

The Bulletin
of the University of
Minnesota

The School for Nurses
Announcement for the Year
1917-1918



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1917							1918													
JULY							JANUARY							JULY						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
1	2	3	4	5	6	7	6	7	8	9	10	11	12	7	8	9	10	11	12	13
8	9	10	11	12	13	14	13	14	15	16	17	18	19	14	15	16	17	18	19	20
15	16	17	18	19	20	21	20	21	22	23	24	25	26	21	22	23	24	25	26	27
22	23	24	25	26	27	28	27	28	29	30	31	28	29	30	31
29	30	31
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AUGUST							FEBRUARY							AUGUST						
..	5	6	7	8	9	10	3	4	5	6	7	8	9	..	4	5	6	7	8	9
12	13	14	15	16	17	18	10	11	12	13	14	15	16	11	12	13	14	15	16	17
19	20	21	22	23	24	25	17	18	19	20	21	22	23	18	19	20	21	22	23	24
23	27	28	29	30	31	..	24	25	26	27	28	25	26	27	28	29	30	31
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SEPTEMBER							MARCH							SEPTEMBER						
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2	3	4	5	6	7	8	3	4	5	6	7	8	9	8	9	10	11	12	13	14
9	10	11	12	13	14	15	10	11	12	13	14	15	16	15	16	17	18	19	20	21
16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28
23	24	25	26	27	28	29	24	25	26	27	28	29	30	29	30
30	31
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OCTOBER							APRIL							OCTOBER						
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7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
28	29	30	31	28	29	30	27	28	29	30	31
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NOVEMBER							MAY							NOVEMBER						
..	4	5	6	7	8	9	1	2	3	4	1	2
11	12	13	14	15	16	17	5	6	7	8	9	10	11	3	4	5	6	7	8	9
18	19	20	21	22	23	24	12	13	14	15	16	17	18	10	11	12	13	14	15	16
25	26	27	28	29	30	..	19	20	21	22	23	24	25	17	18	19	20	21	22	23
..	26	27	28	29	30	31	..	24	25	26	27	28	29	30
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DECEMBER							JUNE							DECEMBER						
..	2	3	4	5	6	7	..	2	3	4	5	6	7	1	2	3	4	5	6	7
9	10	11	12	13	14	15	9	10	11	12	13	14	15	8	9	10	11	12	13	14
16	17	18	19	20	21	22	16	17	18	19	20	21	22	15	16	17	18	19	20	21
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30	31	30	29	30	31
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UNIVERSITY CALENDAR

1917-1918

1917

September	12	Wednesday	Registration closes for all students
September	12-19	Week	Fees payable for all students
September	18-25	Week	Examinations for removal for conditions (except for Colleges of Agriculture and Forestry), and entrance examinations
September	26	Wednesday	First semester begins
October	1	Monday	Agricultural College, farm experience examinations
October	1	Monday	School of Agriculture, first term begins
October	18	Thursday	Senate meeting, 4:00 p.m.
November	5	Monday	Dairy School opens
November	21	Wednesday	Medical School second quarter begins
November	28	Wednesday	Thanksgiving recess begins 9:00 p.m.
December	1	Saturday	Dairy School closes
December	3	Monday	Thanksgiving recess ends 8:00 a.m.
December	3-8	Week	Second semester condition examinations, Colleges of Agriculture and Forestry
December	3-8	Week	Short course for ice-cream makers
December	20	Thursday	Senate meeting, 4:00 p.m.
December	21	Friday	School of Agriculture, first term closes
December	21	Friday	Christmas vacation begins 9:00 p.m.

1918

December	31	} Week	Farmers' Short Course
January	5		
January	2	Wednesday	Christmas vacation ends 8:00 a.m.
January	2	Wednesday	School of Embalming begins, eight weeks' session
January	8	Tuesday	School of Agriculture, second term begins
January	23	Wednesday	Second semester registration closes
January	28	Monday	Final examinations begin
January	30	Wednesday	Payment of fees for second semester closes
February	6	Wednesday	Second semester begins
February	12	Tuesday	Lincoln's Birthday; a holiday
February	21	Thursday	Senate meeting, 4:00 p.m.
February	22	Friday	Washington's Birthday; a holiday
March	27	Wednesday	School of Agriculture closes
March	28	Thursday	Easter recess begins 9:00 p.m.

SCHOOL FOR NURSES

April	1-6	Week	Junior Short Course
April	3	Wednesday	Easter recess ends 8:00 a.m.
April	10	Wednesday	Medical School fourth quarter begins
April	8-13	Week	Condition examinations in certain colleges
April	30	Tuesday	Traction Engineering Course begins
May	16	Thursday	Senate meeting, 4:00 p.m.
May	30	Thursday	Memorial Day; a holiday
June	1	Saturday	Final examinations begin 2:00 p.m.
June	8	Saturday	Second semester closes
June	9	Sunday	Baccalaureate service
June	10	Monday	Senior Class Day exercises
June	12	Wednesday	Alumni Day
June	13	Thursday	Forty-sixth Annual Commencement
June	14	Friday	Summer vacation begins
June	17	Monday	Summer Session begins

The University year for 1918-19 will begin Tuesday, September 17. Classes will begin September 25.

THE SCHOOL FOR NURSES

LOUISE M. POWELL, R.N., Superintendent

In the year 1909, the Board of Regents of the University of Minnesota directed the organization of the School for Nurses, under the management of the Faculty of the Medical School and in affiliation with the service of the University Hospitals. It is the first school for nurses established anywhere as a university department of instruction and under direct ownership and control by a university.

It is the purpose of the Faculty to conduct a school for the thorough scientific training of the nurse. This is best assured by the association of the school with a teaching hospital also owned and controlled by the University. It is the desire, also, of the Faculty to make it the means of advancing the education of nursing women in the Northwest.

While its stated requirements for admission establish a minimal standard of fitness, it invites to matriculation women of superior education and of large and earnest purpose.

The School for Nurses is subject to the general supervision of the Superintendent of the University Hospitals, Dr. L. B. Baldwin, and is under the immediate direction of the Superintendent of the School, Miss Louise M. Powell, a directress of large institutional experience.

The entire course of study covers a period of three years. The first six months are devoted to preliminary courses of instruction under a special matriculation fee. These courses are conducted in several of the departments of the Medical School by the Superintendent of the School and by a corps of faculty instructors. Examinations are held at the close of this period and must be satisfactorily passed to permit of further advancement.

In the last two months of this period, admission is had to the hospital for practical training in hospital service and economics. Upon the successful completion of this preliminary course, and with due consideration to their general fitness, students are admitted to the full hospital service. In the succeeding two and one-half years, a graded system of hospital education is conducted, during which the student serves in the wards, diet kitchens, pharmacies, laboratories, dressing rooms, and operating rooms, and in the out-patient department and visiting service of the University Hospital. Courses of lectures, classes, and demonstrations are given by the Superintendent of the School and her assistants, and by members of the Faculty. At the close of each year examinations are conducted in both practical and didactic work.

THE MEDICAL SCHOOL

THE ADMINISTRATIVE BOARD

*GEORGE EDGAR VINCENT, Ph.D., LL.D., President

†MARION LEROY BURTON, D.D., Ph.D., LL.D., President

ELIAS P. LYON, Ph.D., M.D., Dean and Director of the Department of Physiology

RICHARD OLDING BEARD, M.D., Assistant Dean and Secretary of the Medical School

LOUIS B. BALDWIN, M.D., Superintendent of the University Hospitals

LEONARD G. ROWNTREE, M.D., Chief of the Department of Medicine

JAMES E. MOORE, M.D., Chief of the Department of Surgery

CLARENCE MARTIN JACKSON, M.S., M.D., Director of the Department of Anatomy

JENNINGS C. LITZENBERG, B.S., M.D., Chief of the Department of Obstetrics

ARTHUR D. HIRSCHFELDER, B.S., M.D., Director of the Department of Pharmacology

HAROLD E. ROBERTSON, B.A., M.D., Director of the Department of Pathology, Bacteriology, and Public Health

JULIUS PARKER SEDGWICK, B.S., M.D., Chief of the Department of Pediatrics

FRANK C. TODD, M.D., Chief of the Department of Ophthalmology and Oto-Laryngology

EMIL S. GEIST, M.D., Member-elect Representing the Faculty

FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Member-elect Representing the Faculty

* Term of office ends June 30, 1917.

† Term of office begins July 1, 1917.

THE SCHOOL FOR NURSES

CORPS OF OFFICERS AND INSTRUCTORS

LOUISE M. POWELL, R.N., Superintendent of the School

MARION L. VANMIER, R.N., Instructor of Nurses

GERTRUDE THOMAS, Dietitian

FRED L. ADAIR, B.S., M.D., Associate Professor of Obstetrics

820 Donaldson Bldg.

RICHARD OLDING BEARD, M.D., Assistant Dean, Secretary of the Medical School, and Associate Professor of Physiology

University of Minnesota

FRANK S. BISSELL, M.D., Roentgenologist and Assistant Professor of Roentgenology

4412 Harriet Blvd.

- J. FRANK CORBETT, M.D., Associate Professor of Experimental Surgery
4401 E. Lake Harriet Blvd.
- CHARLES A. ERDMANN, M.D., Associate Professor of Applied Anatomy
612 9th Ave. S. E.
- GEORGE B. FRANKFORTER, Ph.D., Dean of The School of Chemistry
525 E. River Rd.
- ROBERT A. HALL, Ph.D., Assistant Professor of Pharmacology
409 Oak St. S. E.
- ERNEST M. HAMMES, M.D., Assistant Professor of Nervous and Mental
Diseases 1019 Lowry Bldg., St. Paul
- ARTHUR S. HAMILTON, B.S., M.D., Professor of Nervous and Mental Dis-
eases, in charge of Division 406 Physicians' and Surgeons' Bldg.
- ARTHUR D. HIRSCHFELDER, B.S., M.D., Professor of Pharmacology and
Director of the Department 2364 Lake of Isles Blvd.
- CLARENCE MARTIN JACKSON, M.S., M.D., Professor of Anatomy and Di-
rector of the Department 436 Harvard St. S. E.
- WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Descriptive
Geometry 722 10th Ave. S. E.
- WINFORD P. LARSON, M.D., Associate Professor of Bacteriology
614 9th Ave. S. E.
- ARTHUR A. LAW, M.D., Associate Professor of Surgery
420 Syndicate Bldg.
- JENNINGS C. LITZENBERG, B.S., M.D., Professor of Obstetrics and Chief
of the Department 910 Donaldson Bldg.
- ELIAS P. LYON, Ph.D., M.D., Dean, Professor of Physiology and Director
of the Department 421 Union St. S. E.
- JOHN S. MACNIE, B.A., M.D., Assistant Professor of Ophthalmology and
Oto-Laryngology 506 Donaldson Bldg.
- JAMES E. MOORE, M.D., Professor of Surgery and Chief of the Depart-
ment 2200 Kenwood Blvd.
- WILLIAM R. MURRAY, Ph.B., M.D., Associate Professor of Ophthalmology
and Oto-Laryngology 621 Syndicate Bldg.
- J. ANNA NORRIS, M.D., Director of Physical Culture 509 6th St. S. E.
- WALTER R. RAMSEY, M.D., Associate Professor of Pediatrics
942 Lowry Bldg., St. Paul
- HAROLD E. ROBERTSON, B.A., M.D., Professor of Pathology and Director
of the Department University of Minnesota
- HARRY P. RITCHIE, Ph.B., M.D., Assistant Professor of Surgery
914 Lowry Bldg., St. Paul
- ARTHUR C. STRACHAUER, M.D., Assistant Professor of Surgery
412 Syndicate Bldg.
- FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Associate Professor of Physi-
ology 1307 6th St. S. E.
- JULIUS PARKER SEDGWICK, B.S., M.D., Professor of Pediatrics and Chief
of the Department 614 Syndicate Bldg.
- FREDERIC W. SCHLUTZ, B.A., M.D., Assistant Professor of Pediatrics
820 Donaldson Bldg.

- FRANK C. TODD, M.D., Professor of Ophthalmology and Oto-Laryngology
and Chief of the Department 506 Donaldson Bldg.
HENRY L. ULRICH, B.S., M.D., Assistant Professor of Medicine
420 Syndicate Bldg.
S. MARX WHITE, B.S., M.D., Professor of Medicine 910 Donaldson Bldg.

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- ANNE G. BENTON, B.A., Instructor in Bacteriology and Pathology
2024 Queen Ave. S.
CHAUNCEY J. V. PETTIBONE, Ph.D., Instructor in Physiologic Chemistry
611 Delaware St. S. E.
FRED J. PRATT, M.D., Instructor in Ophthalmology and Oto-Laryngology
328 E. Hennepin Ave.
CHARLES A. REED, B.S., M.D., Instructor in Orthopedic Surgery
420 Syndicate Bldg.
ERNEST T. F. RICHARDS, M.D., C.M., Instructor in Medicine
741 Lowry Bldg., St. Paul
ROBERT I. RIZER, M.D., Instructor in Medicine 219 Meyers' Arcade
JOHN P. SCHNEIDER, M.D., Instructor in Medicine 414 Syndicate Bldg.
MARGARET WARWICK, B.S., M.D., Instructor in Pathology and Bacteriology
1516 7th St. S. E.

THE UNIVERSITY HOSPITALS

The ownership of a teaching hospital enables the University to offer the best opportunities for the training alike of students in medicine and in nursing.

While the University Hospitals and the School for Nurses are interdependent, each serving the interests of the other, the Faculty regards the hospitals as the teaching laboratory of the nurse, in which her interests, together with those of the medical student-body, are first considerations.

The number of pupil nurses entered is limited, at present, by the nursing capacity of the hospitals and by the possibilities of suitable housing. Applicants for admission are already in excess of the possibilities of acceptance. Graduate nurses are necessarily employed as directors of the service in the wards and operating rooms.

The University Hospitals are open to free patients who are entered under certificate from local, city or county physicians, who vouch for their inability to pay ordinary medical fees or hospital charges and who cite the clinical character of each case. Applications come from all parts of the State for the admission of patients, many of whom it is impossible to care for. The Hospitals now provide 192 beds, which are almost continually full.

A new service building has been completed and in its accommodations for kitchens, laundries, dining-rooms, etc., adds greatly to the convenience of the hospital system.

The School for Nurses has its headquarters at the University Hospitals. The Nurses' Homes are temporarily situated in the adjoining block. In the preliminary courses of instruction the students of the school work mainly in the lecture rooms and laboratories of the Medical School.

The medical division of the new university campus includes within both the hospitals and the laboratory buildings of the Medical School. It occupies the high bluffs overlooking the east bend of the Mississippi River.

UNIVERSITY RELATIONS

The Elliot Memorial Building stands upon the bank of the river and commands a beautiful prospect. This building, provided principally by a gift from the estate of Dr. and Mrs. A. F. Elliot, is the first of the permanent hospital group. The service building connects with the west wing of the Elliot Memorial.

Of the Medical School buildings, Millard Hall and the Institute of Anatomy are situated on the new campus; while upon the old campus still remains the Institute of Public Health and Pathology.

THE OUT-PATIENT DEPARTMENT SERVICE

The Dispensary is the out-patient department of the University Hospitals and is directed by the Superintendent, Dr. L. B. Baldwin. It is conveniently located in Millard Hall in the block adjoining the Hospital. It is manned by members of the Faculty and clinical assistants, under a chief of staff. Its patients are assigned to medical, surgical, gynecological, obstetrical, children's, eye and ear, nose and throat, skin, genito-urinary, nervous and mental, and orthopedic clinics. 14,666 new patients have been entered and 52,753 visits have been recorded in the past year.

Students of the School for Nurses enjoy opportunities of clinical observation in the out-patient department and are assigned, during their senior year, to its nursing service.

THE LIBRARIES

The medical libraries of the University contain 15,850 bound volumes, 32,859 unbound volumes, monographs, reprints, etc., and 185 current periodicals.

The general university library contains some 230,842 bound volumes, 52,250 unbound volumes and pamphlets, and about 1,209 current periodicals. In the library catalogs a number of works selected with reference to the needs of students of the School for Nurses are to be found. Students are welcome to the free use of these libraries.

THE COURSE OF TRAINING

REQUIREMENTS FOR ADMISSION

Applicants for admission to the School for Nurses will make application in writing to the Superintendent of the School. Blanks will be furnished on request. Educational credentials are to be sent to the Registrar. All applications are considered by the committee in charge of the School and applicants must meet the committee in person. A class is entered at the opening of each semester.

When a registration card is received by the applicant, it should be forwarded to the Superintendent of the School. Notice of the enrollment meetings of the Committee of the School for Nurses will be sent to each applicant.

Applicants must state age and residence and credentials of graduation from a four-years' high school of the first grade. While a high-school diploma is a prerequisite of admission, preference will be given to women of superior preliminary training. Applicants must not be less than twenty, nor more than thirty-five years of age. They must submit satisfactory evidence to the committee of physical and mental fitness and of good character, and will undergo a general physical examination by the school physician.

All matriculants are required to take the preliminary course of instruction and to pass examinations at its close. The period is one, not only of preliminary training, but of probation. The Faculty reserves the right to pass upon the general fitness of the student to enter the hospital service at the close of the preliminary period.

Information and application blanks may be had, upon request, of Miss Louise M. Powell, Superintendent of the School for Nurses, University Hospitals, Minneapolis.

REGISTRATION AND FEES

Upon acceptance of the candidate by the School Committee, registration is made at the office of The Registrar of the University and a fee of twenty-five dollars (\$25.00) for the preliminary course of instruction is payable at the office of the University Cashier.

During the preliminary course, students provide their own board and lodging, text-books and stationery.

No fees are charged during the remaining two and one half years of the training course. After admission to the hospitals, students reside at the Nurses' Home, where comfortable rooms, board, laundry, and hospital uniforms are provided at the expense of the University. Clothing, other than the hospital uniform-dress, students provide for themselves, and in character and sufficiency of supply it must conform to the School regulations.

A vacation of two weeks is allotted, in succession, to each nurse in each year, at her own living expense.

Graduates of other Schools for Nurses, in good standing, or matriculants of these schools, having the required entrance qualifications, will be admitted to the preliminary course of instruction upon conditions of entrance cited above and upon payment of the prescribed fee. Upon successfully passing the examinations in this course, they are granted a certificate of proficiency, which, if they are matriculants of other schools, is submitted to the Superintendent in charge.

PLAN OF INSTRUCTION

The entire course of instruction in the School for Nurses covers a period of three years and, successfully pursued, conformably with the rules and regulations of the hospital service, leads to the degree of Graduate in Nursing, which is conferred, upon recommendation of the Faculty, by the Board of Regents of the University of Minnesota.

The first half of the first year is devoted to preliminary and provisional courses of instruction.

In the last half of the first year and the first half of the second year, the student is assigned to duty and receives instruction in the men's and women's medical and surgical wards of the hospital. In the second half of the second year and throughout the third year, she is assigned to special duty in the obstetrical, gynecological, orthopedic, and children's wards, in the operating rooms, and in special departments of practice.

The practical work of each year is accompanied by courses of lectures and demonstrations, conducted by the Superintendent of the School for Nurses and by members of the Faculty, upon subjects related to each department of practice.

AFFILIATED SCHOOLS

Students from affiliated training schools, or from schools of recognized standing and of general requirements equivalent to those of the University of Minnesota, who have completed two years of study and are graduates of such schools, will be admitted to the third year of the School for Nurses as affiliated students, so far as housing capacity will permit. Upon successful completion of the work of the third year, which will be adapted, so far as possible, to their further needs, they will receive a certificate of graduation, upon recommendation of the Faculty, from the Board of Regents.

This affiliated third-year course is planned especially for those students whose training has been had in schools allied to hospitals of exclusively surgical or other special character and will afford them the opportunity of rounding out to completion their entire course of study and, incidentally, of becoming eligible to state licensure.

PRELIMINARY COURSES OF INSTRUCTION

SCIENTIFIC COURSES

ANATOMY

- 1a,b. **ELEMENTARY ANATOMY.** The general properties and development of tissue cells; and the development of the human embryo. The description and demonstration of the osseous, muscular, nervous, circulatory, respiratory, excretory, and reproductive systems. Three hours a week. JACKSON, KITTELSON.

PHYSIOLOGY

- 3a,b. **ELEMENTARY PHYSIOLOGY.** The functional properties of tissue-cells; the material bases of the body; the nutritive media; the physiology of nerve and muscle; of the nervous system; the vascular mechanism; respiration, digestion, excretion, and metabolism. Five hours a week. BEARD or LYON and Assistants.

CHEMISTRY

- 51a,b. **ELEMENTARY CHEMISTRY.** A brief study of matter and energy; of chemical and physical changes; the fundamental laws of chemistry; chemical elements and compounds; the qualitative and quantitative composition of foods, air, and water. Two hours a week. FRANKFORTER.

PHARMACOLOGY

- 1a,b. **ELEMENTARY PHARMACOLOGY.** A study of the history, uses, classification and preparation of drugs; definition of descriptive terms; systems of weights and measures; methods of administration, principles of dosage, etc. School for Nurses and others. 64 hours.

BACTERIOLOGY

- 6a,b. **ELEMENTARY BACTERIOLOGY.** The principles and technique of general bacteriology. Studies in the morphologic and biologic characters of the common bacteria. Preparation of culture media. Disinfectants and disinfection. Bacteriology of water and food products. Five hours a week. LARSON, HENRICI, DIEHL, WARD, IKEDA.

PRACTICAL COURSES

PHYSICAL CULTURE

- 7a,b. A course of physical exercises for the personal development of the student, especially directed to the training of the nurse in the adaptation of her movements to the best results in her practical work. Two hours a week. NORRIS and KISSOCK.

LETTERING

- 9a,b. EXERCISES IN LETTERING; for training the nurse in the making of records and the charting of clinical observations; the accurate forming of letters in plain architectural type, and of special clinical characters. One hour a week. KIRCHNER.

PRINCIPLES OF NURSING

- 11a,b. THE PRINCIPLES OF NURSING. A study of the personal and professional needs of the nurse; the essentials of conduct in her professional relations. The history, principles and ethics of nursing. The personal hygiene of the nurse. Three hours a week. POWELL.

HOSPITAL ECONOMY

- 13a,b. A STUDY OF HOSPITALS. The general principles of hospital and household economy applied to the practice of nursing. A study of types of hospital buildings; construction, heating, lighting, plumbing; equipment and operation of laundry, linen and serving rooms; general and special kitchens; wards and special departments; cost and care of hospital supplies; household chemicals. Two hours a week. POWELL.

PRACTICAL DIETETICS

- 15a,b. FOOD STUFFS. A course of practical exercises and lectures upon foods; their definition, classes, form; food values; food composition; energy values; caloric index; selection of dietaries; balanced rations; market conditions.
- 17a,b. THE PREPARATION OF FOODS. Methods of cooking; effect on food values; percentages of loss; treatment of various classes of foods; of typical foods; enhancement of food values; mechanical methods of preparation; raw foods.
- 19a,b. THE SERVING OF FOOD. A discussion of the details of food service; the form and adaptation of material to use; tray service; esthetics of service. Six hours a week. THOMAS.

PRACTICAL NURSING

- 21-37. Courses of lectures, demonstrations, and practical exercises. Five hours a week. VANNIER.
- 21a,b. THE ENVIRONMENT OF THE PATIENT; the care of the room or ward; of service room, bath and lavatory; of the serving room; the linen room; the bed and bedding; the detail of bed making.
- 23a,b. THE ADMISSION AND GENERAL CARE OF THE PATIENT; the bed, bath, and toilet; the preparation of the patient for the night; the prevention of bed-sores, stiffness, and cramping of muscles; care of mouth, teeth, and hair; special devices for comfort.

- 25a,b. OBSERVATION OF THE PATIENT; how and what to observe; temperature, pulse, respiration; observation of feces, urine, sputum, and vomites.
- 27a,b. THE EXAMINATION OF THE PATIENT; the preparation for routine examinations; method of assisting examiner; the doctor's order book; the value of the bedside record; the detail and technique of record.
- 29a,b. METHODS AND MECHANISMS OF TREATMENT; the preparation of solutions; the application of heat and cold; counter irritants; the use of enemata; the vaginal douche; catheterization; lavage; gavage; expression of stomach contents.
- 31a,b. BATHS FOR THERAPEUTIC PURPOSES; the reduction of temperature; sedative baths; baths and packs to produce sweating; local baths; medicated baths.
- 33a,b. THE PREPARATION OF PATIENTS FOR OPERATION; details of preparation; the ether bed; post-operative care of patient.
- 35a,b. MEDICINES; the medicine case; medicine trays; system of giving medicines; method of preparing and giving hypodermic injections; method of giving inhalations; method of giving drugs by inunction.
- 37a,b. INFECTIOUS DISEASES; precautions of care; details of disinfection; the care of typhoid fever cases; venereal diseases; preparation of rooms for fumigation.

HOSPITAL TRAINING

Students who have successfully completed the preliminary courses of the first six months are regularly entered in the hospital service. In addition to their hospital duties, which employ fifty-six hours each week, they will attend courses of lectures, demonstrations, and recitations upon subjects in general medicine and surgery and in special branches of practice related to their professional work. These courses include the study of practical dietetics and of advanced problems in household and hospital economics.

UNDERGRADUATE COURSES

HYGIENE AND PUBLIC HEALTH

- 39a,b. HOUSEHOLD HYGIENE; the dwelling, its location, site; lighting, plumbing, heating, ventilation; disposal of waste.
- 41a,b. SCHOOL HYGIENE; the sanitation of school buildings; the health inspection of school children; the duties of school nurses.
- 43a,b. THE HYGIENE OF FOODS; the conditions of food supply; the principles of food preparation; the preservation and adulteration of foods; food inspection laws.
- 45a,b. INDUSTRIAL HYGIENE; the sanitary conditions of employment; the study of industrial diseases and of occupational dangers; the principles of industrial betterment.
- 47a,b. THE HYGIENE OF THE COMMUNITY; the regulation of food, drug, and clothing supplies; the disposal of waste materials; the suppression of public nuisances; the control of offensive trades; the prevention and control of communicable diseases. Twenty hours.

ELEMENTS OF PATHOLOGY

- 49a,b. THE PRINCIPLES OF PATHOLOGY; and the deviation from the normal in the more common diseases. A brief consideration of the normal and pathologic blood and excretions of the body. Twenty hours.

MEDICAL NURSING

- 51a,b. DISEASES OF CIRCULATORY SYSTEM AND BLOOD. Diseases of the heart; pericarditis, endocarditis, myocarditis; hypertrophy and dilatation. Diseases of the bloodvessels; arteriosclerosis, angina pectoris; aneurism; apoplexy; phlebitis. Diseases of the blood; anemia; leukemia.
- 53a,b. GENERAL NURSING MEASURES. Diet, drugs, rest; appliances for comfort. Observation of symptoms. Taking and recording pulse. Recording intake and output of fluids. Treatment of emergencies. Demonstration of enteroclysis. Weight and temperature. Fresh air treatment. Preparation for transfusion.

- 55a,b. DISEASES OF THE URINARY TRACT. Nephritis and complications. Cystitis.
- 57a,b. GENERAL NURSING MEASURES. Discussion of diet; observation of symptoms; technique of collecting specimens. Demonstration exercises; treatment with packs; function tests; blood pressure tests; preparation for phlebotomy and venipuncture; bladder irrigation.
- 59a,b. DISEASES OF RESPIRATORY SYSTEM. Laryngitis; bronchitis; bronchial asthma; bronchial pneumonia. Lobar pneumonia and complications. Pleurisy; empyema; emphysema.
- 61a,b. NURSING CARE. Isolation and disinfection; prevention of infection. Methods of observing and saving sputum. Fresh air treatment. Methods of reducing temperature; packs. Methods of pain relief. Inhalation. Counter irritants. Preparation for aspiration. Dietary.
- 63a,b. DISORDERS OF DIGESTIVE SYSTEM. Pyorrhea; stomatitis; pyalism. Gastritis; gastric and duodenal ulcer. Carcinoma of stomach. Diarrhoea; constipation; colitis.
- 65a,b. GENERAL NURSING METHODS. Study of oral hygiene; significance of disease; methods of care of mouth. Test meals; lavage; expression of stomach contents. Duodenal catheterization. Abdominal massage. Colon irrigation. Description of stools. Charting. Discussion of diet.
- 67a,b. DISEASES OF LIVER. Cholecystitis. Cirrhosis of liver.
- 69a,b. GENERAL NURSING CARE. Observation of symptoms. Preparation for abdominal paracentesis.
- 71a,b. DISORDERS OF METABOLISM. Diabetes; obesity. Acute articular rheumatism; arthritis deformans. G. C. Arthritis.
- 73a,b. NURSING CARE. Accurate collection of specimens. Study of dietary. Measures of comfort for rheumatic. Bier's hyperemia; massage; dental treatment. Vaccines.
- 75a,b. MEDICAL EMERGENCIES. Heat prostration; sunstroke. Cases of poisoning. Fainting.
- 77a,b. Nursing measures in treatment of emergencies.
Courses 51 to 77 cover a period of 32 hours.

TUBERCULOSIS

- 79a,b. STUDY OF TUBERCULOSIS. Cause, prevalence, curability. Classification; tissues and organs involved. Emergencies. Treatment in home and sanatorium. Prevention of tuberculosis. Practical demonstration in sanatorial visits. Five hours.

81a,b. CARE OF TUBERCULOSIS. Prevention of infection. Treatment of emergencies; hemoptysis. Fresh air treatment; out-of-door sleeping. Dietary; rest; exercise. Five hours.

COMMUNICABLE DISEASES

83a,b. INFECTIOUS AND CONTAGIOUS DISEASES. Typhoid fever. Typhus. Dysentery. Hookworm. Malaria. Yellow fever. Smallpox. Influenza. Mumps. Tetanus. Rabies. Social, economic, and educational factors in the prevention and treatment of communicable diseases. Six hours.

85a,b. GENERAL MEASURES. Precautions for protection of nurse and public. Prevention of spread. Special care of room and patient. Measures for destruction of insects. Board of Health regulations concerning communicable diseases. Three hours.

87a,b. NURSING CARE. Case charting. Dietary. Bathing; sponge baths; pack baths. Colon irrigation. Technique of vaccination. Pasteur treatment of rabies. Care of patient in convulsions. Emergency treatment of infected wounds. Three hours.

SURGICAL NURSING

89. THE CARE OF SURGICAL CASES; anesthesia and anesthetics. Surgical emergencies; inflammation; wounds; hemorrhage; shock; burns; fractures; dislocations. Surgical infections; toxemia; wound infections; erysipelas, gangrene, etc.; surgical tuberculosis; plastic surgery; orthopedics. Sixteen hours.

91. SPECIAL SURGICAL CONDITIONS; the stomach; carcinoma, gastric ulcer; the liver and gall tract; abscess, gall-stones, etc.; the intestines, appendicitis, obstruction, etc.; the kidneys and bladder; the uterus and appendages; the brain. Sixteen hours.

93. BANDAGING. Demonstrations and practical exercises in the uses and methods of application of bandages of all forms. Ten hours.

GYNECOLOGY

95. GYNECOLOGICAL NURSING; a study of terms and definitions bearing upon the nursing of pelvic diseases; preparation of gynecological patients for examination and for operation; general care of gynecological cases; special modes of treatment. Twelve hours.

OBSTETRICS

97. OBSTETRICAL NURSING; lectures and demonstrations of the anatomy and physiology of the female pelvis; the physiology of pregnancy; its accidents; the physiology of parturition; the nursing of labor; complications; post-partum hemorrhage, puerperal fever, puerperal convulsions, puerperal insanity. Fourteen hours.

NURSING OF INFANTS AND CHILDREN

99. THE NORMAL CHILD; conditions of growth and development; breast feeding; artificial feeding; mixed feeding; preparation of foods in laboratory; general care and nursing.
100. GENERAL DISEASES OF CHILDREN. Stomatitis, marasmus, rachitis, syphilis. Gastro-intestinal disorders; parasitic diseases; disorders of genito-urinary tract. Tuberculosis in children. Rheumatism; tonsillitis; chorea; cardiac complications. Bronchitis; pneumonia; pleurisy; empyema. Surgical conditions in children.
101. CONTAGIOUS DISEASES. Diphtheria; scarlet fever; smallpox; chicken pox; whooping cough; measles; mumps; meningitis; polio-myelitis. Thirty-two hours.

NERVOUS AND MENTAL DISEASES

104. THE NURSING OF NERVOUS AND MENTAL CONDITIONS. Insanity; its common forms and symptoms; principles of care of insane patients. Epilepsy; its manifestations and care. Neurasthenia, hysteria; their recognition and distinctive features; their nursing; their rest cure. Ten hours.

DISEASES OF THE EYE, EAR, NOSE, AND THROAT

106. THE EYE, EAR, NOSE, AND THROAT; their anatomy and physiology. The general and local care of diseases; instruction in applications to the eye; douches and other remedies to the ear, nose, and throat. Recognition and care of foreign bodies in eye, ear, nose, and throat. The use of artificial and ordinary leech. The prevention and treatment of ophthalmia neonatorum. Preparation for operations and care after operation. Ten hours.

MASSAGE

- 107a,b. TRAINING IN MASSAGE. A course of training in the general manipulation of the body tissues and in those general movements which have the value of passive exercise for the sick or convalescent. Twenty-four hours.

DISEASES OF THE SKIN

108. THE NURSING CARE OF THE SKIN; a course upon methods of treatment of disorders of the skin of general occurrence. Ten hours.

THE DIETETIC TREATMENT OF DISEASE

110. THE DIETARY OF DISEASE. The conditions of digestion and metabolism in disease; the influence of age and sex; the relation of food and water supply to functional inactivity, tissue loss, and elimination.
112. THE DIETETIC TREATMENT OF SPECIAL DISEASES; the dietary of continued fevers; gastro-intestinal disorders; respiratory disorders; disorders of nutrition; renal diseases, cardiac disorders and diabetes. Eight hours.

SPECIAL THERAPEUTICS

114. SPECIAL METHODS OF TREATMENT; special forms of therapy, requiring the services of the nurse. The X-Ray in the diagnosis and treatment of disease. The use of vaccines and sera. Six hours.

INVALID OCCUPATIONS

- 115a,b. OCCUPATIONAL TREATMENT; lectures, demonstrations, and practical exercises designed to teach nurses typical methods of occupation for invalids and, especially, for children. Elective in the third year. Twenty-four hours.

SPECIAL TOPICS

Arrangements will be made, from time to time, for formal lectures upon special topics, to be delivered by available lecturers of large institutional and educational experience, to which the students of the training schools of the Twin Cities will be invited.

STUDENTS

GRADUATES

Ames, Margaret (Mrs. Samuel Anderson), Hutchinson
Anderson, Ruth E., R.N., Houston
Angle, Maude E. F., R.N., Minneapolis
Babcock, Lana, R.N., Minneapolis
Baudin, Jane E., R.N., Duluth
Bertie, Mildred L., R. N., Minneapolis
Brockway, Mary G., R.N., Royalton
Burns, Elizabeth C., R.N., Graceville
Colberg, Ruth M., R.N., St. Paul
Cornish, Mary E., R.N., Vernon Center
Covert, Emily C., Billings, Mont.
Curry, Marie M., Minneapolis
Fleming, Agnes, R.N., Minneapolis
Gosman, Anna, R.N., Minneapolis
Greenwalt, Dorothy, R.N., Withrow
Hayashi, Fuku, R.N., Kyoto, Japan
Hollo, Myrtle M., R.N., Marshall
Hulett, Florence G., R.N., Minneapolis
Johnson, Alma D., R.N., Minneapolis
Lemstrom, Bera, R.N., Minneapolis
Lindquist, Signa, R.N., Minneapolis
Madsen, Christenia A., R.N., Minneapolis
Manger, Caroline A., R.N., McIntosh
Mark, Mary E., R.N., St. Peter
Marvin, Mary M., R.N., Zumbrota
Moore, Mabelle H., R.N., Austin
Moulton, Myra D., R.N., Dawson
Nightingale, Mary M., R.N., Minneapolis
Ofsthun, Olive I., R.N., Glenwood
Rosenthal, Cecilia A., R.N., St. Paul
Schwarg, Carolyn, R.N., Dodge Center
Selleseth, Ellen A., R.N., Glenwood
Stewart, Lena B., R.N., Minneapolis
Skonnord, Olga B., R.N., Minneapolis
Schlutz, Mathilda, R.N., New Richland
Swenson, Mathilda E., Crookston
Thompson, Barbara, R.N., Glenwood
Thompson, Lena, R.N., Enderlin, N.D.
Waters, Vera, R.N., Beatrice, Nebraska
Winter, Clara (Mrs. Arthur Stevens), R.N., Minneapolis

THIRD YEAR

Dunn, Margaret, Windom
Hasle, Eva, Park River, N. D.
Joach, Celia E., New Prague
Jorstad, Esther O., Kenyon
Knutson, Mabel A., Fertile
Redpath, Mary, La Crosse, Wis.
Price, Katherine A., Minneapolis
Smitka, Ella M., Minneapolis
Vollbrecht, Agnes E., Hanover
Vos, Katherine, Minneapolis
Watland, Annie M., Jackson
Berg, Esther L., Duluth
Chaffee, Bessie C., Detroit
Harbo, Mathilda, Minneapolis
Runnerstrom, Elva, Waseca

SECOND YEAR

Adams, Marjorie, Fergus Falls
Andreason, Esther, Valley City, N. D.
Baker, Helen M., Nevada, Iowa
Bjeldanes, Ragnhild, Madison
Corliss, Ione, St. Paul
Flinn, Irma, Minneapolis
Fryckman, Hazel, Minneapolis
Garry, Lucile, Minneapolis
Hilmen, Amanda, Crookston
Johnson, Inez, Mayville, N. D.
Kurtzman, Mrs. D., Minneapolis
Larsen, Effie, La Crosse, Wis.
Maguire, Inalane, Excelsior
Ostergren, Alice, St. Paul
Rood, Augusta, Minneapolis
Schey, Jennie, Sedan
Semling, Mabel, Ada

SCHOOL FOR NURSES

PRELIMINARY COURSE

Anderson, Francis, Buffalo	Lund, Nora, Glenwood
Bowser, Martha, Kettle Falls	Magnus, Edna, Glen Flora, Wis.
Burmeister, Milre, Mankato	McIver, Pearl, Lowry
Curry, Vernie I., Minneapolis	Noreen, Naomi, Minneapolis
Hanson, Olga, Glen Flora, Wis.	Olson, Luella, Mankato
Haupt, Alma, St. Paul	Ouren, Selma, Hanska
Hilbert, Hortense, Albany	Peterson, Dora, Frost
Joach, Hetty, New Prague	Romell, Ruth, St. Paul
Johnson, Esther V., New Richland	Sagter, Martha, Fosston
Johnson, Mabel E., Waseca	Smitka, Helen, Minneapolis
Larson, Anna, St. Paul	Warner, Florence, Minneapolis
Lough, Alice, Jordan	

SPECIAL STUDENTS

Baker, Florence I., (Mrs. J. A. Riegel), Minneapolis	Holm, Sara M., Stillwater
Bergquist, Olivia E., Minneapolis	Shedd, Lotta, Pasadena, Cal.

ACCREDITED NURSES

Almquist, Bertha, St. Johns Hospital, Red Wing	Hanson, Nell, St. Johns Hospital, Red Wing
Behrens, Pauline, St. Johns Hospital, Red Wing	Kenney, Bessie, Abbott Hospital, Min- neapolis
Borge, Martha, Abbott Hospital, Min- neapolis	Mohan, Mamie, Rest Hospital, Minne- apolis
Brinks, Henreke, Hillcrest Surgical Hospital, Minneapolis	Quie, Caroline, Abbott Hospital, Min- neapolis
Eidem, Tillie, St. Johns Hospital, Red Wing	

*The Bulletin
of the University of
Minnesota*

*General Extension Division
Announcement of Evening Courses
1917-1918*



*Catalog Series No. 20
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CALENDAR

1917-1918

1917

September	24-29	Week	Registration week
September	28	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	29	Saturday	Annual opening of Extension Courses 8:15 p.m. Minneapolis
October	1	Monday	Regular class work begins
November	29	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	31	Monday	Class work resumed

1918

January	21-25	Week	Examination week, first semester
January	25	Friday	First semester ends
February	4	Monday	Second semester begins
February	4	"	Merchants' Short Course begins
May	20-24	Week	Examination week, second semester
May	24	Friday	Second semester ends

GENERAL EXTENSION DIVISION

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
CYRUS NORTHROP, LL.D., President, Emeritus
RICHARD R. PRICE, M.A., Director of University Extension

GEORGE B. FRANKFORTER, Ph.D., Dean of the School of Chemistry, Professor of Chemistry

LOTUS D. COFFMAN, Ph.D., Dean of the College of Education, Professor of Education

JOHN B. JOHNSTON, Ph.D., Dean of the College of Science, Literature, and the Arts, Professor of Comparative Neurology

JOHN R. ALLEN, M.E., Dean of the College of Engineering and Architecture, Professor of Mechanical Engineering

WILLIAM R. VANCE, Ph.D., LL.D., Dean of the Law School, Professor of Law

EMMETT L. BENNETT, M.A., Secretary of Municipal Reference Bureau
GISLE BOTHNE, M.A., Professor of Scandinavian Languages and Literature

WILLIAM E. BROOKE, B.C.E., M.A., Professor of Mathematics and Mechanics

OSCAR C. BURKHARD, Ph.D., Assistant Professor of German

RICHARD BURTON, Ph.D., Professor of English

HARDIN CRAIG, Ph.D., Professor of English

ALVIN S. CUTLER, C.E., Assistant Professor of Railway Engineering

JAMES DAVIES, Ph.D., Assistant Professor of German

*JOHN F. EBERSOLE, M.A., Assistant Professor of Economics

OLIVER C. EDWARDS, M.E., Assistant Professor of Mechanical Engineering,
General Extension Division

JAMES H. FORSYTHE, M.A., in Arch., Assistant Professor of Architecture

ROBERT W. FRENCH, B.S., Assistant Professor of Drawing

JOHN S. GARNES, B.A., Instructor in Story Telling, General Extension Division

HALDOR B. GISLASON, B.A., LL.B., Instructor in Rhetoric

STANLEY B. HOUCK, LL.M., Instructor in Business Law, General Extension Division

ALBERT E. JENKS, Ph.D., Professor of Anthropology

ROY C. JONES, M.S., in Arch., Assistant Professor of Architecture

ALFRED E. KOENIG, M.A., Assistant Professor of German

AUGUST C. KREY, Ph.D., Associate Professor of History

SAMUEL KROESCH, Ph.D., Assistant Professor of German

*On leave of absence 1917-18.

- LEE KUEMPEL, Instructor in Railroad Traffic and Rates, General Extension Division
- EDWARD M. LEHNERTS, M.A., Assistant Professor of Geography, General Extension Division
- RUPERT C. LODGE, M.A., Assistant Professor of Philosophy
- FRANKLIN R. MCMILLAN, C.E., Assistant Professor of Structural Engineering
- GEORGE A. MANEY, B.S., Instructor in Civil Engineering.
- FREDERICK M. MANN, M.S., in Arch., Professor of Architecture
- JOHN V. MARTENIS, M.E., Assistant Professor of Mechanical Engineering
- MAC MARTIN, Professional Lecturer in Advertising, General Extension Division
- WALTER R. MEYERS, Ph.D., Assistant Professor of German
- MORTON M. NEWCOMB, B.A., Instructor in Business Management, General Extension Division
- CHARLES W. NICHOLS, M.A., Assistant Professor of Rhetoric
- GEORGE N. NORTHROP, M.A., Assistant Professor of English
- SIDNEY F. PATTISON, M.A., Assistant Professor of Rhetoric
- JOSEPH PETERSON, Ph.D., Assistant Professor of Psychology
- CHESSLEY J. POSEY, M.S., Assistant Professor of Geography
- CHARLES H. PRESTON, B.A., Associate Professor of Business Administration, General Extension Division
- ALBERT W. RANKIN, B.A., Professor of Education
- *FRANK M. RARIG, M.A., Assistant Professor of Rhetoric and Public Speaking
- WILLIAM H. RICHARDS, Instructor in Carpentry and Pattern Work
- CLARE L. ROTZEL, B.C.S., C.P.A., Associate Professor of Accounting, General Extension Division
- WILLIAM T. RYAN, E.E., Assistant Professor of Electrical Engineering
- CHARLES A. SAVAGE, Ph.D., Professor of Greek
- GEORGE D. SHEPARDSON, D.S., Professor of Electrical Engineering
- CHARLES F. SHOOP, B.S., Assistant Professor of Experimental Engineering
- CHARLES E. SKINNER, M.A., Assistant Professor of Rhetoric
- WILLIAM C. SMILEY, LL.M., Instructor in Business Law, General Extension Division
- ANDREW A. STOMBERG, M.S., Professor of Scandinavian Languages and Literatures
- FLETCHER H. SWIFT, Ph.D., Professor of Education
- HUBERT M. TURNER, B.S., Instructor in Electrical Engineering
- HOWARD T. VIETS, M.A., Instructor in Business English
- NORMAN WILDE, Ph.D., Professor of Philosophy and Psychology
- HERBERT WOODROW, Ph.D., Associate Professor of Psychology
- OTTO S. ZELNER, B.S., Assistant Professor of Surveying

*On leave of absence 1917-18.

EXTENSION SERVICE

The Extension Service of the University of Minnesota is organized to include:

- A. Evening classes, in Minneapolis, St. Paul, Duluth, and other cities.
 1. Courses leading to credit in the College of Science, Literature, and the Arts.
 2. Law courses.
 3. Courses in Business Administration, Accountancy, and Finance.
 4. Practical courses in Engineering.
- B. Correspondence courses.
- C. Extension lectures, singly or in groups, and lyceum lectures, concerts, and entertainments.
- D. The Municipal Reference Bureau, which compiles and furnishes to city officials information pertaining to municipal government and administration.
- E. The Bureau of Visual Instruction, through which loan collections of lantern slides and films are furnished to schools and clubs.
- F. University coöperation with local educational effort as exemplified by the "University Weeks."
- G. Agricultural extension, including lectures, demonstrations, institutes, and short courses under the direction of the College of Agriculture.

EVENING COURSES

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (usually twenty-one years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under Engineering do not carry credits. The statement in regard to credit for Law courses will be found on page 40. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 20 and 21.

Students must indicate at the time of registration whether or not they desire university credit in the courses pursued.

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in Extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other Extension Schools or Departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for extension course for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the Dean of his college.

FEEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For Collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for Business courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

For Engineering courses the fees are \$7.50 or \$10 a semester as indicated in the description of the several courses.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

The requirements relative to the Law courses accompany the announcement of those courses in this bulletin. (See page 41.)

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. **NO FEE WILL BE REFUNDED ON ACCOUNT OF WITHDRAWAL FROM ANY COURSE,** unless application for refund be made within ten days after registration.

Special arrangements are made with organizations, clubs and business concerns, whereby instruction may be given to groups of students

within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

The classes in Law will be held in the Law Building on the University campus. Most of the classes in Engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University, at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 24-29). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the Collegiate courses, the Business courses, the Engineering courses, and the Law courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the ground floor of the Main Engineering Building on Church Street, just north of Washington Avenue S. E. To telephone the office call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

COURSES OF INSTRUCTION

The courses of instruction naturally group themselves into four divisions, viz., (1) those corresponding to the regular college courses given in the College of Science, Literature, and the Arts, and conveying credit toward a degree from that college; (2) those furnishing a preparation for Business (most of which also carry credit toward a degree from the above college); (3) Engineering courses; and (4) Law courses. A separate bulletin of each of these groups may be obtained on request. The description of courses will therefore be grouped in this order. The first group will be designated Collegiate courses.

DEPARTMENT OF COLLEGIATE INSTRUCTION

The following courses are given Extension students with two purposes in view: First, an opportunity is afforded those who are candidates for degrees, but who are unable to pursue their entire college course in regular residence, to complete a part of their work while otherwise occupied during the day.

Second, the advantage of university training in cultural subjects is offered those who can devote one or more evenings a week to such work, regardless of any desire for University credit.

The General Extension Division is now prepared to offer the following evening courses. Others will be given provided a sufficient registration is assured, usually fifteen. Those interested in forming such classes are advised to correspond with the Director.

A special folder announcing specific dates and places for holding classes will be issued early in September. This folder will be sent to all requesting it.

CHEMISTRY

1. (1-2*) **ELEMENTARY CHEMISTRY.** A study of the common chemical elements and their compounds, with an introduction to the modern theories of chemistry. Special attention to be given to the practical applications of chemistry. Lectures, textbook and laboratory work. Those who wish to do work on special problems will be accommodated as far as possible. Four credits (two evenings a week); both semesters. By doing extra laboratory work a well-qualified student may earn three credits a semester. Fee \$10 a semester.

