistics	
Research .....	54	Agriculture .....	84
Agricultural .....	79	inquiries in .....	57
Bureau of Coöperative.....	16, 115	registration .....	26-44
Central Station .....	87	Students .....	23-26, 60-61
Chemical .....	111	Chemistry .....	111
Dental .....	103	committee on work of.....	83
funds for .....	124-26	coöperative clubs for women	24
Southeast Station .....	87	Dean of Student Affairs.....	20
Reserve Officers' Training Corps	149	fraternities .....	26
Resignations .....	7	free and service scholarships.	24
Retirement .....	7	inspection of lodging houses..	23
St. Paul Institute, arrangement		intramural sports .....	25
with given up .....	136	Minnesota Union .....	24
Scandinavian study .....	15	resolutions of Engineering stu-	
Scholarship, standard of.....	55	dents .....	25
statistics of, Law School.....	94-95	various items concerning.....	23
Scholarships and fellowships..	54, 60	war .....	12
for women .....	128	Summer Session .....	52
free and service.....	24	Survey of the colleges.....	44-50
Medical .....	96, 98	Tax Commission .....	105
Shevlin fellowships .....	123	Teacher training	
Science, Literature, and the Arts		Department of Agriculture..	77-78
.....	13, 14, 44	Northwest School and Station.	90
report of Dean.....	66-70	Teaching staff. <i>See</i> Faculties.	
admission .....	68	United States Bureau of Mines	106
business training .....	69	University Drama Service.....	135
curriculum .....	67	University functions .....	8-10
Department of Philosophy		chapel assemblies .....	9
and Psychology.....	69	commencement exercises .....	8
education of people.....	68	convocations .....	8
enrollment .....	66	public lectures .....	9
faculty .....	66, 67	University High School, report	
new courses and depart-		of Principal .....	116-17
ments .....	69	University Hospitals	
Social and Civic Work....	69	report of Superintendent.....	100-101
vocational adviser for women	70	extension .....	99
Secondary subjects, conferences		Social Service Department.	16
on .....	15, 115	University regulations, codifica-	
Self-government, student .....	61	tion of .....	20
Senate .....	51	University Weeks .....	135
committees .....	18, 52	Visual instruction .....	133-34
Short courses .....	85-86	Vocational training .....	14, 56, 70
farmers' week .....	129		
merchants' .....	133		
Northwest School and Station	90, 91		

INDEX

211

	Page		Page
War, University and.....	10-12	Women (continued)	
alumni .....	12	absence of Dean.....	127
base hospital .....	99	dormitory .....	128
College of Dentistry.....	103	intramural sports .....	146-47
College of Pharmacy .....	108	lodging house inspection...	128
Department of Agriculture....	84	registration .....	127
faculty .....	12	scholarships and loan funds.	128
fraternities .....	170	vocational adviser .....	20, 70
Medical School .....	99	<i>See also</i> Department of	
Military Department .....	10	Physical Education for	
policy concerning .....	11	Women.	
resolutions of Engineering stu-		Women's Self-Government Asso-	
dents .....	25	ciation .....	52, 128
undergraduates .....	12	Zoological Survey .....	49
West Central School and Station	92	report of Director.....	155-62
registration .....	82	field work .....	159-61
Woman's Athletic Association..	143	museum .....	155-59
Women .....	47	suggestions .....	161-62
report of Dean.....	127-28		