EDUCATION

- 1 (1a). **BRIEF HISTORY OF EDUCATION.** The origin and development of schools, more particularly in the modern period, as a preparation for

*The number in parentheses is that of the corresponding course in the regular University bulletins.

the understanding of the educational systems, theories, and practices of the present. Ranks as a junior and senior course in the University. Open to teachers and prospective teachers who have met the college entrance requirements. Two credits (one evening a week); first semester. Fee, \$5 a semester. SWIFT.

- 2 (3a). SOCIAL ASPECTS OF EDUCATION. This course deals with conditions within the school itself,—such as the socialized recitation and the social activities of students. It also discusses educational activities outside the school, including the various institutions which influence society. It treats of the necessity of coördinating the social activities within and without the school so that each may become more effective. Two credits (one evening a week); first semester. Fee, \$5 a semester. RANKIN.
- 3 (119). THE SCHOOL CURRICULA. An attempt is made to discover fundamental principles governing the material and methods of education in a democracy. To this end it discusses the nature of what we mean by a democratic society. The aims and methods of the enterprise of education are considered from this point of view. Two credits (one evening a week); second semester. Fee, \$5 a semester. RANKIN.

ENGLISH

- 1 (55). SHAKESPEARE—THE EARLIER PLAYS. A course of lectures on Shakespeare with reading of a considerable number of plays. Prerequisite for credit, Survey of English Literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. NORTROP.
2. THE SHORT STORY IN ENGLISH. A study of the principles and practice of the short story as evolved in modern literature. The work is aimed not only to teach technic of the form, but to give the student practice in the production of this sort of fiction. Two credits (one evening a week); first semester. Fee, \$5 a semester. NORTROP.
3. AMERICAN PROSE FICTION. Lectures on American Prose Fiction with the reading of representative works by Cooper, Poe, Hawthorne, James, Howells and others; recitations oral and written. Two credits (one evening a week); first semester. Fee, \$5 a semester. CRAIG.
4. BRITISH POETS OF THE NINETEENTH CENTURY. A course of lectures on the principal poets in the nineteenth century, their significance in the life of the time and in the world's literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. CRAIG.
- 5 (108). THE ROMANTIC MOVEMENT. Poets and prose writers of the late Eighteenth Century and early Nineteenth Century with particular stress upon Wordsworth, Byron, and Shelley, and a consideration of the influence upon English literature of the Revolution in France.

Prerequisite for credit, Survey of English Literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. CRAIG.

- 6 (59). **THE MODERN DRAMA.** Contemporary drama from 1870 to the present; the new impulse in dramatic literature under the stimulus of latter-day thought. Prerequisite for credit, Survey of English Literature and Shakespeare. Two credits (one evening a week); second semester. Fee, \$5 a semester. BURTON.
7. **STORY TELLING TO CHILDREN.** (1) Story telling; its place and value; (2) choice of the story: qualities, desirable and undesirable; (3) preparation of the story; application of the short story ideals of "singleness of impression" and "dramatic struggle"; reconstruction of the story from the child's viewpoint; (4) the problem of delivery: the group, consciousness, holding attention, self-effacement, vocal and verbal adaptation. One evening a week; first semester. Fee, \$5 a semester. GARNES.
8. **ADVANCED COURSE IN STORY TELLING.** Two-fold emphasis throughout the course upon (1) the problem of delivery, and (2) the search for material. Fundamentals in training of voice and body for story telling. Principles of vocal expression as they apply in the story teller's art. The use of dialects and impersonation in story telling. Material: myths, great epic cycles, fairy stories, biographical and historical stories, Bible stories. Planning the story program. One evening a week; first semester. Fee, \$5 a semester. GARNES.

GEOLOGY AND GEOGRAPHY

1. **PHYSIOGRAPHY.** A study of the physical features of the earth, their origin, life history, and economic influences. Two credits (one evening a week); first semester. Fee \$5 a semester. LEHNERTS.
- 2 (1). **GENERAL GEOLOGY.** The materials of the earth, the forces and processes operating upon them, and the effects produced. The history of the earth from the earliest time to the present. Two credits (one evening a week); second semester. Fee, \$5 a semester. LEHNERTS.
3. **COMMERCIAL GEOGRAPHY.** The raw materials of commerce, and the principles which underlie their occurrence, production, conservation, and utilization. Two credits (one evening a week); first semester. Fee, \$5 a semester. LEHNERTS.
4. **GEOGRAPHIC DELINEATION AND MAP INTERPRETATION.** Practical exercises; the reading and interpretation of maps; the construction and use of maps and of geographic diagrams, including block diagrams of land forms. Two credits (one evening a week); second semester. Fee, \$5 a semester. LEHNERTS.

5. **PHYSIOGRAPHY OF THE EASTERN UNITED STATES.** A study of the regional physiography of the eastern half of the United States, its surface features and their origin and significance. Special attention will be given to features of historic or geographic interest or of economic importance. Two credits (one evening a week); first semester. Fee, \$5 a semester. LEHNERTS.
6. **PHYSIOGRAPHY OF THE WESTERN UNITED STATES.** A study of the regional physiography of the western half of the United States, and an interpretation of its scenic and other land forms. Courses 5 and 6 give training in physiographic study and interpretation and serve as a preparation in the fundamentals of the geography of our country. Two credits (one evening a week); second semester. Fee, \$5 a semester. LEHNERTS.
- 7 (4). **GEOGRAPHY AND GEOLOGY OF MINNESOTA.** The geological study of Minnesota; its rocks and soils; minerals and mines; building stones, clay beds, and glacial deposits; rivers and lakes; scenic features; waterways and water powers; artesian well basins; prairie, forests, and agricultural lands; problems of state-wide interest, such as immigration, agriculture, drainage, reforestation, construction of state highways; utilization of natural resources, and development of old and new industries. Two credits (one evening a week); first semester. Fee, \$5 a semester. (Not given in 1917-18.) LEHNERTS.
- 8 (116). **GEOGRAPHY OF LATIN-AMERICA.** A study of the regional geography of Latin-American countries; their surface features, climate, and natural resources as affecting their present and future development. Areas of probable great future developments. Character, volume and direction of flow of trade. The trade relations between the Latin-American countries and the United States given special attention. The Panama Canal as affecting our relations with those countries. Two credits (one evening a week); first semester. Fee, \$5 a semester. POSEY.
- 9 (118). **GEOGRAPHY OF EURASIA.** The regional geography of the leading European and Asiatic countries. The relation of the surface features, climate, and natural resources to the present racial, industrial, and political development. Attention given to the attitude of the major European countries to the "new" lands of Asia. Trade relations with the United States considered. Two credits (one evening a week); second semester. Fee, \$5 a semester. POSEY.

GERMAN

- 1 (1-2). **BEGINNING GERMAN.** Pronunciation, grammar, conversation, and composition; selected reading in easy prose and verse. Eight credits (two evenings a week); both semesters. Open to all who have had no German. Both semesters must be completed before credit is given for the first semester. Fee, \$10 a semester. DAVIES.

- 2 (3-4). **INTERMEDIATE GERMAN.** First semester; selections from modern narrative and descriptive prose; selected lyrics and ballads. Second semester; a drama of Lessing, Goethe, or Schiller. Open to those who have completed Course 1 or its equivalent. Both semesters must be completed before credit is given for the first semester. Students who obtain credit for this course can not receive credit also for Course 3. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. KROESCH.
- 3 (5-6). **PROSE AND POETRY.** Geography, history, and legend. Review of German grammar throughout the year. Open to all with two years of German. Not open to those who have obtained credit in Course 2. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. MYERS.
- 4 (27-28). **ELEMENTARY CONVERSATION.** Conversation on topics of everyday life, aiming at fluency in the use of idiom. Not a course in composition. Organized on the laboratory basis—one hour credit with two hours recitation and at least one hour of outside preparation. Intended for those who have had at least one year of German. Two credits (one evening a week); both semesters. Fee, \$5 a semester. BURKHARD.
- 5 (11-12). **RAPID READING.** Short stories and dramas by Storm, Heyse, Baumbach, Lessing, Goethe, Schiller, Hebbel, and Sudermann. Class-work and discussions are conducted in German. Open to all who have had at least one year of German. Four credits (one evening a week); both semesters. Fee, \$5 a semester. KOENIG.

.GREEK IN ENGLISH

1. **GREEK MYTHOLOGY.** No knowledge of Greek is required for this course. A course of lectures and readings dealing with the legends and myths which appear in the literature and art of ancient Greece. The quaint and beautiful stories of Greek gods and heroes found in Homer and in the tragic and lyric poets will be presented and interpreted, and the whole course will be richly illustrated with the stereopticon. The origin and evolution of the myth, its relations to Greek literature, philosophy and religion, and its influence upon later literature, will also be touched upon. Two credits (one evening a week); second semester. Fee, \$5 a semester. SAVAGE.
2. **GREEK LITERATURE AND LIFE.** This is a course dealing with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. The course consists of lectures and illustrative readings by the instructor and assigned readings in translation and textbook work by the class; conferences and informal discussions will also be held. The character and influence of Greek culture, es-

pecially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. Two credits (one evening a week); first semester. Fee, \$5 a semester. SAVAGE.

HISTORY

- 1 (1) EUROPEAN HISTORY I. The development of Europe from 800 to about 1500 A. D. with special emphasis upon the political, social, and economic institutions of the period. Open to all. Two credits (one evening a week); first semester. Fee, \$5 a semester. KREY.
- 2 (2). EUROPEAN HISTORY II. The development of Europe from c. 1500 to 1789. In this period are treated the Reformation, Religious Wars and the causes of the French Revolution. The political growth of the nations of Europe is especially emphasized. Two credits (one evening a week); second semester. Fee, \$5 a semester. KREY.
3. EUROPEAN HISTORY III. The development of Europe from 1789 to the present time Political history especially emphasized. Social and economic problems are treated in their international aspects. Two credits (one evening a week); second semester. Fee, \$5 a semester. KREY.

MATHEMATICS

- 1 (1). HIGHER ALGEBRA. PART I. The fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, surds, imaginaries, simple equations with one, two, and several unknown quantities, inequalities, ratio and proportion, arithmetical and geometrical progressions, quadratic equations, and numerous problems requiring both simple and quadratic equations. The examples and problems are more difficult than those under the same subjects in Elementary Algebra and demonstrations are an important part of the work. Four credits (two evenings a week); first semester. Fee, \$10 a semester.

PHILOSOPHY

- 1 (20). PRESENT DAY PHILOSOPHY. A popular discussion of the most important types of contemporary philosophy. Among the men and movements included are: Haeckel, Eucken, Bergson, Nietzsche, Pragmatism, Idealism, and Neo-Realism. Two credits (one evening a week); first semester. Fee, \$5 a semester. WILDE.
2. HUMAN NATURE. A course in modern philosophy and psychology, as applied to the chief problems of practical life. The course will be un-

technical, and will include a number of simple experiments designed to illustrate the subjects treated, and to serve as basis for the discussion. Among the subjects dealt with, the following will be included: the analysis of character into its elements; the significance of laziness, fatigue and sleep; efficiency, and the chief factors in attaining it; the meaning of education: its various stages, and final goal; memory, and the laws of forgetfulness; thought transference, automatic writings, and kindred subjects. Two credits (one evening a week); first semester. Fee, \$5 a semester. LODGE.

3. THE MEANING AND VALUE OF LIFE. A course in the modern philosophy of life, dealing in a simple and untechnical way with the deeper values which underlie life as it is lived to-day. Among the subjects dealt with will be included: the philosophy of social life; the philosophy of pleasure; the philosophy of pain; the meaning and value of work; practical idealism, etc. One evening a week; second semester. Fee, \$5 a semester. LODGE.
- 4 (9a). LOGIC. The nature of knowledge, the laws of reasoning, and the principles and methods of scientific proof. The aim of this course is to produce accuracy of thought as well as to familiarize the student with the logical grounds of modern science. Textbook, lectures, and reports. Open to those who have had some college work, and to teachers. Four credits (two evenings a week); each semester. Fee, \$10 a semester.

POLITICAL SCIENCE

1. AMERICAN FEDERAL GOVERNMENT. An elementary course in American government and politics designed for those studying the problems of citizenship, and for teachers. The course treats of the origin and nature of the federal system of government; of the political party system; the federal constitution; structure and organization of the national government; powers and functions of Congress; the executive, and the judiciary; the civil service; the regulatory commissions; national finance; the conduct of foreign affairs; war powers of the government. Text, *American Government and Politics* by C. A. Beard. Two credits (one evening a week); first semester. Fee, \$5 a semester. BENNETT.
2. STATE AND LOCAL GOVERNMENT. A complementary course to I preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Texts, Beard's *American Government and Poli-*

tics and Government of Minnesota by J. S. Young. Two credits (one evening a week); second semester. Fee, \$5 a semester. BENNETT.

PSYCHOLOGY

1. EDUCATIONAL PSYCHOLOGY. THE PSYCHOLOGY OF LEARNING. Methods of measuring the rate of learning; study of typical learning experiments and an examination of the conditions of the most economic learning, and the psychology of the school subjects. Two credits (one evening a week); first semester. Fee, \$5 a semester.
- 2 (18). CHILD DEVELOPMENT. The nature, development, and measurement of intelligence and character, and also of the various mental functions involved, such as attention, association, and memory. The laws of growth and of learning, in school children. Brightness and dullness; their relation to physical development; their causes, hereditary and environmental; and their education treatment. Two credits (one evening a week); first semester. Fee, \$5 a semester. WOODROW.
- 3 (107). SOCIAL PSYCHOLOGY. The instinctive and acquired factors in the behavior of the individual toward society in its various forms and groupings, and in the growth of ideas of self and of social attitudes. Two credits (one evening a week); first semester. Fee, \$5 a semester. PETERSON.

RHETORIC AND PUBLIC SPEAKING

- 1 (1). ENGLISH RHETORIC I. Practical training in writing, exposition, narration, and description. Analysis of prose selections and of compositions written by the class. Two credits (one evening a week); first semester. Fee, \$5 a semester. PATTISON.
- 2 (2). ENGLISH RHETORIC II. A continuation of the preceding course, open to those who have had a one half-year course in freshman Rhetoric, or its equivalent. Two credits (one evening a week); second semester. Fee, \$5 a semester. PATTISON.
- 3 (11). EXPOSITION AND DESCRIPTION. Analysis of specimens; short themes and fortnightly essays, with emphasis on planning and amplification. Informal exposition during the first half of the first semester, followed by Description. Open to those who have completed the equivalent of Course 1-2 in college Composition and Rhetoric. Two credits (one evening a week); first semester. Fee, \$5 a semester.
- 4 (12). NARRATION. A continuation of Course 3. Open to those who have completed the equivalent of three half-years of college Rhetoric. Two credits (one evening a week); second semester. Fee, \$5 a semester.

- 5 (115). **DRAMA TECHNIQUE.** A study of contemporary methods, criticism of stage productions, and writing of plays. The best plays written by the class will be presented at the Little Theatre. Open to mature students who satisfy the instructor concerning their preparation for the course. Two credits (one evening a week); first semester. Fee, \$5 a semester. SKINNER.
- 6 (41-42). **A GENERAL COURSE IN PUBLIC SPEAKING.** The principles of analysis and organization. Extemporaneous speaking based on outlines. Study of model speeches. Attention is given to correctness and effectiveness in delivery. Open to ministers, lawyers, teachers, and others who are able to carry the work. Four credits (one evening a week); both semesters. Fee, \$5 a semester. RARIG, GISLASON.

ROMANCE LANGUAGES

- 1 (1). **BEGINNING FRENCH.** Grammar, pronunciation, reading and practice in speaking. Open to all. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. Fee, \$5 a semester.
- 2 (3). **INTERMEDIATE FRENCH GRAMMAR AND COMPOSITION.** French grammar review; readings from modern authors. Open to all who would enter the University with two years of French. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. Fee, \$5 a semester.
- 3 (7-8). **ELEMENTARY FRENCH CONVERSATION AND COMPOSITION.** Four credits (one evening a week); both semesters. Prerequisite French 1. Fee, \$5 a semester.
- 5 (31). **BEGINNING SPANISH.** Grammar, pronunciation, reading and practice in speaking. Four credits (one evening a week); both semesters. Fee, \$5 a semester.

SCANDINAVIAN

- 1 (1-2). **BEGINNING NORWEGIAN.** Grammar, select reading in easy prose and poetry. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. BOTHNE.
- 3 (5). **BEGINNING SWEDISH.** Grammar, conversation, composition, modern texts. Open to all who have had no Swedish. Both semesters must be completed before credit is given for the first semester. Four credits (two evenings a week); first semester. Fee, \$10 a semester. STROMBERG.

SOCIOLOGY AND ANTHROPOLOGY

- 1 (113). **THE AMERICAN PEOPLE I.** Dominant characteristics of the diverse foreign peoples now in the United States; their modification in

America; the importance of these peoples to the American nation. Lectures, reading, and essay. Two credits (one evening a week); first semester. Fee, \$5 a semester. JENKS.

- 2 (114). THE AMERICAN PEOPLE II. A continuation of Course 1. Essential and unique historical Americanisms, and their value and virility for the future; facts and forces of amalgamation and assimilation in America; America's ethnic problems. Lectures, readings, and essay. Two credits (one evening a week); second semester. Fee, \$5 a semester. JENKS.

ADDITIONAL COURSES

Many advanced courses not listed in this bulletin will be given upon the request of any responsible individual or group willing to organize a sufficiently large class to insure the success of the undertaking.

DEPARTMENT OF BUSINESS INSTRUCTION

The following courses are arranged with a view to meet the needs of those who desire special training for the higher business positions. Business is rapidly becoming a profession, or rather the business field is opening up several professions, among which are Accountancy, Banking and Finance, Advertising, and Salesmanship. The University through its General Extension Division is attempting to afford a preparation for these professions, as it has long done for the profession of Law, Medicine, Engineering, and the like.

The time appears to be approaching when it will be just as necessary for one to secure special training for business positions as it is now to secure training for the learned professions. It is recognized, too, that the rewards for those trained for the business professions are fully as great both financially and in a social way as they are for those trained for the so-called learned professions. Moreover, experience is proving that the very people whom the General Extension Division are reaching can, while being actively employed during the day, best comprehend and appreciate the kind of instruction the evening classes afford.

The subjects of instruction are divided into three groups of courses of study, viz: those aiding in the preparation for accountancy, those aiding in the preparation for banking and those having for their object a general business training. In each of these courses certain fundamental subjects, such as Business Law, Economics, and Business English, are required. Each course can be completed by taking three subjects per week for two years, each class meeting one night per week. Each course may be completed in three years by taking but two subjects per week. Upon the completion of one of these courses a University Certificate to that effect will be granted.

THE HERBERT C. PALIN ADVERTIZING PRIZE

Mr. Herbert C. Palin of Los Angeles, California, has presented a silver loving cup to the advertising class. On this cup is to be inscribed each year the name of the student who, after taking a full year's course in advertising, submits the most constructive plan for an advertising campaign. The cup is to remain in the possession of the winner for one year.

FEEES

The fee for these courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

Special arrangements are made with organizations, clubs and individual business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

TWO-YEAR COURSE IN ACCOUNTANCY

This course is designed to meet the needs of two classes of students, namely, those who wish to prepare to take the state C.P.A. examination with a view of becoming public accountants, and those who aim to fit themselves for responsible positions with private business firms.

For the student who wishes to pursue either object we recommend that he plan to take the regular course herein outlined and thus secure a broad foundation for his work.

Upon the satisfactory completion of this course, the University Certificate in Accountancy will be granted.

Beginning with the year 1917-18 the course requires a total of thirty credits, each one-semester subject counting for two credits. Each subject requires one two-hour class recitation per week for one semester of sixteen weeks. There are two semesters per year, hence the course may be completed in two years by taking three subjects per week. Or, if the student prefers, he may take but two subjects per week, thus requiring three years to complete the course.

The following subjects are required for the course:

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|--|-----------------------|
| 1. Principles of Accounting "A" | 7. Business Law "A" |
| 2. Principles of Accounting "B" | 8. Business Law "B" |
| 3. Accounting Practice and Procedure "A" | 9. Business Law "C" |
| 4. Accounting Practice and Procedure "B" | 10. Economics |
| 5. Auditing "A" | 11. Business English |
| 6. Cost Accounting | 12. Elective subjects |

THREE-YEAR COURSE IN BANKING AND FINANCE

This course is designated to meet the needs of two kinds of students: (1) those who are preparing for, or who are now engaged in, such financial callings as banking, corporation management, stock and bond brokerage, credit work, or financial journalism; and (2) business men who wish to utilize in the upbuilding of their particular business all of the modern scientific knowledge of a practical financial nature.

University Certificate in Finance

Those students who wish to secure a thoro knowledge of finance, and an adequate knowledge of general business for a financial occupation, are urged to arrange their registration so as to obtain the Certificate in Finance as offered by the University.

Beginning with the year 1917-18 this certificate will be granted to those who complete a total of thirty credits distributed as follows:

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|---------------------------------|--------------------------------|
| Principles of Economics (2) | Principles of Accounting B (2) |
| Banking Practice (2) | Business Law A (2) |
| Investments and Speculation (2) | Business Law B (2) |
| Corporation Finance (2) | Business Law C or D (2) |
| Business English (2) | Elective subjects (10) |
| Principles of Accounting A (2) | |

The American Institute of Banking

The American Institute of Banking recognizes the evening courses of the General Extension Division at the University of Minnesota as fulfilling all the requirements of its educational department. Students who complete these courses in Finance are accredited by the Institute without further examination or formality.

By this arrangement, the members of the Minneapolis, St. Paul, and Duluth chapters of the American Institute of Banking may obtain the A. I. B. Certificate upon completion of Economics (2 credits), Banking (2 credits), and Business Law (4 credits.)

The advanced courses in Finance coincide with the requirements of those who wish to receive the title of Associate from the Institute for postgraduate study.

GENERAL BUSINESS COURSE

For the benefit of those students who do not care to specialize in either accounting or in finance, yet wish to secure recognition as having completed a definite group of subjects, the following course is arranged. It is likely that certain of the subjects herein outlined will be more fully developed, and later, together with the fundamental subjects, form courses in themselves.

It is planned that each of these courses will furnish a preparation for a definite calling, such as advertising, salesmanship, and sales management, railroad traffic, and office management.

The University Certificate in General Business

Beginning with the year 1917-18 this certificate will be granted to those who successfully complete a total of thirty credits distributed as follows:

Business English (2)

Business Law A (2)

Business Law B (2)

Economics A (2)

Principles of Accounting A (2)

Principles of Accounting B (2)

Elective subjects (18)

(These electives should be selected with a view to specializing in some particular field, as in Advertising and Selling, in Railroad Traffic, and the like.)

DESCRIPTION OF SUBJECTS

ACCOUNTING

1. INTRODUCTION TO ACCOUNTING. The purposes of accounting, the use of books of original entry, posting to the ledger, the trial balance, closing the ledger, preparation of simple trading statements. Two credits (one evening a week). PRESTON.

This course is arranged for those students who do not understand bookkeeping principles sufficiently well profitably to pursue Course 2. (Hereafter an examination will be required for entrance to Course 2.)

The object of the course is not to teach bookkeeping and office routine. Those desiring such training are advised to enter the classes in the Public Schools, the Y. M. C. A., or the Business Colleges. The object is to give such preparation for those who desire to make a further study of the science of accounts, but who, through inexperience or lack of study, are unable to begin with those who have had that preparation.

2. **PRINCIPLES OF ACCOUNTING "A".** The merchandise account and its analysis, account nomenclature, accruals, deferred charges, classification of loss and gain accounts and of balance sheet accounts. The use of the working sheet, of auxiliary ledgers and controlling accounts, closing books and arranging balance sheets and income statements, departmentization of accounts, imprest cash system, contingent liabilities. Designed for those who already have a knowledge of bookkeeping principles. Those not having such knowledge are expected to first take Course 1. Two credits (one evening a week); first semester. PRESTON, ROTZEL.
3. **PRINCIPLES OF ACCOUNTING "B".** Preparation of statements, the manufacturing, trading, and profit and loss accounts, writing off good will depreciation, the accountant's working sheet, using accounts peculiar to a corporation, adjusting surplus, sinking funds and reserves, drafting condensed balance sheets and income statements. For those who have completed Course 2 or its equivalent. Two credits (one evening a week); second semester. PRESTON, ROTZEL.
4. **ACCOUNTING PRACTICE AND PROCEDURE "A".** The subject matter is presented chiefly by means of a more or less exhaustive study of a representative business. The work consists of the following: (a) a study of the distinctive group of accounting problems which are likely to arise in a business organization through a series of years and the scientific solution of those problems; (b) a study of the accounting problems peculiar to representative business other than manufacturing and selling. The manner of presenting the subject is essentially practical, the students being required to work out for themselves problems similar to the ones studied. Two credits (one evening a week); first semester. ROTZEL.
An advanced course for the accounting student following the study of Accounting Principles. The object of the subject is twofold; first, to familiarize the student with the peculiar accounting problems of business, and, second, to afford the student the means to secure that necessary insight and skill which practicing accountants must possess in order to meet the demands made upon them.
5. **ACCOUNTING PRACTICE AND PROCEDURE "B".** A continuation of Course 4. Two credits (one evening a week); second semester. ROTZEL.
6. **COST ACCOUNTING.** The elements of cost, i.e., prime cost and indirect expense or burden, kinds of cost accounting, continuous process and

production order costs. The materials ledger. Methods of accounting for labor. Methods of distributing indirect or "overhead" expense. The machine rate method, and when applicable. Methods of compensating labor. Pre-determined standard costs, and their relation to "scientific management." The cost ledger and its relation to the general ledger. Two credits (one evening a week); first semester. PRESTON.

Modern industry demands that each plant be equipped with adequate accounting facilities for ascertaining the cost of operation. These costs are necessary to show, first, the profitability of each branch of the industry so as to enable the management to push the profitable, and to drop the unprofitable, lines, or to place them upon a paying basis; second, the cost of each article as a basis of price making; third, so far as possible, the cost of each operation, so as to enable the management to plan economies in the operation of the plant.

7. AUDITING (A). This course is essentially practical and is intended only for those whose previous training in the principles of accounting has been sufficient to enable them to be benefited by this advanced work. The chief aim will be to give students the training necessary to enable them to conduct audits and investigations either as private auditors or public accountants; to set up accounts for various purposes as a result of such audits or investigations and to prepare suitable reports thereon. Two credits (one evening a week); first semester. ROTZEL.
8. AUDITING (B). A continuation of Course 7. Two credits (one evening a week); second semester. ROTZEL.
9. APPLIED ACCOUNTING (A). A seminar course designed for those who have had two years of work in Accounting. The purpose of the course is to apply the principles and the practice of accounts as studied in the previous years to a special and definite business. Each student will work up in report form the details of an accounting installation which will be of such a character that it will meet in a scientific way all the contingencies which would be likely to arise in a series of years. Two credits (one evening a week); first semester.
10. APPLIED ACCOUNTING (B). Continuation of Course 9. Two credits (one evening a week); second semester. ROTZEL.

BANKING AND FINANCE

21. BANKING. The documents created by transactions in goods; the function of a bank in aiding industry; the steps in organization of national or state banks; corporate powers, rights, and liabilities of stockholders and directors; bank administration and the various offices and departments; deposits, depositors, and receiving tellers; bank reserves and circulating notes; the clearing-house, handling country checks, and transit departments; collections; domestic exchanges; foreign

exchange; discounts and collateral loans; credit department; how profits are made on government deposits, by note issue, in buying and selling exchange, by analysis of depositor's accounts; accounting methods and general balances; examination; supervision and reports; and bank policy from the analysis of local bank reports. Two credits (one evening a week); first semester. EBERSOLE.

This course aims to explain the various functions of an up-to-date bank and to teach the methods by which its work is accomplished. A careful survey will be made of the economic basis, legal status, accounting methods, and financial problems of banking as carried on by large commercial institutions having a full complement of banking operations including city, country, and foreign business. The method of presentation comprises reading references, lectures, review questions, and use of the blackboard for all computations.

22. **MONEY AND CREDIT.** The origin, evolution, and functions of money; the gold standard, forms of money current in the United States; government paper, bank notes, and deposit currency described and analyzed; credit and its effects; the causes of general price changes; various types of standards and currency systems including bimetallism and the gold exchange standard; discount rates, the problem of securing an elastic currency, and the distribution of the world's gold between the nations; the problem of securing an ideal money. Text-book and money-market articles in current newspapers will furnish material for discussion. Two credits (one evening a week); second semester. EBERSOLE.

A thoro understanding of the character and functions of money and of the principles of credit is the cornerstone of modern business intelligence. This course in money and credit constitutes an interesting and scientific treatment of the forces that determine value and prices, of the processes of exchange, and of the many forms of media of payment represented by monetary and credit instruments.

- 23 (145). **THE CORPORATION FINANCE.** The evolution of the private corporation and its relation to other business units; the organization of a corporation; charters and articles of association; directors and officers, manner of their selection, their functions and responsibilities; forms of corporation stocks and bonds and their respective legal and financial characteristics; the marketing of securities; capital and revenues; intangible values; books and accounts; dissolutions, consolidation, and reorganization; trust and holding companies; the taxing of corporations; corporation statistics; the preparation and analysis of corporation reports; the corporation before the law. Two credits (one evening a week); second semester. EBERSOLE.

Modern business in all of its major forms is directed through corporate organization. The course in corporation finance is designed to give the student such a knowledge of corporations and their administration as to make clear the general organization of industry and

commerce. Texts will be extensively supplemented by informal lectures, class discussions, and topical essays.

- 24 (142). INVESTMENTS AND SPECULATION. Stocks, bonds, endowments, annuities, and other forms of investment considered with regard to their security, income, and opportunity for rise or fall in value. The social process of saving and investment; the investment fund; various classes of investments; the criteria of a good investment applied to government, corporation, and real estate loans; railroad, industrial, timber, and mining securities compared; the laws of investment values. Stock exchange operations; money market and other influences affecting prices; analysis of present fundamental conditions. The actual operations upon the stock and produce exchanges are used to illustrate the study of speculation, and the course of the markets and the bank rates is closely followed as a basis of deduction in the analysis of cause and effect. Textbook and interpretation of financial quotations and reports. Two credits (one evening a week); second semester. EBERSOLE.

BUSINESS LAW

31. BUSINESS LAW "A"—CONTRACTS AND AGENCY

Contracts: Definition of a contract; offer and acceptance; special formality; consideration; capacity of parties; contractual powers of minors, of persons mentally deficient, and of married women; reality of consent, mistakes, misrepresentation, fraud, undue influence, legality of object; the operation of contracts; assignment of contracts; interpretation of contracts; methods of discharging contracts.

Agency: Methods of forming agencies; methods of terminating agency; the rights and obligations of principals, agents, and third parties. Text, lectures, and cases. Two credits (one evening a week); first semester. SMILEY.

This course is fundamental and must be completed before registration will be accepted for other courses in business law.

32. BUSINESS LAW "B"—SALES AND NEGOTIABLE INSTRUMENTS

Sales: Sales of personal property; definition of a sale and its distinction from a bailment; when the title passes to the buyer; what title passes; rights of the seller (a) to set the contract aside on the ground of fraud, (b) to enforce lien for the purchase money, (c) to obtain stoppage in transit; rights of the purchaser (a) to demand goods of a certain quality, (b) to demand warranty of the purchaser's title.

Negotiable Instruments: Nature and characteristics: (a) definitions and characteristics, (b) uniform negotiable instrument law; form: (a) what a negotiable instrument must and must not contain, (b) non-essential, (c) effect of blanks and delivery; negotiation: (a) negotiation, indorsement, and delivery, (b) holder in due course and his rights; maker's and acceptor's contract: (a) maker's contract

on a promissory note, (b) acceptor's contract on a bill of exchange, (c) presentment of a bill of exchange for acceptance; drawer's and indorser's contract: (a) drawer's contract on a bill of exchange, (b) indorser's contract on a bill or note, (c) presentment for payment, (d) notice of dishonor, (e) protest, (f) checks, (g) position of indorser after liability is fixed. Text, lectures, and cases.

Two credits (one evening a week); second semester. For those who have completed Course 31. SMILEY.

33. BUSINESS LAW "C"—PARTNERSHIPS AND CORPORATIONS

Partnerships: Formation of partnership; articles of co-partnership; methods of terminating partnerships; rights and obligations of partner (a) toward his co-partners, (b) as an agent of the firm, (c) toward the firm's creditors, (d) for an accounting; special partners; limited partnerships.

Joint Stock Companies: How distinguished from ordinary partnerships; how like ordinary partnerships; statutory requirements.

Corporations: Formation of corporations of various classes; terminations of corporations; membership in corporations, methods of transferring interest, fraudulent issuance of stock by corporate officers; rights of stockholders (a) to dividends, (b) to inspect and control corporate affairs; liabilities of stockholders (a) on stock subscriptions, (b) to pay assessments, (c) for the corporate debts; the doctrine of ultra vires; rights and obligations of corporate directors; corporate mergers and consolidations; domestic and foreign corporations. Text, lectures, case assignments, and class discussions.

For those who have completed Course 31. Two credits (one evening a week); first semester. HOUCK.

34. BUSINESS LAW "D"—REAL PROPERTY, MORTGAGES, BANKRUPTCY

Real Property: Estates in land, estates held jointly or in common, equitable estates, relative rights of adjoining owners, trespass, easements, sales of real property, the contract to sell, conveyances, wills, mortgages, and liens; landlord and tenant, the lease, assignment and subletting, rent, and remedies for non-payment. Insolvency and Bankruptcy. Two credits (one evening a week); second semester. HOUCK.

35. BUSINESS LAW "E"—COMMON CARRIERS, AND LAW OF RAILWAY TRAFFIC AND RATES.

Among the items considered are: Who are common carriers; duties, privileges, rights and liabilities in general; duty to furnish equipment; demurrage; when liability of carrier begins; when liability ends; bills of lading and contracts limiting liability, carrier's liability for goods in storage awaiting shipment or delivery; liability on goods lost, damaged, or delayed, etc., etc. The difference between private and public utility businesses for purposes of regulation; the fundamental principles of regulation; legal considerations and elements making up lawful rates; what are reasonable rates, discrim-

inatory rates; how each is determined and protected against competition, long and short haul, construction or tariffs; routing and misrouting; reconsignment and diversion of cars; time and manner of presenting claims; state and federal regulation and regulatory bodies; right to have rates quoted; penalty for erroneous quotation; how to present and handle claims before the State and Interstate Commerce Commission.

Particular attention is paid to state and federal regulatory acts and tribunals. The Interstate Commerce Act (1887) and the Elkins Amendment (1903), the Hepburn Act (1906), the Mann Act (1910), and the Cummins Act (1915) are all thoroly covered.

The widest latitude of discussion and questioning will be allowed. Students will be allowed and invited to present actual pending disputes for discussion and advice as to proper procedure to be followed.

Two credits (one evening a week); first semester. Houck.

Note.—Railway Traffic and Rates (Railway Problems), Course 71, shown on page 31, should either precede this course or be taken simultaneously with it as an integral part of the instruction in this subject.

ECONOMICS AND COMMERCE

- 41 (1a). ELEMENTS OF ECONOMICS. Utility and valuation; price and the laws of price as applied to competitive and monopolistic conditions; price and the cost of production; the factors of production; the law of diminishing returns; division of labor and its relation to the development of industry; the forces and factors involved in the concentration of industry, including the difference between the agricultural and the mechanical industries; wages, rent, interest, capitalization, enterprise, and business profits, finally, some attention is given to money, credit, banking, and international trade. Two credits (one evening a week); first semester.

This course aims to ground the student in principles that are basic in all economic discussions. The study naturally centers in value and the laws of valuation under the various applications.

- 42 (3a). PRACTICAL ECONOMIC PROBLEMS (ADVANCED ECONOMICS). Taxation—the tariff, general property tax, corporation taxes, income taxes; labor problems—unionism, trade agreements, strikes and lock-outs, law in reference to labor unions, injunctions, employers' liability, workmen's compensation; railway problems—theory of rate-making, state and federal control; monopoly problems—economics of big business, intensive study of U. S. Steel Corporation, Sherman Anti-Trust Act, and important legal decisions relating to restraint of trade. Two credits (one evening a week); second semester.

The aim of this course is to study economic principles in their relation to some of the leading questions of to-day.

43. **PRINCIPLES OF BUSINESS MANAGEMENT.** Principles of organization showing comparative values and uses of line, staff and combination types. Methods of saving time, money, and energy in the moving of work and materials. Making a scientific analysis of a particular operation, the operation of a department, and the operation of a plant. How to make use of the analysis in reducing waste time, energy, money, and material. Principles underlying the establishment and maintenance of the improved methods and conditions obtained by the above study. These principles include a method of determining upon proper and clearly defined policies and a study of their use and value; the necessity for and proper means of profiting by the experience of others. How to develop business judgment in yourself and your subordinates. The principles governing executive control and the maintenance of discipline; discussion of methods of determining upon a wage scale and legitimate profits; the relation of physical condition to success, and its bearing upon production. Some principles underlying proper management of finances. The relation of home management to industrial and commercial efficiency; the organization and management of the sales department; training the salesman. The general problem of selection of help with a brief outline of a modern system of scientific selection and placement by a study of individual characteristics. One evening a week; first semester. **NEWCOMB.**

51. **ELEMENTARY ADVERTISING.** This course is intended for those who desire sufficient knowledge of the elements of advertising to prepare reasonably satisfactory copy for newspapers, magazines, street car cards, circulars and booklets. The fundamental elements of display, layout, headings, and copy are carefully outlined and the student is given practice in the preparation of advertisements. One evening a week; first semester. **MARTIN.**

This course is intended to acquaint the student with what may be called "the tools of advertising" before he undertakes either of the two advanced courses in the planning and preparation of advertising campaigns.

52. **NATIONAL ADVERTISING.** A study of advertising from a new angle. The student puts himself in the place of one having a product for sale, and from the first lesson to the last each lecture is so planned as to give the methods pursued in conducting the many different steps in an advertising campaign.

The student first analyzes the product from the standpoint of its *advertisability*. He considers the planning of a trademark, the organization of the sales force, the selling points, the prices and the profits. He then *thoroly* analyzes the market, chooses the advertising mediums most adaptable to his particular campaign, and decides on the appropriation.

Students will be furnished with pamphlets for these lectures which will give reference to practically everything which has so far been published on subjects taken in the course. In this way the experience of probably 300 of the leading advertising men of this country will be available to the student. Two credits (one evening a week); second semester. MARTIN.

53. **RETAIL ADVERTISING.** In this course the student conducts an advertising campaign for a retailer under the same general plan as in Course 52 for a manufacturer. The student is shown the relation of advertising to the different departments of a great department store. He is also shown how some of these same principles may be adopted for the smallest of specialty stores. He is shown where the advertising manager gets his ideas and how they are developed into the finished advertisement—what pays and what does not pay. One evening a week; second semester. Not given in 1917-18.
61. **SALESMANSHIP.** A course for insurance men, specialty men, traveling salesmen. Lectures and demonstrations on the principles underlying successful salesmanship, as follows: the proper approach; securing attention; arousing interest; creating desire; closing the sale; the psychology of salesmanship; the use of suggestion in selling; the use of argument. One evening a week; each semester.
- The chief feature of the work will be the demonstration sales. So far as possible each student will be given an opportunity to take part in a sufficient number of demonstrations that he may apply the principles laid out in the course. Not given in 1917-18.
71. **RAILWAY TRAFFIC AND RATES.** The course covers the various features and problems which are brought up in the actual practice of handling freight traffic. The lessons embrace the practical application of the Interstate Commerce Act and other laws and regulations; the correct compilation of tariffs; methods under which rates are published by other than the line over which they are applicable; the classifying of freight; classifications and their peculiar exceptions; the principal rate bases, such as all rail, rail and lake, etc.; tariffs, rules and regulations governing domestic, export, and import traffic and the principal commodities; the routing and mis-routing of freight; various methods of loading and offering freight for shipment; tracing of freight; presentation and adjustment of claims; the cancellation, suspension and restoration of rates and tariffs; "privileges" such as transit handling of grain, storage, diversion, etc.; rulings of the Interstate Commerce Commission are referred to in the lectures and rates are quoted from current tariffs and classifications. Four credits (one evening a week); both semesters. KUEMPEL.
72. **RAILWAY TRAFFIC AND RATES (2).** (LEGAL PHASES). For description see Course 35, Business Law "E". Two credits (one evening a week); first semester. HOUCK.

ENGLISH AND SPANISH

BUSINESS ENGLISH. Not a lecture course nor a dry, prosy study of technical English grammar and composition, but a new practical course designed for business men and women who recognize the value of a command of English for business and every-day writing and conversation. The main object of the course is to acquaint the student with the various types of business letters, reports, etc., and to teach him how to write and use them effectively. A secondary object of the course is to show students how training in expression—written or oral—is primarily training in thinking and analysis and hence is a very real stimulus to general business efficiency. The types of letter to be studied include complaint and answer, reminder, acknowledgment, recommendation, application, collection, form, follow-up, sales, inter-departmental, and composite. Students will be expected to write letters and take part in the weekly discussions of actual problems in business correspondence. No textbook is required. Typewritten synopses of lessons, furnished each week, provide the student with a cumulative text. Ability to write simple, grammatically correct English is a prerequisite to this course. One evening a week; first semester. Repeated second semester. VIETS.

83. **PUBLIC SPEAKING.** For description see Department of Collegiate Instruction. One evening a week; both semesters. RARIG, GISLASON.
90. **COMMERCIAL SPANISH.** For description see Department of Collegiate Instruction. One evening a week; both semesters.

DEPARTMENT OF ENGINEERING INSTRUCTION

The increase in the number of students in the extension engineering classes last year indicates the importance of this work. The demand for men specially trained in engineering has been steadily increasing each year. Every branch of the profession has been calling for the services of trained men. By trained men is meant those who can plan work and use good engineering judgment in any given project.

To meet this demand the General Extension Division now offers groups of courses in Architecture, Civil Engineering, Electrical Engineering, and Mechanical Engineering. These course groups are arranged to be completed in either two- or three-year periods and are planned primarily for workers in industrial establishments.

The subject of engineering is one that requires very thoro study, and no step should be neglected. These courses have been laid out with great care, and are especially adapted to the needs of men working in shops and other industrial and manufacturing establishments, to the end that such men may have added to their practical training, a technical and theoretical knowledge which will enable them to advance more rapidly in their chosen line of work.

It has been found that many persons registered who could not take the work with any great profit to themselves because of inadequate preparation. For this reason it is desirable that students should consult with the Director of the General Extension Division before taking up any course, so that they may have proper guidance and direction.

Students who have had sufficient preparation need not start at the beginning, but may take up the work at the point where they can pursue it with advantage.

These courses also offer an opportunity to college graduates, who may wish to specialize in some subject not covered in their regular college work.

When the student completes any one of these consecutive courses, a certificate to that effect from the University of Minnesota will be given.

Each student will be required to take a course in "English for Engineers" before a certificate will be granted.

FEEES

The fee for a single course, meeting one night a week is \$7.50 a semester; for two courses, \$12 a semester; for three courses, \$15 a semester.

THREE-YEAR COURSE

The following courses, arranged to be completed in three years of two evenings a week, may also be finished in two years of three evenings a week. The work is divided into two semesters per year, and each semester of the Engineering Extension classes will be sixteen weeks long.

ARCHITECTURE

FIRST YEAR

First Semester
Elementary Architectural Design

Second Semester
Elementary Architectural Design

SECOND YEAR

First Semester
Intermediate Architectural Design
Shop Mathematics

Second Semester
Intermediate Architectural Design
Mechanics, Strength of Materials

THIRD YEAR

First Semester
Advanced Architectural Design
Structural Design

Second Semester
Advanced Architectural Design
Reinforced Concrete

If a class of 12 or more request it, the two following subjects may be taken during the first year:

Freehand Drawing

Architectural History

CIVIL ENGINEERING (For Office Men)

FIRST YEAR

First Semester
Shop Mathematics
Mechanical Drawing

Second Semester
Shop Mathematics—Advanced
Structural Drafting

SECOND YEAR

First Semester
Applied Mechanics
Elements of Structural Design

Second Semester
Strength of Materials
Structural Design—Advanced

THIRD YEAR

First Semester
Reinforced Concrete
Roof Trussed Bridges—Design

Second Semester
Reinforced Concrete Design
Bridge and Building Design

CIVIL ENGINEERING (For Field Men)

FIRST YEAR

First Semester
Shop Mathematics
Lettering and Sketching

Second Semester
Shop Mathematics—Advanced
Mapping

SECOND YEAR

First Semester
Plotting and Calculation
Plane Surveying

Second Semester
Stadia and Topographical Surveys
Curves and Earthwork

THIRD YEAR

First Semester
Highways
Municipal Engineering

Second Semester
Railways
Municipal Engineering

ELECTRICAL ENGINEERING

FIRST YEAR

First and Second Semesters

Shop Mathematics
Elementary Electricity

SECOND YEAR

First Semester

Alternating Currents
Mechanical Drawing
or
Applied Mechanics

Second Semester

Alternating Currents
Mechanical Drawing
or
Strength of Materials

THIRD YEAR

First Semester

Direct and Alternating
Current Machinery
or
Telephony
Steam Boilers and Engines
or
Electrical Measurements

Second Semester

Central Power Stations
or
Telephony
Engine Testing
or
Electrical Measurements

Alternates in the third year will be given only every other year.

MECHANICAL ENGINEERING

FIRST YEAR

First Semester

Shop Mathematics
Mechanical Drawing

Second Semester

Shop Mathematics—Advanced
Mechanical Drawing

SECOND YEAR

First Semester

Applied Mechanics
Advanced Shop Work
or
Elementary Electricity

Second Semester

Strength of Materials
Gas Engines
or
Plumbing

THIRD YEAR

First Semester

Shop Management and Pattern Construction
or
Steam Engines and Engine Testing
Heating and Ventilation
or
Mechanical Equipment of Buildings

Second Semester

Steam Boilers
or
Central Stations
Alternating Currents
or
Elementary Machine Design

DESCRIPTION OF COURSES

1. ARCHITECTURAL HISTORY. Twelve lectures illustrated with lantern slides, covering the ancient and Renaissance periods. One evening a week; second semester. Fee, \$7.50 a semester. FORSYTHE.

2. **ELEMENTARY ARCHITECTURAL DESIGN.** Shades and shadows and wash rendering. Architectural elements such as doors, windows, moldings, and the architectural orders; general drawing, exercises and lectures in the application of these elements to simple problems in design and a survey course of lectures in architectural history illustrated by lantern slides. Open to high school students who have had mechanical drawing, to those who have had one year or more in an architect's office, and to those who, in the opinion of the instructors, have had equivalent experience. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.
3. **INTERMEDIATE ARCHITECTURAL DESIGN.** Regular Class B "Analytique" or Order Problems of the Society of Beaux Arts Architects, or equivalent designs in architectural problems from the regular course of the University of Minnesota. Open only to those who have completed Course 2, or who have had two years or more in an architect's office, or have had equivalent preparation in an architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. Fee, \$5 a problem, or \$10 a semester. JONES.
4. **ADVANCED ARCHITECTURAL DESIGN.** Class B, Plan Problems, and Class A, Problems of the Society of Beaux Arts Architects, or equivalent design problems from the regular course in architecture at the University of Minnesota. Open only to those who have completed the required "Analytique" or Order Problems, or to those who have had one or more years of design in any architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. \$5 a problem or \$10 a semester. MANN.

Note.—Regular instruction will be given on Monday and Thursday evenings, but students in these classes may work in the drafting rooms of the architectural department on other evenings, except Sunday.
5. **FREEHAND DRAWING.** Drawing from casts and from memory. Details of the figure and architectural ornament in charcoal, pencil, pen and ink. Two evenings a week; both semesters. Tuesday and Friday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.
6. **MAP DRAWING.** (a) Farm and city plats. (b) Real estate display maps. (c) Landscape architect's maps. (d) Topographic and hydrographic symbols. One evening a week; second semester. Fee for course, \$7.50 a semester. ZELNER.
7. **LETTERING AND TITLES FOR ENGINEERS.** Principally freehand Reinhardt lettering. Title lay-outs and lettering. One evening a week; first semester. Fee for course, \$7.50 a semester. ZELNER.
8. **PLANE SURVEYING.** Elements of plane surveying relating to method of chain, compass, transit and stadia surveys; leveling; methods of

- keeping field notes; determination of area of irregular plots; computation and plotting of field notes; care, use, and adjustment of instruments; methods of subdivision of the United States public lands. One evening a week; first semester. Fee, \$7.50 a semester. CUTLER.
9. CURVES AND EARTHWORK. Mathematics of simple, compound, and spiral curves; preliminary and location surveys; plotting or profiles; vertical curves; cross-sectioning and computation of earthwork volume; methods of computation of overhaul; mass diagram, right-of-way and station ground maps. One evening a week; second semester. Fee, \$7.50 a semester. CUTLER.
10. CONCRETE MATERIALS: SELECTION AND TESTS. This course will cover the selection of materials entering into concrete, their properties and the tests to be applied. A study will be made of the proper combinations to obtain the best mixtures for given constituent materials at the lowest cost. Local materials will be used and those pursuing the course will make their own specimens and perform all the tests. One evening a week; first semester. Fee, \$7.50 a semester. McMILLAN.
11. REINFORCED CONCRETE. Covers the elements of the theory and practical design of reinforced concrete structures, including floors, roofs, walls, columns, foundations, and retaining walls. One evening a week; both semesters. Fee, \$7.50 a semester. McMILLAN.
12. STRUCTURAL DESIGN. This course will include a treatment of structural mechanics and stress computation, and the elements of the principles and practice governing the design of tension and compression members, beams, girders, and columns. Prerequisite: An elementary working knowledge of mathematics through trigonometry, and some knowledge of elementary physics. One evening a week; both semesters. Fee, \$7.50 a semester. MANEY.
13. ELEMENTARY ELECTRICITY. This course will start with the simple laws of magnetism, and advance through the theory of direct current machinery. Special attention will be given to direct current motors and generators, armature windings, commutators, and wiring diagrams. The course will be of value to those who wish to take up the study of alternating current machinery and power plants. Experiments will be made throughout the course. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
14. ELEMENTS OF ALTERNATING CURRENTS. An experimental study of alternating currents, including the modifications of Ohm's law to include effects of inductance and capacity, the fundamental principles of the impedance coil, transformer, generator, motor, telephone transmitter and receiver, and the like. One evening a week; both semesters. Fee, \$7.50 a semester. TURNER.
15. DIRECT AND ALTERNATING CURRENT MACHINERY. The operation and maintenance of direct and alternating current generators, motors, and

- electrical measuring instruments. A textbook by J. H. Morecroft will be used. One chapter will be taken each week, and a number of experiments will be made throughout the course. One evening a week; first semester. Fee, \$7.50 a semester. RYAN.
16. **POWER STATION ELECTRICAL APPARATUS.** A study of the problems involved in the operation and maintenance of direct and alternating current generators and motors, switchboards, electrical measuring instruments, and storage batteries. This course is designed for men connected with central stations and isolated plants. One evening a week; second semester. Fee, \$7.50 a semester. RYAN.
 17. **ELEMENTS OF TELEPHONY.** Nature of voice sounds, construction and operation of receivers and transmitters, reading blue-prints and circuits, magneto and central-energy circuits, the electro-magnet as used in telephony, batteries and other generating apparatus, signalling apparatus. Some previous knowledge of alternating currents is desirable, but not absolutely necessary. The treatment will be elementary, using only simple mathematics. Experimental illustrations will be given so far as practical. One evening a week; second semester. Fee, \$7.50 a semester. SHEPARDSON.
 18. **SHOP MATHEMATICS.** This course is designed to meet the needs of shopmen, and affords an opportunity to take up engineering work of a higher grade. Practical shop problems will be thoroly discussed. This course together with one in drafting is essential for all other engineering branches. It will cover the subject of fractions, decimals, percentage, weights of materials, areas and volumes, thread cutting, gearing, belts and pulleys, the milling machine, and a general drill in equations and the use of formulae. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
 19. **ALGEBRA.** A thoro course in elementary algebra, including the fundamentals, factoring, law of exponents, simple, simultaneous and quadratic equations, square and cube root, and the general application of the subject to practical problems. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
 20. **GEOMETRY.** A short course covering the first five books of plane geometry with numerous original exercises and theorems. One evening a week; both semesters. Fee, \$7.50 a semester.
 21. **TRIGONOMETRY.** This course is designed for those who have had the subjects of algebra and geometry and wish to pursue civil engineering studies. The solution of right and oblique triangles will be thoroly discussed and practical plane surveying problems will be given special attention. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
 22. **ELEMENTARY APPLIED MECHANICS.** A short, practical course in elementary mechanics designed to meet the needs of students who have

had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, work, power, and energy. One evening a week; first semester. Fee, \$7.50 a semester. BROOKE.

23. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials, designed to follow the course in applied mechanics. The subjects to be treated are: the properties of materials, stress and strain, elastic and ultimate strength, deformations, principle of moments, moment of inertia, simple stresses, shear, riveted joints, the general elementary theory of beams, columns, and shafts. One evening a week; second semester. Fee, \$7.50 a semester. BROOKE.
24. **TESTING OF MATERIALS.** Investigation of the physical properties of various metals and other engineering materials, including the more common grades of commercial steels, wood, cement, concrete, ropes, cables, belting, chains, etc. Supplemented by lessons on the various materials of construction and standard methods of testing. One evening a week; first semester. Fee, \$7.50 a semester. SHOOP.
25. **ENGINE AND POWER PLANT TESTING.** This course is intended for stationary engineers who wish to become more efficient in their line of work. The course will consist of lessons supplemented by experimental demonstrations illustrative of certain portions of the work. Actual problems arising in power plant testing will be worked out in class with complete explanations and instruction for their solution. The laws of mechanics, heat, power, work, and energy will be applied to engine and power plant testing. One evening a week; first semester. Fee, \$7.50 a semester. SHOOP.
26. **STEAM BOILERS AND ENGINES.** Theory and practice of steam boiler operation; settings and accessories; type of boilers, chimneys, smoke prevention, mechanical stokers and economizers. Mechanism of the steam engine, work in the cylinder, steam distribution, effect of reciprocating parts. Indicator and indicator cards. Horsepower from cards; valve diagrams and valve setting. Exercises and problems. One evening a week; second semester. Fee, \$7.50 a semester.
27. **PATTERN MAKING.** A series of lessons on the theory and practice of pattern making. Open to mechanics and apprentices who are able to take the work with profit to themselves. A further course is offered to teachers who are now teaching manual training and desire to take up a more advanced branch of the work. This course can also be taken advantageously by those of mature years who wish to become teachers of manual training. One evening a week; first semester. Fee, \$7.50 a semester. RICHARDS.
28. **PLUMBING.** This course is designed to meet the needs of the practical shop man and will cover the principles of plumbing and the best practice in use at the present time. It is hoped that a standard text will

be available. One evening a week; second semester. Fee, \$7.50 a semester. MARTENIS.

29. HEATING AND VENTILATING. The course will cover present heating and ventilating practice and is designed for heating contractors and others desirous of obtaining a fundamental knowledge of the subject. The plan of instruction includes a study of heat; methods employed for heating and ventilating buildings of various kinds; piping systems and temperature regulation. One evening a week; first semester. Fee, \$7.50 a semester. MARTENIS.
30. GAS ENGINES AND PRODUCERS. Principles of operation of two-cycle and four-cycle engines; cylinder construction and arrangement, system of speed control, ignition, and cooling. Application of the indicator and consideration of indicator diagrams. A study of the power gas producer, including suction and pressure types for various fuels; construction and operation of the generator and accessory apparatus. Application to various industrial purposes. One evening a week; first semester. Fee, \$7.50 a semester.
31. ELEMENTARY MECHANICAL DRAWING. How to make machine and structural drawings and how to read them from blue prints, a practical course in drafting and drafting room methods preparing the student to start in commercial drafting room work. This is a general course taking up the work from the beginning and includes the use of instruments, lettering, drawing views and sections, dimensioning for shop use, making the finished shop drawings and exercises in reading drawings. The necessary geometry is taken up. Instruction is given individually and those with some previous training are given more advanced work. One evening a week; both semesters. Fee, \$7.50 per semester. FRENCH.
32. ENGLISH FOR ENGINEERS. A course in practical English, designed to meet the professional needs of engineering students. The material of this course will include business letters—about twelve types; reports; estimates; instructions, etc. Some attention will be given to oral English. The underlying purpose of this course is to acquaint the student with the various kinds of business letters, reports, etc., and to teach him how to prepare and use them effectively. A secondary purpose is to show the prospective engineer that training in expression—written or oral—is training in clear, straight thinking and hence is a real stimulus to general efficiency. Students will be expected to do a certain amount of writing and to take part in the weekly discussions of problems bearing upon the work of the course. Ability to write simple, grammatically correct English is a prerequisite to this course. One evening a week; both semesters. Fee, \$7.50 per semester. NICHOLS, VIETS.
33. CALCULUS. A short course in calculus will be offered to those who have completed trigonometry. Stress will be laid upon the various

derivatives and their application to tangents, normals, evolutes, involutes, envelopes and maxima and minima. A few of the more important integrals relating to engineering will be given. This course is intended to give the student a working knowledge of calculus and the value it has in the engineering field. One evening a week; both semesters. Fee, \$7.50 per semester. EDWARDS.

34. THEORY OF ENGINEERING. A general course given to those students who have had two years training in engineering work. Only students who have taken courses 11, 12, 13, 14, 18, 21, 22, 23, 24, 31, are eligible. Kent's "Mechanical Engineers' Pocket Book" will be used as a text. One evening a week; both semesters. Fee, \$7.50 per semester. EDWARDS.

PROFESSIONAL COURSES IN LAW

SCOPE OF CURRICULUM

The General Extension Division offers professional courses in law which will be given under the immediate direction of the faculty of the Law School. These courses are designed to meet the needs of two distinct classes of students; first, those young men and women actively engaged in mercantile pursuits who desire to acquire a technical knowledge of law for the purpose of better qualifying themselves for business careers; second, those who desire to qualify themselves for admission to the bar by passing the examinations set by the State Board of Bar Examiners but whose circumstances are such as to make it impossible for them to attend classes excepting in the evening after business hours.

For the benefit of these two classes of students a course of instruction has been mapped out covering substantially all of the topics required by the Bar Examiners for admission to the bar, and extending over a period of four years. The topics to be given to the first- and second-year classes only are scheduled for the session of 1917-18. The announcement for the year 1918-19 will include also the topics to be given to the third- and fourth-year classes.

UNIVERSITY CREDIT

Since the courses given to the evening classes are necessarily less extensive than the corresponding courses given in the Law School, no University credit will be given for work in law excepting in those cases where students in evening classes achieve unusual success, as indicated by a grade of B or better. Such honor students will be permitted to take the Law School examinations in the subjects in which they are distinguished, and upon passing such regular examinations, will be given University credit, provided they have the preliminary education (two years of college work) required for admission to the Law School.

CERTIFICATE ON COMPLETION OF COURSE

No degree is given for night work in law, but upon the successful completion of the four-years' course herein announced, students will receive a certificate showing that they have completed the University Extension Course in Law.

TIME AND PLACE OF INSTRUCTION, AND TEXTBOOKS

All instruction in law will be given at the Law Building of the University of Minnesota, Minneapolis. Class exercises will be held on the evening of each week day, excepting Saturday, during the session, beginning at 7:30 and extending not later than 9:30.

Most of the textbooks used by students in pursuing the courses will be loaned by the University free of charge, upon payment of a deposit fee of \$5.00. This deposit will be repaid upon the student's returning in good condition all of the books loaned to him during the year.

REQUIREMENTS FOR ADMISSION

The requirements for admission to the Extension courses in Law are in general the same as for the day courses in the College of Science, Literature, and the Arts; namely, either (1) passing special entrance examinations, (2) graduation from an accredited high school, or (3) evidence by certificate, of equivalent scholastic preparation.

By special arrangement, persons who are at least twenty-one years of age, and who do not comply with the general requirements as above outlined, may attend the evening courses in Law. In such cases, it will be necessary for applicant to satisfy the instructor in charge that he is qualified to carry the work which he proposes to take.

FEEES

The tuition fee for the regular Extension Course in Law is \$50.00 a year, payable one half at the beginning of the first semester and one half at the beginning of the second semester. Students taking less than the whole course will be required to pay at the rate of \$5.00 for each recitation a week for each semester. No other charge of any kind will be made excepting the deposit required for the safe return of textbooks loaned, as indicated above.

REGISTRATION

From September 24 to October 5 the office of the Dean in the Law Building will be open for the purpose of giving information and registering students for the Extension Law courses every evening, except Saturday and Sunday, from 7:30 to 9:30. At other times, and for further particulars apply to the Director of the General Extension Division, University of Minnesota, Minneapolis. The office of the Director is in the Main Engineering Building.

COURSES GIVEN IN 1917-18

The complete Extension curriculum in Law will extend through four years, with six lecture periods a week each year. The courses given the first- and second-year classes are described in outline below.

First Year

1. **PERSONAL PROPERTY.** This course includes a consideration of the distinction between real and personal property; the acquisition of title to personal property other than by sale; accession, confusion; gifts; finding; property rights of bailor and bailee; possessory liens and pledges. One hour; first semester. VANCE.

2. **CONTRACTS.** This course deals with the general principles of the Law of Contracts. The student considers fully the rules governing the making of contracts, their operation and discharge, and the legal consequences of a breach of contract. The general purpose of the course is to afford a foundation for the latter study of the important kinds of specific contracts, such as those of agency, bailments, partnership, commercial paper and sales, which are considered in separate courses. Two hours throughout the year. LOBB.
3. **DOMESTIC RELATIONS.** This course treats of marriage and divorce; parent and child; guardian and ward; property law peculiar to the marriage relation; rights and liabilities of persons under the disabilities of coverture, infancy, insanity, etc. One hour; first semester. LOBB.
4. **CRIMINAL LAW.** This course deals with the common and statutory law of crimes, its historical development and practical application. Two hours; first semester. PAIGE.
5. **REAL PROPERTY.** This course covers a general treatment of estates in real property, the rights incident to ownership of reality, powers, uses and trusts, easements, and the methods of transferring rights in real estate. Two hours; second semester. LOBB.
6. **BAILMENTS AND CARRIERS.** This course includes the general law of bailments, treating specially of bailments to pledgees, inn-keepers, and common carriers. Two hours; second semester. DORSEY.

Second Year

7. **EQUITY.** This course treats of the general nature of equity jurisdiction, and specifically of equitable rights and remedies connected with torts, trespass, and nuisance; of the specific performance of contracts; and of the cancellation and reformation of contracts by reason of accident, mistake, or fraud. Two hours; first semester. DORSEY.
8. **WILLS AND ADMINISTRATION.** This course treats of testamentary capacity; execution, revocation, and republication of wills; descent; probate of wills and administration of estates. One hour; first semester. LOBB.
9. **NEGOTIABLE INSTRUMENTS.** This course considers formal and essential requirements of negotiable instruments, and the nature of the liability of the respective parties thereto; acceptance; endorsement; transfer; presentment; notice of dishonor; the Negotiable Instruments Law. Two hours; second semester. PAIGE.
10. **DOMESTIC RELATIONS.** (Identical with Course 3 above.)
11. **CRIMINAL LAW.** (Identical with Course 4 above.)
12. **REAL PROPERTY.** (Identical with Course 5 above.)
13. **BAILMENTS AND CARRIERS.** (Identical with Course 6 above.)

AGRICULTURAL EXTENSION DIVISION

For details relative to Extension Courses offered by the College of Agriculture, address the Agricultural Extension Division, University Farm, St. Paul.

OTHER BULLETINS

In addition to the present publication, the General Extension Division also issues the following:

Bulletins of Correspondence Courses

Bulletin of Extension Lectures

They will be sent free to any interested person upon request. All inquiries should be addressed to the

General Extension Division,
The University of Minnesota,
Minneapolis

CERTIFICATE HOLDERS OF 1917

On May 25, 1917, the following persons were granted University certificates in the courses indicated:

Certificates in Accounting

Bayley, Charles S., Minneapolis	McHenry, Robert D., Minneapolis
Cottor, Emil F., St. Paul	Schwartz, Solomon, Minneapolis
Davis, Charles A., Minneapolis	Smith, Arthur V., Minneapolis
Haselbeck, Henry, St. Paul	Wing, Llewellyn F., Minneapolis
Loberg, James M., Minneapolis	Wood, George, Minneapolis

Certificates in General Business

Gruber, J., Jeffry, St. Paul	Kennedy, Thomas F., Minneapolis
Rose, Carrol H., Minneapolis	

Certificates in Finance

Berry, Harry E., Minneapolis	Johnson, Evan M., Minneapolis
Danielson, Andrew W., St. Paul	Jones, Earl R., Minneapolis

REGISTRATION 1916-1917

DEPARTMENT OF COLLEGIATE INSTRUCTION

MINNEAPOLIS

- Abbott, Julia Wade, 2512 Humboldt Av. S.
Adair, Myrtle, 2218 Colfax Av. S.
Adams, Emma N., 3136 Portland Av.
Adams, Mrs. John W., 1729 James Av. S.
Adams, John W., 1729 James Av. S.
Adams, Ruth, 703 4th St. S.E.
Adams, Ruth W., 2130 Fremont Av. N.
Ainsworth, Alice, 1788 Henepin Av.
Albright, Nora B., 125 15th St. W.
Aldrich, Malcolm, 3205 Hennepin Av.
Allee, Anne M., 2437 14th Av. S.
Allen, Ethel L., 1112 8th St. S.E.
Aleen, Clara Hildegarde, 1207 Oliver Av. N.
Aleen, Myrtle F. C., 1207 Oliver Av. N.
Altnow, Olga A., 907 8th St. S.E.
Amonson, Maude, 1800 13th Av. S.
Amonson, Nettie, 1800 13th Av. S.
Anderson, Affee, 1715 Portland Av.
Anderson, Alfred, 70 27th Av. S.E.
Anderson, Bert, 5038 Nokomis Av.
Anderson, Lydia, 1920 3rd Av. S., Apt. 26.
Anderson, Mabelle, 1920 3rd Av. S.
Anderson, Margaret, 929 8th St. S.E.
Anderson, Margaret E., 816 9th Av. S. E.
Anderson, Nora C., 2310 S. Emerson Av.
Anderson, Paul R., 826 20th Av. N.E.
Anderson, Ruth, 2925 12th Av. S.
Ankeny, Sara T., 2401 Clinton Av.
Anthony, Maud, 1913 Clinton Av.
Antletz, Leslie, 1715 4th St. N.
Andrew, Elizabeth H., 2731 Polk St. N.E.
Andrews, Bernice, 2006 Park Av.
Andrews, Lorin, 207 Ingleside Apts.
Apfeld, Josephine J., 3032 Irving Av. S.
Armstrong, O. V., 4410 W. Harriet Blvd.
Arness, Ole J., 2911 Girard Av. N.
Ashton, Jennie, 1506 Laurel Av.
Austin, Harriet, 2626 Dupont Av. N.
Babcock, M. Vinette, 3824 1st Av. S.
Bacon, Eleanor J., 1310 7th St. S.
Bade, Edward S., 4549 Nokomis Av. S.
Bailey, Mabel, 3404 33rd Av. S.
Baillie, Jean E., 3133 Hennepin Av.
Baker, Helen, 3128 Grand Av.
Baldwin, Ethel Grace, 515 E. 17th St.
Baldwin, Louise V., 2219 S. Dupont Av.
Ballard, Huldah, 3335 Humboldt Av. S.
Ballou, Edith S., 1618 Girard Av. N.
Ballou, Maturin, 2836 Irving Av. S.
Baltzell, John C., 8 Florence Court.
Banker, Mary L., 3314 Elliott Av.
Barber, Asenath M., 1605 Stevens Av.
Barber, Edith A., 327 Church St. S.E.
Barber, Laura, 1605 Stevens Av.
Barquist, Elsie M., 1810 10th Av. S.
Barr, Charles S., 2815 Aldrich Av. N.
Barrett, Majora E., 2203 Lyndale Av. N.
Barry, Florence M., 1015 E. 28th St.
Barry, Mary Elizabeth, 1912 Clinton Av.
Barse, Blanche L., 741 E. 24th St.
Bartlett, Mae L., 2417 Columbus Av.
Baugh, Florence, 626 7th St. S.
Beach, Rowena E., 2708 Colfax Av. S.
Beard, Archibald Hildreth, University Hospital.
Beck, Frieda, 200 13th St. S.
Beck, Maud G., 1322 6th St. S.E.
Beckstrom, Emily E., 1330 Monroe St. N.E.
Bell, Jane E., 3435 2nd Av. S.
Bell, Mrs. H. H., 4832 Queen St.
Bell, Mabel V., 77 Ash St.
Benepe, Robert, 579 Dayton Av.
Bennett, Nora M., 615 16th Av. S.E.
Benson, B. G., 2321 S. Humboldt Av.
Bentley, Ruth, 27 W. 14th St.
Bentson, Nathaniel, 3913 37th Av. S.
Berg, Elizabeth, 2537 Chicago Av.
Berkheimer, Effie B., 2228 Dayton Av.
Berman, Sylvia, 1115 N. Bryant Av.
Betlach, Elvira Jernell, 103 Orlin Av. S.E.
Bevernick, A. W., 3555 S. Fremont Av.

- Beyschlag, Grace H., 1116 S.E. 5th St.
 Bezanson, Annie L., 3432 Chicago Av.
 Bezanson, Edith E., 3432 Chicago Av.
 Biddlecombe, Thomas M., 203 E. 5th St.
 Bird, Kathlyne J., 108 E. 14th St.
 Blair, Virginia, 14 E. Franklin Av.
 Blackman, H. E., 124 E. 34th St.
 Blythe, Mrs. Virginia B., 1309 7th St. S.E.
 Bohan, Margaret M., 1330 Grand St. N. E.
 Bonneville, Georgia F., Hotel Waverly
 Boquist, Paul N., 610 E. 36th St. N.W.
 Bosserman, Homer Lee, 3038 39th Av. S.
 Bowden, Agnes, 2417 Pearl St.
 Bown, Lillian Vernetta, 2209 5th Av. S.
 Boyd, Helen W., 3336 Irving Av. S.
 Brackey, Elizabeth H., 707 E. 14th St.
 Bradford, Clarice, 623 University Av. S.E.
 Bradley, Margaret H., 600 2nd St. N. E.
 Brady, Katherine, Hampshire Arms
 Brady, Paul E., 2008 Harvard St.
 Brehm, Mrs. E. W., Maryland Hotel
 Brennan, Mrs. Jessie O., 1780 S. Bryant Av.
 Brennan, Nell, 908 5th Av. S.
 Brewer, Percy T., 3127 4th Av. S.
 Brezensky, Lenore M., Hotel Berkeley
 Bridgman, Mary B. E. 65 S. 11th St.
 Briggs, Edith Drake, 1856 E. Minneha Pky.
 Brooks, Annie Ethel, 608 6th Av. N.
 Brooks, Grace J., 802 W. Franklin Av.
 Brooks, Lulu, 3925 Lyndale Av. S.
 Brooks, Miriam W., 2020 Fremont Av. N.
 Brown, Hazel B., 3208 E. 33rd St.
 Brown, Percy A., 1086 12th Av. S.E.
 Browne, Marie, 3505 Fremont Av. S.
 Bruce, Rena J., 2417 Columbus Av.
 Bryant, Lora S., 728 E. 33rd St.
 Bryne, Mary Edith, 2636 Chicago Av.
 Buchannan, Annabel, 2400 Niccollet Av.
 Buckley, Margaret C., 648 Van Buren St.
 Budd, Clara, Lyndale Av. S.
 Bullard, Irma L., 3313 2nd Av. S.
 Bullock, Adele L., 2437 Aldrich Av. S.
 Burkleo, Jane, 113 Church St. S.E.
 Burns, Louise H., 3424 5th Av. S.
 Burns, Margaret A., 2808 3rd Av. S.
 Burt, Louis B., Unity House
 Burton, Beulah, 4118 Wentworth Av.
 Burton, F., 4118 Wentworth Av.
 Byers, Paul H., 1623 University Av. S.E.
 Burke, Meda M., 3448 Bryant Av. S.
 Byrnes, Mary R., 922 W. 38th St.
 Byrnes, Mary S., 325 Franklin Av.
 Busian, Zella, 2544 Pillsbury Av.
 Cady, Mrs. K. B., 317 Harvard N.E.
 Callahan, M. Ida, 2105 Bryant Av.
 Can, Mary, 64 7th Av. N. E.
 Candee, Frederick L., 2421 Girard Av. S.
 Campbell, Myra L., 52 S. 10th St.
 Carey, Agnes F., Maryland Hotel
 Carey, Anna E. V., 4745 Lyndale Av. S.
 Carey, Mary L., 4745 Lyndale Av. S.
 Cargell, Fidelia G., 2617 Portland Av.
 Carlson, Alfred M., 215 Harvard St. N. E.
 Carlson, C. Arthur, 1717 10th Av. S.
 Carlson, Philip E., 3124 Park Av.
 Carlsten, Ester C., 1612 Stevens Av.
 Carney, Mildred, 1015 N. 21st Av.
 Carr, Virgil M., 710 S. 8th St.
 Carroll, Catherine Agnes, 413 20th Av. S.
 Carroll, Teresa, 413 20th Av. S.
 Casperson, Helmer C., 1344 1st Av. S.
 Channon, Julia H., 712 7th St. S.E.
 Chapin, Alice C., 2636 Chicago Av.
 Chapman, Madge, 210 W. 34th St.
 Chapman, Margaret, 732 E. 16th St.
 Chapple, Dora E., 122 W. Grant St.
 Chestnut, Mary L., 3208 Dupont Av. S.
 Child, Dr. Harry B., 4221 Dupont Av. S.
 Child, Mary A., 2824 Portland Av.
 Chilson, Helen A., 2313 Portland Av.
 Chilson, Iona F., 2313 Portland Av.
 Chisholm, C. Tryphena, 3041 Colfax Av. S.
 Christensen, Emma D., 2012 Garfield Av. S.
 Christie, Blanche, 2906 N. Humboldt Av.
 Clark, Gordon M., University Hospital
 Clarke, Esther A., 2622 3rd Av. S.
 Clancy, Catherine E., 2655 15th Av. S.
 Clausen, Jennie M., 1914 10th Av. S.
 Clautier, Henri H., 909 W. Franklin Av.
 Claves, Ella M., 1425 Vine Place
 Cleary, Francis, 3325 3rd Av. S.
 Cleary, Mrs. S. A., 3325 3rd Av. S.
 Cleveland, Esther Morris, 531 8th St. S.E.
 Clone, Ethel A., 509 15th Av. S.E.
 Clure, Eleanor, Minneapolis, Minn.

- Clure, Mrs. W. O., 805 E. River Road
 Cobb, Martha L., 2705 Pillsbury Av.
 Cockburn, Edna G., 425 6th St. S.E.
 Cockburn, Kathleen, Wells Memorial
 House
 Cohen, Jacob George, 1203 Aldrich Av.
 N.
 Coffin, Isa, 4411 Morgan Av. N.
 Cogrove, Pansy B., 324 Walnut St. S.
 E.
 Colby, Violet M., 1023 17th Av. S.E.
 Colle, Alfred C., 3849 1st Av. S.
 Collins, Margaret E., 2633 W. 44th
 St.
 Conn, Bertha, 210 Curtis Court
 Connell, Mary E., 4013 Sheridan Av.
 S.
 Connelly, Catherine Brown, 1908 Hen-
 nepin Av.
 Cook, Charlotte E., 2215 Harriet Av.
 Cook, Elizabeth, 1311 Yale Place.
 Cook, Estelle, 1316 Cleveland Av.
 Cook, R. R., 721 E. 28th St.
 Coon, Chance C., 1727 Vince Place
 Cope, Edith R., Hotel Berkeley
 Cornish, Margaret D., 4737 Colfax Av.
 S.
 Cort, Maude O., 4312 Linden Hills
 Blvd.
 Cotton, Anna Lora, 3829 11th Av. S.
 Councilman, Mrs. Alice, 307 Oak Grove
 St.
 Coveny, Agnes C., 1522 Emerson Av.
 N.
 Cowin, Edith B., 3538 Blaisdell Av.
 Cowles, Mrs. Anne F., 2721 Humboldt
 Av. S.
 Cramer, Isabel M., 1019 University Av.
 Crane, Jennie C., 3040 Humboldt Av.
 S.
 Cratty, Mabel E., Curtis Court
 Craven, Edward B., 1011 6th St. S.
 E.
 Crawford, Mary, Curtis Court
 Creswell, Emma, 3948 Garfield Av.
 Crocker, Katherine M., 2517 Blaisdell
 Av.
 Crockett, Clara S., 2512 Hennepin Av.
 Crombie, Grace, 1919 Clinton Av.
 Crouse, Agnes R., 3600 1st Av. S.
 Crowley, Charlotte R., Curtis Court
 Curran, Arthur A., 2634 Longfellow
 Av.
 Currie, Constance, Unity House
 Dahl, T. N., 2906½ University Av. S.E.
 Danielson, Andrew W., 1910 Feronia
 Av., St. Paul
 Dailey, Mrs. D. C., 1915 1st Av. S.
 Davidson, Lois C., 106 E. 14th St.
 Davis, Anna J., 3932 Elliot Av.
 Davis, N. Donna, 1913 Dupont Av. S.
 de Camp, A. Lee, 1608 W. 25th St.
 Dempsey, Allan S., 791 Curfew Av.
 Densmore, Lydia M., 2105 S. Bryant
 Av.
 Deutsche, Harriet E., 2624 Garfield
 Av.
 Devany, Anne, 3707 Park Av.
 Dickensheet, Howard F., 1018 19th Av.
 N.E.
 Dickey, Margaret C., 421 18th Av. S.E.
 Dickie, Mary L., 512 Delaware St. S.E.
 Diederich, Rose C., 1933 Ashland Av.
 Diederich, Veronica L., 1933 Ashland
 Av.
 Dillingham, Agnes M., 816 9th Av. S.E.
 Disney, Florence G., 417 Walnut St. S.
 E.
 Dodge, Myra E. G., 910 W. 32rd St.
 Doer, Margaret C., 3317 W. 44th St.
 Dolan, Luella Maude, 3315 University
 Av. S.E.
 Donaldson, Evelyn, 219 8th St. S.E.
 Dooley, James L., 235 Goodrich Av.,
 St. Paul
 Doolittle, Compton W., 2209 Lyndale
 Av. S.
 Dondero, Beatrice T., 1912 Clinton Av.
 Dorselen, Eleanor V., 2818 Fremont
 Av. N.
 Drohan, Gertrude, 2716 Portland Av.
 Drohan, Margaret, 2716 Portland Av.
 Duesler, Grace, 1224 Mary Place
 Duggan, W. J., 224 12th Av. N.E.
 Dunbar, Emma L., 1969 Selby Av.
 Dungan, Minnie W., 4644 Vincent Av.
 S.
 Dunn, Cordelia, 2437 S. Aldrich Av.
 Dusschee, Hilda E., 2308 Bryant Av.
 S.
 Dwyer, Vivian, 600 Washington Av.
 S.E.
 Dykman, Howard, 915 University Av.
 S.E.
 Eckert, Dorothea, 3209 Nicollet Av.
 Edgerton, Bessie E., 2919 Girard Av.
 N.
 Edwall, Esther J., Harvard Chambers
 Edwards, Mae L., 3108 Elliot Av.
 Egan, Elizabeth, 1613 3rd Av. S.
 Egan, Katherine, 1723 Dupont Av. N.
 Elder, Henry K., Hotel Maryland
 Elviksen, Andrew, 3303 Bloomington
 Av.
 Elwell, Susie Marie, 907 7th St. S.E.
 Emmel, Dorcas P., 70 S. 11th St.

- Erb, Nellie M., 1415 Dupont Av. N.
 Erickson, Huldah, 1214 5th St. S.E.
 Erickson, Victor L., 3108 17th Av. S.
 Everhard, Mabel, 2310 Lyndale Av.
 Evers, Eric Harold, 1603 Washington St. N.E.
 Fairchild, Harriet, 1117 Hawthorne Av.
 Fairfield, Elizabeth P., 1313 4th Av. S.
 Falconer, Gertrude M., 2707 Fremont Av. N.
 Fankhauser, Mollie, 3333 Dupont Av. S.
 Fargo, Charles H., Y. M. C. A., St. Paul
 Farnam, Josephine E., 1705 Stevens Av.
 Farris, Christina J., The Concord
 Fassett, John S., 1414 Stevens Av.
 Featherstone, Harriet, 3136 1st Av. S.
 Fehr, J. J., Hotel Hastings
 Ferguson, Bertha, The Leamington
 Ferguson, Ida May, 2732 Fremont Av. S.
 Fields, Nellie M., 2873 Irving Av. S.
 Finden, Gitona, 127 Curtis Court
 Finkle, Kate, 2760 W. River Rd.
 Finn, Delia, 1515 Vine Place
 Finnegan, Nellie L., 1317 2nd Av. S.
 Finnigan, Catherine, 1930 Clinton Av.
 Finnigan, Josephine, 1930 Clinton Av.
 Fischer, Aimee W., 2019 Kenwood Pky.
 Fischer, James V. S., 3100 Emerson Av. S.
 Fischer, Richard, 2115 Harriet Av.
 Fitzgerald, Anna C., 2409 1st Av.
 Fitzgerald, Caroline A., 2318 Pierce St.
 Fitzpatrick, Mary H., Hastings Hotel
 Fitzroy, Celestine, 3805 Portland Av.
 Flahavan, Frances, 2531 16th Av. S.
 Flahavan, Teresa, 2531 16th Av. S.
 Fleming, Eleanor C., 2550 Monroe St. N.E.
 Fletcher, Roland, 2506 3rd Av. S.
 Fleury, Rosanna, 2312 3rd Av. S.E.
 Flynn, Blanche M., 701 Aldrich Av. N.
 Flynn, Henrietta, 1700 Portland Av.
 Flynn, Mary S., 2614 Bryant Av. S.
 Foland, Grave W., Hotel Waverly
 Folsom, Louise M., 3240 Oakland Av.
 Foote, Miriam D., 1054 14th Av. S.E.
 Ford, Annie G., 1939 Bryant Av. S.
 Ford, Mary F., 1939 Bryant Av. S.
 Ford, Maude, 2635 2nd Av. S.
 Forslund, C. W., 2213 Bryant Av. S.
 Foster, Charles, 219 W. 24th St.
 Foster, Rachel H., 36 Spruce Place
 Foster, Mrs. W. K., 652 Erie St. S.E.
 Foster, W. K., 652 Erie St. S.E.
 Fowler, Alice J., 209 S. 11th St.
 Foy, Mrs. Cordelia L., Berkeley Hotel
 Fredericksen, John A., 1906 Portland Av.
 Freeman, Edna J., 4704 Colfax Av. S.
 Freeman, Eva I., 3228 Stevens Av.
 Frey, Mary E., 1311 Yale Place
 Frick, Laura G., 1904 Park Av.
 Fridley, Mrs. Edith Gale, 707 E. 14th St.
 Fridley, John P., 707 E. 14th St.
 Friedlander, Esther, 2803 2nd Av. S.
 Friedlander, Lillian, 2433 Lyndale Av.
 Frimodig, Sophie B., Curtis Court
 Frisch, Sarah, 1612 Stevens Av.
 Frisbie, M. S., 177 Irving Av. S.
 Frost, Edith L., 4625 Washburn Av. S.
 Fullenwider, Thomas I., 611 Delaware St. S.E.
 Fullenwider, Mrs. T. I., 611 Delaware St. S.E.
 Fuller, Mabel B., 917 Chicago Av.
 Funk, Harriet, Curtis Court
 Galland, Mrs. Belle B., 4042 Linden Hills Blvd.
 Galvin, Eugene F., 3704 Nicollet Av.
 Gamble, Annamae, 1325 N. 27th St.
 Gardner, Alice, 700 E. 14th St.
 Gaus, Ottelie, 2915 W. 44th St.
 Garvey, Florence M., 2802 Fremont Av. N.
 Gedney, Anna M., 1808 W. 31st St.
 Gedney, Calista C., 116 Oak Grove
 Gedney, E. L., 1808 W. 31st St.
 Gerry, Leila E., 2119 Russell Av. N.
 Ghostley, Mabel G., 1506 Fremont Av. N.
 Gibbon, Grace, 1788 Hennepin Av.
 Gibbs, Anna F., 2636 Emerson Av. N.
 Gibbs, George V., 2540 Cedar Av. S.
 Gibbs, Katherine M., 1919 Clinton Av.
 Gibbs, Louise, 2426 Garfield Av. S.
 Gibson, Isabel, 653 Grand Av.
 Giddings, Guida, 2932 Fremont Av. N.
 Gilbert, Opal, 3305 Elliott Av.
 Gilbert, Vivian Clare, 2736 Hennepin Av.
 Giles, Ethel Estelle, 22 E. 15th St.
 Gilkey, Katherine, 2416 Chicago Av.
 Gilman, Glenora, Hopkins, Minn., R. F. D. No. 1
 Gilman, Mrs. Margaret, 602 Essex St. S.E.
 Gilruth, Genevieve, 412 Walnut St. S. E.
 Gleason, Beatrice, 2617 16th Av. S.

- Gleason, Clara, 2617 16th Av S.
 Gleason, Leo P., 4600 11th Av. S.
 Goetzman, C. A., 2315 Quincy St. N. E.
 Goetzman, Leon M., 2315 Quincy St. N.E.
 Goodale, Ina L., 1413 Willow St.
 Grabow, Flora W., 706 University Av.
 Graham, Margaret, 2525 Garfield Av. S.
 Grant, Alex L., 3000 N. Humboldt Av.
 Graves, Alice M., 407 4th St. S.E.
 Graves, Mrs. Richard A., 1816 19th Av. N.
 Gray, Mrs. Lillian F., 3129 Portland Av.
 Greene, Elsie, 1113 Hawthorne Av.
 Greenlaw, John A., 228 Clifton Av.
 Greenwood, Perry L., 3441 Bloomington Av.
 Greig, John E., 175 University Av. S.E.
 Greinbaum, Esther, Hampshire Arms
 Griebenow, H. E., 1535 E. 32nd St.
 Griggsberg, Clara L., 1827 N. Bryant Av.
 Grimm, H. P., 1915 Portland Av.
 Grobel, Olivé A., 1927 Elliott Av. S.
 Groesbeck, Agnes M., 2020 N. Fremont Av.
 Grohndorff, Lenore, 3019 N. Oliver
 Grant, Edith Nellie, 3104 James Av. S.
 Grubbs, James V., 2006 Fremont Av. S.
 Guinotte, Marguerite, 2411 Fremont Av. S.
 Guthrie, Ramah L., 1600 W. Lake St.
 Hainer, Gertrude B., 2623 1st Av. S.
 Haines, I. M., 1516 Nicollet Av.
 Hagen, Ida A., 526 7th St. S.E.
 Hale, M. Loretta, Hampshire Arms
 Halvorson, Margaret, 2634 N. Girard Av.
 Hamilton, Louise, 3128 Irving Av. S.
 Hamlin, Nellie Lehan, 4422 Calfox Av. S.
 Hammer, Sophia O., 2310 Lyndale Av. S.
 Hammond, Alice E., 4008 Bryant Av. S.
 Hammond, Grace, 4008 Bryant Av. S.
 Haney, Elizabeth, 4437 Washburn Av.
 Hansen, Alma, 2905 17th Av. S.
 Hansen, Meta, 1522 Fremont Av. N.
 Hanson, H. E., 4 Virginia Flats, St. Paul
 Hanson, Paul O., 2019 11th Av. S.
 Hanson, Olga S., 2248 Carter Av.
 Hanson, Otto, 910 2nd Av. S.
 Harding, Everhart Percy, 819 Essex St. S.E.
 Harding, Gertrude, 3124 Park Av.
 Harding, Nellie, 2000 Dupont Av.
 Harman, Bridget A., 723 2nd St. N. E.
 Harper, Myrtle U., 4632 Upton Av. S.
 Harrington, Julia G., 320 6th Av. N.E.
 Hart, Mabel R., 2643 S. Lyndale Av.
 Haseltine, Julia M., 3109 Fremont Av. N.
 Haserick, C. V., 1614 Girard Av. N.
 Haskell, Edwin Dudley, 1710 3rd Av. S.
 Haskell, Mrs. Olga Von W., 1710 3rd Av. S.
 Hatz, Rose, 1710 Stevens Av.
 Haubold, Elsie, 2305 Garfield Av.
 Haupt, A. James, 1844 Selby Av., St. Paul
 Haupt, George E., 1844 Selby Av., St. Paul
 Hauser, Ida L., 1228 Adams St.
 Haven, Kittie, 3145 Stevens Av.
 Hawkins, Catherine, 1523 N. Fremont
 Hawley, Ralph K., 415 Delaware St. S.E.
 Hay, George B., 3225 Irving Av. S.
 Hayes, Effie M., 2610 W. 41st St.
 Hays, Ada S., 3356 Park Av.
 Hays, Dorothea, 4037 Upton Av.
 Hazelton, Lydia, 4013 Sheridan Av. S.
 Heffernan, Susan B., 2633 Humboldt Av. S.
 Heimark, Bessie, 703 4th St. S.E.
 Heinrich, Mary P., Berkeley Hotel
 Hegel, Edith, 1310 7th St. S.
 Hegel, Newton H., 3325 Bloomington Av.
 Helm, Mrs. Clyde B., 3144 Bryant Av.
 Helmick, Caroline E., 1014 13th Av. S.E.
 Helmick, Alexander, 1014 13th Av. S. E.
 Hemenway, John, St. Thomas College
 Helgeson, Esther, 615 5th Av. S. E.
 Henberg, Oscar A., 200 13th St. S.
 Hendricks, Ellen, Leamington Hotel
 Hennessey, Amy A., 1521 Vine Place
 Herchner, Cordelia, 201 W. 15th St.
 Hettberg, Oscar A., 200 13th St. S.
 Hewitt, Helen Imlay, Hopkins, Minn.
 Hickey, Ora I., 2816 Fremont Av. S.
 Hickman, John H., Jr., 325 N. St. Albans.
 Higgins, Blanche O., 2204 Grand Av.
 Higgins, F. G., 1529 University Av. S.E.

- Hildebrandt, Janet G., 323 Church St. S.E.
 Hildebrandt, Ruth A., 323 Church St. S.E.
 Hilgendorf, Fred W., 2844 Irving Av. S.
 Hill, Margaret E., 354 Curtis Court
 Hines, Velma J., 1817 Ashland Av.
 Hinman, Kathleen E., 52 S. 10th St.
 Hitchcock, Elizabeth, 1502 Chicago Av.
 Hobbs, Evelyn A., 307 8th St. S.
 Hockel, Earl M., 1934 Pierce St. N.E.
 Hodapp, H. G., 914 4th St. S. E.
 Hoganson, R., Minneapolis, Minn.
 Hoidale, Einar, 1217 Thomas Av. N.
 Hoidale, Martha, 1217 Thomas Av. N.
 Holbrook, Mrs. Elizabeth, 1374 Spruce Place
 Holborn, Elizabeth A., 679 Lincoln Av.
 Holden, Margaret, St. Barnabas Hospital
 Holst, Sigurd, 1804 Park Av.
 Holtz, Harriet, 2112 Portland Av.
 Holub, Louise R., 2512 Chicago Av.
 Holmer, O. Geoffrey, Y. M. C. A.
 Hood, Leone B., 1621 Stevens Av.
 Hookey, Edith H., 2885 Holmes Av. S.
 Horan, Elizabeth, 1802 15th Av. S.
 Horan, Lillian, 1802 15th Av. S.
 Horne, Jane, 4010 S. Upton Av.
 Horner, Lillian A., 3426 Calhoun Blvd.
 Horr, Edith M., 1312 22nd Av. N.E.
 Horton, Ann V., 3345 1st Av. S.
 Howard, Alice, 3145 Calhoun Blvd.
 Howard, Margaret L., 3429 Columbus Av.
 Howard, Walter I., 1864 Marshall Av.
 Huff, N. L., 1219 7th St. S.E.
 Hughes, James W., 309 17th Av. S.E.
 Hughes, Harriet J., 2100 Garfield Av.
 Hughes, Margaret Eleanor, Hotel Berkeley
 Humpfner, Hilda, 1023 University Av. S.E.
 Hurlburt, Frances, 3541 17th Av. S.
 Hussey, Alice, 4937 Queen Av. S.
 Huston, Sue, 165 14th St. N.E.
 Ingle, Jeannette, 2816 Fremont Av.
 Ingold, Estelle M., 2217 Girard Av. S.
 Ingraham, Florence, 25 W. 14th St.
 Irlc, Maud, 1684 Dayton Av.
 Irving, Alice M., 833 Summer St. N.E.
 Irwin, Joanna, 429 Oak St.
 Irwin, Anna, 429 Oak St.
 Jacobson, Elizabeth Kilgore, 2638 Fremont Av. N.
 Jaffa, Goldie, 704 Dupont Av. N.
 Japs, Amelia R., 2300 Garfield Av.
 James, Edith, 703 4th St. S. E.
 James, Mary L., 1906 3rd Av. S.
 Jameson, Hazel, 703 4th St. S.E.
 Janes, Addie M., 3936 Grand Av. S.
 Janzen, Gerhard A., 2701 Girard Av. N.
 Jaquish, Bessie D., 1328 Vine Place
 Jensen, Margaret D., 2313 8 $\frac{1}{2}$ St. S.
 Johnson, Anna F., 70 12th St. S.
 Johnson, Mrs. Charles E., 714 16th Av. S.E.
 Johnson, Dora N., Curtis Court
 Johnson, F. G., 811 2nd St. N.E.
 Johnson, F. W., 830 22nd Av.
 Johnson, Margaret Olina, 1607 Madison N.E.
 Johnson, Milda, 2636 Chicago Av.
 Johnson, Otto A., 191 Sherburn Av.
 Johnson, Otto Hans, 1996 Milwaukee Av.
 Johnson, Reuben A., 2449 Harriet Av.
 Johnston, Alice M., 4626 Fremont Av. S.
 Johnston, Harriet C., 4626 Fremont Av. S.
 Jones, Mrs. Gwen M., 1013 Park Av.
 Jones, Mary P., 717 16th Av. S.E.
 Jones, Pearl B., 70 S. 12th St.
 Jordan, Clara, 1400 W. 26th St.
 Jordan, Helen, 1400 W. 26th St.
 Jordan, Lois M., 126 Oak Grove St.
 Jorgens, Joseph, 75 15th St. N.
 Juell, Mrs. N., 2924 Fremont Av.
 Juell, Dr. Nils, 2924 Fremont Av.
 Jurgenson, Anna L., 1522 Fremont Av. N.
 Kaiser, Ferdinand, 1825 Laurel Av.
 Kammarren, Abbie M., 1428 N. 6th St.
 Keating, Anna B., Hotel Decorah
 Keatley, Sadie, 3116 19th Av. S.
 Keenan, Agnes C., 1928 Humboldt Av. S.
 Kelley, Evie F., 2222 Nicollet Av.
 Kelley, Kathleen, 51 N. 15th St.
 Kelly, Mrs. Hubert, 2103 Pleasant Av.
 Kendall, Calla, 2514 Dupont Av. N.
 Kennedy, Agnes M., 2533 Bryant Av. S.
 Kennedy, Marion, 2533 Bryant Av. S.
 Kenny, Margaret, 1664 Portland Av.
 Kenny, Raymond E., 4052 Queen Av. S.
 Kerr, Maude, 1821 9th Av. S.
 Keyes, Nellie M., 1520 Harmon Place
 Kilgore, Alice R., 2634 Fremont Av. N.
 Kilgore, Mary, 2634 Fremont Av. N.

- Killeen, Florence, Ogden Apts.
 Killeen, Ursula, Ogden Apts.
 Kimball, Florence, 508 Oak St. S.E.
 Kindwall, Jos. A., 1813 University
 Av. S.E.
 King, Grace E., 614 E. 22nd St.
 King, Julia E., 912 19th Av. S.E.
 King, Margaret, 2421 Clinton Av.
 Kingsford, Annie S., 1311 Chestnut Av
 Kirk, Mary, Harvard Chambers
 Kirk, Renee J., St. Barnabas Hospital
 -Kirkwood, Edith Brown, 1376 Gran-
 tham Av.
 Kirtland, Alice S., 1316 7th St. S.E.
 Kistler, Erma Jane, 531 Lyndale Av.
 N.
 Klampe, Lela M., 316 10th Av. S.E.
 Kline, R. P., 1411 3rd St. N.E.
 Knapp, Edward A., 471 Marshall Av.,
 St. Paul
 Knappen, Elizabeth, 323 10th Av. S.E.
 Knappen, Olive L., 1808 Stevens Av. S.
 Knoblauch, Ida, 2500 Lake Place
 Knight, Bessie P., Curtis Court
 Knight, Sara C., 2642 Chicago Av.
 Koch, Arthur L., 3317 2nd Av. S.
 Kocourek, John F., 515 Ontario St. E.
 E.
 Koehler, Elsa I., 508 University Av.
 S.E.
 Koenig, Myra M., 602 7th St. S.E.
 Koerner, Illa, 1377 Grantham Av.
 Kohler, Katherine M., Hotel Berkley
 Konig, Eva E., 3928 Fremont Av. N.
 Konig, Viktoria B., 2819 Fremont Av.
 N.
 Kooiker, Herman J., 409 Oak St. S.E.
 Krane, Hary A., 502 Emerson Av. N.
 Krauser, A., 1225 Hawthorne
 Kriedt, Julia, 1724 3rd Av. S.
 Kriedt, A. M., 1724 3rd Av. S.
 Krimbill, Julia, Hampshire Arms
 Kriskey, Imogen E., 3132 5th Av. S.
 Kronick, Rose, 122 Highland
 Kvittum, Margaret, 815 25th Av. S.
 Kruschke, Alma, 1515 Vine Place
 Kynaston, Ethyl, 813 Elwood Av.
 Ladner, Emily, 2112 Garfield Av.
 Lambert, Mamie E., 1326 8th St. S.E.
 Larkin, Anna E., Beverly Apts.
 Lariviere, Katherine C., 1623 Morgan
 Av. N.
 Larpenteur, Maria A., 3615 Park Av.
 Larsen, Daisy, 1805 2nd Av. S.
 Larsen, E. C. 3221 17th Av. S.
 Larson, Edmund C., 3221 17th Av. S.
 Laubscher, Florence E., 907 8th St.
 S.E.
 Lawrence, Alice Mary, 215 Walnut St.
 S.E.
 Leary, Iva M., 2433 Colfax Av. S.
 Lee, Edward J., 1560 Laurel Av., St.
 Paul
 Lee, John W., Hotel Hastings
 Lee, Josephine, 52 10th St. S.
 Leet, Susan A., 1222 Mary Place
 Lehman, Julia A., 2017 Grand Av.
 Leonard, Alice E., 1023 14th Av. S.E.
 Levin, Harry, 1524 8th Av. N.
 Levin, Jacob D., 210 S. 9th St.
 Levy, Esther, 2867 James Av.
 Levy, Florence, 2867 James Av.
 Lewis, John, 412 4th Av. N.E.
 Lewis, J. L., 776 N. Hamline Av., St.
 Paul
 Lewis, Mrs. C. H., 3304 48th Av. S.
 Lewis, Harriet Adelaide, 702 Russell
 Av. N.
 Lidstrom, Hadly A., 1539 Grand Av.
 Lieberg, Add E., 714 Delaware St.
 Liggert, Charles A., 776 Curfew Av.
 Lilligren, H. M., 734 Pierce St. N.E.
 Lilly, Elizabeth, 2818 Fremont Av. N.
 Lindholm, Lillie M., 3041 Dupont Av.
 S.
 Little, Dorothy A., 3821 W. 43rd St.
 Little, Helen F., 3821 W. 43rd St.
 Litzenberg, Jane, 710 Essex St.
 Lommen, Julia A., 1819 S. Lyndale
 Av.
 Lommen, Olga, 1819 S. Lyndale Av.
 Lommen, Tilda M., 1819 S. Lyndale
 Av.
 Longworth, H. W., 3839 Russell Av.
 N.
 Loomis, Alf, 701 15th Av. S.E.
 Lovell, Lela E., 3032 Irving Av. S.
 Lowrie, Elizabeth, 36 Orlin Av. S.E.
 Lundsden, Fred J., 1515 3rd Av. N.
 Lysen, Eugene J., 1300 5th St. S.E.
 McAuliffe, Agnes, 1515 Beverly Apts.
 McBride, Emily Raymand, 2105 Bryant
 Av. S.
 McCann, Alice, 321 N. Newton
 McCarthy, Ethel K., 3615 Lyndale Av.
 S.
 McCarthy, Mary M., 4801 Girard Av.
 S.
 McCarren, Jane, 815 6th St. S.E.
 McChesney, Ernest A., 2414 Portland
 Av.
 McClellan, Edith, The Leamington
 McConnell, Dasie C., 3035 Oakland Av.
 McCourt, Alice, The Leamington
 McCulloch, F. B., 221 Curtis Court
 McCune, Anna L., 1653 W. 26th St.

- McDermid, Kate, 2703 Bloomington Av.
- McDonald, Mary G., 707 Summit Av.
- McDonough, Frances Burns, 732 E. 24th St.
- McDunn, Elizabeth B., 4112 Pleasant Av.
- McFarlane, Mabel G., 2344 S. Aldrich Av.
- McGrath, Evelyn, Hotel Hastings
- McGrath, Helen, 211 W. 34th St.
- MacGregor, Effie, 321 Curtis Court
- McGregor, Lulie, 500 W. Franklin
- McGuire, Sarah, 3320 Pillsbury Av. S.
- McHenry, Herbert Leslie, 204 Harvard St. S.E.
- McIntyre, Alice M., 4410 Lake Harriet Blvd.
- McKinnon, Mrs. J. C., 2433 W. 22nd St.
- McLaughlin, Mrs. Geo. V., 2405 Russell Av. S.
- McLaughlin, S. Agnes, 86 Lyndale Av. N.
- McLean, Alice M., 1551 Hillside Av.
- McLiman, Mac, 241 Sherman
- McMullen, Margaret Murphy, 1929 Humboldt Av. S.
- McNamara, Kathryn A., 908 5th Av. S.
- McNulty, B. M., 420 7th Av.
- McShane, Catherine, The Leamington
- McShane, Ida Gertrude, Berkeley Hotel
- Mabee, Abbie Gale, The Leamington
- Madden, Adeline E., 2612 Chicago Av.
- Madison, Mame L., 2420 Harriet Av.
- Maclean, Ruth F., 2404 Russell Av. S.
- Martiner, Jeanette, City Hospital
- Meeker, Mary K., 2540 Clinton Av.
- Malloy, Rosemary, 741 Kenwood Pky.
- Malmquist, Myrtle S., 1806 Park Av.
- Malmsten, Julia C., 2117 Western Av.
- Maloney, Bessie A., 1613 3rd Av. S.
- Manley, Mary E., 3236 Homes Av.
- Mann, Ida V., 1830 Stevens Av.
- Manning, Caroline, 2321 Dupont Av. S.
- Mansfield, Lavinia, 920 Franklin Terrace
- Manville, Ethel, 3159 14th Av. S.
- Marchant, Lura E., 2440 1st Av. S.
- Marshall, Anne L., 710 Essex St. S.E.
- Marshall, Sarah T., 6 E. 14th St.
- Martin, Andrew I., 2916 Cedar Av.
- Martin, Blanche, 712 7th St. S.E.
- Martin, Carmelita, The Leamington
- Martin, Mildred W., 1180 S. Bryant Av.
- Martin, Maude E., Berkeley Hotel
- Martineau, Beatrice M., 516 12th Av. S.E.
- Martinson, Arnold B., 3125 Findley Place
- Martinson, Ellen, 3112 E. 24th St.
- Marvin, Earle L., 3728 Nicollet Av.
- Mathis, Mrs. A. C., 1601 7th St. S.E.
- Mattice, Nine E., 822 7th St. S.E.
- Maxwell, Myra, Hotel Berkeley
- Meason, Georgina, 1208 W. Franklin
- Meek, Mabel F., 1303 Yale Place, Apt. 5
- Meier, A. G., 908 Laurel Av., St. Paul
- Mercer, Vivien, 2848 Irving Av. S.
- Merriam, Edna G., 3440 Aldrich Av. S.
- Melamed, Louis, 222 E. Fairfield Av.
- Meyer, William J., 4131 Bryant Av. N.
- Michelet, Maren, 2009 27th Av. S.
- Michaelson, Anna, 1727 Vine Place
- Michaelson, Mathilde, 2117 Harriet Av.
- Michelstetter, Clare, 52 S. 10th St.
- Miles, Carlton W., 2300 Nicollet Av.
- Miller, Jane S., 1873 Marshall Av., Merriam Park
- Miller, Lillian M., 626 E. 25th St.
- Miller, Margaret B., 228 Clifton Av.
- Miller, Oliver H., 3345 2nd Av. S.
- Miller, Pearl, 3124 Bryant Av. S.
- Mitchell, Maud, 1225 5th St. S.E.
- Mitten, W. L., 2432 Nicollet Av.
- Mo, Helen George, 701 15th Av. S.E.
- Moersch, Fred, Curtis Court
- Molan, Kathleen, 3523 Garfield Av.
- Molstad, Amy E., 3435 2nd Av.
- Monroe, Elsie W., 3620 Aldrich Av. S.
- Montgomery, Inez V., 1808 Stevens Av.
- Morey, Julia, 102 E. 19th St., Apt. 104
- Morrill, Eliza C., 1808 Stevens Av.
- Morse, Ella Townsend, 2311 Pillsbury Av.
- Mortenson, Mary Ellen, 628 4th St. S. E.
- Morton, Catherine L., 406 11th Av. S. E.
- Moves, E. S., 1920 Colfax Av. S.
- Muller, Katherine J., 2622 3rd Av. S.
- Mullins, Ella, 1916 2nd Av. S.
- Mumm, Ruth E., 1908 N. 5th St.
- Munson, Harriet, 1113 Hawthorne Av.
- Murdock, J. N., 1107 2nd Av. S.
- Murphy, Anna, Hampshire Arms
- Murphy, Mary V., 4109 Sheridan Av.
- Murphy, S. L., 119 Thomas Av. N.
- Murphy, Theresa, 440 2nd St. N.E.
- Muth, Edna T., 137 E. Grant St.

- Nason, Effie L., 1407 Clinton Av.
 Nelson, Albert F., 2753 Colfax Av. S.
 Nelson, A. R., 4107 N. Aldrich Av.
 Nelson, Frederick C., 1300 Central Av.
 Nettleton, Flora, 1028 Hawthorne Av.
 Nemire, Emma M., 1226 5th St. S.E.
 Newell, Bernice, 3831 Elliott Av.
 Newell, Bertha M., 3104 James Av. S.
 Newell, Esther, 3831 Elliott Av.
 Newell, Margaret, 1116 5th St. S.E.
 Newman, W. M., 1828 Elliott Av.
 Nichols, Mary C., 3128 Irving Av. S.
 Nicond, Ida, 3052 18th Av. S.
 Niles, Harriet S., Hotel Hastings
 Nobbs, Arthur W., 721 Snelling Av.
 Nolt, Rinnie, 1935 S. Bryant Av.
 Norris, Maude Jeanette, 1393 Cleveland Av. N.
 North, James, 2724 Chicago Av.
 Northfield, Susan Melissa, 1415 19th Av. N.
 Northington, James M., Campus Club
 Nye, Ellen S., 1801 4th Av. S.
 Oakford, Frances P., 1788 Hennepin Av.
 Oberg, Ezra N., 2106 29th Av. S.
 O'Brien, Mrs. Joan D., 3317 W 44th St.
 O'Brien, Michael Joseph, 3633 4th Av. S.
 O'Hearn, Mary, 110 Willow St.
 O'Herrin, Mary F., 1700 Portland Av.
 Oliver, Warren W., 1810 Portland Av.
 Olsen, Mabel Juliet, 2416 11th Av. S.
 Orr, Loretta, 2509 Emerson Av. N.
 Osborn, Annette E., 2092 Dayton Av., St. Paul
 Osman, Norma B., 2431 Blaisdell Av.
 Otis, Mabel, 2310 N. James Av.
 Owen, D. S., 262 S. Garfield Av.
 Owens, Bess, 2416 Chicago Av.
 Oyen, Alice, 2440 23rd Av. S.
 Ozman, Gertrude, 1315 Irving Av. N.
 Page, S. Alta, 1812 Bryant Av. S.
 Pardee, N. E., 415 6th St. S.E.
 Parrish, Wm. M., 1612 5th Av. S.
 Parsons, Alice E., 1740 Capitol Av., St. Paul
 Parsons, Judith F., 1740 Capitol Av., St. Paul
 Patch, Alice S., 2318 S. Aldrich Av.
 Paul, Helen, 3315 Holmes Av.
 Pearce, M. D., University Hospital
 Pease, Vinnie A., 112 State St.
 Peck, A. E. Mrs., 1912 Emerson Av. S.
 Peck, Dr. A. E., 1912 Emerson Av. S.
 Pelton, Ella R., 3233 1st Av. S.
 Pelton, Nine M., 4601 33rd Av. S.
 Peper Mathilda, 4030 Wentworth Av.
 Perine, Mrs. E. G., 731 Fulton St. S. E.
 Perkins, Ellen G., 3021 Park Av.
 Peters, Leone E., 22 W. Grant St.
 Peterson, C. W., 2620 15th Av. S.
 Peterson, Florence Gunnar, 506 7th St. S.E.
 Peterson, Mildred, 2620 15th Av. S.
 Phillips, Anna Travis, 1808 Stevens Av.
 Phillips, Bertha, 1352 Vine Place
 Phillips, Minnie, 1908 Pleasant Av.
 Pierce, Mrs. M. T., 2231 Grand Av.
 Planf, Antoinette, 403 4th St. N.E.
 Planf, Felix, 403 4th St. N.E.
 Pletke, Dora, 2115 Lyndale Av. S.
 Plunkett, P. F., 2117 Bryant Av. N.
 Poehler, Kenneth Cole, 252 W. Franklin Av.
 Poetlethwaite, B. K. 4910 Emerson Av. S.
 Pomeroy, Lillian C., 2404 Nicollet Av.
 Porcher, Marie R., 3549 Dupont Av.
 Porter, Hattie W., 1211 11th St. S.
 Porter, Ralph W., 3210 W. 45th St.
 Powell, Mary, Hotel Berkeley
 Pratt, Mrs. Agnes A., Washburn Home
 Pratt, Bernice, 2508 Hennepin Av.
 Pratt, Elizabeth, 2114 Hennepin Av.
 Prentiss, Anna D., 4737 Colfax Av. S.
 Prentiss, W. S., 4737 Colfax Av. S.
 Preus, Otto H., 2441 Elliott Av.
 Price, Cora Belle, 3104 James Av. S.
 Prosser, Ida M., 2512 Hennepin Av.
 Purcell, Abby, 1013 Park Av.
 Purdy, Mrs. W. W., 2500 Sheridan Av. S.
 Putnam, Carolyn M., 1830 Stevens Av.
 Quail, Margaret, 707 Summit Av.
 Quay, Malcolm E., Minneapolis, Minn.
 Radde, Elsa C., 1312 17th Av. N.
 Radsch, Dorothea, 721 Erie St. S.E.
 Radsch, Minna, 721 Erie St. S.E.
 Raines, Mary Edith, 2500 Aldrich Av. S.
 Ramsdell, Bertha, 509 6th St. S.E.
 Randall, Ada M., 329 Oak St.
 Randall, W. H., 4208 Lyndale Av. S.
 Rankin, Mrs. D. A., 2417 Lyndale Av. S.
 Ray, Rosalie Edith, Curtis Court
 Reed, Myrtle, 2633 Humboldt Av. S.
 Redline, Harriet, 2433 Colfax Av. S.
 Reid, E. A., 607 Essex St. S.E.
 Reid, Katherine, St. Barnabas Hospital
 Reid, Mary D., 604 11th Av. S.E.
 Reynolds, Alice, 2512 Chicago Av.
 Reynolds, George W., 3811 10th Av. S.

- Reynolds, Gertrude, 3811 10th Av. S.
 Rheberg, Rachel, 2220 Oakland Av. S.
 Richards, Estelle, 3130 5th Av. S.
 Richards, Grace, 2639 Harriet Av.
 Richards, Mary, 202 W. Grant St.
 Richardson, Frances A., 3350 5th Av. S.
 Richardson, Mrs. George M., 3908 10th Av. S.
 Riedell, M. Adeline, 3242 2nd Av. S.
 Reider, Mrs. John, 1515 Vine Place
 Rise, Mathilde E., 815 4th Av.
 Ritze, Bertha L., 2117 Colfax Av. S.
 Rixon, Lillian, 119 Pratt St.
 Robinson, Harriet M., 2720 Elliott Av. S.
 Rodenbalch, Alvina K., 1811 2nd Av. S.
 Rodman, Duane F., 411 17th Av. S.E.
 Rogers, Edna May, The Antlers
 Rogers, Emma E., 2655 Grand Av.
 Rogers, Helen L., 2400 Nicollet Av.
 Rogers, Lena H., 1614 Girard Av. N.
 Road, Mary B., 116 Oak Grove St.
 Rosenstein, Ell M., 2101 S. Fremont
 Ross, Effie L., Curtis Court
 Roth, Irving, 1758 Fosdick, St. Paul
 Rowell, Ora M., 2217 N. Fremont Av.
 Rowell, Will J., 225 Harvard St. S. E.
 Rumbaugh, Mary L., 4112 Garfield Av.
 Rummell, Roscoe, 710 8th St. S.
 Rutherford, Margaret, 716 E. 16th St.
 Rutledge, Elizabeth C., 3435 2nd Av. S.
 Ryberg, Anna B., Bethel Academy
 Rydell, Edmund T., 2114 N. Dupont Av.
 Saam, Selma Louise, 3112 Elliott Av.
 Samuels, Mame, 2212 Humboldt Av. S.
 Samuelson, Cora, The Leamington
 Sand, Anna, 2227 Polk St. N.E.
 Sandberg, Adolph, 376 Minnesota, St. Paul
 Sandborn, H. O., 3125 James Av. S.
 Sanders, Gladys, 7 E. 25th St.
 Sandford, E., 1901 Park Av.
 Scales, Kate M., 2300 Nicollet Av.
 Schadeegg, Mabel E., 2620 5th Av. S.
 Schenck, O. A., 717 9th St. S.
 Scherer, Lydia C., 34 21st Av. S.
 Schmidt, Edith M., 800 4th St. S.E.
 Schoepel, Edith, 2530 Emerson Av. S.
 Schlutz, Mathilda Caroline, 417 Delaware St. S.E.
 Schulte, Anna M., 2176 Goodrich Av.
 Schultz, Rudolph J., 3702 14th Av. S.
 Schutz, Archie L., 1209 S. 7th St.
 Schussler, Emma N., 2722 Bloomington Av.
 Schwach, Alois, 405 Oak St. S.E.
 Scott, Jeanette H., 3032 Dupont Av. S.
 Seagren, George E., 4131 N. Fremont Av.
 Seeley, Jennie L., 1916 2nd Av. S.
 Sehan, M., 1114 Humboldt Av. N.
 Sellhorn, Minnie D., 2818 Fremont Av. N.
 Sengir, Barbara C., 912 6th Av. S.
 Sevatson, Carrie, 800 13th Av. S.E.
 Severson, Mabel, 70 S. 12th St.
 Seward, Minnie Mabel, 1317 2nd Av. S.
 Seyller, Blanche, Berkeley Hotel
 Seymour, Jane Allan, 1519 Stevens Av.
 Shaw, Gertrude J., 2012 Garfield Av. S.
 Sheardon, Margaret, The Leamington
 Sheehan, Katherine, 1815 1st Av. S.
 Shepard, George M., 23 Sidney Place
 Shook, Jane L., 1830 Stevens Av.
 Shok, Kate P., 1830 Stevens Av.
 Shove, Helen B., 3116 Clinton Av.
 Sievers, Gladys, 12 E. 15th St.
 Silber, Gertrude, 127 Highland Av. N.
 Silber, Mary, 127 Highland Av. N.
 Silver, Dora, 927 14th Av. S.
 Skogsbergh, Bessie, Curtis Court
 Small, Mary F., 2115 Lyndale Av. S.
 Smith, Alice M., 21 E. 25th St.
 Smith, Burnsley Davis, 3648 Portland Av.
 Smith, Constance C., 2634 Portland Av.
 Smith, Clara T., 1816 Stevens Av.
 Smith, Eva, 1915 Aldrich Av.
 Smith, Evelyn, 3024 S. Knox Av.
 Smith, E. H., 148 Malcolm Av.
 Smith, Frances M., 2109 Blaisdell Av.
 Smith, Harriet E., Hotel Berkeley
 Smith, Genevieve, 34 Eastman Av.
 Smith, Gertrude E., 2608 Pillsbury Av.
 Smith, Irene, 3125 16th Av. S.
 Smith, James T., 34 Eastman Av.
 Smith, Jessie Carey, 2634 Portland Av.
 Smith, Lois A., 816 Beacon St. S.E.
 Smith, Ora H., 3312 3rd Av. S.
 Sommermeyer, Louisa W., 220 9th Av. S.E.
 Speake, Weltha, Hotel Berkeley
 Spencer, Myrtle M., 3128 Colfax Av. S.
 Spindler, Emma K., Curtis Court
 Stakey, Laurie, 2637 Humboldt Av. S.
 Stanchfield, Lois H., 520 5th Av. S.E.
 Stanley, Elizabeth A., 747 N.E. Madison

- Stallard, Harvey, Minneapolis, Minn.
 Steen, J. H. A., 710 Cedar St., Flat
 14
 Stivers, E. W., 131 E. 14th St.
 Steinmetz, George, 912 6th Av. S.
 Stephen, Harriet, Curtis Court
 Stephens, Jean, 3612 Lyndale Av. S.
 Stephens, Katherine, 3612 Lyndale Av.
 S.
 Stephens, Stella, 920 8th Av. S.
 Stevens, E. W., 131 E. 14th St.
 Stevens, Imogene, 201 W. 15th St.
 Stevens, Janet M., 2015 Grand Av.
 Steward, Thomas E., Minneapolis Jour-
 nal
 Stewart, Alex W., 4416 Thomas Av. S.
 Stewart, Anna B., 3724 Portland Av.
 Stoehle, Agnes Audrey, 1908 Hennepin
 Av.
 Stock, E. G., 908 5th Av. S.
 Stone, C. A., 2008 Dupont Av. S.
 Stone, H. C., 681 Simpson Av., St.
 Paul
 Stone, Genevieve, 130 E. 18th St.
 Storer, Zelma, 4003 Blaisdell Av.
 Stowe, E. L., 2101 Girard Av. S.
 Stringham, Josephine, 2413 1st Av. S.
 Stromme, Minnie, 1013 13th Av. S.
 Sullivan, Mrs. J. M., Leamington Hotel
 Summer, Bernice, 3019 N. Olivet Av.
 Sumpter, Nellie E., 3136 5th Av. S.
 Swafford, Mrs. Cora L., 2544 Pillsbury
 Av.
 Swan, Florence, 1919 2nd Av. S.
 Sweeney, Mrs. John, 2105 Newton Av.
 S.
 Sweetser, Teresa M., 2509 Pillsbury
 Av.
 Swennes, Agnes E., 813 E. 22nd St.
 Swenson, Viola, 1720 3rd Av. S.
 Tait, Ada M., 1822 N. Fremont Av.
 Taylor, C. H., 1551 Lincoln Av.
 Taylor, Fannie B., Curtis Court
 Teeter, Addie M., 4833 Fremont Av. S.
 Teeter, Clo V., 4833 Fremont Av. S.
 Ter Louw, W. H., 112 University Av.
 S.E.
 Terry, Stephen N., 802 S. 6th St.
 Thoorzell, Emelia, Ogden Apts.
 Thomas, Mary E., 1111 Hawthorne Av.
 Thomas, Miriam E., 2640 16th Av. S.
 Thomas, Lucy, 2105 S. Bryant Av.
 Thompson, Barbara Anna, University
 Hospital
 Thompson, Charles S., 4808 Nicollet
 Av.
 Thompson, Maud C., 2314 Portland Av.
 Thompson, Dr. Robert, 1015 13th Av.
 S.E.
 Thompson, Ruth Gage, 4808 Nicollet
 Av.
 Thomson, Mrs. Agnes B., 4042 Linden
 Hills Blvd.
 Thomson, Elizabeth, 1935 S. Bryant
 Av.
 Thorshaug, Olaf, 208 Cecil St. S.E.
 Thurston, Adelaide, The Leamington
 Tice, Ethel A., 1815 1st Av. S.
 Tilden, Josephine E., 2235 Como Av.
 W., St. Paul
 Tilden, Rose E., Minnesota Loan and
 Trust Co.
 Tillisch, Mary Agnes, Wells Memorial
 House
 Tinkham, Bertha, 1811 2nd Av. S.,
 Flat 6
 Tobin, Marie Catherine, 692 E. 6th St.
 Tomlinson, Bessie A., 3115 13th Av.
 S.
 Towler, Mary B., 1806 Portland Av.
 Treadgold, Nell M., 117 W. 15th St.
 Trufant, Nellie, 2614 Clinton Av.
 Tryon, Dr. W. E., 74 Spruce Place
 Tuahy, Katherine E., 3132 Clinton Av.
 Turritin, Mary E., 3356 Park Av.
 Twombly, M. Louise, 3305 Park Av.
 Ulbricht, Emma A., 523 7th St. S.E.
 Underdahl, Lena, 1529 University Av.
 Urquhart, Jean, 2217 Grand Av. S.
 Vallely, Rose V., Plaza Hotel
 Van Camp, Kate, 405 Oak St. S.E.
 Van Tuyl, Mrs. C. W., 4236 Queen
 Av. S.
 Vaughn, Julia H., 1220 Mary Place
 Voight, Alfrida H., 26 Oak Grove
 Van Rohr, Lucy E., Hotel Hastings
 Van Storke, Polly, 2655 Irving Av.
 Voswinkel, Darselin Eleanor, Curtis
 Court
 Waite, Beatrice M., 1330 Grand St.
 N.E.
 Waiste, Lucy B., 4717 S. Washburn
 Av.
 Walker, Miner A., 332 E. 24th St.
 Wall, Stephen F., 5112 40th Av.
 Wallace, Dora B., 231 Curtis Court
 Wallace, Frank T., 2714 4th St. N.
 Waller, Lulu Eloise, Berkeley Hotel
 Walquist, Ann, 2578 Elliott Av.
 Walters, Jessie V., 512 Delaware St.
 S.E.
 Walters, William N., 512 Delaware St.
 S.E.
 Ward, Susanna R., 4410 Lake Harriet
 Blvd.
 Warner, F. Russell, 719 E. 16th St.
 Warwick, Margaret, 1516 7th St. S.E.

- Waters, Laura A., 602 Washington Av. S.E.
 Watkins, Lena Dell, 1215 Lowry Av. N.
 Watson, H. A., 3232 Irving Av. S.
 Watson, Louise, 3133 Fremont Av. S.
 Watson, R. O., Abbey Tavern
 Watts, Effie E., 2410 Pierce St. N.E.
 Way, Marjorie, 506 7th St. S.E.
 Weatherhead, Louise C., Harvard Chambers
 Weber, Mary L., 70 S. 12th St.
 Webster, Paul D., Webster Lumber Co.
 Weidner, Rose R., 1316 Emerson Av. N.
 Welch, Richard D., 1409 8th St. S.E.
 Wendell, Ida Marie, 1711 Park Av.
 Wentz, Anna, 2623 1st Av. S.
 Wentz, Edith, 2623 1st Av. S.
 Wenz, Arthur Henry, 84 W. Robie St.
 Wenz, Russell C., 1045 23rd Av. S.E.
 Werket, Inga, 2204 Grand Av.
 West, Alice M., 1619 Grand Av. N.
 Westcott, Blanche A., 4725 Aldrich Av. S.
 Westlund, Mary E., 4351 Garfield Av.
 Wheeler, Carrie M., 3336 Irving Av. S.
 Wheeler, Eva G., 70 S. 12th St.
 White, Annabel, 3445 Nicollet Av.
 White, Zada A., 3036 Oakland Av.
 Whitney, Helen, 425 4th St. S.E.
 Wick, Milton, 2726 18th Av. S.
 Wicks, Judson L., 1911 Pillsbury Av.
 Wilkins, Mary L., 4644 Lake Harriet Blvd.
- Wilkinson, Sarah H., 313 15th Av. S.E.
 Willard, Mary L., 3200 Irving Av. S.
 Wilson, Ida Louise, 101 20th Av. S.
 Wilson, Vincent, 1427 Bryant Av. N.
 Wimber, Mary M., 1900 3rd Av. S.
 Winslow, V. M., 1853 Laurel Av.
 Winter, Winifred L., 1425 6th St. S.E.
 Wright, Clara L., 1819 Lyndale Av. S.
 Wohlgemuth, Anna, 1614 Stevens Av.
 Wolean, Alma B., 200 Harvard St. S.E.
 Wolfe, Florence, 2315 Buchanan St. N.E.
 Wolfe, Vera, 2315 Buchanan St. N.E.
 Wolfsberg, May E., 2217 Girard Av. S.
 Wood, Adelia N., 3341 2nd Av.
 Wood, Harriet, 1111 Hawthorne Av.
 Wood, Stella, 2502 Grand Av. S.
 Wood, S. V., 527 Oak St. S.E.
 Woodford, Constance, 112 State St.
 Woodruff, Pearl Ellen, 1208 W. Franklin Av.
 Woodward, Agnes Y., 2222 Dupont Av. N.
 Woodward, Charles, 3224 Harriet Av.
 Wyman, Ruth G., Vine Hall
 Yahr, Cora, 2914 Bloomington Av. S.
 Yankoski, Frances E., 2308 S. Bryant Av.
 Younker, Bessie E., 509 6th St. S.E.
 Zickrick, Theo, 1425 Vine Place
 Zierold, Arthur A., 4219 Colfax Av. S.
 Zimmerman, Sarah, 1614 Stevens Av.

ST. PAUL

- Allen, Harriet, 1855 Ashland Av.
 Allen, Mildred, 1855 Ashland Av.
 Ames, Elizabeth, 956 Marshall Av.
 Borden, Gertrude C., 2026 Laurel Av.
 Borup, Sophie C., 723 Portland Av.
 Brandt, R. B., 607 Laurel Av.
 Brey, Florence, 614 Dayton Av.
 Brill, Alice, 471 Laurel Av.
 Brill, Edith, 471 Laurel Av.
 Broms, Claire Strong, 2095 Lincoln Av.
 Bruce, Ethel M., 646 Hague Av.
 Buell, Irene Lucile, 1528 Laurel Av.
 Buell, Myra Whitney, 2219 Knapp St.
 Clark, Harry S., 1206 Reaney St.
 Clinton, P. M., 278 Sherman St.
 Converse, Lula R., 237 Arundel St.
 Cottor Emil F., 193 Iglehart Av.
 Courteau, Stella, 742 St. Peter St.
- Daly, Mary E., 208 Maria Av.
 Davies, Edith W., 614 Dayton Av.
 Driscoll, Chas. B., 307 W. 6th St.
 Driver, Elizabeth J., 147 Summit Av.
 Dunn, Teresa M., 331 Geranium St.
 Emery, Rhoda J., 680 Smith Av.
 Estby, Ellen, 272 Cathedral
 Fargo, Chas. H., Y. M. C. A.
 Grant, Mary J., 648 Brown Av.
 Ginsberg, Annie, 1744 Laurel Av.
 Hauser, William A., 1032 E. Minnehaha Av.
 Hayes, H. J., 300 Nelson Av.
 Haselbeck, H., 733 E. Jessamine St.
 Heinze, Robert, 637 Otsego St.
 Hertz, Mrs. Esther, 693 Hague Av.
 Hilbert, Mrs. P. A., St. Paul Hotel
 Hodapp, Marie, College of St. Catherine

- Holland, Mary D., 724 Holly Av.
 How, Lucy, 535 Laurel Av.
 How, Mary W., 614 Grand Av.
 Huspek, Louis, 192 Richmond St.
 Jackson, Mary Isabel, 955 Lombard
 Johnson, Jennie U., 1452 Van Buren
 St.
 Johnston, Ida A., 177 Nelson Av.
 Keppers, William M., 889 Arcade St.
 King, Margaret, 842 Laurel Av.
 Kinsey, Helen M., 207 E. Page St.
 Kneip, Agnes, St. Joseph's Novitiate
 Larsen, Helen Ingeborg, 541 Rondo St.
 Lessing, Albert J., 696 Otsego St.
 Levine, J. A., White Bear
 Lewis, Margaret, 569 Marshall Av.
 Lillie, Florence E., 2153 Scudder Av.
 Lorch, Anna, 21 Elizabeth St.
 Lowry, Ethelwyn, 519 Oakland Av.
 Lowry, Edith P., 519 Oakland Av.
 Lyksett, Sylvan L., 800 Cedar St.
 McClellan, Mary F., 88 Kent St.
 McClure, Carol, St. Catharine's College
 McMullen, Catherine H., Visitation
 Convent
 McMurrin, Mrs. E., 1958 Selby Av.
 McMurrin, J. P., 1958 Selby Av.
 Manlove, Mrs. Sarah S., 144 5th Av.
 S., South St. Paul
 Mann, Mrs. Frederick, 1950 Selby Av.
 March, Lulu, 221 Fourth Av. N.
 Marshall, E., 476 Herschel St.
 Maxwell, Olive L., 569 Oakland Av.
 Miller, Omar, 259 Summit Av.
 Miller, Wm. C., 286 E. Lucy St.
 Michaels, J. C., 420 Summit Av.
 Myers, Olivia M., 608 Oak St. S.E.,
 Mpls.
 Melamed, Louis, 220 E. Fairfield Av.
 Newton, Millicent, 1043 Goodrich Av.
 Palmquist, Axel F., 1250 Sherburn Av.
 Parkinson, Laura D., 1789 Iglehart St.
 Perry, Alice E., 574 Marshall Av.
 Pope, Emily H., 51 12th St.
 Quin, Henry, 667 Wabasha St.
 Quinlan, Mrs. H. T., 542 Ashland Av.
 Rackhaus, Henrietta, 383 Dayton Av.
 Rittle, Anna E., 584 Selby Av.
 Roverud, Ella M., 643 Laurel Av.
 Ryan, Frances L., 1017 Main St.
 Salisbury, L. J., Y. M. C. A.
 Sell, Mrs. John M., 1933 Laurel Av.
 Sell, John M., 1933 Laurel Av.
 Shapiro, A. H., 178 Sherburn Av.
 Sister Agnes Marie Mahoney, Visita-
 tion Convent
 Sister Eleanore Michel, College of St.
 Catherine
 Sister Elizabeth Marie Martens, St.
 Joseph's Training School
 Sister Frances DeSales Larpenteur,
 Visitation Convent
 Sister Gregaria Schluter, St. Joseph's
 Academy
 Sister Jane Margaret Culliman, Visita-
 tion Convent
 Sister Jeanne Marie, St. Catherine's
 College
 Sister Louis Marie Lohmar, St. Joseph
 Training School
 Sister Mary Adrienne McCarthy, Visita-
 tion Convent
 Sister Mary Agnes O'Connor, Visita-
 tion Convent
 Sister Mary Antonia Naughton, Visita-
 tion Convent
 Sister Mary Clementine Shepard, Visita-
 tion Convent
 Sister Frances Whaley, Visitation Con-
 vent
 Sister Mary Hugo Pattner, St. Joseph's
 Novitiate
 Sister Mary Theresa Dougherty, Visita-
 tion Convent
 Sister Mary Vincentis O'Brien, Visita-
 tion Convent
 Sister Rose Elizabeth Schmitz, St. Ca-
 therine College
 Sister Rose J. Brennan, Visitation Con-
 vent
 Sliney, Katherine A., 736 Holly Av.
 Smith, Mrs. E. Fay, 1950 Selby Av.
 Snell, George F., 1065 Hague Av.
 Spencer, Ambrose P., 1676 LaFond St.
 Stone, R. E., 231 Arundel
 Tallman, Kate E., 476 Laurel Av.
 Taylor, William S., 319 Wilder Av.
 Tobin, Marie, 692 E. 6th St.
 Tolson, Edgar, 856 Albemarle
 Van Winkle, John H., 969 Marshall
 Av.
 Vaughn, Bernard, 360 Nelson Av.
 Vibert, Mrs. Frederick D., St. Paul
 Hotel
 Woodward, Lawrence B., 2104 Park
 Av.

STILLWATER

- Allenson, Hulda, 611 N. 5th St.
 Boyle, Marie, 773 Capitol Av.
 Brotherton, Sadie C., 1019 6th Av.
 Brown, Martha D., 314 S. 3rd St.
 Converse, Mrs. Theodore R., 106 W.
 Wilkin St.

Costello, Ann G., Stillwater
 Davis, Miss Frank C., 718 N. 3rd St.
 Emerson, Nell E., 221 Laurel St.
 Glennon, Gertrude, 215 W. Laurel
 Gowen, Olive E., 1320 S. 3rd St.
 Haefuer, Alice, 1114 S. 6th Av.
 Hitchcock, Leila, Pitman House
 Holcombe, Selma V., 822 S. 2nd St.
 Jackson, Amanda J., 821 N. 4th St.
 Jenks, Mary S., 409 Maple St.
 Johnston, W. W., 805 S. 3rd St.
 Kottka, Evelyn, 1112 N. 2nd St.
 Kunde, Louise H., 1218 6th Av.
 Lee, Dorothy D., 1013 S. 2nd St.

Lindbloom, Etta, 821 N. Martha
 McCallam, Antoinette, 924 S. 4th St.
 McCarthy, Alice M., S. Stillwater
 Marsh, Kate Greeley, 103 S. Greeley
 St.
 Melba, Olga, Stillwater
 Nolan, Mary A., 1010 S. 4th
 Payne, Cora Alice, 1205 S. 1st
 Smith, Leila A., 417 W. Laurel
 Soule, Maude E., 420 Laurel St.
 Thompson, Pearl, 310 Wilkin St.
 Tollifson, Hazel, Pitman House
 Wigren, Winnie, 120 Owen St.

DEPARTMENT OF BUSINESS INSTRUCTION

MINNEAPOLIS

Ackley, Henry B., 2425 S. Aldrich Av.
 Akin, Theo W., Anoka, Minn.
 Albee, Thersa D., 1786 Hennepin Av.
 Alberg, Albert, 824 27th Av. N.E.
 Alvord, S. W., 4013 Sheridan Av. S.
 Amquist, Halvor Willett, 1707 University Av. S.E.
 Anderson, A. H., 3512 10th Av. S.
 Anderson, E. T., 3512 10th Av. S.
 Anderson, Edwin W., 2331 E. 24th St.
 Anderson, Emil T., 1216 E. 24th St.
 Anderson, F. W., 2728 Oakland Av.
 Anderson, G. E., 3836 Elliott Av.
 Anderson, Oscar W., 415 14th St. E.
 No. 2
 Anderson, R. A., 4036 Fremont Av. N.
 Anderson, Walter L., 3022 Irving Av.
 N.
 Antisdell, E. G., 2415 W. 42nd St.
 Armstrong, W. B., 3712 11th Av. S.
 Arness, O. J., 2911 Girard Av. N.
 Asselin, R. A., 4334 Nicollet Av.
 Atkin, A. G., 4133 Aldrich Av. S.
 Austin, Ella M., 4521 Washburn Av.
 Badger, Lester R., 1900 Girard Av. S.
 Bamcard, F. M., 12 W. 35th St.
 Bardill, O. H., 1717 Thomas Av. N.
 Barney, Hadwen C., 607 8th Av. S.E.
 Barr, Nick A., 487 Como Av., St. Paul
 Barton, A. D., 3631 Dupont Av. N.
 Bashair, Edith F., 3713 Lyndale Av. S.
 Bates, Curtis, 3041 Irving Av. S.
 Bayley, C. S., 211 E. 34th St.
 Beach, Florence, 97 Spruce Place
 Beery, Charles B., 5000 Colfax Av. S.
 Beinhorn, Genevieve, 710 Pelham St.,
 St. Paul
 Berglund, H. W., 1701 Girard Av. N.
 Berry, Harry Edwin, 3530 Upton Av.
 N.

Bettridge, John E., 1210 N. Logan Av.
 Bigford, S. J., 138 E. 17th St.
 Blackman, H. E., 124 E. 34th St.
 Blair, Raymond E., 324 E. 38th St.
 Boblett, G. I., 3245 Bryant Av. S.
 Boege, John H., 3500 Portland Av.
 Bofferding, Eugene, 715 Western Av.
 Bolduc, A. T., 3100 Humboldt Av. N.
 Booker, A. W., 327 E. 16th St.
 Boor, William F., 2015 Portland Av.
 Borup, A. H., 3448 Pillsbury Av.
 Boulay, J. A., 428 S. 8th St.
 Boysen, Max C., 1812 Fremont Av.
 Brandt, L. Basil, 9½ S. 6th St.
 Brant, L. B., 116 W. Grant St.
 Braun, Linus A., 1627 Newton Av. N.
 Braunstein, Harry A., 409 Lyndale Av.
 N.
 Breager, Frank L., 2728 4th Av. S.
 Brick, Paul, 4315 Harriet Av.
 Bright, Walter, 22 S. 10th St.
 Brisley, Warren B., 4437 York Av. S.
 Brittin, Lewis H., Hampshire Arms
 Brooks, Isabel, 1612 Stevens Av.
 Brown, H. C., 4124 Pleasant Av.
 Brown, Paul Harrington, 3004 Hum-
 boldt Av. S.
 Brown, Stewart W., 2204 Sheridan Av.
 S.
 Brown, Thomas C. W., 3753 Dupont
 Av. S.
 Browne, Lanfear M., 3140 Holmes Av.
 Burbott, O. C., 511 7th St. S.E.
 Burgi, Fred, 726 E. 17th St.
 Burkleo, Jane, 113 Church St. S.E.
 Burns, G. A., 310 12th Av. S.E.
 Burns, W. J., 115 N. Fairview, St.
 Paul
 Byers, Paul H., 1625 University Av.
 S.E.

- Cardozo, Ralph N., 2200 31st Av. S.
 Carlson, Basil N., 1920 Crystal Lake Av.
 Carlson, C. A., 1599 Roblyn Av., St. Paul
 Carlson, C. W., 325 6th Av. S.E.
 Carlson, G. H., 2810 1st Av. S.
 Carlton, Arthur F., 23 W. 37th St.
 Carlton, Ralph I., 23 W. 37th St.
 Carr, P. H., 64 7th Av. N.E.
 Carrier, Elmer P., 2114 Willow Av. N.
 Carrington, Harry J., 2315 Clinton Av.
 Cary, Walter E., 709 W. 35th St.
 Cassidy, T. G., 4638 Fremont Av. S.
 Ceder, Axel, 368 1st Av. S.
 Charlquist, F. R., 3639 Sheridan Av. N.
 Chase, Ray L., 3137 40th Av. S.
 Cheney, R. C., 2309 32nd Av. S.
 Christoferson, Geo. M., 2223 Fillmore St. N.E.
 Chute, Robert W., 1910 Colfax Av. S.
 Clark, Richard R., 2826 1st Av. S.
 Clarke, Norman E., 2117 Dayton Av., St. Paul
 Clausen, L. A., 2725 Elliott Av.
 Clemens, John B., 1413 University Av. N.E.
 Clifford, Ralph E., 1715 Dupont Av. S.
 Cody, E. M., 1830 Stevens Av., Apt. No. 29
 Cohn, Robert R., Y. M. C. A., St. Paul
 Colle, Alfred, 3849 1st Av. S.
 Collins, Alfred Leroy, 3010 W. 43rd St.
 Collins, J. E., 1885 Roblyn Av., St. Paul
 Condit, L. A., 1810 Clinton Av.
 Confeld, David J., 1241 N. Logan
 Connoy, John J., 2210 N. Dupont
 Cotton, Alfred J., 708 3rd Av. S., St. Paul
 Cullen, Arthur W., 1527 Jefferson St. N.E.
 Cunningham, Thomas E., 2108 16th Av. S.
 Curran, Clare L., 3509 2nd Av. S.
 Curtis, E. B., 1608 Clinton Av.
 Dahl, C. J., 3551 Bloomington Av.
 Danforth, M. L., 3110 Fremont Av. S.
 Davis, Charles A., 114 S. 8th St.
 Davis, Richard R., 163 Pleasant Av.
 Davison, F. A., 2428 4th Av. S.
 Dedrickson, Harold E., 1070 22nd Av. S.E.
 Denziel, Charlotte L., 516 5th St. S.E.
 de Rabideaux, St. M., 1815 1st Av. S.
 de St. Croix, Lawrence, 223 W. 39th St.
 Diekman, William H., 1214 4th St. S.E.
 Dillahunt, W. G., 5531 Colfax Av. S.
 Dirba, Charles, 2309 5th Av. S.
 Dixon, H. S., 3406 Penn Av. N.
 Donlin, Joseph C., Excelsior, Minn.
 Dumas, John, 3901 Clinton Av.
 Dunkel, William J., 215 S. 9th St.
 Dunnigan, T. J., 2709 Aldrich Av. N.
 Earenfight, Linnette G., 3634 Dupont Av. N.
 Eastman, Henry I., 4321 Elliott Av.
 Edwards, Miss L. M., 1400 Yale Place, Apt. 209
 Eide, Alf, 1304 E. 18th St.
 Eldredge, E. T., 777 Grand Av.
 Ellinger, William H., 1005 6th Av. S.
 Ellis, Harris, 1583 $\frac{1}{2}$ Selby Av.
 Ellison, Earl A., 952 22nd Av. N.E.
 Englund, R. A., 1402 Jefferson St. N. E.
 Erickson, E. J., 1719 6th St. N.E.
 Erickson, Herbert Garfield, 694 25th Av. N.E.
 Estensen, Roy, 1404 Portland Av.
 Evans, Edward E., 3521 W. 28th St.
 Exworthy, Francis Harriet, 1910 McKinley St. N.E.
 Fargo, Charles H., Y. M. C. A., St. Paul
 Farmer, E. H., 4347 Garfield Av.
 Farrington, Bessie, 2428 Irving Av. N.
 Felt, H. P., 2122 E. 22nd St.
 Ferguson, George A., 829 2nd St. N.E.
 Ferman, Joseph Walter, 1370 Spruce Place
 Fessler, E. J., 2014 Dupont Av. S.
 Fitzsimmons, S. J., 128 E. 18th St.
 Flanders, Mark P., 2016 Central Av.
 Foley, Sarah, 4145 Vincent Av. S.
 Folsom, Edgar P., 106 8th St.
 Fontaine, Leo P., 2823 W. 40th St.
 Forester, Joseph A., 1006 1st Av. N.
 Forschler, W. S., 2924 3rd Av. S.
 France, Alexander H., 1928 S. Aldrich Av.
 Fraser, Norman D., 2317 Humboldt Av. S.
 Fredlund, Paul, 909 21st Av. S.
 Freeman, Howard H., 1623 University Av. S.E.
 Gallagher, A. J., 1104 E. 36th St.
 Galvin, Eugene F., 3704 Nicollet Av.
 Gans, Ernest G., 1441 W. Lake St.
 Gerde, A. M., 4052 Harriet Av. S.
 Gerrish, F. Earl, Hopkins, Minn., Rte. 2
 Gerth, H. J., 1816 Stevens Av.

- Gibbons, Frank, 1404 Spruce Place
 Giguere, George A., 325 12th Av. N.E.
 Gilbert, Carl G., 1105 E. Lake St.
 Gilman, E. Dow, 602 Essex St. S.E.
 Godley, Leon M., 2308 Lake Place
 Goldberg, Isidore G., 148 E. Fairfield Av., St. Paul
 Goldberg, Zell, 2701 Grand Av.
 Gorman, H. J., 88 Spruce Place
 Graham, J. L., 301 Aldrich Av. N.
 Greenberg, Herman, 719 Humboldt Av. N.
 Greene, Carl, 2301 Central Av.
 Greig, John E., 1725 University Av. S.E.
 Greiner, M. E., 4012 Abbott Av. S.
 Guernsey, Newell Forbes, 3337 University Av. S.E.
 Gurney, E. A., 1211 25th Av. N.
 Gustafson, Arnold, 2646 14th Av. S.
 Gustafson, Victoria E., 1311 Chestnut Av.
 Gustafson, Walter J., 3203 34th Av. S.
 Gutteresen, Milton E., 3952 Park Av.
 Haberland, G. W., 2916 14th Av. S.
 Hadden, George N., 2645 Fremont Av. S.
 Hagg, Arthur D., 913 E. 26th St.
 Hale, H. C., 2933 Clinton Av.
 Hallman, Charles Jos., 1701 Aldrich Av. N.
 Hamburg, W. C., 2315 Garfield Av.
 Hancock, Archie, 2715 Chowen Av.
 Hannon, J. E., 2542 Clinton Av.
 Hansen, George, 419 9th St. S.
 Hanson, Anton G., 1527 E. Lake St.
 Harris, Sally P., 103 Vine Hall
 Hartsough, Douglas J., 3046 Stevens Av.
 Haslund, Arthur, 2417 Clinton Av.
 Hastie, A. E., 3228 Aldrich Av. S.
 Hauge, Arthur W., 4056 10th Av. S.
 Hawkey, Hollis R., 2702 Fremont Av. N.
 Hawkinson, Alieda C., 503 15th Av. S.E.
 Hawley, Harold H., 3036 S. Irving Av.
 Haynes, R. W., 3744 Oakland Av.
 Hedquist, R. J., 2709 Stevens Av.
 Heitsmith, Althea, 3328 Garfield Av. S.
 Hendricks, John, 1101 14th Av. S.E.
 Henry, Louis F., 3017 38th Av. S.
 Hewetson, B., 383 Pleasant Av.
 Hillgren, H. A., 3342 Oakland Av.
 Hillman, P. L., 4017 12th Av. S.
 Hittleman, Charles W., 1805 Park Av.
 Hobbs, Arnold, 2502 Grand Av.
 Hochtanssen, Adolph Ludwig P., 1115 E. 19th St.
 Hodge, Albert C., 615 9th Av. S.E.
 Hodgins, Howard H., 2050 Grand Av., St. Paul
 Hoffman, J. W., 428 8th St. S.
 Holm, H. S., 2327 27th Av. S.
 Holt, Clara Elizabeth, 820 9th Av. S.E.
 Holt, Walter E., 215 S. 11th St.
 Horan, William R., 1918 Hayes St. N.E.
 Horstman, Fred A., 1319 Yale Place
 Hughes, C. F., 114 E. 17th St.
 Hurlburt, Harold F., 1915 Hennepin Av.
 Hyman, Philip N., 2208 Kenwood Parkway
 Jackson, Clifford, 3227 2nd Av. S.
 Jackson, W. J., 322 13th Av. S.E.
 Jacobson, Henry Norman, 3149 21st Av. S.
 Jacques, Grace, 4037 Zenith Av. S.
 James, F. H. C., 1100 5th St. S.E.
 Jarboe, J. F., 206 N. 3rd St.
 Javoscak, Jack P., 2315 2nd St. N.E.
 Jensen, Carl J., 1602 4th Av. S.
 Jensen, Ernest W., 812 E. 33rd St.
 Johnsen, Jennie A., 2523 1st Av. S.
 Johnson, Arthur, 2900 28th Av. S.
 Johnson, Arthur C., 3417 Oakland Av. S.
 Johnson, Arthur E., 38 N. Chicago Av.
 Johnson, A. E., 1504 Clinton Av.
 Johnson, A. H., 3031 18th Av. S.
 Johnson, A. R. H., 2325 Fremont Av. S.
 Johnson, Clarence H., 3512 Pillsbury Av.
 Johnson, C. M., 1337 Knox Av. N.
 Johnson, Ernest, 217 Walnut St. S.E.
 Johnson, Ernest E., 1714 Jefferson St. N.E.
 Johnson, Ewan M., 1335 Oliver Av. N.
 Johnson, Fred B., 3041 Oakland Av.
 Johnson, F. E., 2111 Dupont Av. N.
 Johnson, Helmar E., 1823 Cleveland St. N.E.
 Johnson, Leander H., 1115 Harmon Court
 Johnson, Lillian P., 2911 Lyndale Av. N.
 Johnson, Nellie G., 3717 2nd Av. S.
 Johnson, O. Einar, 2615 Pleasant Av.
 Johnson, Roy L., 519 11th Av. S.E.
 Johnson, William E., 2421 10th Av. S.
 Jones, David Gale, 2411 1st Av. S.
 Jones, David Thomas, 1644 Hennepin Av.
 Jones, Earle R., 2123 Fremont Av. S.
 Jones, Edward C., 1614 Fremont Av. N.

- Jones, William R., 3540 Minnehaha Av.
- Juvred, E. C., 617 Delaware St. S.E.
- Kassube, Frank, 2441 Portland Av. S.
- Keeman, Anten, 322 15th Av. S.E.
- Kellberg, Ernest H., 626 E. 19th St.
- Kelly, M. J., 1622 Linden Av.
- Kennedy, Annie M., St. Cloud, Minn.
- Kidwell, R. B., 3404 Bryant Av. S.
- King, F. E., 303 Humboldt Av.
- Kingbay, J. B., 335 E. 18th St.
- Klason, Iver, 206 N. 3rd St.
- Klingensmith, Walter, 2143 St. Anthony Av., St. Paul
- Knights, Ingram K., 2842 James Av. S.
- Knutson, Harry M., 1541 Marshall Av., St. Paul
- Koch, A. J., 1114 Adams St. N.E.
- Koch, C. C., 3317 2nd Av. S.
- Kramer, Wm. A., 4042 Blaisdell Av.
- Krieg, W. J., 389 Western Av. N.
- Krone, Fred O., 1422 Logan Av. N.
- Kuehn, Henry Edward, 1831 Irving Av. N.
- La Grange, Myron H., 1816 Portland Av.
- Lambert, Harry E., 2314 Aldrich Av. N.
- Lambert, R. W., 3740 4th Av. S.
- Lane, J. Francis, 811 16th Av. N.
- Lange, I. A., 3655 Emerson Av. N.
- Larson, Agnes M., 827 18th Av. N.E.
- Larson, Clara, 528 13th Av. S.E.
- Larson, C. E., 3419 Lyndale Av. N.
- Larson, Edwin A., 2300 24th Av. S.
- Larson, Walter L., 1020 Harmon Place, Apt. 5
- Lebeis, Clara F., 128 W. 14th St.
- LeBlanc, William, 2306 Monroe St. N.E.
- Lee, George W., 645 Simpson Av., St. Paul
- Lee, Reynold A., 2018 25th Av. S.
- Lerner, Aaron H., 516 Fremont Av. N.
- Leitzman, Fred N., 406 20th Av. S.
- Lemna, Arthur, 4 Nourse St., St. Paul
- Levien, Verne C., 2009 Ilion Av. N.
- Levien, Hazel A. G., 2009 Ilion Av. N.
- Lewis, Appolina, Curtis Court
- Limberg, Paul H., 3204 Elliott Av.
- Linder, H. W., 2119 17th Av. S.
- Lindquist, Harry C., 4511 Wentworth Av.
- Lineburg, George F., 1213 17th Av. N.
- Linne, Award, 500 Beacon St. S.E.
- Loberg, James M., 714 Superior St. S.E.
- Lockwood, Ralph P., 4520 Washburn Av. S.
- Long, Louis Woodford, 3312 W. 32nd St.
- Longworth, H. W., 3839 Russell Av. N.
- Ludke, Rose G., 1775 Reaney, St. Paul
- Lund, George A., 2204 11th Av. S.
- Lundberg, Elsie M., 1701 Park Av. S.
- Lundberg, Henry C., 230 James Av. S.
- Lundgren, Paul J., 5129 28th Av. S.
- MacDonald, E. A., 1344 1st Av. S.
- McDonald, Sarah A., 4307 Fremont Av. N.
- McElroy, Virginia Eleanor, 2700 Emerson Av. S.
- McHenry, Robert D., 714 8th St. S.E.
- McInerney, Joseph, 716 3rd St. N.
- McKewin, G. L., St. Paul
- McLaughlin, Howard James, 2230 Hayes St. N.E.
- McLaughlin, N., Berkeley Hotel
- Moses, Herbert W., 2113 Penn Av. S.
- McLeod, Howard L., 1011 6th St. S. E.
- McNamara, J. R., 428 8th St. S.
- Magee, O. E., 3224 Aldrich Av.
- Maguire, Irby A., 2924 18th Av. S.
- Mandel, David Alexander, 127 Highland Av.
- Marcus, S. A., 1327 6th St. N.
- Marshall, Lloyd, 3309 Garfield Av. S.
- Martin, J. Miles, 2642 Girard Av.
- Martinsen, Arnold B., 3125 Findley Pl.
- Martinson, C. O., 1322 Vine Place, Flat 2
- Mathews, John B., 2727 7th Av. S.
- Matson, Verna, 122 E. 14th St.
- Matthews, A. G., 914 W. Lake St.
- Meek, Mabel F., 1303 Yale Place, Apt. 5
- Meeker, Dean W., 201 W. 15th St.
- Meighan, J. J., 88 Spruce Place
- Melamed, Louis, 220 E. Fairfield Av.
- Melton, Solon, 4104 Bryant Av. S.
- Michel, Clarence B., 610 Fuller Av., St. Paul
- Michel, George A., 610 Fuller Av., St. Paul
- Mills, G. A., 50 S. 13th St.
- Miller, C. R., 2609 Columbus Av.
- Miller, O. H., 3345 2nd Av. S.
- Mitchell, George Lindley, 3044 Colfax Av. S.
- Moe, James Odin, 3016 Portland Av. S.
- Monasch, Jerome A., 2201 Oliver Av. S.

- Monasch, Stanley B., 2201 Oliver Av. S.
 Monson, Aaron, 1522 Madison St. N. E.
 Monson, E. G., 1522 Madison St. N.E.
 Montgomery, Glenn Edgerton, 2509 Clinton Av.
 Montgomery, Lawrence P., 52 Curtis Court
 Morrell, Andrew, 3303 Garfield Av. S.
 Mosher, H. Leon, 5700 Pillsbury Av.
 Muckley, Elizabeth, 1916 Laurel Av.
 Mulcahey, Thomas R., 2545 Dupont Av. S.
 Mulligan, Leo B., 1906 5th Av. S.
 Mulvahill, John Elmer, 1846 E. 26th St.
 Munson, Loren J., 1776 James Av. S.
 Nash, James Linn, 111 S. 6th St.
 Nauman, Richard, 89 Ash St.
 Nelson, A. M., 1804 11th Av. S.
 Nelson, Walter Irving, 3124 Grand Av. S.
 Neudeck, W. E., 1934 Lincoln St. N. E.
 Neumeier, Chester J., 3820 Garfield Av.
 Newcomb, Glenn F., 3836 17th Av. S.
 Nickel, Walter A., 2816 25th St. E.
 Nilsen, M. N., 830 24th Av. S.
 Nimerfroh, G. B., 1206 18th Av. N.
 Nolan, Merrill, C., 1725 University Av. S.E.
 Nordquist, Richard, 3223 Blaisdell Av.
 Nordstrom, Leonard, 1122 N. 3rd St.
 Norman, Bert, 505 Walnut St.
 Noot, Arthur F., 910 3rd Av. N.
 Norrborn, Oscar E., 2532 Bloomington Av.
 Norris, Donald R., 3321 Girard Av. S.
 Nyman, Martin, 4115 Park Av.
 Newcomb, O. L., 2736 Chouwen Av.
 Obara, S., 629 3rd Av. S.
 O'Brien, Frank C., 806 15th Av. S.
 O'Connell, John F., 906 4th St. N.E.
 O'Keefe, Allan J., 1522 Grand Av. N.
 Olsen, Mabel Juliet, 2416 11th Av. S.
 Olsen, Paul, 2538 Taylor St. N.E.
 Olson, Elmore J., 2700 Bryant Av.
 Olson, Floyd J., 4350 Harriet Av.
 Olson, Herbert C. J., 1619 Washington St. N.E.
 Olson, T. J., 1406 44th Av. N.
 Oman, C. 3229 17th Av. S.
 Onion, Charles A., 1917 Emerson Av. S.
 Orr, R. V., 2509 Emerson Av. N.
 Ortle, Arthur R., 913 16th Av. S.
 O'Sullivan, Timothy, 456 Fairview Av.
- Oswald, Arthur T., 4326 Pillsbury Av. S.
 Owen, Paul E., 2745 3rd Av. S.
 Paarola, George R., 70 S. 12th St.
 Pankopf, Raymond Albert, 720 25th Av. N.
 Parson, Wilfred D., 4217 Bryant Av. S.
 Parsons, Henry A., 1809 2nd Av. S.
 Paul, Ernest, 625 E. 14th St.
 Penberthy, Henry H., 1339 Vine Place
 Perine, Edward G., 731 Fulton St. S. E.
 Person, Joseph, 1216 Humboldt Av. N.
 Perry, H. M., 2745 45th Av. S.
 Peterson, Art C., 2723 Fremont Av. N.
 Peterson, Caroline E., 3924 Pillsbury Av.
 Peterson, Clarence A., 3905 5th Av. S.
 Peterson, Flora, 2626 Cedar Av.
 Peterson, Reuben, 1207 E. 21st St.
 Peterson, Walter, 923 Chicago Av.
 Phillips, Parry, 2036 Upton Av. S.
 Pierce, Harold E., 1100 Jefferson St.
 Pillow, Emily Y., 3801 Stevens Av.
 Plant, John H., 3706 Elliott Av.
 Podany, S. P., 1519 Madison St. N. E.
 Polseek, James, 510 13th Av. S.E.
 Polkingham, J. W., 3113 Pleasant Av. S.
 Porter, Charles A., 2930 4th Av. S.
 Powers, Edna M., 2508 Aldrich Av. S.
 Preus, Paul A., 137 Arthur Av. S.E.
 Prince, Edward G., 3708 Harriet Av.
 Prisch, H. W., 4428 Beard Av. S.
 Pritchard, Hugh, 4509 Ewing Av. S.
 Provost, J. A., 1628 5th St. S.E.
 Purdham, Plummer, 4000 Lyndale Av. N.
 Ralph, Harry W., 3959 Minnehaha Av. S.
 Raymer, W. H., St. Paul
 Read, William, 2734 Girard Av. S.
 Reak, Lawrence D., 3144 Clinton Av.
 Reed, George J., 3121 Aldrich Av. S.
 Rhea, Harold Hart, 1916 1st Av. S.
 Rickel, Francis J., 315 10th Av. S.E.
 Rickmire, P. L., 501 Kasota Bldg.
 Reikki, August, 20 E. 19th St.
 Riley, F. H., 155 Bedford St. S.E.
 Robins, John C., 3120 Humboldt Av. S.
 Roden, Thomas A., 3228 5th Av. S.
 Rodgers, Frank A., 3545 Park Av.
 Rodlun, Troy M., 519 11th Av. S.E.
 Roll, Helen, 2629 Dupont Av. N.
 Rose, Carroll H., 926 13th Av. S.

- Rose, J. S., 1311 Yale Place
 Rotella, Joseph, 316 15th Av. S.E.
 Rotering, Victor F., 122 W. Grant St.
 Ruben, Albert G., 1824 Fremont Av. S.
 Russell, Ray E., 3644 Portland Av.
 Rutstrum, Caleri, 2229 8½ St. S.
 Rychman, Joseph, 2644 3rd Av. S.
 Rydell, Edmund T., 2114 N. Dupont Av.
 Rye, Clarence S., 528 14th Av. S.E.
 Rye, James A., 3000 Morgan Av. N.
 Sage, Warren E., 3241 Dupont Av. S.
 Salland, J. F., Hopkins, Minn.
 Sandahl, Harold E., 3844 Elliott Av. S.
 Sande, Edwin, 1110 E. 36th St.
 Sandgren, Arthur N., 4103 Fremont Av. N.
 Sandgren, Rudolph T., 4103 Fremont Av. N.
 Sanford, Edward H., 2525 4th Av. S.
 Scharf, Elmer J., 3237 Grand Av.
 Schonebaum, Theo H., 33 23rd Av. N.E.
 Schmal, G. P., 803 Douglas Av.
 Schultz, Henry P., 821 12th Av. N.
 Schwab, Martin, 1005 6th Av. S.
 Schwartz, Alfred B., 828 12th Av. N.
 Schwartz, S., 51 N. Royalston Av.
 Scott, K. C., 1712 Elliott Av.
 Searle, Clinton E., 131 W. 36th St.
 Segelbaum, Charles S. M., 2600 Grand Av.
 Sharbach, Gordon H., 3544 Oakland Av.
 Shattuck, Irvine E., 2925 Emerson Av. S.
 Shedd, Franklin, 3406 Stevens Av.
 Sher, Ray L., St. Cloud, Minn.
 Sheridan, Charles R., 822 10th Av. S.
 Silber, Mary L., 127 Highland Av. N.
 Simonson, Adolph C., 953 24th Av. N. E.
 Skinner, F. T., 1725 University Av. S.E.
 Skog, Frank A., 4033 Garfield Av. S.
 Smith, Arthur P., 622 E. 17th St.
 Smith, A. V., 3708 Elliott Av.
 Smith, A. W., 4050 Wentworth Av.
 Smith, G. Woods, 1519 Mount Curve Av.
 Smith, James C., 1400 Harmon Place
 Smith, James Comstock, 714 E. 17th St.
 Smith, N. H., 2648 Humboldt Av. S.
 Smith, P. W., 2404 Garfield Av. S.
 Snyder, Henry F., 1773 Hennepin Av.
 Sodergren, Elmer H., 2418 Jackson St.
 Souba, Emil G., Hopkins, Minn.
 Spalth, Wesley W., 1563 Ashland Av., St. Paul
 Stark, Helen, 1642 Queen Av. N.
 Stebbins, Robert S., 3119 Clinton Av.
 Stephen, R. B., 920 8th Av. S.
 Stier, Leslie G., 2701 Emerson Av. S.
 Stone, C. A., 2008 Dupont Av. S.
 Stonlie, Frederick O., 1900 3rd Av. S.
 Storm, Arthur V., 1827 4th St. S.E.
 Stratton, Thomas A., 3101 Girard Av. S.
 Strudwick, James, 511 Beacon St. S.E.
 Sussmilch, Adelbert A., 814 Washington Av. S.E.
 Sutherland, Frederick, 1819 Dupont Av. S.
 Swenson, Albert L., 1126 Jefferson St.
 Swenson, Oscar Alvin, 1431 Monroe St. N.E.
 Tadsen, F. C., 105 E. 25th St.
 Talbott, Frank B., 3423 Nicollet Av.
 Tarbox, Charles W., 11 W. 25th St.
 Taylor, Charles P., 2810 W. 42nd St.
 Thompson, Edward, 630 E. 16th St.
 Thompson, Harvey E., 3007 Fremont Av. N.
 Thomson, Alexander, 4134 Blaisdell Av.
 Thorson, Alvin R., 3520 Colfax Av. S.
 Thrall, Ralph A., 2925 Lyndale Av. N.
 Thuras, H. C., 1520 1st Av. S.
 Timm, Margaret, 2909 2nd Av. S.
 Tingdale, Andrew R., 3815 Pillsbury Av.
 Titus, L. M., 1104 8th St. S.E.
 Toepel, A. L., 1219 N. Newton
 Towle, R. E., 3145 1st Av. S.
 Treacy, Charles, 3233 Holmes Av.
 Treat, Floyd C., 712 15th Av. S.E.
 Troedson, George E., 1401 19th Av. N.
 Turner, D. D., 1205 5th St. S.E.
 Turner, R. H., 1205 5th St. S.E.
 Turner, Walter H., 3224 Oakland Av.
 Tuscany, Edward James, 929 N. Penn Av.
 Umbach, L. H., 1816 Stevens Av.
 Vilett, R. A., 2633 Emerson Av.
 Villesnik, J. K., 3023 N. Dupont Av.
 Van Stocken, William J., 3535 2nd St. N.E.
 Vallinder, Gottfried, 3341 23rd Av. S.
 Wade, Henry H., Hopkins, Minn.
 Wadsforth, W. M., 209 Groveland Av.
 Wales, Charles Raymond, 2945 Oakland Av.

- Wallace, Edith M., Apt. 538 Leamington Hotel
 Wallace, Warren Leslie, 1 Orlin Av. S. E.
 Wallis, R. P., Hotel Maryland
 Walter, Ray B., 5216 Upton Av. S.
 Walton, Dorothy, 802 Mount Curve Av.
 Way, Elwood J., 3712 Harriet Av.
 Weaver, Eglantine M., 1401 Yale Place
 Weeks, Robert Whitman, 209 5th St. S.E.
 Weight, Walter Otto, 1235 Lincoln Av.
 Wiencke, Otto 1520 6th St. S.E.
 Weisenbarger, Albert C., 313 W. 26th St.
 Welch, R. E., 4335 Abbott Av. S.
 Werring, Rex E., 1088 22nd Av. S.E.
 Westernman, Walter F., 2936 Dupont Av. S.
 Westerveld, Henry F., 3639 Columbus Av.
 Weston, C. D., 800 Physicians and Surgeons Bldg.
 Widergren, Arthur, 3427 Elliott Av.
 Will, Fred L., 1830 Stevens Av.
- Williams, James E., 4232 Linden Hills Blvd.
 Willing, Le Roy, 163 Bedford St. S.E.
 Williner, L. R., 163 Bedford St. S.E.
 Wilson, Alfred E., 510 University Av. N.E.
 Wilson, J. G., 3244 3rd Av. S.
 Wiltse, Merton A., 1403 4th St. S.E.
 Wing, L. F., 4301 Nicollet Av.
 Wistrand, Edwin R., 3026 N. Fremont Av.
 Wochler, Charles G., 4026 N. Lyndale Av.
 Wolff, Edwin A., 1727 Irving Av. N.
 Wood, George B., 3144 Clinton Av.
 Woodruff, Carrie M., 1810 Bryant Av. S.
 Woodward, M. Myrtle, 2525 4th Av. S.
 Woolley, John H., 1701 Bryant Av. N.
 Yerxa, Clifford M., 606 7th St.
 Young, Marie L., 2420 Elliott Av.
 Youngquist, Dewey, 3028 Stevens Av.
 Zehrfeld, M. E., 30 Grove St.
 Zinn, Charles F., 3700 Girard Av. N.

ST. PAUL

- Adams, Lou M., 566 Edmund St.
 Adams, Roman M., 566 Edmund St.
 Algren, Theo W., 5 W. George St.
 Allen, Phillip C., 1973 Goodrich
 Anderson, C. A., 954 Westminster
 Anderson, M. E., 339 W. George St.
 Anderson, R. W., 65 W. College Av.
 Anderson, W. L., 357 Hope St.
 Angell, Frank M., 1665 Marshall Av.
 Angell, J. F., 605 Ottawa
 Anthony, Theo. M., 1603 Berkeley Av.
 Arth, Frank J., 836 E. 3rd St.
 Baker, O., 209 Gilfillan Blk.
 Bailie, Monroe, 988 Lincoln
 Barnes, F. A., 641 Ashland
 Beinhorn, Genevieve, 710 Pelham St.
 Benson, Ray J., 751 Fauquier
 Berg, R. F., 616 E. Cook St.
 Bergstrand, W. A., 915 Lawson St.
 Billstein, Lewis P., 395 Eichenwald St.
 Blandin, A. A., 1578 Randolph
 Blase, Esther M., 942 Beach St.
 Bohlen, Mark D., 2109 Grand Av.
 Borovansky, I. J., 399 Superior
 Boyer, Merl, 1655 Capitol Av.
 Brokaw, Frederick A., 1805 Carroll Av.
- Buckham, C. J., 2944 43rd Av. S., Minneapolis
 Buetow, Herbert, 733 Charles St.
 Bystrom, Richard A., 870 Burr St.
 Cane, Thomas J., 2006 Dayton Av.
 Carlson, A. G., 761 Lawson
 Carlson, C. R., 1138 Jessie St.
 Carroll, Charles P., 61 W. Delos St.
 Castner, Paul, Peoples Bank of St. Paul
 Cavitzel, J. A., 139 W. 5th St.
 Chase, Herbert F., 90 W. Isabel St.
 Cherry, Geo. W., 193 Iglehart
 Christ, Robert, 894 E. 3rd St.
 Christenson, Le Roy, 141 E. Brompton St.
 Clapp, W. D., 770 N. Hamlin Av.
 Clark, Paul G., 1577 Ashland
 Coan, M. E., 2017 Carroll Av.
 Cohn, Ben, 331 Aurora Av.
 Colliton, R. A., 586 Laurel Av.
 Cottor, Emil F., 193 Iglehart Av.
 Crowl, Oliver, 2146 Marshall Av.
 Danielson, Andrew W., 1910 Feronia Av.
 Daus, Dr. P. E., 5005 Washburn Av. S.
 Davidson, E. H., 478 Holly Av.

- Dedon, Clarence L., 1609 St. Anthony Av.
 Delander, B. T., 733 E. Cook St.
 Delander, N. P., 733 E. Cook St.
 Delaney, F. H., 691 Aurora Av.
 Doherty, C. J., 402 Marshall Av.
 Donnelly, Ignatius, 808 Laurel Av.
 Doran, Lawrence, 1495 Sherburne Av.
 Driscoll, Paul F., 991 Wakefield Av.
 Driver, Elizabeth J., 147 Summit Av.
 Duff, J. W., 827 Linwood Pl.
 Dugan, Harry R., 867 Cherokee Av.
 Eckenstein, Robert, 35 S. Lexington Av.
 Eichorn, C. H., 759 E. 5th St.
 Ehlers, Edwin, 903 Reaney St.
 Ekstrom, Charles E., 796 Pusey Av.
 Elmer, Carl A., 621 Jackson St.
 Elmquist, Nan C., 356 Pleasant Av.
 Emery, Grace, 301 Dayton Av., No. 2
 Erbling, A. A., 299 W. 6th St.
 Erickson, John, 1368 Payne Av.
 Fargo, Charles H., Y. M. C. A.
 Fitzpatrick, E. R., 713 Tuscarora St.
 Fleming, James J., 1996 Ashland Av.
 Ford, Walter H., 810 Iglehart Av.
 Foss, L. N., 445 E. Minnehaha Av.
 Fox, L. A., 1674 Ross St.
 Frederick, S. B., 1981 Laurel Av.
 Fritsch, Alma, 664 Como Blvd.
 Fuller, Charles E. Jr., 736 Dayton Av.
 Gadacz, Stanley J., 15 W. George St.
 Gamble, John, 48 Central Terrace
 Gehan, J. P., 201 4th Av.
 George, Charles W., 17 W. Summit Av.
 Gerringer, J. C., 1833 Lincoln Av.
 Glaunce, Ernst, 393 Eichenwald St.
 Gode, Fred J., 7th and Robert
 Goff, E. W., 724 E. 5th St.
 Goldberg, Isidore G., 148 E. Fairfield Av.
 Goodrich, Charles W., 2046 Dayton Av.
 Goodson, Curtis C., 753 Carroll Av.
 Gordon, Louis H., 309 Emerson Av. N.
 Gothe, Oscar E., 655 Case St.
 Green, Edward F., 2154 Dayton Av.
 Green, Q. M., 407 Deway Av.
 Greenfield, Jos. W. Jr., 242 Baker Av.
 Griffin, C. B., 1229 Laurel Av.
 Grove, Harold A., 1398 Breda St.
 Gruber, Jeffrey, 2349 Commonwealth Av.
 Gullickson, O. L., 1559 Dayton Av.
 Hamper, Thos. J., 935 E. 6th St.
 Hane, Ralph, 323 Kent St.
 Hanson, Earl S., 1063 Pacific Av.
 Harrington, Gerry, 305 Mackubin St.
 Harvey, Clifford, 483 Aurora Av.
 Haselbeck, H., 733 E. Jessamine St.
 Heard, Charles, 685 Capitol Heights.
 Henly, Elkan N., 134 E. Colorado St.
 Henly, Harold J., 134 E. Colorado St.
 Hess, George H. Jr., Lorraine Apts. No. 34
 Hoerjs, Vincent J., 1155 W. 7th St.
 Hoffman, Nathan W., 1378 Ashland Av.
 Hoklas, H. W., Y. M. C. A.
 Honebrink, W., 916 Beech St.
 Horn, Dora, 948 Linwood Pl.
 Horton, W. S., 551 Laurel Av.
 Hovig, Lawrence H., 219 Pleasant Av.
 Hueller, David S., 584 Grand Av.
 Huelster, Howard N., 1648 Portland Av.
 Hunt, Herbert, 1630 Laurel Av.
 Iffert, Carl N., 653 Marshall Av.
 Jackson, Leo B., 970 E. 3rd St.
 Jelinski, Joseph N., 591 St. Peter St.
 Jensen, Archie O., 883 Marshall Av.
 John, R. P., 373 Maple
 Johnson, Arthur G., 616 E. Jessamine
 Johnson, Gilbert O., 420 Deway Av.
 Johnson, Harry L., 666 Magnolia St.
 Johnson, J. B., 652 Case St.
 Kasmirski, Aloysius W., 242 Forbes Av.
 Kelly, Tracy, 73 Oxford Av.
 Kerker, Thomas, 1250 Capitol Av.
 Kirn, H. E., 560 Mendota St.
 Klawter, Frederick C., 1166 Thomas St.
 Knebel, Robert L., 961 Grand Av.
 Knudson, Walter, 35 Como Av.
 Kopp, George M., 501 N. Livingston Av.
 Krieg, W. S., 389 Western Av.
 Kueffner, William R., 10 Benhill Rod
 Kulp, D. E., 251 Banfil St.
 Landman, Norman, 997 Portland Av.
 Lang, F. W., 1982 E. Minnehaha St.
 Larson, Edward J., 122 W. Arch St.
 Lawrence, Adolph A., 1222 Capitol Av.
 Leaf, Edward N., 932 Westminster St.
 Leavitt, F. A., 684 $\frac{1}{2}$ Selby Av.
 Lemke, F. J., 911 Fuller Av.
 Lewis, Edward C., 1492 Lincoln Av.
 Lee, Joseph, 781 E. Maryland St.
 Lillengren, Harry, 219 Pleasant Av.
 Lilly, Lawrence, 305 Dayton Av.
 Linnervoth, Sidney, 1130 Fauquier
 Ludke, R. G., 1775 Reaney St.
 Lufkin, Hamilton, 617 Goodrich Av.
 McCullum, M. E., 668 St. Peter St.
 McCumber, K. H., 1061 Ashland Av.
 McDermott, J. Daniel, 902 Goodrich Av.
 McEllistvem, Marcus, 915 Linwood Pl.
 McElwell, S. P., 1984 Milwaukee Av.

- McGillick, John, 103 Atwater
 McNanmon, John T., 499 Belvidere St.
 McNee, A. W., 1762 E. Minnehaha
 Mahoney, J. K., 641 Marshall Av.
 Maier, Theo, 1235 E. 6th St.
 Maley, C. A., 448 Virginia Av.
 Maley, Paul, 448 Virginia Av.
 Marien, Pierre B., 500 Jackston St.
 Maloney, William, 4 Virginia Flats
 Martin, George P., 115 Winifred St. E.
 Marriott, Edwin, 1510 Thomas St.
 Marvin, William, 569 Laurel Av.
 Matthews, Henry G., 1595 Wesley Av.
 Maurer, Paul G., 695 Lincoln Av.
 Melamed, Louis, 222 E. Fairfield Av.
 Melamed, M. L., 222 E. Fairfield Av.
 Meyer, M. F., 139 Amherst
 Michel, Clarence B., 610 Fuller Av.
 Michel, George A., 610 Fuller Av.
 Miller, Herbert, 982 Hastings Av.
 Miller, Hilda, 84 W. Lawson St.
 Miller, R. B., 93 Cambridge Av.
 Minea, B. V., 115 W. Robie
 Mingaye, H. T., 761 Osceola Av.
 Montgomery, Wm. S., 1698 Wesley Av.
 Moritz, Ray W., 1655 Stanford
 Morrell, J., St. Paul Workhouse
 Mulliken, C. E., 521 S. Cleveland
 Mulliken, Walter F., 521 S. Cleveland
 Munson, August A., 708 Broadway
 Munson, Clifford R., 549 Selby Av.
 Neass, A. E., 1690 Capitol Av.
 Nelson, D. P., 247 Aurora Av.
 Nelson, E. J., 679 Holtz Av.
 Nelson, Harold, 121 Manitoba
 Nelson, Henry, 704 Smith Av.
 Nelson, Hugo E., 2081 Roblyn Av.
 Nelson, J. A., 668 Olive St.
 Nelson, J. Edwin, 162 Annapolis Av.
 Nelson, Martin A., 453 Ashland Av.
 Oas, Edward R., St. Paul Park
 Oberg, Stafford L., 710 Rose St.
 Oberschulle L., 1048 Minnehaha Av.
 O'Connor, Thomas P., 201 4th Av. S.
 Olsen, Henry, 182 Webster St.
 Olson, Frank, 1146 Edgerton St.
 Olson, George, 604 Jenks St.
 Olson, Orde C., 1253 Lafond St.
 Owen, G., 420 Ohio St.
 Pabst, Geo. N. Jr., 390 Hope St.
 Parsons, Axel Edward, 1050 E. Mary-
 land Av.
 Patterson, D. K., 269 Brumhall Av.
 Pearson, Elmer, 748 Bradley
 Pearson, Godfrey, 1955 Lincoln
 Peterson, Arthur W., 1927 W. Minne-
 haha
 Peterson, George A., 60 E. Summit
 Av.
 Peterson, Melvin A., 65 W. College
 Av.
 Peterson, Paul B., 357 Hope St.
 Pettibone, E. M., 2127 Godrich Av.
 Pickering, Frank L., 1455 Laurel
 Pihaly, Louis, 700 James St.
 Prince, W. W., 591 Summit Av.
 Proran, Wilfred D., 961 Ashland
 Quinn, T. L., 114 Amherst Av.
 Quinn, S. J., 394 University Av.
 Quirnbach, C. H., 1078 Linwood Pl.
 Rangitsch, Frank J., 798 Thomas St.
 Reinhardt, H. A., 911 Hudson Av.
 Reinking, Benj. F., 358 Maria Av.
 Rice, J. M., 209 Dayton Av.
 Ringius, Edward, 290 Sherburn Av.
 Ringold, Wm., Highland Pk.
 Robertson, G. A., 1580 Margaret St.
 Rosenthal, H., 365 Pleasant Av.
 Rudeen, F. J., 1660 Dayton Av.
 Schaber, Harold P., 908 Margaret
 Schaffelke, Henry A., 500 Bellows Av.
 Schiffer, Meyer J., 615 Ashland Av.
 Schilling, P. A., 879 Thomas St.
 Schulstad, Einar T., 922 Linwood Pt.
 Schulze, H. C., 160 Maria Av.
 Shannon, Thomas J., 638 Carroll
 Shapiro, A. H., 178 Sherburne Av.
 Shipstad, Harry, 554 St. Albans
 Simerman, G. A., 2068 Carroll Av.
 Skaar, H. O., 1223 Reaney St.
 Skok, Eugene, 455 Aurora Av.
 Sladek, A. L., 633 Palace St.
 Sladek, Jerome C., 649 Delaware Av.
 Smith, Leroy Raymond, Lowell Apts.
 Smith, Stanley J., 961 Ashland
 Spicker, W. E., 735 E. 4th St.
 Spinn, Frank G., 802 Thomas St.
 Spitolske, Leon P., 130 E. Rose St.
 Staberg, James, 138 W. George St.
 Stiehle, A. W., 1102 Pacific Av.
 Stodle, Nils, 925 Laurel Av.
 Stoffel, John J., 741 Arcade St.
 Stoffel, John C., 985 E. 5th St.
 Stolpestad, A. P., 445 Wheeler Av.
 Struble, Dwight, S., 1137 Portland Av.
 Stutzman, W. J., 1039 E. 5th St.
 Swan, I. J., 2124 Dayton Av.
 Swanson, Albert, 516 Laurel Av.
 Swanson, H. C., 931 E. Minnehaha
 Swenson, Oscar A., Monroe St. N.E.
 Timmerman, A. H., 1110 Mississippi
 St.
 Thomson, Clyde, 1146 W. Central
 Thomssen, R. H., 1129 Thorn St.
 Thorson, G. H., 1008 Lexington Av.
 Thorson, Oscar M., 1008 Lexington
 Av.
 Tobin, George L., 689 Carroll Av.

Ulsaker, M. O., care G. N. Ry., Gen-
eral Offices
Van Brunt, L. J., 1764 Lincoln
Vars, W. Keith, 1601 Edmund St.
Vernon, Arthur, 969 Edmund St.
Wagner, William E., 66 E. Summit
Av.
Ward, Pier C., 87 Summit Av.
Warn, A. W., 1302 Earl W.

Weigel, Ernest J., 662 Armstrong Av.
Westfall, William G., 940 Portland Av.
Wicker, O. A., 485 E. Minnehaha St.
Williams, L. Stanley, Merchants Nat'l
Bank
Wilson, F., 167 Macalaster Av.
Wolff, Otto, 1025 Laurel Av.
Wood, George F., 1342 Selby Av.
Woods, Leon I., 645 Central Park Pl.

DULUTH

Adair, Mark W., 122 E. 3rd St.
Arneson, Anke E., 101 E. 5th St.
Bescheubossel, Carl C., 415 E. 4th St.
Bethune, A. J., 3929 W. 4th St.
Bischoff, Ray W., 340 W. 4th St.
Brown, C. D., 316 S. 16th Av E.
Carlson, C. A., 212 N. 22nd Av.
Chisholm, J. A., 513 1st Av. W.
Christensen, Paul, 416 W. 4th St.
Coughlin, Lester W., 320 W. 1st St.
Crosby, Warren J., 822 E. 3rd St.
Culmer, W. C., 2230 Vermillion Rd.
Cyr, A. T., 423 13th Av. E.
Denney, Harry J., 227 E. 5th St
Drimple, Kenneth, Y. M. C. A.
Durham, K. W., 4621 Regent St.
Evans, Chas. Geo., 427½ E. 5th St.
Fischer, Sherwood S., 407 E. 6th St
Fossett, Charles R., 416 W. 4th St.
Franseen, Carl G., 712 1st Av. E.
Frestedt, Geo. W., 103 Exeter St.
Friestad, Anker F., Duluth, Minn.
Goss, Leander Mauritz, 22½ Devonshire
St.
Grogan, C. R., 1712 Jefferson St.
Grogan, R. S., 1712 Jefferson St.
Hansen, Fred W., 131 E. 2nd St.
Hanson, J. W., 2721 W. Helm St.
Johnson, Arthur J., 110 Eden Lane
Johnson, Frederick S., 411 E. 1st St.
Johnson, P. A., 2211 W. 4th St.
Kane, Ralph W., Morgan Park

Kulger, Ernest, 1831 Greysolan Rd.
Larrabee, J. W., 215 W. 7th St.
Laskowski, Frank S., 2918 W. Huron
St.
Leonard, William H., 2511 W. 1st St.
Linne, Elmer F., 2219 W. 10th St.
Linne, T. J., 2217 W. 10th St
Lundgren, G. F., 712 Lake Av. S.
Lundstrom, Roy, 119 32nd Av. N.
Lyle, Arthur J., 321 W. 3rd St.
McKibbin, T. E., 32 E. 5th St.
Marjamaa, Jofet, 506½ E. 4th St.
Meakin, James Jr., 220 12th Av. E.
Moore, Philip R., 418 N. 15th Av. E.
Mostin, Erling, 214 Osakis St.
Olson, Charles, 1422 E. 3rd St., Apt.
B
Olson, M. J., 318 N. 26th Av.
Pattinson, C R., 1218 E. 5th St.
Peterson, Arthur G., 3208 W. 3rd St.
Peterson, Carl William, 323 E. 1st St.
Pyfer, George A., 118 7th Av. E.
Sibbald, Bruce F., 425 1st Av. E.
Smith, Wm. M. Jr., 321 E. Superior
St.
Spoeri, Elmer J., 829 W. 4th St.
Stadler, A. E., 1822 W. 2nd St.
Stinberg, E. W., 805 E. 5th St.
Syverson, S. H., R. F. D. No. 4
Townsend, R. E., 605 Woodland Av.
Williams, Maude, 227 W. 3rd St.

DEPARTMENT OF ENGINEERING INSTRUCTION

MINNEAPOLIS

Allen, W. E., 3636 Elliott Av.
Alton, Albert Roades, 402 2nd Av. S.E.
Alton, William, 402 2nd S.E.
Amidon, P. N., 27 Melbourn Av. S.E.
Anderson, G. A., 1011 16th Av. S.
Anderson, P. W., 27 Melbourne Av. S.
E.
Arness, O. J., 2911 Girard Av. N
Baptiste, Noel, 1710 19th St. S.E.

Batzli, Oscar, 218 6th St. S.E.
Benson, R. E., 3028 Holmes Av. S.
Bishop, W. E., 2017 St Anthony Av.
Blade, J. Robert, 3318 E. 26th St.
Black, Joseph D., 2841 30th Av. S.
Blum, John K., 3109 43rd Av. S.
Boardman, Douglas E., 2500 Jackson N.
E.
Bratberg, Anton, 2805 9th St. S.

- Breneman, Louis A., 589 Aurora Av.
 Brinkman, A. L., 405 Ontario St. SE.
 Brown, Mark G., 1107 Tyler St. N.E.
 Buckett, Leslie D., 5000 France Av. S.
 Buell, E. A., 2229 Pierce St.
 Carlson, C. A., 2641 Emerson S.
 Carman, Ernest C., Minneapolis Athletic Club
 Charlton, Leslie, 1419 Washington St.
 Christianson, Sigurd, 2321 Butler Place S.
 Cleworth, Frank, 211 Cecil St. S.E.
 Colberg, James J., 1307 4th St. S.E.
 Coleman, Wm. P., 427 5th St. S.E.
 Coolidge, R. A., 2334 Bayler Av.
 Conoling, Chas. N., 184 W. Robie St.
 Corwin, J. B., 1674 St. Anthony Av.
 Cory, H. H., Curtis Court, Apt. 52
 Cronon, Edmund D., 2505 Irving Av S.
 Dafron, Fayette A., 217 Montrose Av.
 Dahl, George L., 3125 Fremont Av. S.
 Dean, Charles Herman, 1125 Thomas Av. N.
 Depel, Herbert O., 913 Laurel
 Donald, D. C., 1122 7th St. S.
 Donelle, Samuel Rockston, 1401 Yale Pl.
 Ebin, Louis, 709 Plymouth Av.
 Enzler, Carl A., 316 Monroe
 Flecke, Albert, 628 2nd Av. S.
 Fornell, H. W., 3515 S. Aldrich
 Frank, Carl William, 2921 18th Av. S.
 Fullenwider, T. I., 611 Delaware St. S.E.
 Gauger, Paul Charles, 1169 Churchill Av., St. Paul
 Gauger, R. R., 1183 Como Blvd., St. Paul
 Gerdes, Robert L., 1218 25th Av. N.
 Godwin, W. R., 2710 Pleasant Av.
 Grabner, Walter, 823 26th Av. N.E.
 Grant, Mabel Kroll, 115 W. 15th
 Gronvall, John O., 1922 Buchanan St.
 Gunderson, Harold S., 36 S. 11th St.
 Hafner, J. M., 1621 Washington St. N. E.
 Hahn, Stanley V., 317 Y. M. C. A., St. Paul
 Hanson, Farley Le Roy, 4824 Xerxes Av. S.
 Haupt, Theodore G., 2102 Carter Av., St. Paul
 Hauskey, H. L., 955 Fuller Av.
 Heath, Donald C., 43 Dell Place
 Hemphill, Arthur D., 1842 Jackson St. N.E.
 Hepp, Maylon H., 3306 4th Av. S.
 Herman, C. Albert, 3240 Harriet Av.
 Herman, Maurice D., 729 Dayton Av.
 Herrick, Arne, 1829 University Av. S. E.
 Hill, Elmer M., 235 Illion Av. N.
 Hofmann, William Chas., 1514 Adams St. N.E.
 Hoglin, Ole J., 406 17th Av. S.E.
 Houghtaling, Jay, 1519 Brook Av. S.E.
 Huston, Robert A., 165 14th Av. N.E.
 Ingraham, Harry A., 2635 Harriet Av.
 Jacobson, David, 1635 Marshall Av., St. Paul
 Johansen, Henry, 217 Howard St. S.E.
 Johnson, Arthur K., 564 Fuller Av.
 Johnson, Axel C., 1509 10th Av. S.
 Johnson, Elmer A., 736 Geranium, St. Paul
 Johnson, Edward J., 2349 Territorial Rd., St. Paul
 Johnson, Fred J., 3017 41st Av. S.
 Johnson, Helge Robert, 2420 Bloomington
 Johnson, Minard, 1627 Washington Av. N.
 Johnson, Nels O., Eitel Hospital
 Kaercher, George E., 2521 Central
 Kitzler, Philip, 1508 Park Av.
 Klees, Emil, 3022 26th St. E.
 Klingensmith, Frank, 2170 Marshall Av., St. Paul
 Knight, Ralph James, 3425 Hennepin Av.
 Knudtson, Morgan, 2018 Oakland Av.
 Kocourek, John F., 515 Ontario St.
 Kortsan, Frank A., 887 Raymond Av., St. Paul
 Krapp, Henry P., 369 W. Central Av., St. Paul
 La Du, Clarence A., 628 2nd Av. S.
 Lathinen, William E., 233 Humboldt Av. N.
 Lambert, Harry E., 2314 Aldrich N.
 Larson, Albert Oliver, 636 Selby Av., St. Paul
 Larson, Arnold, 2300 28th Av. S.
 Larson, Ernest O., 2638 Bryant Av. N.
 Larson, E. W., 2211 27th Av. S.
 Larson, Hans C., 3044 34th Av. S.
 Larson, Nathan, 242 Buchanan St.
 Lavers, Albert, 2837 17th Av. S.
 Lavers, Wallace, 2837 17th Av. S.
 Lavine, E. W., 833 18 $\frac{1}{2}$ Av. N.E.
 Lawrence, Paul J., 2911 Lyndale Av. N.
 Levin, J. D., 210 S. 9th St.
 Linden, Chris J., 3608 3rd Av. S.
 Lindsay, Gordon, 1229 Hagues
 Loftfield, John E., 817 Carroll Av.
 Loberbaum, Max, 1513 E. 18th St.

- Lynch, Thomas E., 350 Pleasant Av.,
St. Paul
- McArthur, Francis, 1897 Selby Av, St.
Paul
- McGuire, John J., 694 Carroll Av., St.
Paul
- Macomber, William K., 3446 Pleasant
Av.
- Mahoney, G. P., 1840 Roblyn Av.
- Marking, C. A., 3312 1st Av. S.
- Mayhew, J. H., 4160 Washington Av.
N.
- Meyers, R. F., 2527 Penn Av. N.
- Miller, Howard L., 2323 Laurel Av.
- Mills, H. W. Jr., 51 Barton Av. S.E.
- Molmsten, P. C., 2117 Western Av.
- Moore, H. C., 2081 Buford Av.
- Moore, O. F., 1007 E. River Road
- Mosher, R. W., 225 5th St. S.
- Murray, Hary M., 907 W. Franklin
- Nelson, David, 325 6th Av. S. E.
- Nelson, John Walfred, 2206 4th St. N.
- Ness, Norman R., 615 Hoag Av. N.
- Nordstrom, Carl, 3725 Longfellow Av.
- Noren, Clifford, 2548 Taylor St. N.E.
- Overlock, Russell F., 3228 Hennepin
Av.
- Peck, Victor L., 3230 5th Av. S.
- Peterson, Harvey F., 630 Filmore Av.
N.E.
- Peterson, Roy K., 1359 W. 7th St., St.
Paul
- Peterson, Wm. A., 629 Madison St. N.
E.
- Peonides, Phillip, 707 Marquette Av.
- Pickard, L. W., 1711 University Av.
S.E.
- Pieh, Lillian M., 818 E. 18th St.
- Pitt, Samuel Wm., 2316 Logan Av. N.
- Potell, Charles, 335 Aldine St.
- Potter, De Loss M., 115 17th St. N.
- Preusch, Arthur F., 226 Charles St.,
St. Paul
- Radant, Alfred E., 622 5th St. S.E.
- Reeves, H. L., 152 Orlin Av S.E.
- Robinson, R. B., 811 Essex St. S.E.
- Salland, J. F., Hopkins
- Sanderson, Earle McKinley, 615 E.
26th St.
- Scharpf, Elmer Louis, 2745 Columbus
Av.
- Schelen, J. Elmer, 1028 Magnolia St.
- Schilling, Charles W., 1022 Fulton St.
S.E.
- Schultz, A. L., 1830 Stevens Av., Apt.
26
- Schultz, Theodore, 908 5th Av.
- Seelert, Frederic William, 2529 Pierce
St. N.E.
- Shields, Joseph J., 2343 James Av. N.
- Shooglund, Howard, 501 Magnolia St.
- Skarnes, Jay A, 924 Franklin Ter-
race
- Skarnes, R. F., 924 Franklin Terrace
- Smith, Arthur J., Ford Motor Co.
- Staehle, Gilbert V., 1908 Hennepin Av.
- Sterling, Lawrence, 127 W. 15th St.
- Stowe, Charles, 1627 N. Washington
Av.
- Strom, Fred A., 853 E. 5th St., St.
Paul
- Tell, A. W., 807 Oliver N.
- Thomson, Harold, 3131 4th St. S.E.
- Thomson, H., 2304 6th St. S.
- Tomlinson, Wm., 1630 Dayton Av.
- Trask, Donald M., 3237 Aldrich Av.
S.
- Trierweiler, Dominic G., 406 Maple St.
- Troyer, H. Y., 612 4th Av. S.E.
- Urth, Edwin, 422 Y. M. C A.
- Walquist, John A., 2528 Elliot Av.
- Weidt, Alun, Merriam Pk. Sta., St.
Paul
- Wolff, Fred P., Highwood Pk., St. Paul
- Worejpha, James, 509 22nd Av. S.
- Yarnell, Clyde S., 3025 Fremont Av.
S.

ST. PAUL

- Appell, Caspar, 576 Ottawa Av.
- Appell, Henry J., 576 Ottawa Av.
- Berger, J. Jos., 1257 Rice St.
- Berglund, R. W., 1860 Feronia Av.
- Booraem, H., 2156 Dayton Av.
- Conoling, Charles N., 184 W. Roble
St.
- Culligan, F H., 1065 Portland Av.
- Curry, J. S., 1039 Fauquier
- Donovan, J. S., 265 Charles St.
- Drake, L. R., 1897 Feronia Av.
- Gray, Walter R. 1829 Goodrich
- Gullickson, Oscar S., 1559 Dayton Av.
- Johnston Harrison, 2 Crocus Hill
- Keating, James E., 630 Virginia Av.
- Ledy, Jay H., 966 Selby Av.
- McGuire, John J., 694 Carroll Av.
- Murtz, Rodney S., 1510 Carroll Av.
- Nelson, Henry, 704 Smith Av.
- Rand, F. L., 1924 Feronia Av.
- Reiff, E. R., North St. Paul
- Reilly, Roger, 614 Grand Av.

Rich, George S., 195 N. Snelling Av.
 Rosenthal, Leo, 951 front St.
 Schuelter, H. A., 1466 Sherburne
 Simons, Harry, 1873 Roblyn Av.
 Stanton, D. R., 1404 Sargent

Villaume, Julius, 123 W. Isabel
 Villaume, Louis, 172 Prospect
 Walsh, Edward, 695 Lincoln Av.
 Wirth Henry, 127 Lawson St.

DULUTH

Anderson, Edward, 2515 W. 2nd St.
 Blade, Eric, 2427 W. 3rd St.
 Chilsholm, John, 513 1st Av. W.
 Diers, Charles B., 1727 New St.
 Ericson, C. A., 101 S. 64th Av. W.
 Hamilton, Clarence E., 409 N. 57th Av.
 W.

Lyholm, Lawrence, 2005 N. 2nd St.
 Melgard, Alfred, 1018 59th Av. W.
 Scheuring, Frank W., 318-321 W. 2nd
 St.
 Schumann, John E. C., 307 Chestnut
 St.
 Sullivan, Henry J., 4711 W. 6th St.

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*General Extension Division
Evening Collegiate Courses
1917-1918*



*Catalog Series No. 20a
Vol. XX No. 39 August 31 1917*

*Entered at the post-office
in Minneapolis as second-class matter
Minneapolis, Minnesota*

CALENDAR

1917-1918

1917

September	24-29	Week	Registration week
September	28	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	29	Saturday	Annual opening of Extension Courses, 8:15 p.m. Minneapolis
October	1	Monday	Regular class work begins
November	29	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	31	Monday	Class work resumed

1918

January	21-25	Week	Examination week, first semester
January	25	Friday	First semester ends
February	4	Monday	Second semester begins
February	4	"	Merchants' Short Course begins
May	20-24	Week	Examination week, second semester
May	24	Friday	Second semester ends

EVENING COLLEGIATE COURSES

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
CYRUS NORTHPROP, LL.D., President, Emeritts
RICHARD R. PRICE, M.A., Director of University Extension

GEORGE B. FRANKFORTER, Ph.D., Dean of the School of Chemistry
Professor of Chemistry

LOTUS D. COFFMAN, Ph.D., Dean of the College of Education, Professor
of Education

JOHN B. JOHNSTON, Ph.D., Dean of the College of Science, Literature,
and the Arts, Professor of Comparative Neurology

EMMETT L. BENNETT, M.A., Secretary of Municipal Reference Bureau

GISLE BOTHNE, M.A., Professor of Scandinavian Languages and Literatures

OSCAR C. BURKHARD, M.A., Assistant Professor of German

RICHARD BURTON, Ph.D., Professor of English Literature

HARDIN CRAIG, Ph.D., Professor of English

JAMES DAVIES, Ph.D., Assistant Professor of German

JOHN S. GARNES, B.A., Instructor in Story Telling, General Extension
Division

HALDOR B. GISLASON, B.A., LL.B., Instructor in Rhetoric

ALBERT E. JENKS, Ph.D., Professor of Anthropology

ALFRED E. KOENIG, M.A., Assistant Professor of German

AUGUST C. KREY, Ph.D., Associate Professor of History

SAMUEL KROESCH, Ph.D., Assistant Professor of German

EDWARD M. LEHNERTS, M.A., Assistant Professor of Geography, General
Extension Division

RUPERT C. LODGE, M.A., Assistant Professor of Philosophy

WALTER R. MYERS, Ph.D., Assistant Professor of German

GEORGE N. NORTHPROP, M.A., Assistant Professor of English

SIDNEY F. PATTISON, M.A., Assistant Professor of Rhetoric

JOSEPH PETERSON, Ph.D., Assistant Professor of Psychology

CHESLEY J. POSEY, M.S., Assistant Professor of Geography

ALBERT W. RANKIN, B.A., Professor of Education

FRANK M. RARIG, M.A., Assistant Professor of Rhetoric

CHARLES A. SAVAGE, Ph.D., Professor of Greek

CHARLES E. SKINNER, M.A., Assistant Professor of Rhetoric

ANDREW A. STOMBERG, M.S., Professor of Scandinavian Languages and
Literatures

FLETCHER H. SWIFT, Ph.D., Professor of Education

NORMAN WILDE, Ph.D., Professor of Philosophy and Psychology

HERBERT WOODROW, Ph.D., Associate Professor of Psychology

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (usually twenty-one years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under Engineering do not carry credits. The statement in regard to credit for Law courses will be found on page 40. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 20 and 21.

Students must indicate at the time of registration whether or not they desire university credit in the courses pursued.

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.
2. Each credit course shall be directly in charge of a member of the Faculty.
3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in Extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other Extension Schools or Departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for an extension course for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the Dean of his college.

FEEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For Collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for Business courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

For Engineering courses the fees are \$7.50 or \$10 a semester as indicated in the description of the several courses.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

The requirements relative to the Law courses accompany the announcement of those courses in this bulletin. (See page 41.)

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. **NO FEE WILL BE REFUNDED ON ACCOUNT OF WITHDRAWAL FROM ANY COURSE, unless application for refund be made within ten days after registration.**

Special arrangements are made with organizations, clubs and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

The classes in Law will be held in the Law Building on the University campus. Most of the classes in Engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 24-29). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the Collegiate courses, the Business courses, the Engineering courses, and the Law courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the ground floor of the Main Engineering Building on Church Street, just north of Washington Avenue S. E. To telephone the office, call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

COURSES OF INSTRUCTION

The courses of instruction naturally group themselves into four divisions, viz., (1) those corresponding to the regular college courses given in the College of Science, Literature, and the Arts, and conveying credit toward a degree from that college; (2) those furnishing a preparation for Business (most of which also carry credit toward a degree from the above college); (3) Engineering courses; and (4) Law courses. A separate bulletin of each of these groups may be obtained on request. The description of courses will therefore be grouped in this order. The first group will be designated Collegiate courses.

DEPARTMENT OF COLLEGIATE INSTRUCTION

The following courses are given Extension students with two purposes in view: First, an opportunity is afforded those who are candidates for degrees, but who are unable to pursue their entire college course in regular residence, to complete a part of their work while otherwise occupied during the day.

Second, the advantage of university training in cultural subjects is offered those who can devote one or more evenings a week to such work, regardless of any desire for University credit.

The General Extension Division is now prepared to offer the following evening courses. Others will be given provided a sufficient registration is assured, usually fifteen. Those interested in forming such classes are advised to correspond with the Director.

A special folder announcing specific dates and places for holding classes will be issued early in September. This folder will be sent to all requesting it.

CHEMISTRY

1. (1-2*) **ELEMENTARY CHEMISTRY.** A study of the common chemical elements and their compounds, with an introduction to the modern theories of chemistry. Special attention to be given to the practical applications of chemistry. Lectures, textbook and laboratory work. Those who wish to do work on special problems will be accommodated as far as possible. Four credits (two evenings a week); both semesters. By doing extra laboratory work a well-qualified student may earn three credits a semester. Fee \$10 a semester.

EDUCATION

- 1 (1a). **BRIEF HISTORY OF EDUCATION.** The origin and development of schools, more particularly in the modern period, as a preparation for

*The number in parentheses is that of the corresponding course in the regular University bulletins.

the understanding of the educational systems, theories, and practices of the present. Ranks as a junior and senior course in the University. Open to teachers and prospective teachers who have met the college entrance requirements. Two credits (one evening a week); first semester. Fee, \$5 a semester. SWIFT.

- 2 (3a). SOCIAL ASPECTS OF EDUCATION. This course deals with conditions within the school itself,—such as the socialized recitation and the social activities of students. It also discusses educational activities outside the school, including the various institutions which influence society. It treats of the necessity of coördinating the social activities within and without the school so that each may become more effective. Two credits (one evening a week); first semester. Fee, \$5 a semester. RANKIN.
- 3 (119). THE SCHOOL CURRICULA. An attempt is made to discover fundamental principles governing the material and methods of education in a democracy. To this end it discusses the nature of what we mean by a democratic society. The aims and methods of the enterprise of education are considered from this point of view. Two credits (one evening a week); second semester. Fee, \$5 a semester. RANKIN.

ENGLISH

- 1 (55). SHAKESPEARE—THE EARLIER PLAYS. A course of lectures on Shakespeare with reading of a considerable number of plays. Prerequisite for credit, Survey of English Literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. NORTHROP.
2. THE SHORT STORY IN ENGLISH. A study of the principles and practice of the short story as evolved in modern literature. The work is aimed not only to teach technic of the form, but to give the student practice in the production of this sort of fiction. Two credits (one evening a week); first semester. Fee, \$5 a semester. NORTHROP.
3. AMERICAN PROSE FICTION. Lectures on American Prose Fiction with the reading of representative works by Cooper, Poe, Hawthorne, James, Howells and others; recitations oral and written. Two credits (one evening a week); first semester. Fee, \$5 a semester. CRAIG.
4. BRITISH POETS OF THE NINETEENTH CENTURY. A course of lectures on the principal poets in the nineteenth century, their significance in the life of the time and in the world's literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. CRAIG.
- 5 (108). THE ROMANTIC MOVEMENT. Poets and prose writers of the late Eighteenth Century and early Nineteenth Century with particular stress upon Wordsworth, Byron, and Shelley, and a consideration of the influence upon English literature of the Revolution in France.

Prerequisite for credit, Survey of English Literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. CRAIG.

- 6 (59). THE MODERN DRAMA. Contemporary drama from 1870 to the present; the new impulse in dramatic literature under the stimulus of latter-day thought. Prerequisite for credit, Survey of English Literature and Shakespeare. Two credits (one evening a week); second semester. Fee, \$5 a semester. BURTON.
7. STORY TELLING TO CHILDREN. (1) Story telling; its place and value; (2) choice of the story: qualities, desirable and undesirable; (3) preparation of the story; application of the short story ideals of "singleness of impression" and "dramatic struggle"; reconstruction of the story from the child's viewpoint; (4) the problem of delivery: the group, consciousness, holding attention, self-effacement, vocal and verbal adaptation. One evening a week; first semester. Fee, \$5 a semester. GARNES.
8. ADVANCED COURSE IN STORY TELLING. Two-fold emphasis throughout the course upon (1) the problem of delivery, and (2) the search for material. Fundamentals in training of voice and body for story telling. Principles of vocal expression as they apply in the story teller's art. The use of dialects and impersonation in story telling. Material: myths, great epic cycles, fairy stories, biographical and historical stories, Bible stories. Planning the story program. One evening a week; first semester. Fee, \$5 a semester. GARNES.

GEOLOGY AND GEOGRAPHY

1. PHYSIOGRAPHY. A study of the physical features of the earth, their origin, life history, and economic influences. Two credits (one evening a week); first semester. Fee \$5 a semester. LEHNERTS.
- 2 (1). GENERAL GEOLOGY. The materials of the earth, the forces and processes operating upon them, and the effects produced. The history of the earth from the earliest time to the present. Two credits (one evening a week); second semester. Fee, \$5 a semester. LEHNERTS.
3. COMMERCIAL GEOGRAPHY. The raw materials of commerce, and the principles which underlie their occurrence, production, conservation, and utilization. Two credits (one evening a week); first semester. Fee, \$5 a semester. LEHNERTS.
4. GEOGRAPHIC DELINEATION AND MAP INTERPRETATION. Practical exercises; the reading and interpretation of maps; the construction and use of maps and of geographic diagrams, including block diagrams of land forms. Two credits (one evening a week); second semester. Fee, \$5 a semester. LEHNERTS.

5. **PHYSIOGRAPHY OF THE EASTERN UNITED STATES.** A study of the regional physiography of the eastern half of the United States, its surface features and their origin and significance. Special attention will be given to features of historic or geographic interest or of economic importance. Two credits (one evening a week); first semester. Fee, \$5 a semester. LEHNERTS.
6. **PHYSIOGRAPHY OF THE WESTERN UNITED STATES.** A study of the regional physiography of the western half of the United States, and an interpretation of its scenic and other land forms. Courses 5 and 6 give training in physiographic study and interpretation and serve as a preparation in the fundamentals of the geography of our country. Two credits (one evening a week); second semester. Fee, \$5 a semester. LEHNERTS.
- 7 (4). **GEOGRAPHY AND GEOLOGY OF MINNESOTA** The geological study of Minnesota; its rocks and soils; minerals and mines; building stones, clay beds, and glacial deposits; rivers and lakes; scenic features; waterways and water powers; artesian well basins; prairie, forests, and agricultural lands; problems of state-wide interest, such as immigration, agriculture, drainage, reforestation, construction of state highways; utilization of natural resources, and development of old and new industries. Two credits (one evening a week); first semester. Fee, \$5 a semester. (Not given in 1917-18.) LEHNERTS.
- 8 (116). **GEOGRAPHY OF LATIN-AMERICA.** A study of the regional geography of Latin-American countries; their surface features, climate, and natural resources as affecting their present and future development. Areas of probable great future developments. Character, volume and direction of flow of trade. The trade relations between the Latin-American countries and the United States given special attention. The Panama Canal as affecting our relations with those countries. Two credits (one evening a week); first semester. Fee, \$5 a semester. POSEY.
- 9 (118). **GEOGRAPHY OF EURASIA.** The regional geography of the leading European and Asiatic countries. The relation of the surface features, climate, and natural resources to the present racial, industrial, and political development. Attention given to the attitude of the major European countries to the "new" lands of Asia. Trade relations with the United States considered. Two credits (one evening a week); second semester. Fee, \$5 a semester. POSEY.

GERMAN

- 1 (1-2). **BEGINNING GERMAN.** Pronunciation, grammar, conversation, and composition; selected reading in easy prose and verse. Eight credits (two evenings a week); both semesters. Open to all who have had no German. Both semesters must be completed before credit is given for the first semester. Fee, \$10 a semester. DAVIES.

- 2 (3-4). **INTERMEDIATE GERMAN.** First semester; selections from modern narrative and descriptive prose; selected lyrics and ballads. Second semester; a drama of Lessing, Goethe, or Schiller. Open to those who have completed Course 1 or its equivalent. Both semesters must be completed before credit is given for the first semester. Students who obtain credit for this course can not receive credit also for Course 3. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. **KROESCH.**
- 3 (5-6). **PROSE AND POETRY.** Geography, history, and legend. Review of German grammar throughout the year. Open to all with two years of German. Not open to those who have obtained credit in Course 2. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. **MYERS.**
- 4 (27-28). **ELEMENTARY CONVERSATION.** Conversation on topics of everyday life, aiming at fluency in the use of idiom. Not a course in composition. Organized on the laboratory basis—one hour credit with two hours recitation and at least one hour of outside preparation. Intended for those who have had at least one year of German. Two credits (one evening a week); both semesters. Fee, \$5 a semester. **BURKHARD.**
- 5 (11-12). **RAPID READING.** Short stories and dramas by Storm, Heyse, Baumbach, Lessing, Goethe, Schiller, Hebbel, and Sudermann. Class-work and discussions are conducted in German. Open to all who have had at least one year of German. Four credits (one evening a week); both semesters. Fee, \$5 a semester. **KOENIG.**

GREEK IN ENGLISH

1. **GREEK MYTHOLOGY.** No knowledge of Greek is required for this course. A course of lectures and readings dealing with the legends and myths which appear in the literature and art of ancient Greece. The quaint and beautiful stories of Greek gods and heroes found in Homer and in the tragic and lyric poets will be presented and interpreted, and the whole course will be richly illustrated with the stereopticon. The origin and evolution of the myth, its relations to Greek literature, philosophy and religion, and its influence upon later literature, will also be touched upon. Two credits (one evening a week); second semester. Fee, \$5 a semester. **SAVAGE.**
2. **GREEK LITERATURE AND LIFE.** This is a course dealing with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. The course consists of lectures and illustrative readings by the instructor and assigned readings in translation and textbook work by the class; conferences and informal discussions will also be held. The character and influence of Greek culture, es-

pecially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. Two credits (one evening a week); first semester. Fee, \$5 a semester. SAVAGE,

HISTORY

- 1 (1) EUROPEAN HISTORY I. The development of Europe from 800 to about 1500 A. D. with special emphasis upon the political, social, and economic institutions of the period. Open to all. Two credits (one evening a week); first semester. Fee, \$5 a semester. KREY.
- 2 (2). EUROPEAN HISTORY II. The development of Europe from c. 1500 to 1789. In this period are treated the Reformation, Religious Wars and the causes of the French Revolution. The political growth of the nations of Europe is especially emphasized. Two credits (one evening a week); second semester. Fee, \$5 a semester. KREY.
3. EUROPEAN HISTORY III. The development of Europe from 1789 to the present time. Political history especially emphasized. Social and economic problems are treated in their international aspects. Two credits (one evening a week); second semester. Fee, \$5 a semester. KREY.

MATHEMATICS

- 1 (1). HIGHER ALGEBRA. PART I. The fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, surds, imaginaries, simple equations with one, two, and several unknown quantities, inequalities, ratio and proportion, arithmetical and geometrical progressions, quadratic equations, and numerous problems requiring both simple and quadratic equations. The examples and problems are more difficult than those under the same subjects in Elementary Algebra and demonstrations are an important part of the work. Four credits (two evenings a week); first semester. Fee, \$10 a semester.

PHILOSOPHY

- 1 (20). PRESENT DAY PHILOSOPHY. A popular discussion of the most important types of contemporary philosophy. Among the men and movements included are: Haeckel, Eucken, Bergson, Nietzsche, Pragmatism, Idealism, and Neo-Realism. Two credits (one evening a week); first semester. Fee, \$5 a semester. WILDE.
2. HUMAN NATURE. A course in modern philosophy and psychology, as applied to the chief problems of practical life. The course will be un-

technical, and will include a number of simple experiments designed to illustrate the subjects treated, and to serve as basis for the discussion. Among the subjects dealt with, the following will be included: the analysis of character into its elements; the significance of laziness, fatigue and sleep; efficiency, and the chief factors in attaining it; the meaning of education: its various stages, and final goal; memory, and the laws of forgetfulness; thought transference, automatic writings, and kindred subjects. Two credits (one evening a week); first semester. Fee, \$5 a semester. LODGE.

3. **THE MEANING AND VALUE OF LIFE.** A course in the modern philosophy of life, dealing in a simple and untechnical way with the deeper values which underlie life as it is lived to-day. Among the subjects dealt with will be included: the philosophy of social life; the philosophy of pleasure; the philosophy of pain; the meaning and value of work; practical idealism, etc. One evening a week; second semester. Fee, \$5 a semester. LODGE.
- 4 (9a). **LOGIC.** The nature of knowledge, the laws of reasoning, and the principles and methods of scientific proof. The aim of this course is to produce accuracy of thought as well as to familiarize the student with the logical grounds of modern science. Textbook, lectures, and reports. Open to those who have had some college work, and to teachers. Four credits (two evenings a week); each semester. Fee, \$10 a semester.

POLITICAL SCIENCE

1. **AMERICAN FEDERAL GOVERNMENT.** An elementary course in American government and politics designed for those studying the problems of citizenship, and for teachers. The course treats of the origin and nature of the federal system of government; of the political party system; the federal constitution; structure and organization of the national government; powers and functions of Congress; the executive, and the judiciary; the civil service; the regulatory commissions; national finance; the conduct of foreign affairs; war powers of the government. Text, *American Government and Politics* by C. A. Beard. Two credits (one evening a week); first semester. Fee, \$5 a semester. BENNETT.
2. **STATE AND LOCAL GOVERNMENT.** A complementary course to I preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Texts, Beard's *American Government and Poli-*

tics and Government of Minnesota by J. S. Young. Two credits (one evening a week); second semester. Fee, \$5 a semester. BENNETT.

PSYCHOLOGY

1. EDUCATIONAL PSYCHOLOGY. THE PSYCHOLOGY OF LEARNING. Methods of measuring the rate of learning; study of typical learning experiments and an examination of the conditions of the most economic learning, and the psychology of the school subjects. Two credits (one evening a week); first semester. Fee, \$5 a semester.
- 2 (18). CHILD DEVELOPMENT. The nature, development, and measurement of intelligence and character, and also of the various mental functions involved, such as attention, association, and memory. The laws of growth and of learning, in school children. Brightness and dullness; their relation to physical development; their causes, hereditary and environmental; and their education treatment. Two credits (one evening a week); first semester. Fee, \$5 a semester. WOODROW.
- 3 (107). SOCIAL PSYCHOLOGY. The instinctive and acquired factors in the behavior of the individual toward society in its various forms and groupings, and in the growth of ideas of self and of social attitudes. Two credits (one evening a week); first semester. Fee, \$5 a semester. PETERSON.

RHETORIC AND PUBLIC SPEAKING

- 1 (1). ENGLISH RHETORIC I. Practical training in writing, exposition, narration, and description. Analysis of prose selections and of compositions written by the class. Two credits (one evening a week); first semester. Fee, \$5 a semester. PATTISON.
- 2 (2). ENGLISH RHETORIC II. A continuation of the preceding course, open to those who have had a one half-year course in freshman Rhetoric, or its equivalent. Two credits (one evening a week); second semester. Fee, \$5 a semester. PATTISON.
- 3 (11). EXPOSITION AND DESCRIPTION. Analysis of specimens; short themes and fortnightly essays, with emphasis on planning and amplification. Informal exposition during the first half of the first semester, followed by Description. Open to those who have completed the equivalent of Course 1-2 in college Composition and Rhetoric. Two credits (one evening a week); first semester. Fee, \$5 a semester.
- 4 (12). NARRATION. A continuation of Course 3. Open to those who have completed the equivalent of three half-years of college Rhetoric. Two credits (one evening a week); second semester. Fee, \$5 a semester.

- 5 (115). **DRAMA TECHNIQUE.** A study of contemporary methods, criticism of stage productions, and writing of plays. The best plays written by the class will be presented at the Little Theatre. Open to mature students who satisfy the instructor concerning their preparation for the course. Two credits (one evening a week); first semester. Fee, \$5 a semester. SKINNER.
- 6 (41-42). **A GENERAL COURSE IN PUBLIC SPEAKING.** The principles of analysis and organization. Extemporaneous speaking based on outlines. Study of model speeches. Attention is given to correctness and effectiveness in delivery. Open to ministers, lawyers, teachers, and others who are able to carry the work. Four credits (one evening a week); both semesters. Fee, \$5 a semester. RARIG, GISLASON.

ROMANCE LANGUAGES

- 1 (1). **BEGINNING FRENCH.** Grammar, pronunciation, reading and practice in speaking. Open to all. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. Fee, \$5 a semester.
- 2 (3). **INTERMEDIATE FRENCH GRAMMAR AND COMPOSITION.** French grammar review; readings from modern authors. Open to all who would enter the University with two years of French. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. Fee, \$5 a semester.
- 3 (7-8). **ELEMENTARY FRENCH CONVERSATION AND COMPOSITION.** Four credits (one evening a week); both semesters. Prerequisite French 1. Fee, \$5 a semester.
- 5 (31). **BEGINNING SPANISH.** Grammar, pronunciation, reading and practice in speaking. Four credits (one evening a week); both semesters. Fee, \$5 a semester.

SCANDINAVIAN

- 1 (1-2). **BEGINNING NORWEGIAN.** Grammar, select reading in easy prose and poetry. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. BOTHNE.
- 3 (5). **BEGINNING SWEDISH.** Grammar, conversation, composition, modern texts. Open to all who have had no Swedish. Both semesters must be completed before credit is given for the first semester. Four credits (two evenings a week); first semester. Fee, \$10 a semester. STROMBERG.

SOCIOLOGY AND ANTHROPOLOGY

- 1 (113). **THE AMERICAN PEOPLE I.** Dominant characteristics of the diverse foreign peoples now in the United States; their modification in

America; the importance of these peoples to the American nation. Lectures, reading, and essay. Two credits (one evening a week); first semester. Fee, \$5 a semester. JENKS.

- 2 (114). THE AMERICAN PEOPLE II. A continuation of Course 1. Essential and unique historical Americanisms, and their value and virility for the future; facts and forces of amalgamation and assimilation in America; America's ethnic problems. Lectures, readings, and essay. Two credits (one evening a week); second semester. Fee, \$5 a semester. JENKS.

ADDITIONAL COURSES

Many advanced courses not listed in this bulletin will be given upon the request of any responsible individual or group willing to organize a sufficiently large class to insure the success of the undertaking.

REGISTRATION 1916-1917

DEPARTMENT OF COLLEGIATE INSTRUCTION

MINNEAPOLIS

- Abbott, Julia Wade, 2512 Humboldt Av. S.
 Adair, Myrtle, 2218 Colfax Av. S.
 Adams, Emma N., 3136 Portland Av.
 Adams, Mrs. John W., 1729 James Av. S.
 Adams, John W., 1729 James Av. S.
 Adams, Ruth, 703 4th St. S.E.
 Adams, Ruth W., 2130 Fremont Av. N.
 Ainsworth, Alice, 1788 Hennepin Av.
 Albright, Nora B., 125 15th St. W.
 Aldrich, Malcolm, 3205 Hennepin Av.
 Allee, Anne M., 2437 14th Av. S.
 Allen, Ethel L., 1112 8th St. S.E.
 Alseen, Clara Hildegard, 1207 Oliver Av. N.
 Alseen, Myrtle F. C., 1207 Oliver Av. N.
 Altnow, Olga A., 907 8th St. S.E.
 Amonson, Maude, 1800 13th Av. S.
 Amonson, Nettie, 1800 13th Av. S.
 Anderson, Affee, 1715 Portland Av.
 Anderson, Alfred, 70 27th Av. S.E.
 Anderson, Bert, 5038 Nokomis Av.
 Anderson, Lydia, 1920 3rd Av. S., Apt. 26.
 Anderson, Mabelle, 1920 3rd Av. S.
 Anderson, Margaret, 929 8th St. S.E.
 Anderson, Margaret E., 816 9th Av. S. E.
 Anderson, Nora C., 2310 S. Emerson Av.
 Anderson, Paul R., 826 20th Av. N.E.
 Anderson, Ruth, 2925 12th Av. S.
 Ankeny, Sara T., 2401 Clinton Av.
 Anthony, Maud, 1913 Clinton Av.
 Antletz, Leslie, 1715 4th St. N.
 Andrew, Elizabeth H., 2731 Polk St. N.E.
 Andrews, Bernice, 2006 Park Av.
 Andrews, Lorin, 207 Ingleside Apts.
 Apfeld, Josephine J., 3032 Irving Av. S.
 Armstrong, O. V., 4410 W. Harriet Blvd.
 Arness, Ole J., 2911 Girard Av. N.
 Ashton, Jennie, 1506 Laurel Av.
 Austin, Harriet, 2626 Dupont Av. N.
 Babcock, M. Vinette, 3824 1st Av. S.
 Bacon, Eleanor J., 1310 7th St. S.
 Bade, Edward S., 4549 Nokomis Av. S.
 Bailey, Mabel, 3404 33rd Av. S.
 Baillie, Jean E., 3133 Hennepin Av.
 Baker, Helen, 3128 Grand Av.
 Baldwin, Ethel Grace, 515 E. 17th St.
 Baldwin, Louise V., 2219 S. Dupont Av.
 Ballard, Huldah, 3335 Humboldt Av. S.
 Ballou, Edith S., 1618 Girard Av. N.
 Ballou, Maturin, 2836 Irving Av. S.
 Baltzell, John C., 8 Florence Court.
 Banker, Mary L., 3314 Elliott Av.
 Barber, Asenath M., 1605 Stevens Av.
 Barber, Edith A., 327 Church St. S.E.
 Barber, Laura, 1605 Stevens Av.
 Barquist, Elsie M., 1810 10th Av S.
 Barr, Charles S., 2815 Aldrich Av. N.
 Barrett, Majora E., 2203 Lyndale Av. N.
 Barry, Florence M., 1015 E. 28th St.
 Barry, Mary Elizabeth, 1912 Clinton Av.
 Barse, Blanche L., 741 E. 24th St.
 Bartlett, Mae L., 2417 Columbus Av.
 Baugh, Florence, 626 7th St. S.
 Beach, Rowena E., 2708 Colfax Av. S.
 Beard, Archibald Hildreth, University Hospital.
 Beck, Frieda, 200 13th St. S.
 Beck, Maud G., 1322 6th St. S.E.
 Beckstrom, Emily E., 1330 Monroe St. N.E.
 Bell, Jane E., 3435 2nd Av. S.
 Bell, Mrs. H. H., 4832 Queen St.
 Bell, Mabel V., 77 Ash St.
 Benepe, Robert, 579 Dayton Av.
 Bennett, Nora M., 615 16th Av. S.E.
 Benson, B. G., 2321 S. Humboldt Av.
 Bentley, Ruth, 27 W. 14th St.
 Bentson, Nathaniel, 3913 37th Av. S.
 Berg, Elizabeth, 2537 Chicago Av.
 Berkheimer, Effie B., 2228 Dayton Av.
 Berman, Sylvia, 1115 N. Bryant Av.
 Betlach, Elvira Jernell, 103 Orlin Av. S.E.
 Bevernick, A. W., 3555 S. Fremont Av.

Beyschlag, Grace H., 1116 S.E. 5th St.
 Bezanson, Annie L., 3432 Chicago Av.
 Bezanson, Edith E., 3432 Chicago Av.
 Biddlecombe, Thomas M., 203 E. 5th St.
 Bird, Kathlyne J., 108 E. 14th St.
 Blair, Virginia, 14 E. Franklin Av.
 Blackman, H. E., 124 E. 34th St.
 Blythe, Mrs. Virginia B., 1309 7th St. S.E.
 Bohan, Margaret M., 1330 Grand St. N. E.
 Bonneville, Georgia F., Hotel Waverly
 Boquist, Paul N., 610 E. 36th St. N.W.
 Bosserman, Homer Lee, 3038 39th Av. S.
 Bowden, Agnes, 2417 Pearl St.
 Bown, Lillian Vernet, 2209 5th Av. S.
 Boyd, Helen W., 3336 Irving Av. S.
 Brackey, Elizabeth H., 707 E. 14th St.
 Bradford, Clarice, 623 University Av. S.E.
 Bradley, Margaret H., 600 2nd St. N. E.
 Brady, Katherine, Hampshire Arms
 Brady, Paul E., 2008 Harvard St.
 Brehm, Mrs. E. W., Maryland Hotel
 Brennan, Mrs. Jessie O., 1780 S. Bryant Av.
 Brennan, Nell, 908 5th Av. S.
 Brewer, Percy T., 3127 4th Av. S.
 Brezensky, Lenore M., Hotel Berkeley
 Bridgman, Mary B. E. 65 S. 11th St.
 Briggs, Edith Drake, 1856 E. Minneha-ha Pky.
 Brooks, Annie Ethel, 608 6th Av. N.
 Brooks, Grace J., 802 W. Franklin Av.
 Brooks, Lulu, 3925 Lyndale Av. S.
 Brooks, Miriam W., 2020 Fremont Av. N.
 Brown, Hazel B., 3208 E. 33rd St.
 Brown, Percy A., 1086 12th Av. S.E.
 Browne, Marie, 3505 Fremont Av. S.
 Bruce, Rena J., 2417 Columbus Av.
 Bryant, Lora S., 728 E. 33rd St.
 Bryne, Mary Edith, 2636 Chicago Av.
 Buchanan, Annabel, 2400 Nicollet Av.
 Buckley, Margaret C., 648 Van Buren St.
 Budd, Clara, Lyndale Av. S.
 Bullard, Irma L., 3313 2nd Av. S.
 Bullock, Adele L., 2437 Aldrich Av. S.
 Burkleo, Jane, 113 Church St. S.E.
 Burns, Louise H., 3424 5th Av. S.
 Burns, Margaret A., 2808 3rd Av. S.
 Burt, Louis B., Unity House
 Burton, Beulah, 4118 Wentworth Av.
 Burton, F., 4118 Wentworth Av.
 Byers, Paul H., 1623 University Av. S.E.
 Burke, Meda M., 3448 Bryant Av. S.
 Byrnes, Mary R., 922 W. 38th St.
 Byrnes, Mary S., 325 Franklin Av.
 Busian, Zella, 2544 Pillsbury Av.
 Cady, Mrs. K. B., 317 Harvard N.E.
 Callahan, M. Ida, 2105 Bryant Av.
 Can, Mary, 64 7th Av. N. E.
 Candee, Frederick L., 2421 Girard Av. S.
 Campbell, Myra L., 52 S. 10th St.
 Carey, Agnes F., Maryland Hotel
 Carey, Anna E. V., 4745 Lyndale Av. S.
 Carey, Mary L., 4745 Lyndale Av. S.
 Cargell, Fidelia G., 2617 Portland Av.
 Carlson, Alfred M., 215 Harvard St. N. E.
 Carlson, C. Arthur, 1717 10th Av. S.
 Carlson, Philip E., 3124 Park Av.
 Carlsten, Ester C., 1612 Stevens Av.
 Carney, Mildred, 1015 N. 21st Av.
 Carr, Virgil M., 710 S. 8th St.
 Carroll, Catherine Agnes, 413 20th Av. S.
 Carroll, Teresa, 413 20th Av. S.
 Caspersen, Helmer C., 1344 1st Av. S.
 Channon, Julia H., 712 7th St. S.E.
 Chapin, Alice C., 2636 Chicago Av.
 Chapman, Madge, 210 W. 34th St.
 Chapman, Margaret, 732 E. 16th St.
 Chapple, Dora E., 122 W. Grant St.
 Chestnut, Mary L., 3208 Dupont Av. S.
 Child, Dr. Harry B., 4221 Dupont Av. S.
 Child, Mary A., 2824 Portland Av.
 Chilson, Helen A., 2313 Portland Av.
 Chilson, Iona F., 2313 Portland Av.
 Chisholm, C. Tryphena, 3041 Colfax Av S.
 Christensen, Emma D., 2012 Garfield Av. S.
 Christie, Blanche, 2906 N. Humboldt Av.
 Clark, Gordon M., University Hospital
 Clarke, Esther A., 2622 3rd Av. S.
 Clancy, Catherine E., 2655 15th Av. S.
 Clausen, Jennie M., 1914 10th Av. S.
 Clautier, Henri H., 909 W. Franklin Av.
 Claves, Ella M., 1425 Vine Place
 Cleary, Francis, 3325 3rd Av. S.
 Cleary, Mrs. S. A., 3325 3rd Av. S.
 Cleveland, Esther Morris, 531 8th St. S.E.
 Clone, Ethel A., 509 15th Av. S.E.
 Clure, Eleanor, Minneapolis, Minn.

Clure, Mrs. W. O., 805 E. River Road
 Cobb, Martha L., 2705 Pillsbury Av.
 Cockburn, Edna G., 425 6th St. S.E.
 Cockburn, Kathleen, Wells Memorial
 House
 Cohen, Jacob George, 1203 Aldrich Av.
 N.
 Coffin, Isa, 4411 Morgan Av. N.
 Cogrove, Pansy B., 324 Walnut St. S.
 E.
 Colby, Violet M., 1023 17th Av. S.E.
 Colle, Alfred C., 3849 1st Av. S.
 Collins, Margaret E., 2633 W. 44th
 St.
 Conn, Bertha, 210 Curtis Court
 Connell, Mary E., 4013 Sheridan Av.
 S.
 Connelly, Catherine Brown, 1908 Hen-
 nepin Av.
 Cook, Charlotte E., 2215 Harriet Av.
 Cook, Elizabeth, 1311 Yale Place.
 Cook, Estelle, 1316 Cleveland Av.
 Cook, R. R., 721 E. 28th St.
 Coon, Chance C., 1727 Vince Place
 Cope, Edith R., Hotel Berkeley
 Cornish, Margaret D., 4737 Colfax Av.
 S.
 Coft, Maude O., 4312 Linden Hills
 Blvd.
 Cotton, Anna Lora, 3829 11th Av. S.
 Councilman, Mrs. Alice, 307 Oak Grove
 St.
 Coveny, Agnes C., 1522 Emerson Av.
 N.
 Cowin, Edith B., 3538 Blaisdell Av.
 Cowles, Mrs. Anne F., 2721 Humboldt
 Av. S.
 Cramer, Isabel M., 1019 University Av.
 Crane, Jennie C., 3040 Humboldt Av.
 S.
 Cratty, Mabel E., Curtis Court
 Craven, Edward B., 1011 6th St. S.
 E.
 Crawford, Mary, Curtis Court
 Creswell, Emma, 3948 Garfield Av.
 Crocker, Katherine M., 2517 Blaisdell
 Av.
 Crockett, Clara S., 2512 Hennepin Av.
 Crombie, Grace, 1919 Clinton Av.
 Crouse, Agnes R., 3600 1st Av. S.
 Crowley, Charlotte R., Curtis Court
 Curran, Arthur A., 2634 Longfellow
 Av.
 Currie, Constance, Unity House
 Dahl, T. N., 2906 1/2 University Av. S.E.
 Danielson, Andrew W., 1910 Feronia
 Av., St. Paul
 Dailey, Mrs. D. C., 1915 1st Av. S.
 Davidson, Lois C., 106 E. 14th St.
 Davis, Anna J., 3932 Elliot Av.
 Davis, N. Donna, 1913 Dupont Av. S.
 de Camp, A. Lee, 1608 W. 25th St.
 Dempsey, Allan S., 791 Curfew Av.
 Densmore, Lydia M., 2105 S. Bryant
 Av.
 Deutsche, Harriet E., 2624 Garfield
 Av.
 Devany, Anne, 3707 Park Av.
 Dickensheet, Howard F., 1018 19th Av.
 N.E.
 Dickey, Margaret C., 421 18th Av. S.E.
 Dickie, Mary L., 512 Delaware St. S.E.
 Diederich, Rose C., 1933 Ashland Av.
 Diederich, Veronica L., 1933 Ashland
 Av.
 Dillingham, Agnes M., 816 9th Av. S.E.
 Disney, Florence G., 417 Walnut St. S.
 E.
 Dodge, Myra E. G., 910 W. 32rd St.
 Doer, Margaret C., 3317 W. 44th St.
 Dolan, Luella Maude, 3315 University
 Av. S.E.
 Donaldson, Evelyn, 219 8th St. S.E.
 Dooley, James L., 235 Goodrich Av.,
 St. Paul
 Doolittle, Compton W., 2209 Lyndale
 Av. S.
 Dondero, Beatrice T., 1912 Clinton Av.
 Dorselen, Eleanor V., 2818 Fremont
 Av. N.
 Drohan, Gertrude, 2716 Portland Av.
 Drohan, Margaret, 2716 Portland Av.
 Duesler, Grace, 1224 Mary Place
 Duggan, W. J., 224 12th Av. N.E.
 Dunbar, Emma L., 1969 Selby Av.
 Dungan, Minnie W., 4644 Vincent Av.
 S.
 Dunn, Cordelia, 2437 S. Aldrich Av.
 Dusschee, Hilda E., 2308 Bryant Av.
 S.
 Dwyer, Vivian, 600 Washington Av.
 S.E.
 Dykman, Howard, 915 University Av.
 S.E.
 Eckert, Dorothea, 3209 Nicollet Av.
 Edgerton, Bessie E., 2919 Girard Av.
 N.
 Edwall, Esther J., Harvard Chambers
 Edwards, Mae L., 3108 Elliot Av.
 Egan, Elizabeth, 1613 3rd Av. S.
 Egan, Katherine, 1723 Dupont Av. N.
 Elder, Henry K., Hotel Maryland
 Elviksen, Andrew, 3303 Bloomington
 Av.
 Elwell, Susie Marie, 907 7th St. S.E.
 Emmel, Dorcas P., 70 S. 11th St.

Erb, Nellie M., 1415 Dupont Av. N.
 Erickson, Huldah, 1214 5th St. S.E.
 Erickson, Victor L., 3108 17th Av. S.
 Everhard, Mabel, 2310 Lyndale Av.
 Evers, Eric Harold, 1603 Washington St. N.E.
 Fairchild, Harriet, 1117 Hawthorne Av.
 Fairfield, Elizabeth P., 1313 4th Av. S.
 Falconer, Gertrude M., 2707 Fremont Av. N.
 Fankhauser, Mollie, 3333 Dupont Av. S.
 Fargo, Charles H., Y. M. C. A., St. Paul
 Farnam, Josephine E., 1705 Stevens Av.
 Farris, Christina J., The Concord
 Fassett, John S., 1414 Stevens Av.
 Featherstone, Harriet, 3136 1st Av. S.
 Fehr, J. J., Hotel Hastings
 Ferguson, Bertha, The Leamington
 Ferguson, Ida May, 2732 Fremont Av. S.
 Fields, Nellie M., 2873 Irving Av. S.
 Finden, Gitona, 127 Curtis Court
 Finkle, Kate, 2760 W. River Rd.
 Finn, Delia, 1515 Vine Place
 Finnegan, Nellie L., 1317 2nd Av. S.
 Finnigan, Catherine, 1930 Clinton Av.
 Finnigan, Josephine, 1930 Clinton Av.
 Fischer, Aimee W., 2019 Kenwood Pky.
 Fischer, James V. S., 3100 Emerson Av. S.
 Fischer, Richard, 2115 Harriet Av.
 Fitzgerald, Anna C., 2409 1st Av.
 Fitzgerald, Caroline A., 2318 Pierce St.
 Fitzpatrick, Mary H., Hastings Hotel
 Fitzroy, Celestine, 3805 Portland Av.
 Flahavan, Frances, 2531 16th Av. S.
 Flahavan, Teresa, 2531 16th Av. S.
 Fleming, Eleanor C., 2550 Monroe St. N.E.
 Fletcher, Roland, 2506 3rd Av. S.
 Fleury, Rosanna, 2312 3rd Av. S.E.
 Flynn, Blanche M., 701 Aldrich Av. N.
 Flynn, Henrietta, 1700 Portland Av.
 Flynn, Mary S., 2614 Bryant Av. S.
 Foland, Grave W., Hotel Waverly
 Folsom, Louise M., 3240 Oakland Av.
 Foote, Miriam D., 1054 14th Av. S.E.
 Ford, Annie G., 1939 Bryant Av. S.
 Ford, Mary F., 1939 Bryant Av. S.
 Ford, Maude, 2635 2nd Av. S.
 Forslund, C. W., 2213 Bryant Av. S.
 Foster, Charles, 219 W. 24th St.
 Foster, Rachel H., 36 Spruce Place
 Foster, Mrs. W. K., 652 Erie St. S.E.
 Foster, W. K., 652 Erie St. S.E.
 Fowler, Alice J., 209 S. 11th St.
 Foy, Mrs. Cordelia L., Berkeley Hotel
 Fredericksen, John A., 1906 Portland Av.
 Freeman, Edna J., 4704 Colfax Av. S.
 Freeman, Eva I., 3228 Stevens Av.
 Frey, Mary E., 1311 Yale Place
 Frick, Laura G., 1904 Park Av.
 Fridley, Mrs. Edith Gale, 707 E. 14th St.
 Fridley, John P., 707 E. 14th St.
 Friedlander, Esther, 2803 2nd Av. S.
 Friedlander, Lillian, 2433 Lyndale Av.
 Frimodig, Sophie B., Curtis Court
 Frisch, Sarah, 1612 Stevens Av.
 Frisbie, M. S., 177 Irving Av. S.
 Frost, Edith L., 4625 Washburn Av. S.
 Fullenwider, Thomas I., 611 Delaware St. S.E.
 Fullenwider, Mrs. T. I., 611 Delaware St. S.E.
 Fuller, Mabel B., 917 Chicago Av.
 Funk, Harriet, Curtis Court
 Galland, Mrs. Belle B., 4042 Linden Hills Blvd.
 Galvin, Eugene F., 3704 Nicollet Av.
 Gamble, Annamae, 1325 N. 27th St.
 Gardner, Alice, 700 E. 14th St.
 Gaus, Ottelie, 2915 W. 44th St.
 Garvey, Florence M., 2802 Fremont Av. N.
 Gedney, Anna M., 1808 W. 31st St.
 Gedney, Calista C., 116 Oak Grove
 Gedney, E. L., 1808 W. 31st St.
 Gerry, Leila E., 2119 Russell Av. N.
 Ghostley, Mabel G., 1506 Fremont Av. N.
 Gibbon, Grace, 1788 Hennepin Av.
 Gibbs, Anna F., 2636 Emerson Av. N.
 Gibbs, George V., 2540 Cedar Av. S.
 Gibbs, Katherine M., 1919 Clinton Av.
 Gibbs, Louise, 2426 Garfield Av. S.
 Gibson, Isabel, 653 Grand Av.
 Giddings, Guida, 2932 Fremont Av. N.
 Gilbert, Opal, 3305 Elliott Av.
 Gilbert, Vivian Clare, 2736 Hennepin Av.
 Giles, Ethel Estelle, 22 E. 15th St.
 Gilkey, Katherine, 2416 Chicago Av.
 Gilman, Glenora, Hopkins, Minn., R. F. D. No. 1
 Gilman, Mrs. Margaret, 602 Essex St. S.E.
 Gilruth, Genevieve, 412 Walnut St. S. E.
 Gleason, Beatrice, 2617 16th Av. S.

Gleason, Clara, 2617 16th Av S.
 Gleason, Leo P., 4600 11th Av. S.
 Goetzman, C. A., 2315 Quincy St. N.
 E.
 Goetzman, Leon M., 2315 Quincy St.
 N.E.
 Goodale, Ina L., 1413 Willow St.
 Grabow, Flora W., 706 University Av.
 Graham, Margaret, 2525 Garfield Av.
 S.
 Grant, Alex L., 3000 N. Humboldt Av.
 Graves, Alice M., 407 4th St. S.E.
 Graves, Mrs. Richard A., 1816 19th Av.
 N.
 Gray, Mrs. Lillian F., 3129 Portland
 Av.
 Greene, Elsie, 1113 Hawthorne Av.
 Greenlaw, John A., 228 Clifton Av.
 Greenwood, Perry L., 3441 Bloomington
 Av.
 Greig, John E., 175 University Av.
 S.E.
 Greinbaum, Esther, Hampshire Arms
 Griebenow, H. E., 1535 E. 32nd St.
 Griggsberg, Clara L., 1827 N. Bryant
 Av.
 Grimm, H. P., 1915 Portland Av.
 Grobel, Olive A., 1927 Elliott Av. S.
 Groesbeck, Agnes M., 2020 N. Fremont
 Av.
 Grohndorff, Lenore, 3019 N. Oliver
 Gront, Edith Nellie, 3104 James Av.
 S.
 Grubbs, James V., 2006 Fremont Av.
 S.
 Guinotte, Marguerite, 2411 Fremont
 Av. S.
 Guthrie, Ramah L., 1600 W. Lake St.
 Hainer, Gertrude B., 2623 1st Av. S.
 Haines, I. M., 1516 Nicollet Av.
 Hagen, Ida A., 526 7th St. S.E.
 Hale, M. Loretta, Hampshire Arms
 Halvorson, Margaret, 2634 N. Girard
 Av.
 Hamilton, Louise, 3128 Irving Av. S.
 Hamlin, Nellie Lehan, 4422 Calfox Av.
 S.
 Hammer, Sophia O., 2310 Lyndale Av.
 S.
 Hammond, Alice E., 4008 Bryant Av.
 S.
 Hammond, Grace, 4008 Bryant Av. S.
 Haney, Elizabeth, 4437 Washburn Av.
 Hansen, Alma, 2905 17th Av. S.
 Hansen, Meta, 1522 Fremont Av. N.
 Hanson, H. E., 4 Virginia Flats, St.
 Paul
 Hanson, Paul O., 2019 11th Av. S.
 Hanson, Olga S., 2248 Carter Av.
 Hanson, Otto, 910 2nd Av. S.
 Harding, Everhart Percy, 819 Essex
 St. S.E.
 Harding, Gertrude, 3124 Park Av.
 Harding, Nellie, 2000 Dupont Av.
 Harman, Bridget A., 723 2nd St. N. E.
 Harper, Myrtle U., 4632 Upton Av. S.
 Harrington, Julia G., 320 6th Av. N.E.
 Hart, Mabel R., 2643 S. Lyndale Av.
 Haseltine, Julia M., 3109 Fremont Av.
 N.
 Haserick, C. V., 1614 Girard Av. N.
 Haskell, Edwin Dudley, 1710 3rd Av.
 S.
 Haskell, Mrs. Olga Von W., 1710 3rd
 Av. S.
 Hatz, Rose, 1710 Stevens Av.
 Haubold, Elsie, 2305 Garfield Av.
 Haupt, A. James, 1844 Selby Av., St.
 Paul
 Haupt, George E., 1844 Selby Av., St.
 Paul
 Hauser, Ida L., 1228 Adams St.
 Haven, Kittie, 3145 Stevens Av.
 Hawkins, Catherine, 1523 N. Fremont
 Hawley, Ralph K., 415 Delaware St.
 S.E.
 Hay, George B., 3225 Irving Av. S.
 Hayes, Effie M., 2610 W. 41st St.
 Hays, Ada S., 3356 Park Av.
 Hays, Dorothea, 4037 Upton Av.
 Hazelton, Lydia, 4013 Sheridan Av. S.
 Heffernan, Susan B., 2633 Humboldt
 Av. S.
 Heimark, Bessie, 703 4th St. S.E.
 Heinrich, Mary P., Berkeley Hotel
 Hegel, Edith, 1310 7th St. S.
 Hegel, Newton H., 3325 Bloomington
 Av.
 Helm, Mrs. Clyde B., 3144 Bryant Av.
 Helmick, Caroline E., 1014 13th Av.
 S.E.
 Helmick, Alexander, 1014 13th Av. S.
 E.
 Hemenway, John, St. Thomas College
 Helgeson, Esther, 615 5th Av. S. E.
 Henberg, Oscar A., 200 13th St. S.
 Hendricks, Ellen, Leamington Hotel
 Hennessey, Amy A., 1521 Vine Place
 Herchner, Cordelia, 201 W. 15th St.
 Hettberg, Oscar A., 200 13th St. S.
 Hewitt, Helen Imlay, Hopkins, Minn.
 Hickey, Ora I., 2816 Fremont Av. S.
 Hickman, John H., Jr., 325 N. St.
 Albans.
 Higgins, Blanche O., 2204 Grand Av.
 Higgins, F. G., 1529 University Av.
 S.E.

Hildebrandt, Janet G., 323 Church St. S.E.
 Hildebrandt, Ruth A., 323 Church St. S.E.
 Hilgendorf, Fred W., 2844 Irving Av. S.
 Hill, Margaret E., 354 Curtis Court
 Hines, Velma J., 1817 Ashland Av.
 Hinman, Kathleen E., 52 S. 10th St.
 Hitchcock, Elizabeth, 1502 Chicago Av.
 Hobbs, Evelyn A., 307 8th St. S.
 Hockel, Earl M., 1934 Pierce St. N.E.
 Hodapp, H. G., 914 4th St. S. E.
 Hoganson, R., Minneapolis, Minn.
 Hoidale, Einar, 1217 Thomas Av. N.
 Hoidale, Martha, 1217 Thomas Av. N.
 Holbrook, Mrs. Elizabeth, 1374 Spruce Place
 Holborn, Elizabeth A., 679 Lincoln Av.
 Holden, Margaret, St. Barnabas Hospital
 Holst, Sigurd, 1804 Park Av.
 Holtz, Harriet, 2112 Portland Av.
 Holub, Louise R., 2512 Chicago Av.
 Holmer, O. Geoffrey, Y. M. C. A.
 Hood, Leone B., 1621 Stevens Av.
 Hookey, Edith H., 2885 Holmes Av. S.
 Horan, Elizabeth, 1802 15th Av. S.
 Horan, Lillian, 1802 15th Av. S.
 Horne, Jane, 4010 S. Upton Av.
 Horner, Lillian A., 3426 Calhoun Blvd.
 Horr, Edith M., 1312 22nd Av. N.E.
 Horton, Ann V., 3345 1st Av. S.
 Howard, Alice, 3145 Calhoun Blvd.
 Howard, Margaret L., 3429 Columbus Av.
 Howard, Walter I., 1864 Marshall Av.
 Huff, N. L., 1219 7th St. S.E.
 Hughes, James W., 309 17th Av. S.E.
 Hughes, Harriet J., 2100 Garfield Av.
 Hughes, Margaret Eleanor, Hotel Berkeley
 Humpfner, Hilda, 1023 University Av. S.E.
 Hurlburt, Frances, 3541 17th Av. S.
 Hussey, Alice, 4937 Queen Av. S.
 Huston, Sue, 165 14th St. N.E.
 Ingle, Jeannette, 2816 Fremont Av.
 Ingold, Estelle M., 2217 Girard Av. S.
 Ingraham, Florence, 25 W. 14th St.
 Irl, Maud, 1684 Dayton Av.
 Irving, Alice M., 833 Summer St. N.E.
 Irwin, Joanna, 429 Oak St.
 Irwin, Anna, 429 Oak St.
 Jacobson, Elizabeth Kilgore, 2638 Fremont Av. N.
 Jaffa, Goldie, 704 Dupont Av. N.
 Japs, Amelia R., 2300 Garfield Av.
 James, Edith, 703 4th St. S. E.
 James, Mary L., 1906 3rd Av. S.
 Jameson, Hazel, 703 4th St. S.E.
 Janes, Addie M., 3936 Grand Av. S.
 Janzen, Gerhard A., 2701 Girard Av. N.
 Jaquish, Bessie D., 1328 Vine Place
 Jensen, Margaret D., 2313 8½ St. S.
 Johnson, Anna F., 70 12th St. S.
 Johnson, Mrs. Charles E., 714 16th Av. S.E.
 Johnson, Dora N., Curtis Court
 Johnson, F. G., 811 2nd St. N.E.
 Johnson, F. W., 830 22nd Av.
 Johnson, Margaret Olina, 1607 Madison N.E.
 Johnson, Milda, 2636 Chicago Av.
 Johnson, Otto A., 191 Sherburn Av.
 Johnson, Otto Hans, 1996 Milwaukee Av.
 Johnson, Reuben A., 2449 Harriet Av.
 Johnston, Alice M., 4626 Fremont Av. S.
 Johnston, Harriet C., 4626 Fremont Av. S.
 Jones, Mrs. Gwen M., 1013 Park Av.
 Jones, Mary P., 717 16th Av. S.E.
 Jones, Pearl B., 70 S. 12th St.
 Jordan, Clara, 1400 W. 26th St.
 Jordan, Helen, 1400 W. 26th St.
 Jordan, Lois M., 126 Oak Grove St.
 Jorgens, Joseph, 75 15th St. N.
 Juell, Mrs. N., 2924 Fremont Av.
 Juell, Dr. Nils, 2924 Fremont Av.
 Jurgenson, Anna L., 1522 Fremont Av. N.
 Kaiser, Ferdinand, 1825 Laurel Av.
 Kammarren, Abbie M., 1428 N. 6th St.
 Keating, Anna B., Hotel Decorah
 Keatley, Sadie, 3116 19th Av. S.
 Keenan, Agnes C., 1928 Humboldt Av. S.
 Kelley, Evie F., 2222 Nicollet Av.
 Kelley, Kathleen, 51 N. 15th St.
 Kelly, Mrs. Hubert, 2103 Pleasant Av.
 Kendall, Calla, 2514 Dupont Av. N.
 Kennedy, Agnes M., 2533 Bryant Av. S.
 Kennedy, Marion, 2533 Bryant Av. S.
 Kenny, Margaret, 1664 Portland Av.
 Kenny, Raymond E., 4052 Queen Av. S.
 Kerr, Maude, 1821 9th Av. S.
 Keyes, Nellie M., 1520 Harmon Place
 Kilgore, Alice R., 2634 Fremont Av. N.
 Kilgore, Mary, 2634 Fremont Av. N.

Killeen, Florence, Ogden Apts.
 Killeen, Ursula, Ogden Apts.
 Kimball, Florence, 508 Oak St. S.E.
 Kindwall, Jos. A., 1813 University
 Av. S.E.
 King, Grace E., 614 E. 22nd St.
 King, Julia E., 912 19th Av. S.E.
 King, Margaret, 2421 Clinton Av.
 Kingsford, Annie S., 1311 Chestnut Av
 Kirk, Mary, Harvard Chambers
 Kirk, Renee J., St. Barnabas Hospital
 Kirkwood, Edith Brown, 1376 Gran-
 tham Av.
 Kirtland, Alice S., 1316 7th St. S.E.
 Kistler, Erma Jane, 531 Lyndale Av.
 N.
 Klampe, Lela M., 316 10th Av. S.E.
 Kline, R. P., 1411 3rd St. N.E.
 Knapp, Edward A., 471 Marshall Av.,
 St. Paul
 Knappen, Elizabeth, 323 10th Av. S.E.
 Knappen, Olive L., 1808 Stevens Av. S.
 Knoblauch, Ida, 2500 Lake Place
 Knight, Bessie P., Curtis Court
 Knight, Sara C., 2642 Chicago Av.
 Koch, Arthur L., 3317 2nd Av. S.
 Kocourek, John F., 515 Ontario St. E.
 E.
 Koehler, Elsa I., 508 University Av.
 S.E.
 Koenig, Myra M., 602 7th St. S.E.
 Koerner, Illa, 1377 Grantham Av.
 Kohler, Katherine M., Hotel Berkley
 Konig, Eva E., 3928 Fremont Av. N.
 Konig, Viktoria B., 2819 Fremont Av.
 N.
 Kooiker, Herman J., 409 Oak St. S.E.
 Krane, Hary A., 502 Emerson Av. N.
 Krauser, A., 1225 Hawthorne
 Kriedt, Julia, 1724 3rd Av. S.
 Kriedt, A. M., 1724 3rd Av. S.
 Krimbill, Julia, Hampshire Arms
 Kriskey, Imogen E., 3132 5th Av. S.
 Kronick, Rose, 122 Highland
 Kvittum, Margaret, 815 25th Av. S.
 Kruschke, Alma, 1515 Vine Place
 Kynaston, Ethyl, 813 Elwood Av.
 Ladner, Emily, 2112 Garfield Av.
 Lambert, Mamie E., 1326 8th St. S.E.
 Larkin, Anna E., Beverly Apts.
 Lariviere, Katherine C., 1623 Morgan
 Av. N.
 Larpenteur, Maria A., 3615 Park Av.
 Larsen, Daisy, 1805 2nd Av. S.
 Larsen, E. C. 3221 17th Av. S.
 Larson, Edmund C., 3221 17th Av. S.
 Laubscher, Florence E., 907 8th St.
 S.E.
 Lawrence, Alice Mary, 215 Walnut St.
 S.E.
 Leary, Iva M., 2433 Colfax Av. S.
 Lee, Edward J., 1560 Laurel Av., St.
 Paul
 Lee, John W., Hotel Hastings
 Lee, Josephine, 52 10th St. S.
 Leet, Susan A., 1222 Mary Place
 Lehman, Julia A., 2017 Grand Av.
 Leonard, Alice E., 1023 14th Av. S.E.
 Levin, Harry, 1524 8th Av. N.
 Levin, Jacob D., 210 S. 9th St.
 Levy, Esther, 2867 James Av.
 Levy, Florence, 2867 James Av.
 Lewis, John, 412 4th Av. N.E.
 Lewis, J. L., 776 N. Hamline Av., St.
 Paul
 Lewis, Mrs. C. H., 3304 48th Av. S.
 Lewis, Harriet Adelaide, 702 Russell
 Av. N.
 Lidstrom, Hadly A., 1539 Grand Av.
 Lieberg, Add E., 714 Delaware St.
 Liggett, Charles A., 776 Curfew Av.
 Lilligren, H. M., 734 Pierce St. N.E.
 Lilly, Elizabeth, 2818 Fremont Av. N.
 Lindholm, Lillie M., 304½ Dupont Av.
 S.
 Little, Dorothy A., 3821 W. 43rd St.
 Little, Helen F., 3821 W. 43rd St.
 Litzenberg, Jane, 710 Essex St.
 Lommen, Julia A., 1819 S. Lyndale
 Av.
 Lommen, Olga, 1819 S. Lyndale Av.
 Lommen, Tilda M., 1819 S. Lyndale
 Av.
 Longworth, H. W., 3839 Russell Av.
 N.
 Loomis, Alf, 701 15th Av. S.E.
 Lovell, Lela E., 3032 Irving Av. S.
 Lowrie, Elizabeth, 36 Orlin Av. S.E.
 Lundsden, Fred J., 1515 3rd Av. N.
 Lysen, Eugene J., 1300 5th St. S.E.
 McAuliffe, Agnes, 1515 Beverly Apts.
 McBride, Emily Raymand, 2105 Bryant
 Av. S.
 McCann, Alice, 321 N. Newton
 McCarthy, Ethel K., 3615 Lyndale Av.
 S.
 McCarthy, Mary M., 4801 Girard Av.
 S.
 McCarren, Jane, 815 6th St. S.E.
 McChesney, Ernest A., 2414 Portland
 Av.
 McClennan, Edith, The Leamington
 McConnell, Dasie C., 3035 Oakland Av.
 McCourt, Alice, The Leamington
 McCulloch, F. B., 221 Curtis Court
 McCune, Anna L., 1653 W. 26th St.

McDermid, Kate, 2703 Bloomington Av.
 McDonald, Mary G., 707 Summit Av.
 McDonough, Frances Burns, 732 E. 24th St.
 McDunn, Elizabeth B., 4112 Pleasant Av.
 McFarlane, Mabel G., 2344 S. Aldrich Av.
 McGrath, Evelyn, Hotel Hastings
 McGrath, Helen, 211 W. 34th St.
 MacGregor, Effie, 321 Curtis Court
 McGregor, Lulie, 500 W. Franklin
 McGuire, Sarah, 3320 Pillsbury Av. S.
 McHenry, Herbert Leslie, 204 Harvard St. S.E.
 McIntyre, Alice M., 4410 Lake Harriet Blvd.
 McKinnon, Mrs. J. C., 2433 W. 22nd St.
 McLaughlin, Mrs. Geo. V., 2405 Russell Av. S.
 McLaughlin, S. Agnes, 86 Lyndale Av. N.
 McLean, Alice M., 1551 Hillside Av.
 McLiman, Mae, 241 Sherman
 McMullen, Margaret Murphy, 1929 Humboldt Av. S.
 McNamara, Kathryn A., 908 5th Av. S.
 McNulty, B. M., 420 7th Av.
 McShane, Catherine, The Leamington
 McShane, Ida Gertrude, Berkeley Hotel
 Mabec, Abbie Gale, The Leamington
 Madden, Adeline E., 2612 Chicago Av.
 Madison, Mame L., 2420 Harriet Av.
 Maclean, Ruth F., 2404 Russell Av. S.
 Martin, Jeanette, City Hospital
 Meeker, Mary K., 2540 Clinton Av.
 Malloy, Rosemary, 741 Kenwood Pky.
 Malmquist, Myrtle S., 1806 Park Av.
 Malmsten, Julia C., 2117 Western Av.
 Maloney, Bessie A., 1613 3rd Av. S.
 Manley, Mary E., 3236 Homes Av.
 Mann, Ida V., 1830 Stevens Av.
 Manning, Caroline, 2321 Dupont Av. S.
 Mansfield, Lavinia, 920 Franklin Terrace
 Manville, Ethel, 3159 14th Av. S.
 Marchant, Lura E., 2440 1st Av. S.
 Marshall, Anne L., 710 Essex St. S.E.
 Marshall, Sarah T., 6 E. 14th St.
 Martin, Andrew I., 2916 Cedar Av.
 Martin, Blanche, 712 7th St. S.E.
 Martin, Carmelita, The Leamington
 Martin, Mildred W., 1180 S. Bryant Av.
 Martin, Maude E., Berkeley Hotel
 Martineau, Beatrice M., 516 12th Av. S.E.
 Martinson, Arnold B., 3125 Findley Place
 Martinson, Ellen, 3112 E. 24th St.
 Marvin, Earle L., 3728 Nicollet Av.
 Mathis, Mrs. A. C., 1601 7th St. S.E.
 Mattice, Nine E., 822 7th St. S.E.
 Maxwell, Myra, Hotel Berkeley
 Meason, Georgina, 1208 W. Franklin
 Meek, Mabel F., 1303 Yale Place, Apt. 5
 Meier, A. G., 908 Laurel Av., St. Paul
 Mercer, Vivien, 2848 Irving Av. S.
 Merriam, Edna G., 3440 Aldrich Av. S.
 Melamed, Louis, 222 E. Fairfield Av.
 Meyer, William J., 4131 Bryant Av. N.
 Michelet, Maren, 2009 27th Av. S.
 Michaelson, Anna, 1727 Vine Place
 Michaelson, Mathilde, 2117 Harriet Av.
 Michelstetter, Clare, 52 S. 10th St.
 Miles, Carlton W., 2300 Nicollet Av.
 Miller, Jane S., 1873 Marshall Av., Merriam Park
 Miller, Lillian M., 626 E. 25th St.
 Miller, Margaret B., 228 Clifton Av.
 Miller, Oliver H., 3345 2nd Av. S.
 Miller, Pearl, 3124 Bryant Av. S.
 Mitchell, Maud, 1225 5th St. S.E.
 Mitten, W. L., 2432 Nicollet Av.
 Mo, Helen George, 701 15th Av. S.E.
 Moersch, Fred, Curtis Court
 Molan, Kathleen, 3523 Garfield Av.
 Molstad, Amy E., 3435 2nd Av.
 Monroe, Elsie W., 3620 Aldrich Av. S.
 Montgomery, Inez V., 1808 Stevens Av.
 Morey, Julia, 102 E. 19th St., Apt. 104
 Morrill, Eliza C., 1808 Stevens Av.
 Morse, Ella Townsend, 2311 Pillsbury Av.
 Mortenson, Mary Ellen, 628 4th St. S. E.
 Morton, Catherine L., 406 11th Av. S. E.
 Moves, E. S., 1920 Colfax Av. S.
 Muller, Katherine J., 2622 3rd Av. S.
 Mullins, Ella, 1916 2nd Av. S.
 Mumm, Ruth E., 1908 N. 5th St.
 Munson, Harriet, 1113 Hawthorne Av.
 Murdock, J. N., 1107 2nd Av. S.
 Murphy, Anna, Hampshire Arms
 Murphy, Mary V., 4109 Sheridan Av.
 Murphy, S. L., 119 Thomas Av. N.
 Murphy, Theresa, 440 2nd St. N.E.
 Muth, Edna T., 137 E. Grant St.

Nason, Effie L., 1407 Clinton Av.
 Nelson, Albert F., 2753 Colfax Av. S.
 Nelson, A. R., 4107 N. Aldrich Av.
 Nelson, Frederick C., 1300 Central Av.
 Nettleton, Flora, 1028 Hawthorne Av.
 Nemire, Emma M., 1226 5th St. S.E.
 Newell, Bernice, 3831 Elliott Av.
 Newell, Bertha M., 3104 James Av. S.
 Newell, Esther, 3831 Elliott Av.
 Newell, Margaret, 1116 5th St. S.E.
 Newman, W. M., 1828 Elliott Av.
 Nichols, Mary C., 3128 Irving Av. S.
 Nicond, Ida, 3052 18th Av. S.
 Niles, Harriet S., Hotel Hastings
 Nobbs, Arthur W., 721 Snelling Av.
 Nolt, Rinnie, 1935 S. Bryant Av.
 Norris, Maude Jeanette, 1393 Cleveland Av. N.
 North, James, 2724 Chicago Av.
 Northfield, Susan Melissa, 1415 19th Av. N.
 Northington, James M., Campus Club
 Nye, Ellen S., 1801 4th Av. S.
 Oakford, Frances P., 1788 Hennepin Av.
 Oberg, Ezra N., 2106 29th Av. S.
 O'Brien, Mrs. Joan D., 3317 W 44th St.
 O'Brien, Michael Joseph, 3633 4th Av. S.
 O'Hearn, Mary, 110 Willow St.
 O'Herrin, Mary F., 1700 Portland Av.
 Oliver, Warren W., 1810 Portland Av.
 Olsen, Mabel Juliet, 2416 11th Av. S.
 Orr, Loretta, 2509 Emerson Av. N.
 Osborn, Annette E., 2092 Dayton Av., St. Paul
 Osman, Norma B., 2431 Blaisdell Av.
 Otis, Mabel, 2310 N. James Av.
 Owen, D. S., 262 S. Garfield Av.
 Owens, Bess, 2416 Chicago Av.
 Oyen, Alice, 2440 23rd Av. S.
 Ozman, Gertrude, 1315 Irving Av. N.
 Page, S. Alta, 1812 Bryant Av. S.
 Pardee, N. E., 415 6th St. S.E.
 Parrish, Wm. M., 1612 5th Av. S.
 Parsons, Alice E., 1740 Capitol Av., St. Paul
 Parsons, Judith F., 1740 Capitol Av., St. Paul
 Patch, Alice S., 2318 S. Aldrich Av.
 Paul, Helen, 3315 Holmes Av.
 Pearce, M. D., University Hospital
 Pease, Vinnie A., 112 State St.
 Peck, A. E. Mrs., 1912 Emerson Av. S.
 Peck, Dr. A. E., 1912 Emerson Av. S.
 Pelton, Ella R., 3233 1st Av. S.
 Pelton, Nine M., 4601 33rd Av. S.
 Peper Mathilda, 4030 Wentworth Av.
 Perine, Mrs. E. G., 731 Fulton St. S. E.
 Perkins, Ellen G., 3021 Park Av.
 Peters, Leone E., 22 W. Grant St.
 Peterson, C. W., 2620 15th Av. S.
 Peterson, Florence Gunnar, 506 7th St. S.E.
 Peterson, Mildred, 2620 15th Av. S.
 Phillips, Anna Travis, 1808 Stevens Av.
 Phillips, Bertha, 1352 Vine Place
 Phillips, Minnie, 1908 Pleasant Av.
 Pierce, Mrs. M. T., 2231 Grand Av.
 Planf, Antoinette, 403 4th St. N.E.
 Planf, Felix, 403 4th St. N.E.
 Pletke, Dora, 2115 Lyndale Av. S.
 Plunkett, P. F., 2117 Bryant Av. N.
 Poehler, Kenneth Cole, 252 W. Franklin Av.
 Poethlewaite, B. K. 4910 Emerson Av. S.
 Pomeroy, Lillian C., 2404 Nicollet Av.
 Porcher, Marie R., 3549 Dupont Av.
 Porter, Hattie W., 1211 11th St. S.
 Porter, Ralph W., 3210 W. 45th St.
 Powell, Mary, Hotel Berkeley
 Pratt, Mrs. Agnes A., Washburn Home
 Pratt, Bernice, 2508 Hennepin Av.
 Pratt, Elizabeth, 2114 Hennepin Av.
 Prentiss, Anna D., 4737 Colfax Av. S.
 Prentiss, W. S., 4737 Colfax Av. S.
 Preus, Otto H., 2441 Elliott Av.
 Price, Cora Belle, 3104 James Av. S.
 Prosser, Ida M., 2512 Hennepin Av.
 Purcell, Abby, 1013 Park Av.
 Purdy, Mrs. W. W., 2500 Sheridan Av. S.
 Putnam, Carolyn M., 1830 Stevens Av.
 Quail, Margaret, 707 Summit Av.
 Quay, Malcolm E., Minneapolis, Minn.
 Radde, Elsa C., 1312 17th Av. N.
 Radosch, Dorothea, 721 Erie St. S.E.
 Radosch, Minna, 721 Erie St. S.E.
 Raines, Mary Edith, 2500 Aldrich Av. S.
 Ramsdell, Bertha, 509 6th St. S.E.
 Randall, Ada M., 329 Oak St.
 Randall, W. H., 4208 Lyndale Av. S.
 Rankin, Mrs. D. A., 2417 Lyndale Av. S.
 Ray, Rosalie Edith, Curtis Court
 Reed, Myrtle, 2633 Humboldt Av. S.
 Redline, Harriet, 2433 Colfax Av. S.
 Reid, E. A., 607 Essex St. S.E.
 Reid, Katherine, St. Barnabas Hospital
 Reid, Mary D., 604 11th Av. S.E.
 Reynolds, Alice, 2512 Chicago Av.
 Reynolds, George W., 3811 10th Av. S.

Reynolds, Gertrude, 3811 10th Av. S.
 Rheberg, Rachel, 2230 Oakland Av. S.
 Richards, Estelle, 3130 5th Av. S.
 Richards, Grace, 2639 Harriet Av.
 Richards, Mary, 202 W. Grant St.
 Richardson, Frances A., 3350 5th Av. S.
 Richardson, Mrs. George M., 3908 10th Av. S.
 Riedell, M. Adeline, 3242 2nd Av. S.
 Reider, Mrs. John, 1515 Vine Place
 Rise, Mathilde E., 815 4th Av.
 Ritze, Bertha L., 2117 Colfax Av. S.
 Rixon, Lillian, 119 Pratt St.
 Robinson, Harriet M., 2720 Elliott Av. S.
 Rodenbalch, Alvina K., 1811 2nd Av. S.
 Rodman, Duane F., 411 17th Av. S.E.
 Rogers, Edna May, The Antlers
 Rogers, Emma E., 2655 Grand Av.
 Rogers, Helen L., 2400 Nicollet Av.
 Rogers, Lena H., 1614 Girard Av. N.
 Rood, Mary B., 116 Oak Grove St.
 Rosenstein, Ell M., 2101 S. Fremont
 Ross, Effie L., Curtis Court
 Roth, Irving, 1758 Fosdick, St. Paul
 Rowell, Ora M., 2217 N. Fremont Av.
 Rowell, Will J., 225 Harvard St. S. E.
 Rumbaugh, Mary L., 4112 Garfield Av.
 Rummell, Roscoe, 710 8th St. S.
 Rutherford, Margaret, 716 E. 16th St.
 Rutledge, Elizabeth C., 3435 2nd Av. S.
 Ryberg, Anna B., Bethel Academy
 Rydell, Edmund T., 2114 N. Dupont Av.
 Saam, Selma Louise, 3112 Elliott Av.
 Samuels, Mame, 2212 Humboldt Av. S.
 Samuelson, Cora, The Leamington
 Sand, Anna, 2227 Polk St. N.E.
 Sandberg, Adolph, 376 Minnesota, St. Paul
 Sandborn, H. O., 3125 James Av. S.
 Sanders, Gladys, 7 E. 25th St.
 Sandford, E., 1901 Park Av.
 Scales, Kate M., 2300 Nicollet Av.
 Schadeegg, Mabel E., 2620 5th Av. S.
 Schenck, O. A., 717 9th St. S.
 Scherer, Lydia C., 34 21st Av. S.
 Schmidt, Edith M., 800 4th St. S.E.
 Schoepel, Edith, 2530 Emerson Av. S.
 Schlutz, Mathilda Caroline, 417 Delaware St. S.E.
 Schulte, Anna M., 2176 Goodrich Av.
 Schultz, Rudolph J., 3702 14th Av. S.
 Schutz, Archie L., 1209 S. 7th St.
 Schussler, Emma N., 2722 Blooming-
 ton Av.
 Schwach, Alois, 405 Oak St. S.E.
 Scott, Jeanette H., 3032 Dupont Av. S.
 Seagren, George E., 4131 N. Fremont Av.
 Seeley, Jennie L., 1916 2nd Av. S.
 Sehan, M., 1114 Humboldt Av. N.
 Sellhorn, Minnie D., 2818 Fremont Av. N.
 Sengir, Barbara C., 912 6th Av. S.
 Sevatson, Carrie, 800 13th Av. S.E.
 Severson, Mabel, 70 S. 12th St.
 Seward, Minnie Mabel, 1317 2nd Av. S.
 Seyller, Blanche, Berkeley Hotel
 Seymour, Jane Allan, 1519 Stevens Av.
 Shaw, Gertrude J., 2012 Garfield Av. S.
 Sheardon, Margaret, The Leamington
 Sheehan, Katherine, 1815 1st Av. S.
 Shepard, George M., 23 Sidney Place
 Shook, Jane L., 1830 Stevens Av.
 Shok, Kate P., 1830 Stevens Av.
 Shove, Helen B., 3116 Clinton Av.
 Sievers, Gladys, 12 E. 15th St.
 Silber, Gertrude, 127 Highland Av. N.
 Silber, Mary, 127 Highland Av. N.
 Silver, Dora, 927 14th Av. S.
 Skogsbergh, Bessie, Curtis Court
 Small, Mary F., 2115 Lyndale Av. S.
 Smith, Alice M., 21 E. 25th St.
 Smith, Burnsley Davis, 3648 Portland Av.
 Smith, Constance C., 2634 Portland Av.
 Smith, Cleora T., 1816 Stevens Av.
 Smith, Eva, 1915 Aldrich Av.
 Smith, Evelyn, 3024 S. Knox Av.
 Smith, E. H., 148 Malcolm Av.
 Smith, Frances M., 2109 Blaisdell Av.
 Smith, Harriet E., Hotel Berkeley
 Smith, Genevieve, 34 Eastman Av.
 Smith, Gertrude E., 2608 Pillsbury Av.
 Smith, Irene, 3125 16th Av. S.
 Smith, James T., 34 Eastman Av.
 Smith, Jessie Carey, 2634 Portland Av.
 Smith, Lois A., 816 Beacon St. S.E.
 Smith, Ora H., 3312 3rd Av. S.
 Sommermeyer, Louisa W., 220 9th Av. S.E.
 Speaker, Weltha, Hotel Berkeley
 Spencer, Myrtle M., 3128 Colfax Av. S.
 Spindler, Emma K., Curtis Court
 Stakey, Laurie, 2637 Humboldt Av. S.
 Stanchfield, Lois H., 520 5th Av. S.E.
 Stanley, Elizabeth A., 747 N.E. Madison

Stallard, Harvey, Minneapolis, Minn.
 Steen, J. H. A., 710 Cedar St., Flat
 14
 Stivers, E. W., 131 E. 14th St.
 Steinmetz, George, 912 6th Av. S.
 Stephen, Harriet, Curtis Court
 Stephens, Jean, 3612 Lyndale Av. S.
 Stephens, Katherine, 3612 Lyndale Av.
 S.
 Stephens, Stella, 920 8th Av. S.
 Stevens, E. W., 131 E. 14th St.
 Stevens, Imogene, 201 W. 15th St.
 Stevens, Janet M., 2015 Grand Av.
 Steward, Thomas E., Minneapolis Jour-
 nal
 Stewart, Alex W., 4416 Thomas Av. S.
 Stewart, Anna B., 3724 Portland Av.
 Stoehle, Agnes Audrey, 1908 Hennepin
 Av.
 Stock, E. G., 908 5th Av. S.
 Stone, C. A., 2008 Dupont Av. S.
 Stone, H. C., 681 Simpson Av., St.
 Paul
 Stone, Genevieve, 130 E. 18th St.
 Storer, Zelma, 4003 Blaisdell Av.
 Stowe, E. L., 2101 Girard Av. S.
 Stringham, Josephine, 2413 1st Av. S.
 Stromme, Minnie, 1013 13th Av. S.
 Sullivan, Mrs. J. M., Leamington Hotel
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 Swafford, Mrs. Cora L., 2544 Pillsbury
 Av.
 Swan, Florence, 1919 2nd Av. S.
 Sweeney, Mrs. John, 2105 Newton Av.
 S.
 Sweetser, Teresa M., 2509 Pillsbury
 Av.
 Swennes, Agnes E., 813 E. 22nd St.
 Swenson, Viola, 1720 3rd Av. S.
 Tait, Ada M., 1822 N. Fremont Av.
 Taylor, C. H., 1551 Lincoln Av.
 Taylor, Fannie B., Curtis Court
 Teeter, Addie M., 4833 Fremont Av. S.
 Teeter, Clo V., 4833 Fremont Av. S.
 Ter Louw, W. H., 112 University Av.
 S.E.
 Terry, Stephen N., 802 S. 6th St.
 Thoorsell, Emelia, Ogdan Apts.
 Thomas, Mary E., 1111 Hawthorne Av.
 Thomas, Miriam E., 2640 16th Av. S.
 Thomas, Lucy, 2105 S. Bryant Av.
 Thompson, Barbara Anna, University
 Hospital
 Thompson, Charles S., 4808 Nicollet
 Av.
 Thompson, Maud C., 2314 Portland Av.
 Thompson, Dr. Robert, 1015 13th Av.
 S.E.
 Thompson, Ruth Gage, 4808 Nicollet
 Av.
 Thomson, Mrs. Agnes B., 4042 Linden
 Hills Blvd.
 Thomson, Elizabeth, 1935 S. Bryant
 Av.
 Thorshaug, Olaf, 208 Cecil St. S.E.
 Thurston, Adelaide, The Leamington
 Tice, Ethel A., 1815 1st Av. S.
 Tilden, Josephine E., 2235 Como Av.
 W., St. Paul
 Tilden, Rose E., Minnesota Loan and
 Trust Co.
 Tillisch, Mary Agnes, Wells Memorial
 House
 Tinkham, Bertha, 1811 2nd Av. S.,
 Flat 6
 Tobin, Marie Catherine, 692 E. 6th St.
 Tomlinson, Bessie A., 3115 13th Av.
 S.
 Towler, Mary B., 1806 Portland Av.
 Treadgold, Nell M., 117 W. 15th St.
 Trufant, Nellie, 2614 Clinton Av.
 Tryon, Dr. W. E., 74 Spruce Place
 Tuahy, Katharine E., 3132 Clinton Av.
 Turrin, Mary E., 3356 Park Av.
 Twombly, M. Louise, 3305 Park Av.
 Ulbricht, Emma A., 523 7th St. S.E.
 Underdahl, Lena, 1529 University Av.
 Urquhart, Jean, 2217 Grand Av. S.
 Valley, Rose V., Plaza Hotel
 Van Camp, Kate, 405 Oak St. S.E.
 Van Tuyl, Mrs. C. W., 4236 Queen
 Av. S.
 Vaughn, Julia H., 1220 Mary Place
 Voight, Alfrida H., 26 Oak Grove
 Van Rohr, Lucy E., Hotel Hastings
 Van Storke, Polly, 2655 Irving Av.
 Voswinkel, Darselin Eleanor, Curtis
 Court
 Waite, Beatrice M., 1330 Grand St.
 N.E.
 Waiste, Lucy B., 4717 S. Washburn
 Av.
 Walker, Miner A., 332 E. 24th St.
 Wall, Stephen F., 5112 40th Av.
 Wallace, Dora B., 231 Curtis Court
 Wallace, Frank T., 2714 4th St. N.
 Waller, Lulu Eloise, Berkeley Hotel
 Walquist, Ann, 2578 Elliott Av.
 Walters, Jessie V., 512 Delaware St.
 S.E.
 Walters, William N., 512 Delaware St.
 S.E.
 Ward, Susanna R., 4410 Lake Harriet
 Blvd.
 Warner, F. Russell, 719 E. 16th St.
 Warwick, Margaret, 1516 7th St. S.E.

Waters, Laura A., 602 Washington Av. S.E.
 Watkins, Lena Dell, 1215 Lowry Av. N.
 Watson, H. A., 3232 Irving Av. S.
 Watson, Louise, 3133 Fremont Av. S.
 Watson, R. O., Abbey Tavern
 Watts, Effie E., 2410 Pierce St. N.E.
 Way, Marjorie, 506 7th St. S.E.
 Weatherhead, Louise C., Harvard Chambers
 Weber, Mary L., 70 S. 12th St.
 Webster, Paul D., Webster Lumber Co.
 Weidner, Rose R., 1316 Emerson Av. N.
 Welch, Richard D., 1409 8th St. S.E.
 Wendell, Ida Marie, 1711 Park Av.
 Wentz, Anna, 2623 1st Av. S.
 Wentz, Edith, 2623 1st Av. S.
 Wenz, Arthur Henry, 84 W. Robie St.
 Wenz, Russell C., 1045 23rd Av. S.E.
 Werket, Inga, 2204 Grand Av.
 West, Alice M., 1619 Grand Av. N.
 Westcott, Blanche A., 4725 Aldrich Av. S.
 Westlund, Mary E., 4351 Garfield Av.
 Wheeler, Carrie M., 3336 Irving Av. S.
 Wheeler, Eva G., 70 S. 12th St.
 White, Annabel, 3445 Nicollet Av.
 White, Zada A., 3036 Oakland Av.
 Whitney, Helen, 425 4th St. S.E.
 Wick, Milton, 2726 18th Av. S.
 Wicks, Judson L., 1911 Pillsbury Av.
 Wilkins, Mary L., 4644 Lake Harriet Blvd.

Wilkinson, Sarah H., 313 15th Av. S.E.
 Willard, Mary L., 3200 Irving Av. S.
 Wilson, Ida Louise, 101 20th Av. S.
 Wilson, Vincent, 1427 Bryant Av. N.
 Wimber, Mary M., 1900 3rd Av. S.
 Winslow, V. M., 1853 Laurel Av.
 Winter, Winifred L., 1425 6th St. S.E.
 Wright, Clara L., 1819 Lyndale Av. S.
 Wohlgemuth, Anna, 1614 Stevens Av.
 Wolean, Alma B., 200 Harvard St. S. E.
 Wolfe, Florence, 2315 Buchanan St. N.E.
 Wolfe, Vera, 2315 Buchanan St. N.E.
 Wolfsberg, May E., 2217 Girard Av. S.
 Wood, Adelia N., 3341 2nd Av.
 Wood, Harriet, 1111 Hawthorne Av.
 Wood, Stella, 2502 Grand Av. S.
 Wood, S. V., 527 Oak St. S.E.
 Woodford, Constance, 112 State St.
 Woodruff, Pearl Ellen, 1208 W. Franklin Av.
 Woodward, Agnes Y., 2222 Dupont Av. N.
 Woodward, Charles, 3224 Harriet Av.
 Wyman, Ruth G., Vine Hall
 Yahr, Cora, 2914 Bloomington Av. S.
 Yankoski, Frances E., 2308 S. Bryant Av.
 Younker, Bessie E., 509 6th St. S.E.
 Zickrick, Theo, 1425 Vine Place
 Zierold, Arthur A., 4219 Colfax Av. S.
 Zimmerman, Sarah, 1614 Stevens Av.

ST. PAUL

Allen, Harriet, 1855 Ashland Av.
 Allen, Mildred, 1855 Ashland Av.
 Ames, Elizabeth, 956 Marshall Av.
 Borden, Gertrude C., 2026 Laurel Av.
 Borup, Sophie C., 723 Portland Av.
 Brandt, R. B., 607 Laurel Av.
 Brey, Florence, 614 Dayton Av.
 Brill, Alice, 471 Laurel Av.
 Brill, Edith, 471 Laurel Av.
 Broms, Claire Strong, 2095 Lincoln Av.
 Bruce, Ethel M., 646 Hague Av.
 Buell, Irene Lucile, 1528 Laurel Av.
 Buell, Myra Whitney, 2219 Knapp St.
 Clark, Harry S., 1206 Reaney St.
 Clinton, P. M., 278 Sherman St.
 Converse, Lula R., 237 Arundel St.
 Cottor Emil F., 193 Iglehart Av.
 Courteau, Stella, 742 St. Peter St.
 Daly, Mary E., 208 Maria Av.
 Davies, Edith W., 614 Dayton Av.
 Driscoll, Chas. B., 307 W. 6th St.
 Driver, Elizabeth J., 147 Summit Av.
 Dunn, Teresa M., 331 Geranium St.
 Emery, Rhoda J., 680 Smith Av.
 Estby, Ellen, 272 Cathedral
 Fargo, Chas. H., Y. M. C. A.
 Grant, Mary J., 648 Brown Av.
 Ginsberg, Annie, 1744 Laurel Av.
 Hauser, William A., 1032 E. Minnehaha Av.
 Hayes, H. J., 300 Nelson Av.
 Haselbeck, H., 733 E. Jessamine St.
 Heinze, Robert, 637 Otsego St.
 Hertz, Mrs. Esther, 693 Hague Av.
 Hilbert, Mrs. P. A., St. Paul Hotel
 Hodapp, Marie, College of St. Catherine

Holland, Mary D., 724 Holly Av.
 How, Lucy, 535 Laurel Av.
 How, Mary W., 614 Grand Av.
 Huspek, Louis, 192 Richmond St.
 Jackson, Mary Isabel, 955 Lombard
 Johnson, Jennie U., 1452 Van Buren
 St.
 Johnston, Ida A., 177 Nelson Av.
 Keppers, William M., 889 Arcade St.
 King, Margaret, 842 Laurel Av.
 Kinsey, Helen M., 207 E. Page St.
 Kneip, Agnes, St. Joseph's Novitiate
 Larsen, Helen Ingeborg, 541 Rondo St.
 Lessing, Albert J., 696 Otsego St.
 Levine, J. A., White Bear
 Lewis, Margaret, 569 Marshall Av.
 Lillie, Florence E., 2153 Scudder Av.
 Lorch, Anna, 21 Elizabeth St.
 Lowry, Ethelwyn, 519 Oakland Av.
 Lowry, Edith P., 519 Oakland Av.
 Lyksett, Sylvan L., 800 Cedar St.
 McClellan, Mary F., 88 Kent St.
 McClure, Carol, St. Catharine's College
 McMullen, Catherine H., Visitation
 Convent
 McMurrin, Mrs. E., 1958 Selby Av.
 McMurrin, J. P., 1958 Selby Av.
 Manlove, Mrs. Sarah S., 144 5th Av.
 S., South St. Paul
 Mann, Mrs. Frederick, 1950 Selby Av.
 March, Lulu, 221 Fourth Av. N.
 Marshall, E., 476 Herschel St.
 Maxwell, Olive L., 569 Oakland Av.
 Miller, Omar, 259 Summit Av.
 Miller, Wm. C., 286 E. Lucy St.
 Michaels, J. C., 420 Summit Av.
 Myers, Olivia M., 608 Oak St. S.E.,
 Mpls.
 Melamed, Louis, 220 E. Fairfield Av.
 Newton, Millicent, 1043 Goodrich Av.
 Palmquist, Axel F., 1250 Sherburn Av.
 Parkinson, Laura D., 1789 Iglehart St.
 Perry, Alice E., 574 Marshall Av.
 Pope, Emily H., 51 12th St.
 Quin, Henry, 667 Wabasha St.
 Quinlan, Mrs. H. T., 542 Ashland Av.
 Rackhaus, Henrietta, 383 Dayton Av.
 Rittle, Anna E., 584 Selby Av.
 Roverud, Ella M., 643 Laurel Av.
 Ryan, Frances L., 1017 Main St.
 Salisbury, L. J., Y. M. C. A.
 Sell, Mrs. John M., 1933 Laurel Av.
 Sell, John M., 1933 Laurel Av.

Sister Agnes Marie Mahoney, Visita-
 tion Convent
 Sister Eleanore Michel, College of St.
 Catherine
 Sister Elizabeth Marie Martens, St.
 Joseph's Training School
 Sister Frances DeSales Larpenteur,
 Visitation Convent
 Sister Gregaria Schluter, St. Joseph's
 Academy
 Sister Jane Margaret Culliman, Visita-
 tion Convent
 Sister Jeanne Marie, St. Catherine's
 College
 Sister Louis Marie Lohmar, St. Joseph
 Training School
 Sister Mary Adrienne McCarthy, Visita-
 tion Convent
 Sister Mary Agnes O'Connor, Visita-
 tion Convent
 Sister Mary Antonia Naughton, Visita-
 tion Convent
 Sister Mary Clementine Shepard, Visita-
 tion Convent
 Sister Frances Whaley, Visitation Con-
 vent
 Sister Mary Hugo Pattner, St. Joseph's
 Novitiate
 Sister Mary Theresa Dougherty, Visita-
 tion Convent
 Sister Mary Vincentis O'Brien, Visita-
 tion Convent
 Sister Rose Elizabeth Schmitz, St. Ca-
 therine College
 Sister Rose J. Brennan, Visitation Con-
 vent
 Shapiro, A. H., 178 Sherburn Av.
 Sliney, Katherine A., 736 Holly Av.
 Smith, Mrs. E. Fay, 1950 Selby Av.
 Snell, George F., 1065 Hague Av.
 Spencer, Ambrose P., 1676 LaFond St.
 Stone, R. E., 231 Arundel
 Tallman, Kate E., 476 Laurel Av.
 Taylor, William S., 319 Wilder Av.
 Tobin, Marie, 692 E. 6th St.
 Tolson, Edgar, 856 Albemarle
 Van Winkle, John H., 969 Marshall
 Av.
 Vaughn, Bernard, 360 Nelson Av.
 Vibert, Mrs. Frederick D., St. Paul
 Hotel
 Woodward, Lawrence B., 2104 Park
 Av.

STILLWATER

Allenson, Hulda, 611 N. 5th St.
 Boyle, Marie, 773 Capitol Av.
 Brotherton, Sadie C., 1019 6th Av.

Brown, Martha D., 314 S. 3rd St.
 Converse, Mrs. Theodore R., 106 W.
 Wilkin St.

Costello, Ann G., Stillwater
Davis, Miss Frank C., 718 N. 3rd St.
Emerson, Nell E., 221 Laurel St.
Glennon, Gertrude, 215 W. Laurel
Gowen, Olive E., 1320 S. 3rd St.
Haefuer, Alice, 1114 S. 6th Av.
Hitchcock, Leila, Pitman House
Holcombe, Selma V., 822 S. 2nd St.
Jackson, Amanda J., 821 N. 4th St.
Jenks, Mary S., 409 Maple St.
Johnston, W. W., 805 S. 3rd St.
Kottka, Evelyn, 1112 N. 2nd St.
Kunde, Louise H., 1218 6th Av.
Lee, Dorothy D., 1013 S. 2nd St.

Lindbloom, Etta, 821 N. Martha
McCallam, Antoinette, 924 S. 4th St.
McCarthy, Alice M., S. Stillwater
Marsh, Kate Greeley, 103 S. Greeley
St.
Melba, Olga, Stillwater.
Nolan, Mary A., 1010 S. 4th
Payne, Cora Alice, 1205 S. 1st
Smith, Leila A., 417 W. Laurel
Soule, Maude E., 420 Laurel St.
Thompson, Pearl, 310 Wilkin St.
Tollifson, Hazel, Pitman House
Wigren, Winnie, 120 Owen St.

The Bulletin
of the University of
Minnesota

General Extension Division
Evening Business Courses
1917-1918



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CALENDAR

1917-1918

1917

September	24-29	Week	Registration week
September	28	Friday	Annual opening of Extension Courses, St. Paul
September	29	Saturday	Annual opening of Extension Courses, Minneapolis
October	1	Monday	Regular class work begins
November	29	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	31	Monday	Class work resumed

1918

January	21-25	Week	Examination week, first semester
January	25	Friday	First semester ends
February	4	Monday	Second semester begins
February	4	"	Merchants' Short Course begins
May	20-24	Week	Examination week, second semester
May	24	Friday	Second semester ends

EVENING BUSINESS COURSES

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President of the University

CYRUS NORTHROP, LL.D., President, Emeritus

RICHARD R. PRICE, M. A., Director of University Extension

CHARLES H. PRESTON, B.A., Associate Professor of Business Administration, General Extension Division, in charge of Business Courses

HALDOR C. GISLASON, B.A., LL.B., Instructor in Rhetoric

STANLEY B. HOUCK, LL.M., Instructor in Business Law, General Extension Division

LEE KUEMPEL, Instructor in Railroad Traffic and Rates, General Extension Division

MAC MARTIN, Professorial Lecturer in Advertising, General Extension Division

MORTON M. NEWCOMB, B.A., Instructor in Business Management, General Extension Division

CLARE L. ROTZEL, B.C.S., C.P.A., Associate Professor of Accounting, General Extension Division

WILLIAM C. SMILEY, LL.M., Instructor in Business Law, General Extension Division

HOWARD T. VIETS, M.A., Instructor in Business English

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (usually twenty-one years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under Engineering do not carry credits. The statement in regard to credit for Law courses will be found on page 40. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 20 and 21.

Students must indicate at the time of registration whether or not they desire university credit in the courses pursued.

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in Extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other Extension Schools or Departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for an extension course for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the Dean of his college.

FEEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For Collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for Business courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

For Engineering courses the fees are \$7.50 or \$10 a semester as indicated in the description of the several courses.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

The requirements relative to the Law courses accompany the announcement of those courses in this bulletin. (See page 41.)

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. **NO FEE WILL BE REFUNDED ON ACCOUNT OF WITHDRAWAL FROM ANY COURSE, unless application for refund be made within ten days after registration.**

Special arrangements are made with organizations, clubs and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

The classes in Law will be held in the Law Building on the University campus. Most of the classes in Engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 24-29). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the Collegiate courses, the Business courses, the Engineering courses, and the Law courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the ground floor of the Main Engineering Building on Church Street, just north of Washington Avenue S. E. To telephone the office, call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

DEPARTMENT OF BUSINESS INSTRUCTION

The following courses are arranged with a view to meet the needs of those who desire special training for the higher business positions. Business is rapidly becoming a profession, or rather the business field is opening up several professions, among which are Accountancy, Banking and Finance, Advertising, and Salesmanship. The University through its General Extension Division is attempting to afford a preparation for these professions, as it has long done for the profession of Law, Medicine, Engineering, and the like.

The time appears to be approaching when it will be just as necessary for one to secure special training for business positions as it is now to secure training for the learned professions. It is recognized, too, that the rewards for those trained for the business professions are fully as great both financially and in a social way as they are for those trained for the so-called learned professions. Moreover, experience is proving that the very people whom the General Extension Division are reaching can, while being actively employed during the day, best comprehend and appreciate the kind of instruction the evening classes afford.

The subjects of instruction are divided into three groups of courses of study, viz: those aiding in the preparation for accountancy, those aiding in the preparation for banking and those having for their object a general business training. In each of these courses certain fundamental subjects, such as Business Law, Economics, and Business English, are required. Each course can be completed by taking three subjects per week for two years, each class meeting one night per week. Each course may be completed in three years by taking but two subjects per week. Upon the completion of one of these courses a University Certificate to that effect will be granted.

THE HERBERT C. PALIN ADVERTIZING PRIZE

Mr. Herbert C. Palin of Los Angeles, California, has presented a silver loving cup to the advertising class. On this cup is to be inscribed each year the name of the student who, after taking a full year's course in advertising, submits the most constructive plan for an advertising campaign. The cup is to remain in the possession of the winner for one year.

FEEES

The fee for these courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

Special arrangements are made with organizations, clubs and individual business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

TWO-YEAR COURSE IN ACCOUNTANCY

This course is designed to meet the needs of two classes of students, namely, those who wish to prepare to take the state C.P.A. examination with a view of becoming public accountants, and those who aim to fit themselves for responsible positions with private business firms.

For the student who wishes to pursue either object we recommend that he plan to take the regular course herein outlined and thus secure a broad foundation for his work.

Upon the satisfactory completion of this course, the University Certificate in Accountancy will be granted.

Beginning with the year 1917-18 the course requires a total of thirty credits, each one-semester subject counting for two credits. Each subject requires one two-hour class recitation per week for one semester of sixteen weeks. There are two semesters per year, hence the course may be completed in two years by taking three subjects per week. Or, if the student prefers, he may take but two subjects per week, thus requiring three years to complete the course.

The following subjects are required for the course:

- | | |
|--|-----------------------|
| 1. Principles of Accounting "A" | 7. Business Law "A" |
| 2. Principles of Accounting "B" | 8. Business Law "B" |
| 3. Accounting Practice and Procedure "A" | 9. Business Law "C" |
| 4. Accounting Practice and Procedure "B" | 10. Economics |
| 5. Auditing "A" | 11. Business English |
| 6. Cost Accounting | 12. Elective subjects |

THREE-YEAR COURSE IN BANKING AND FINANCE

This course is designated to meet the needs of two kinds of students: (1) those who are preparing for, or who are now engaged in, such financial callings as banking, corporation management, stock and bond brokerage, credit work, or financial journalism; and (2) business men who wish to utilize in the upbuilding of their particular business all of the modern scientific knowledge of a practical financial nature.

University Certificate in Finance

Those students who wish to secure a thoro knowledge of finance, and an adequate knowledge of general business for a financial occupation, are urged to arrange their registration so as to obtain the Certificate in Finance as offered by the University.

Beginning with the year 1917-18 this certificate will be granted to those who complete a total of thirty credits distributed as follows:

- | | |
|---------------------------------|--------------------------------|
| Principles of Economics (2) | Principles of Accounting B (2) |
| Banking Practice (2) | Business Law A (2) |
| Investments and Speculation (2) | Business Law B (2) |
| Corporation Finance (2) | Business Law C or D (2) |
| Business English (2) | Elective subjects (10) |
| Principles of Accounting A (2) | |

The American Institute of Banking

The American Institute of Banking recognizes the evening courses of the General Extension Division at the University of Minnesota as fulfilling all the requirements of its educational department. Students who complete these courses in Finance are accredited by the Institute without further examination or formality.

By this arrangement, the members of the Minneapolis, St. Paul, and Duluth chapters of the American Institute of Banking may obtain the A. I. B. Certificate upon completion of Economics (2 credits), Banking (2 credits), and Business Law (4 credits.)

The advanced courses in Finance coincide with the requirements of those who wish to receive the title of Associate from the Institute for postgraduate study.

GENERAL BUSINESS COURSE

For the benefit of those students who do not care to specialize in either accounting or in finance, yet wish to secure recognition as having completed a definite group of subjects, the following course is arranged. It is likely that certain of the subjects herein outlined will be more fully developed, and later, together with the fundamental subjects, form courses in themselves.

It is planned that each of these courses will furnish a preparation for a definite calling, such as advertising, salesmanship, and sales management, railroad traffic, and office management.

The University Certificate in General Business

Beginning with the year 1917-18 this certificate will be granted to those who successfully complete a total of thirty credits distributed as follows:

Business English (2)	Elective subjects (18)
Business Law A (2)	(These electives should be selected with a view to specializing in some particular field, as in Advertising and Selling, in Railroad Traffic, and the like.)
Business Law B (2)	
Economics A (2)	
Principles of Accounting A (2)	
Principles of Accounting B (2)	

DESCRIPTION OF SUBJECTS

ACCOUNTING

1. INTRODUCTION TO ACCOUNTING. The purposes of accounting, the use of books of original entry, posting to the ledger, the trial balance, closing the ledger, preparation of simple trading statements. Two credits (one evening a week). PRESTON.

This course is arranged for those students who do not understand bookkeeping principles sufficiently well profitably to pursue Course 2. (Hereafter an examination will be required for entrance to Course 2.)

The object of the course is not to teach bookkeeping and office routine. Those desiring such training are advised to enter the classes in the Public Schools, the Y. M. C. A., or the Business Colleges. The object is to give such preparation for those who desire to make a further study of the science of accounts, but who, through inexperience or lack of study, are unable to begin with those who have had that preparation.

2. **PRINCIPLES OF ACCOUNTING "A".** The merchandise account and its analysis, account nomenclature, accruals, deferred charges, classification of loss and gain accounts and of balance sheet accounts. The use of the working sheet, of auxiliary ledgers and controlling accounts, closing books and arranging balance sheets and income statements, departmentization of accounts, imprest cash system, contingent liabilities. Designed for those who already have a knowledge of bookkeeping principles. Those not having such knowledge are expected to first take Course 1. Two credits (one evening a week); first semester. PRESTON, ROTZEL.
3. **PRINCIPLES OF ACCOUNTING "B".** Preparation of statements, the manufacturing, trading, and profit and loss accounts, writing off good will depreciation, the accountant's working sheet, using accounts peculiar to a corporation, adjusting surplus, sinking funds and reserves, drafting condensed balance sheets and income statements. For those who have completed Course 2 or its equivalent. Two credits (one evening a week); second semester. PRESTON, ROTZEL.
4. **ACCOUNTING PRACTICE AND PROCEDURE "A".** The subject matter is presented chiefly by means of a more or less exhaustive study of a representative business. The work consists of the following: (a) a study of the distinctive group of accounting problems which are likely to arise in a business organization through a series of years and the scientific solution of those problems; (b) a study of the accounting problems peculiar to representative business other than manufacturing and selling. The manner of presenting the subject is essentially practical, the students being required to work out for themselves problems similar to the ones studied. Two credits (one evening a week); first semester. ROTZEL.
An advanced course for the accounting student following the study of Accounting Principles. The object of the subject is twofold; first, to familiarize the student with the peculiar accounting problems of business, and, second, to afford the student the means to secure that necessary insight and skill which practicing accountants must possess in order to meet the demands made upon them.
5. **ACCOUNTING PRACTICE AND PROCEDURE "B".** A continuation of Course 4. Two credits (one evening a week); second semester. ROTZEL.
6. **COST ACCOUNTING.** The elements of cost, i.e., prime cost and indirect expense or burden, kinds of cost accounting, continuous process and

production order costs. The materials ledger. Methods of accounting for labor. Methods of distributing indirect or "overhead" expense. The machine rate method, and when applicable. Methods of compensating labor. Pre-determined standard costs, and their relation to "scientific management." The cost ledger and its relation to the general ledger. Two credits (one evening a week); first semester. PRESTON.

Modern industry demands that each plant be equipped with adequate accounting facilities for ascertaining the cost of operation. These costs are necessary to show, first, the profitableness of each branch of the industry so as to enable the management to push the profitable, and to drop the unprofitable, lines, or to place them upon a paying basis; second, the cost of each article as a basis of price making; third, so far as possible, the cost of each operation, so as to enable the management to plan economies in the operation of the plant.

7. **AUDITING (A).** This course is essentially practical and is intended only for those whose previous training in the principles of accounting has been sufficient to enable them to be benefited by this advanced work. The chief aim will be to give students the training necessary to enable them to conduct audits and investigations either as private auditors or public accountants; to set up accounts for various purposes as a result of such audits or investigations and to prepare suitable reports thereon. Two credits (one evening a week); first semester. ROTZEL.
8. **AUDITING (B).** A continuation of Course 7. Two credits (one evening a week); second semester. ROTZEL.
9. **APPLIED ACCOUNTING (A).** A seminar course designed for those who have had two years of work in Accounting. The purpose of the course is to apply the principles and the practice of accounts as studied in the previous years to a special and definite business. Each student will work up in report form the details of an accounting installation which will be of such a character that it will meet in a scientific way all the contingencies which would be likely to arise in a series of years. Two credits (one evening a week); first semester.
10. **APPLIED ACCOUNTING (B).** Continuation of Course 9. Two credits (one evening a week); second semester. ROTZEL.

BANKING AND FINANCE

21. **BANKING.** The documents created by transactions in goods; the function of a bank in aiding industry; the steps in organization of national or state banks; corporate powers, rights, and liabilities of stockholders and directors; bank administration and the various offices and departments; deposits, depositors, and receiving tellers; bank reserves and circulating notes; the clearing-house, handling country checks, and transit departments; collections; domestic exchanges; foreign

exchange; discounts and collateral loans; credit department; how profits are made on government deposits; by note issue, in buying and selling exchange, by analysis of depositor's accounts; accounting methods and general balances; examination; supervision and reports; and bank policy from the analysis of local bank reports. Two credits (one evening a week); first semester. EBERSOLE.

This course aims to explain the various functions of an up-to-date bank and to teach the methods by which its work is accomplished. A careful survey will be made of the economic basis, legal status, accounting methods, and financial problems of banking as carried on by large commercial institutions having a full complement of banking operations including city, country, and foreign business. The method of presentation comprises reading references, lectures, review questions, and use of the blackboard for all computations.

22. **MONEY AND CREDIT.** The origin, evolution, and functions of money; the gold standard, forms of money current in the United States; government paper, bank notes, and deposit currency described and analyzed; credit and its effects; the causes of general price changes; various types of standards and currency systems including bimetallism and the gold exchange standard; discount rates, the problem of securing an elastic currency, and the distribution of the world's gold between the nations; the problem of securing an ideal money. Text-book and money-market articles in current newspapers will furnish material for discussion. Two credits (one evening a week); second semester. EBERSOLE.

A thoro understanding of the character and functions of money and of the principles of credit is the cornerstone of modern business intelligence. This course in money and credit constitutes an interesting and scientific treatment of the forces that determine value and prices, of the processes of exchange, and of the many forms of media of payment represented by monetary and credit instruments.

- 23 (145). **THE CORPORATION FINANCE.** The evolution of the private corporation and its relation to other business units; the organization of a corporation; charters and articles of association; directors and officers, manner of their selection, their functions and responsibilities; forms of corporation stocks and bonds and their respective legal and financial characteristics; the marketing of securities; capital and revenues; intangible values; books and accounts; dissolutions, consolidation, and reorganization; trust and holding companies; the taxing of corporations; corporation statistics; the preparation and analysis of corporation reports; the corporation before the law. Two credits (one evening a week); second semester. EBERSOLE.

Modern business in all of its major forms is directed through corporate organization. The course in corporation finance is designed to give the student such a knowledge of corporations and their administration as to make clear the general organization of industry and

commerce. Texts will be extensively supplemented by informal lectures, class discussions, and topical essays.

- 24 (142). INVESTMENTS AND SPECULATION. Stocks, bonds, endowments, annuities, and other forms of investment considered with regard to their security, income, and opportunity for rise or fall in value. The social process of saving and investment; the investment fund; various classes of investments; the criteria of a good investment applied to government, corporation, and real estate loans; railroad, industrial, timber, and mining securities compared; the laws of investment values. Stock exchange operations; money market and other influences affecting prices; analysis of present fundamental conditions. The actual operations upon the stock and produce exchanges are used to illustrate the study of speculation, and the course of the markets and the bank rates is closely followed as a basis of deduction in the analysis of cause and effect. Textbook and interpretation of financial quotations and reports. Two credits (one evening a week); second semester. EBERSOLE.

BUSINESS LAW

31. BUSINESS LAW "A"—CONTRACTS AND AGENCY

Contracts: Definition of a contract; offer and acceptance; special formality; consideration; capacity of parties; contractual powers of minors, of persons mentally deficient, and of married women; reality of consent, mistakes, misrepresentation, fraud, undue influence, legality of object; the operation of contracts; assignment of contracts; interpretation of contracts; methods of discharging contracts.

Agency: Methods of forming agencies; methods of terminating agency; the rights and obligations of principals, agents, and third parties. Text, lectures, and cases. Two credits (one evening a week); first semester. SMILEY.

This course is fundamental and must be completed before registration will be accepted for other courses in business law.

32. BUSINESS LAW "B"—SALES AND NEGOTIABLE INSTRUMENTS

Sales: Sales of personal property; definition of a sale and its distinction from a bailment; when the title passes to the buyer; what title passes; rights of the seller (a) to set the contract aside on the ground of fraud, (b) to enforce lien for the purchase money, (c) to obtain stoppage in transit; rights of the purchaser (a) to demand goods of a certain quality, (b) to demand warranty of the purchaser's title.

Negotiable Instruments: Nature and characteristics: (a) definitions and characteristics, (b) uniform negotiable instrument law; form: (a) what a negotiable instrument must and must not contain, (b) non-essential, (c) effect of blanks and delivery; negotiation: (a) negotiation, indorsement, and delivery, (b) holder in due course and his rights; maker's and acceptor's contract: (a) maker's contract

on a promissory note, (b) acceptor's contract on a bill of exchange, (c) presentment of a bill of exchange for acceptance; drawer's and indorser's contract: (a) drawer's contract on a bill of exchange, (b) indorser's contract on a bill or note, (c) presentment for payment, (d) notice of dishonor, (e) protest, (f) checks, (g) position of indorser after liability is fixed. Text, lectures, and cases.

Two credits (one evening a week); second semester. For those who have completed Course 31. SMILEY.

33. BUSINESS LAW "C"—PARTNERSHIPS AND CORPORATIONS

Partnerships: Formation of partnership; articles of co-partnership; methods of terminating partnerships; rights and obligations of partner (a) toward his co-partners, (b) as an agent of the firm, (c) toward the firm's creditors, (d) for an accounting; special partners; limited partnerships.

Joint Stock Companies: How distinguished from ordinary partnerships; how like ordinary partnerships; statutory requirements.

Corporations: Formation of corporations of various classes; terminations of corporations; membership in corporations, methods of transferring interest, fraudulent issuance of stock by corporate officers; rights of stockholders (a) to dividends, (b) to inspect and control corporate affairs; liabilities of stockholders (a) on stock subscriptions, (b) to pay assessments, (c) for the corporate debts; the doctrine of ultra vires; rights and obligations of corporate directors; corporate mergers and consolidations; domestic and foreign corporations. Text, lectures, case assignments, and class discussions.

For those who have completed Course 31. Two credits (one evening a week); first semester. HOUCK.

34. BUSINESS LAW "D"—REAL PROPERTY, MORTGAGES, BANKRUPTCY

Real Property: Estates in land, estates held jointly or in common, equitable estates, relative rights of adjoining owners, trespass, easements, sales of real property, the contract to sell, conveyances, wills, mortgages, and liens; landlord and tenant, the lease, assignment and subletting, rent, and remedies for non-payment. Insolvency and Bankruptcy. Two credits (one evening a week); second semester. HOUCK.

35. BUSINESS LAW "E"—COMMON CARRIERS, AND LAW OF RAILWAY TRAFFIC AND RATES.

Among the items considered are: Who are common carriers; duties, privileges, rights and liabilities in general; duty to furnish equipment; demurrage; when liability of carrier begins; when liability ends; bills of lading and contracts limiting liability, carrier's liability for goods in storage awaiting shipment or delivery; liability on goods lost, damaged, or delayed, etc., etc. The difference between private and public utility businesses for purposes of regulation; the fundamental principles of regulation; legal considerations and elements making up lawful rates; what are reasonable rates, discrim-

inatory rates; how each is determined and protected against competition, long and short haul, construction or tariffs; routing and misrouting; reconsignment and diversion of cars; time and manner of presenting claims; state and federal regulation and regulatory bodies; right to have rates quoted; penalty for erroneous quotation; how to present and handle claims before the State and Interstate Commerce Commission.

Particular attention is paid to state and federal regulatory acts and tribunals. The Interstate Commerce Act (1887) and the Elkins Amendment (1903), the Hepburn Act (1906), the Mann Act (1910), and the Cummins Act (1915) are all thoroly covered.

The widest latitude of discussion and questioning will be allowed. Students will be allowed and invited to present actual pending disputes for discussion and advice as to proper procedure to be followed.

Two credits (one evening a week); first semester. Houck.

Note.—Railway Traffic and Rates (Railway Problems), Course 71, shown on page 31, should either precede this course or be taken simultaneously with it as an integral part of the instruction in this subject.

ECONOMICS AND COMMERCE

- 41 (1a). ELEMENTS OF ECONOMICS. Utility and valuation; price and the laws of price as applied to competitive and monopolistic conditions; price and the cost of production; the factors of production; the law of diminishing returns; division of labor and its relation to the development of industry; the forces and factors involved in the concentration of industry, including the difference between the agricultural and the mechanical industries; wages, rent, interest, capitalization, enterprise, and business profits, finally, some attention is given to money, credit, banking, and international trade. Two credits (one evening a week); first semester.

This course aims to ground the student in principles that are basic in all economic discussions. The study naturally centers in value and the laws of valuation under the various applications.

- 42 (3a). PRACTICAL ECONOMIC PROBLEMS (ADVANCED ECONOMICS). Taxation—the tariff, general property tax, corporation taxes, income taxes; labor problems—unionism, trade agreements, strikes and lock-outs, law in reference to labor unions, injunctions, employers' liability, workmen's compensation; railway problems—theory of rate-making, state and federal control; monopoly problems—economics of big business, intensive study of U. S. Steel Corporation, Sherman Anti-Trust Act, and important legal decisions relating to restraint of trade. Two credits (one evening a week); second semester.

The aim of this course is to study economic principles in their relation to some of the leading questions of to-day.

43. **PRINCIPLES OF BUSINESS MANAGEMENT.** Principles of organization showing comparative values and uses of line, staff and combination types. Methods of saving time, money, and energy in the moving of work and materials. Making a scientific analysis of a particular operation, the operation of a department, and the operation of a plant. How to make use of the analysis in reducing waste time, energy, money, and material. Principles underlying the establishment and maintenance of the improved methods and conditions obtained by the above study. These principles include a method of determining upon proper and clearly defined policies and a study of their use and value; the necessity for and proper means of profiting by the experience of others. How to develop business judgment in yourself and your subordinates. The principles governing executive control and the maintenance of discipline; discussion of methods of determining upon a wage scale and legitimate profits; the relation of physical condition to success, and its bearing upon production. Some principles underlying proper management of finances. The relation of home management to industrial and commercial efficiency; the organization and management of the sales department; training the salesman. The general problem of selection of help with a brief outline of a modern system of scientific selection and placement by a study of individual characteristics. One evening a week; first semester. NEWCOMB.

51. **ELEMENTARY ADVERTISING.** This course is intended for those who desire sufficient knowledge of the elements of advertising to prepare reasonably satisfactory copy for newspapers, magazines, street car cards, circulars and booklets. The fundamental elements of display, layout, headings, and copy are carefully outlined and the student is given practice in the preparation of advertisements. One evening a week; first semester. MARTIN.

This course is intended to acquaint the student with what may be called "the tools of advertising" before he undertakes either of the two advanced courses in the planning and preparation of advertising campaigns.

52. **NATIONAL ADVERTISING.** A study of advertising from a new angle. The student puts himself in the place of one having a product for sale, and from the first lesson to the last each lecture is so planned as to give the methods pursued in conducting the many different steps in an advertising campaign.

The student first analyzes the product from the standpoint of its advertisibility. He considers the planning of a trademark, the organization of the sales force, the selling points, the prices and the profits. He then thoroly analyzes the market, chooses the advertising mediums most adaptable to his particular campaign, and decides on the appropriation.

Students will be furnished with pamphlets for these lectures which will give reference to practically everything which has so far been published on subjects taken in the course. In this way the experience of probably 300 of the leading advertising men of this country will be available to the student. Two credits (one evening a week); second semester. MARTIN.

53. **RETAIL ADVERTISING.** In this course the student conducts an advertising campaign for a retailer under the same general plan as in Course 52 for a manufacturer. The student is shown the relation of advertising to the different departments of a great department store. He is also shown how some of these same principles may be adopted for the smallest of specialty stores. He is shown where the advertising manager gets his ideas and how they are developed into the finished advertisement—what pays and what does not pay. One evening a week; second semester. Not given in 1917-18.

61. **SALESMANSHIP.** A course for insurance men, specialty men, traveling salesmen. Lectures and demonstrations on the principles underlying successful salesmanship, as follows: the proper approach; securing attention; arousing interest; creating desire; closing the sale; the psychology of salesmanship; the use of suggestion in selling; the use of argument. One evening a week; each semester.

The chief feature of the work will be the demonstration sales. So far as possible each student will be given an opportunity to take part in a sufficient number of demonstrations that he may apply the principles laid out in the course. Not given in 1917-18.

71. **RAILWAY TRAFFIC AND RATES.** The course covers the various features and problems which are brought up in the actual practice of handling freight traffic. The lessons embrace the practical application of the Interstate Commerce Act and other laws and regulations; the correct compilation of tariffs; methods under which rates are published by other than the line over which they are applicable; the classifying of freight; classifications and their peculiar exceptions; the principal rate bases, such as all rail, rail and lake, etc.; tariffs, rules and regulations governing domestic, export, and import traffic and the principal commodities; the routing and mis-routing of freight; various methods of loading and offering freight for shipment; tracing of freight; presentation and adjustment of claims; the cancellation, suspension and restoration of rates and tariffs; "privileges" such as transit handling of grain, storage, diversion, etc.; rulings of the Interstate Commerce Commission are referred to in the lectures and rates are quoted from current tariffs and classifications. Four credits (one evening a week); both semesters. KUEMPEL.

72. **RAILWAY TRAFFIC AND RATES (2). (LEGAL PHASES).** For description see Course 35, Business Law "E". Two credits (one evening a week); first semester. HOUCK.

ENGLISH AND SPANISH

BUSINESS ENGLISH. Not a lecture course nor a dry, prosy study of technical English grammar and composition, but a new practical course designed for business men and women who recognize the value of a command of English for business and every-day writing and conversation. The main object of the course is to acquaint the student with the various types of business letters, reports, etc., and to teach him how to write and use them effectively. A secondary object of the course is to show students how training in expression—written or oral—is primarily training in thinking and analysis and hence is a very real stimulus to general business efficiency. The types of letter to be studied include complaint and answer, reminder, acknowledgment, recommendation, application, collection, form, follow-up, sales, inter-departmental, and composite. Students will be expected to write letters and take part in the weekly discussions of actual problems in business correspondence. No textbook is required. Typewritten synopses of lessons, furnished each week, provide the student with a cumulative text. Ability to write simple, grammatically correct English is a prerequisite to this course. One evening a week; first semester. Repeated second semester. VIETS.

83. **PUBLIC SPEAKING.** For description see Department of Collegiate Instruction. One evening a week; both semesters. RARIG, GISLASON.

90. **COMMERCIAL SPANISH.** For description see Department of Collegiate Instruction. One evening a week; both semesters.

CERTIFICATE HOLDERS OF 1917

On May 25, 1917, the following persons were granted University certificates in the courses indicated:

Certificates in Accounting

Bayley, Charles S., Minneapolis	McHenry, Robert D., Minneapolis
Cottor, Emil F., St. Paul	Schwartz, Solomon, Minneapolis
Davis, Charles A., Minneapolis	Smith, Arthur V., Minneapolis
Haselbeck, Henry, St. Paul	Wood, George, Minneapolis
Loberg, James M., Minneapolis	Wing, Llewellyn F., Minneapolis

Certificates in General Business

Gruber, J., Jeffry, St. Paul	Kennedy, Thomas F., Minneapolis
Rose, Carrol H., Minneapolis	

Certificates in Finance

Danielson, Andrew W., St. Paul	Johnson, Evan M., Minneapolis
Berry, Harry E., Minneapolis	Jones, Earl R., Minneapolis

REGISTRATION 1916-17

DEPARTMENT OF BUSINESS INSTRUCTIONS

MINNEAPOLIS

- Ackley, Henry B., 2425 S. Aldrich Av.
Akin, Theo W., Anoka, Minn.
Albec, Thersa D., 1786 Hennepin Av.
Alberg, Albert, 824 27th Av. N.E.
Alvord, S. W., 4013 Sheridan Av. S.
Amquist, Halvor Willett, 1707 University Av. S.E.
Anderson, A. H., 3512 10th Av. S.
Anderson, E. T., 3512 10th Av. S.
Anderson, Edwin W., 2331 E. 24th St.
Anderson, Emil T., 1216 E. 24th St.
Anderson, F. W., 2728 Oakland Av.
Anderson, G. E., 3836 Elliott Av.
Anderson, Oscar W., 415 14th St. E.
No. 2
Anderson, R. A., 4036 Fremont Av. N.
Anderson, Walter L., 3022 Irving Av. N.
Antisdell, E. G., 2415 W. 42nd St.
Armstrong, W. B., 3712 11th Av. S.
Arness, O. J., 2911 Girard Av. N.
Asselin, R. A., 4334 Nicollet Av.
Atkin, A. G., 4133 Aldrich Av. S.
Austin, Ella M., 4521 Washburn Av.
Badger, Lester R., 1900 Girard Av. S.
Bamcard, F. M., 12 W. 35th St.
Bardill, O. H., 1717 Thomas Av. N.
Barney, Hadwen C., 607 8th Av. S.E.
Barr, Nick A., 487 Como Av., St. Paul
Barton, A. D., 3631 Dupont Av. N.
Bashair, Edith F., 3713 Lyndale Av. S.
Bates, Curtis, 3041 Irving Av. S.
Bayley, C. S., 211 E. 34th St.
Beach, Florence, 97 Spruce Place
Beery, Charles B., 5000 Colfax Av. S.
Beinhorn, Genevieve, 710 Pelham St., St. Paul
Berglund, H. W., 1701 Girard Av. N.
Berry, Harry Edwin, 3530 Upton Av. N.
Bettridge, John E., 1210 N. Logan Av.
Bigford, S. J., 138 E. 17th St.
Blackman, H. E., 124 E. 34th St.
Blair, Raymond E., 324 E. 38th St.
Boblett, G. L., 3245 Bryant Av. S.
Boege, John H., 3500 Portland Av.
Bofferding, Eugene, 715 Western Av.
Bolduc, A. T., 3100 Humboldt Av. N.
Booker, A. W., 327 E. 16th St.
Boor, William F., 2015 Portland Av.
Borup, A. H., 3448 Pillsbury Av.
Boulay, J. A., 428 S. 8th St.
Boysen, Max C., 1812 Fremont Av.
Brandt, L. Basil, 9½ S. 6th St.
Brant, L. B., 116 W. Grant St.
Braun, Linus A., 1627 Newton Av. N.
Braunstein, Harry A., 409 Lyndale Av. N.
Breager, Frank L., 2728 4th Av. S.
Brick, Paul, 4315 Harriet Av.
Bright, Walter, 22 S. 10th St.
Brisley, Warren B., 4437 York Av. S.
Brittin, Lewis H., Hampshire Arms
Brooks, Isabel, 1612 Stevens Av.
Brown, H. C., 4124 Pleasant Av.
Brown, Paul Harrington, 3004 Humboldt Av. S.
Brown, Stewart W., 2204 Sheridan Av. S.
Brown, Thomas C. W., 3753 Dupont Av. S.
Browne, Lanfear M., 3140 Holmes Av.
Burbott, O. C., 511 7th St. S.E.
Burgi, Fred, 726 E. 17th St.
Burkleo, Jane, 113 Church St. S.E.
Burns, G. A., 310 12th Av. S.E.
Burns, W. J., 115 N. Fairview, St. Paul
Byers, Paul H., 1625 University Av. S.E.
Cardozo, Ralph N., 2200 31st Av. S.
Carlson, Basil N., 1920 Crystal Lake Av.
Carlson, C. A., 1599 Roblyn Av., St. Paul
Carlson, C. W., 325 6th Av. S.E.

Carlson, G. H., 2810 1st Av. S.
 Carlton, Arthur F., 23 W. 37th St.
 Carlton, Ralph I., 23 W. 37th St.
 Carr, P. H., 64 7th Av. N.E.
 Carrier, Elmer P., 2114 Willow Av. N.
 Carrington, Harry J., 2315 Clinton Av.
 Cary, Walter E., 709 W. 35th St.
 Cassidy, T. G., 4638 Fremont Av. S.
 Ceder, Axel, 368 1st Av. S.
 Charlquist, F. R., 3639 Sheridan Av. N.
 Chase, Ray L., 3137 40th Av. S.
 Cheney, R. C., 2309 32nd Av. S.
 Christoferson, Geo. M., 2223 Fillmore St. N.E.
 Chute, Robert W., 1910 Colfax Av. S.
 Clark, Richard R., 2826 1st Av. S.
 Clarke, Norman E., 2117 Dayton Av., St. Paul
 Clausen, L. A., 2725 Elliott Av.
 Clemens, John B., 1413 University Av. N.E.
 Clifford, Ralph E., 1715 Dupont Av. S.
 Cody, E. M., 1830 Stevens Av., Apt. No. 29
 Cohn, Robert R., Y. M. C. A., St. Paul
 Colle, Alfred, 3849 1st Av. S.
 Collins, Alfred Leroy, 3010 W. 43rd St.
 Collins, J. E., 1885 Roblyn Av., St. Paul
 Condit, L. A., 1810 Clinton Av.
 Confeld, David J., 1241 N. Logan
 Connoy, John J., 2210 N. Dupont
 Cotton, Alfred J., 708 3rd Av. S., St. Paul
 Cullen, Arthur W., 1527 Jefferson St. N.E.
 Cunningham, Thomas E., 2108 16th Av. S.
 Curran, Clare L., 3509 2nd Av. S.
 Curtis, E. B., 1608 Clinton Av.
 Dahl, C. J., 3551 Bloomington Av.
 Danforth, M. L., 3110 Fremont Av. S.
 Davis, Charles A., 114 S. 8th St.
 Davis, Richard R., 163 Pleasant Av.
 Davison, F. A., 2428 4th Av. S.
 Dedricktson, Harold E., 1070 22nd Av. S.E.
 Deziel, Charlotte L., 516 5th St. S.E.
 de Rabideaux, St. M., 1815 1st Av. S. de St. Croix, Lawrence, 223 W. 39th St.
 Dickman, William H., 1214 4th St. S.E.
 Dillahunt, W. G., 5531 Colfax Av. S.
 Dirba, Charles, 2309 5th Av. S.
 Dixon, H. S., 3406 Penn Av. N.
 Donlin, Joseph C., Excelsior, Minn.
 Dumas, John, 3901 Clinton Av.
 Dunkel, William J., 215 S. 9th St.
 Dunnigan, T. J., 2709 Aldrich Av. N.
 Earenfight, Linnette G., 3634 Dupont Av. N.
 Eastman, Henry I., 4321 Elliott Av.
 Edwards, Miss L. M., 1400 Yale Place, Apt. 209
 Eide, Alf, 1304 E. 18th St.
 Eldredge, E. T., 777 Grand Av.
 Ellinger, William H., 1005 6th Av. S.
 Ellis, Harris, 1583½ Selby Av.
 Ellison, Earl A., 952 22nd Av. N.E.
 Englund, R. A., 1402 Jefferson St. N. E.
 Erickson, E. J., 1719 6th St. N.E.
 Erickson, Herbert Garfield, 694 25th Av. N.E.
 Estensen, Roy, 1404 Portland Av.
 Evans, Edward E., 3521 W. 28th St.
 Exworthy, Francis Harriet, 1910 McKinley St. N.E.
 Fargo, Charles H., Y. M. C. A., St. Paul
 Farmer, E. H., 4347 Garfield Av.
 Farrington, Bessie, 2428 Irving Av. N.
 Felt, H. P., 2122 E. 22nd St.
 Ferguson, George A., 829 2nd St. N.E.
 Ferman, Joseph Walter, 1370 Spruce Place
 Fessler, E. J., 2014 Dupont Av. S.
 Fitzsimmons, S. J., 128 E. 18th St.
 Flanders, Mark P., 2016 Central Av.
 Foley, Sarah, 4145 Vincent Av. S.
 Folsom, Edgar P., 106 8th St.
 Fontaine, Leo P., 2823 W. 40th St.
 Forester, Joseph A., 1006 1st Av. N.
 Forschler, W. S., 2924 3rd Av. S.
 France, Alexander H., 1928 S. Aldrich Av.
 Fraser, Norman D., 2317 Humboldt Av. S.
 Fredlund, Paul, 909 21st Av. S.
 Freeman, Howard H., 1623 University Av. S.E.
 Gallagher, A. J., 1104 E. 36th St.
 Galvin, Eugene F., 3704 Nicollet Av.
 Gans, Ernest G., 1441 W. Lake St.
 Gerde, A. M., 4052 Harriet Av. S.
 Gerrish, F. Earl, Hopkins, Minn., Rte. 2
 Gerth, H. J., 1816 Stevens Av.

Gibbons, Frank, 1404 Spruce Place
 Giguere, George A., 325 12th Av. N.E.
 Gilbert, Carl G., 1105 E. Lake St.
 Gilman, E. Dow, 602 Essex St. S.E.
 Godley, Leon M., 2308 Lake Place
 Goldberg, Isidore G., 148 E. Fairfield
 Av., St. Paul
 Goldberg, Zell, 2701 Grand Av.
 Gorman, H. J., 88 Spruce Place
 Graham, J. L., 301 Aldrich Av. N.
 Greenberg, Herman, 719 Humboldt Av.
 N.
 Greene, Carl, 2301 Central Av.
 Greig, John E., 1725 University Av.
 S.E.
 Greiner, M. E., 4012 Abbott Av. S.
 Guernsey, Newell Forbes, 3337 Univer-
 sity Av. S.E.
 Gurney, E. A., 1211 25th Av. N.
 Gustafson, Arnold, 2646 14th Av. S.
 Gustafson, Victoria E., 1311 Chestnut
 Av.
 Gustafson, Walter J., 3203 34th Av. S.
 Gutteresen, Milton E., 3952 Park Av.
 Haberland, G. W., 2916 14th Av. S.
 Hadden, George N., 2645 Fremont Av.
 S.
 Hagg, Arthur D., 913 E. 26th St.
 Hale, H. C., 2933 Clinton Av.
 Hallman, Charles Jos., 1701 Aldrich
 Av. N.
 Hamburg, W. C., 2315 Garfield Av.
 Hancock, Archie, 2715 Chowen Av.
 Hannon, J. E., 2542 Clinton Av.
 Hansen, George, 419 9th St. S.
 Hanson, Anton G., 1527 E. Lake St.
 Harris, Sally P., 103 Vine Hall
 Hartsough, Douglas J., 3046 Stevens
 Av.
 Haslund, Arthur, 2417 Clinton Av.
 Hastie, A. E., 3228 Aldrich Av. S.
 Hauge, Arthur W., 4056 10th Av. S.
 Hawkey, Hollis R., 2702 Fremont Av.
 N.
 Hawkinson, Alieda C., 503 15th Av.
 S.E.
 Hawley, Harold H., 3036 S. Irving Av.
 Haynes, R. W., 3744 Oakland Av.
 Hedquist, R. J., 2709 Stevens Av.
 Heitsmith, Althea, 3328 Garfield Av. S.
 Hendricks, John, 1101 14th Av. S.E.
 Henry, Louis F., 3017 38th Av. S.
 Hewetson, B., 383 Pleasant Av.
 Hillgren, H. A., 3342 Oakland Av.
 Hillman, P. L., 4017 12th Av. S.
 Hittleman, Charles W., 1805 Park Av.
 Hobbs, Arnold, 2502 Grand Av.
 Hochthansen, Adolph Ludwig P., 1115
 E. 19th St.

Hodge, Albert C., 615 9th Av. S.E.
 Hodgins, Howard H., 2050 Grand Av.
 St. Paul
 Hoffman, J. W., 428 8th St. S.
 Holm, H. S., 2327 27th Av. S.
 Holt, Clara Elizabeth, 820 9th Av. S.E.
 Holt, Walter E., 215 S. 11th St.
 Horan, William R., 1918 Hayes St.
 N.E.
 Horstman, Fred A., 1319 Yale Place
 Hughes, C. F., 114 E. 17th St.
 Hurlburt, Harold F., 1915 Hennepin
 Av.
 Hyman, Philip N., 2208 Kenwood Park-
 way
 Jackson, Clifford, 3227 2nd Av. S.
 Jackson, W. J., 322 13th Av. S.E.
 Jacobson, Henry Norman, 3149 21st
 Av. S.
 Jacques, Grace, 4037 Zenith Av. S.
 James, F. H. C., 1100 5th St. S.E.
 Jarboe, J. F., 206 N. 3rd St.
 Javosecak, Jack P., 2315 2nd St. N.E.
 Jensen, Carl J., 1602 4th Av. S.
 Jensen, Ernest W., 812 E. 33rd St.
 Johnsen, Jennie A., 2523 1st Av. S.
 Johnson, Arthur, 2900 28th Av. S.
 Johnson, Arthur C., 3417 Oakland Av.
 S.
 Johnson, Arthur E., 38 N. Chicago Av.
 Johnson, A. E., 1504 Clinton Av.
 Johnson, A. H., 3031 18th Av. S.
 Johnson, A. R. H., 2325 Fremont Av.
 S.
 Johnson, Clarence H., 3512 Pillsbury
 Av.
 Johnson, C. M., 1337 Knox Av. N.
 Johnson, Ernest, 217 Walnut St. S.E.
 Johnson, Ernest E., 1714 Jefferson St.
 N.E.
 Johnson, Ewan M., 1335 Oliver Av. N.
 Johnson, Fred B., 3041 Oakland Av.
 Johnson, F. E., 2111 Dupont Av. N.
 Johnson, Helmar E., 1823 Cleveland
 St. N.E.
 Johnson, Leander H., 1115 Harmon
 Court
 Johnson, Lillian P., 2911 Lyndale Av.
 N.
 Johnson, Nellie G., 3717 2nd Av. S.
 Johnson, O. Einar, 2615 Pleasant Av.
 Johnson, Roy L., 519 11th Av. S.E.
 Johnson, William E., 2421 10th Av. S.
 Jones, David Gale, 2411 1st Av. S.
 Jones, David Thomas, 1644 Hennepin
 Av.
 Jones, Earle R., 2123 Fremont Av. S.
 Jones, Edward C., 1614 Fremont Av.
 N.

Jones, William R., 3540 Minnehaha Av.
 Juvred, E. C., 617 Delaware St. S.E.
 Kassube, Frank, 2441 Portland Av. S.
 Keeman, Anten, 322 15th Av. S.E.
 Kellberg, Ernest H., 626 E. 19th St.
 Kelly, M. J., 1622 Linden Av.
 Kennedy, Annie M., St. Cloud, Minn.
 Kidwell, R. B., 3404 Bryant Av. S.
 King, F. E., 303 Humboldt Av.
 Kingbay, J. B., 335 E. 18th St.
 Klason, Iver, 206 N. 3rd St.
 Klingensmith, Walter, 2143 St. Anthony Av., St. Paul
 Knights, Ingram K., 2842 James Av. S.
 Knutson, Harry M., 1541 Marshall Av., St. Paul
 Koch, A. J., 1114 Adams St. N.E.
 Koch, C. C., 3317 2nd Av. S.
 Kramer, Wm. A., 4042 Blaisdell Av.
 Krieg, W. J., 389 Western Av. N.
 Krone, Fred O., 1422 Logan Av. N.
 Kuehn, Henry Edward, 1831 Irving Av. N.
 La Grange, Myron H., 1816 Portland Av.
 Lambert, Harry E., 2314 Aldrich Av. N.
 Lambert, R. W., 3740 4th Av. S.
 Lane, J. Francis, 811 16th Av. N.
 Lange, I. A., 3655 Emerson Av. N.
 Larson, Agnes M., 827 18th Av. N.E.
 Larson, Clara, 528 13th Av. S.E.
 Larson, C. E., 3419 Lyndale Av. N.
 Larson, Edwin A., 2300 24th Av. S.
 Larson, Walter L., 1020 Harmon Place, Apt. 5
 Lebeis, Clara F., 128 W. 14th St.
 LeBlanc, William, 2306 Monroe St. N.E.
 Lee, George W., 645 Simpson Av., St. Paul
 Lee, Reynold A., 2018 25th Av. S.
 Lerner, Aaron H., 516 Fremont Av. N.
 Leitzman, Fred N., 406 20th Av. S.
 Lemm, Arthur, 4 Nourse St., St. Paul
 Levien, Verne C., 2009 Ilion Av. N.
 Levien, Hazel A. G., 2009 Ilion Av. N.
 Lewis, Appolina, Curtis Court
 Limberg, Paul H., 3204 Elliott Av.
 Linder, H. W., 2119 17th Av. S.
 Lindquist, Harry C., 4511 Wentworth Av.
 Lineburg, George F., 1213 17th Av. N.
 Linne, Award, 500 Beacon St. S.E.
 Loberg, James M., 714 Superior St. S.E.
 Lockwood, Ralph P., 4520 Washburn Av. S.
 Long, Louis Woodford, 3312 W. 32nd St.
 Longworth, H. W., 3839 Russell Av. N.
 Ludke, Rose G., 1775 Reaney, St. Paul
 Lund, George A., 2204 11th Av. S.
 Lundberg, Elsie M., 1701 Park Av. S.
 Lundberg, Henry C., 230 James Av. S.
 Lundgren, Paul J., 5129 28th Av. S.
 MacDonald, E. A., 1344 1st Av. S.
 McDonald, Sarah A., 4307 Fremont Av. N.
 McElroy, Virginia Eleanor, 2700 Emerson Av. S.
 McHenry, Robert D., 714 8th St. S.E.
 McInerney, Joseph, 716 3rd St. N.
 McKewin, G. L., St. Paul
 McLaughlin, Howard James, 2230 Hayes St. N.E.
 McLaughlin, N., Berkeley Hotel
 Moses, Herbert W., 2113 Penn Av. S.
 McLeod, Howard L., 1011 6th St. S. E.
 McNamara, J. R., 428 8th St. S.
 Magee, O. E., 3224 Aldrich Av.
 Maguire, Irby A., 2924 18th Av. S.
 Mandel, David Alexander, 127 Highland Av.
 Marcus, S. A., 1327 6th St. N.
 Marshall, Lloyd, 3309 Garfield Av. S.
 Martin, J. Miles, 2642 Girard Av.
 Martinsen, Arnold B., 3125 Findley Pl.
 Martinson, C. O., 1322 Vine Place, Flat 2
 Mathews, John B., 2727 7th Av. S.
 Matson, Verna, 122 E. 14th St.
 Matthews, A. G., 914 W. Lake St.
 Meek, Mabel F., 1303 Yale Place, Apt. 5
 Meeker, Dean W., 201 W. 15th St.
 Meighan, J. J., 88 Spruce Place
 Melamed, Louis, 220 E. Fairfield Av.
 Melton, Solon, 4104 Bryant Av. S.
 Michel, Clarence B., 610 Fuller Av., St. Paul
 Michel, George A., 610 Fuller Av., St. Paul
 Mills, G. A., 50 S. 13th St.
 Miller, C. R., 2609 Columbus Av.
 Miller, O. H., 3345 2nd Av. S.
 Mitchell, George Lindley, 3044 Colfax Av. S.
 Moe, James Odin, 3016 Portland Av. S.
 Monasch, Jerome A., 2201 Oliver Av. S.

Monasch, Stanley B., 2201 Oliver Av. S.
 Monson, Aaron, 1522 Madison St. N. E.
 Monson, E. G., 1522 Madison St. N.E.
 Montgomery, Glenn Edgerton, 2509 Clinton Av.
 Montgomery, Lawrence P., 52 Curtis Court
 Morrell, Andrew, 3303 Garfield Av. S.
 Masher, H. Leon, 5700 Pillsbury Av.
 Muckley, Elizabeth, 1916 Laurel Av.
 Mulcahey, Thomas R., 2545 Dupont Av. S.
 Mulligan, Leo B., 1906 5th Av. S.
 Mulvahill, John Elmer, 1846 E. 26th St.
 Munson, Loren J., 1776 James Av. S.
 Nash, James Linn, 111 S. 6th St.
 Nauman, Richard, 89 Ash St.
 Nelson, A. M., 1804 11th Av. S.
 Nelson, Walter Irving, 3124 Grand Av. S.
 Neudeck, W. E., 1934 Lincoln St. N. E.
 Neumeier, Chester J., 3820 Garfield Av.
 Newcomb, Glenn F., 3836 17th Av. S.
 Nickel, Walter A., 2816 25th St. E.
 Nilsen, M. N., 830 24th Av. S.
 Nimerfroh, G. B., 1206 18th Av. N.
 Nolan, Merrill, C., 1725 University Av. S.E.
 Nordquist, Richard, 3223 Blaisdell Av.
 Nordstrom, Leonard, 1122 N. 3rd St.
 Norman, Bert, 505 Walnut St.
 Noot, Arthur F., 910 3rd Av. N.
 Norrborn, Oscar E., 2532 Bloomington Av.
 Norris, Donald R., 3321 Girard Av. S.
 Nyman, Martin, 4115 Park Av.
 Newcomb, O. L., 2736 Chouen Av.
 Obara, S., 629 3rd Av. S.
 O'Brien, Frank C., 806 15th Av. S.
 O'Connell, John F., 906 4th St. N.E.
 O'Keefe, Allan J., 1522 Grand Av. N.
 Olsen, Mabel Juliet, 2416 11th Av. S.
 Olsen, Paul, 2538 Taylor St. N.E.
 Olson, Elmore J., 2700 Bryant Av.
 Olson, Floyd J., 4350 Harriet Av.
 Olson, Herbert C. J., 1619 Washington St. N.E.
 Olson, T. J., 1406 44th Av. N.
 Oman, C. 3229 17th Av. S.
 Onion, Charles A., 1917 Emerson Av. S.
 Orr, R. V., 2509 Emerson Av. N.
 Ortley, Arthur R., 913 16th Av. S.
 O'Sullivan, Timothy, 456 Fairview Av.
 Oswald, Arthur T., 4326 Pillsbury Av. S.
 Owen, Paul E., 2745 3rd Av. S.
 Paarola, George R., 70 S. 12th St.
 Pankopf, Raymond Albert, 720 25th Av. N.
 Parson, Wilfred D., 4217 Bryant Av. S.
 Parsons, Henry A., 1809 2nd Av. S.
 Paul, Ernest, 625 E. 14th St.
 Penberthy, Henry H., 1339 Vine Place
 Perine, Edward G., 731 Fulton St. S. E.
 Peterson, Joseph, 1216 Humboldt Av. N.
 Perry, H. M., 2745 45th Av. S.
 Peterson, Art C., 2723 Fremont Av. N.
 Peterson, Caroline E., 3924 Pillsbury Av.
 Peterson, Clarence A., 3905 5th Av. S.
 Peterson, Flora, 2626 Cedar Av.
 Peterson, Reuben, 1207 E. 21st St.
 Peterson, Walter, 923 Chicago Av.
 Phillips, Parry, 2036 Upton Av. S.
 Pierce, Harold E., 1100 Jefferson St.
 Pillow, Emily Y., 3801 Stevens Av.
 Plant, John H., 3706 Elliott Av.
 Podany, S. P., 1519 Madison St. N. E.
 Polseck, James, 510 13th Av. S.E.
 Polkingham, J. W., 3113 Pleasant Av. S.
 Porter, Charles A., 2930 4th Av. S.
 Powers, Edna M., 2508 Aldrich Av. S.
 Preus, Paul A., 137 Arthur Av. S.E.
 Prince, Edward G., 3708 Harriet Av.
 Prisch, H. W., 4428 Beard Av. S.
 Pritchard, Hugh, 4509 Ewing Av. S.
 Provost, J. A., 1628 5th St. S.E.
 Purdham, Plummer, 4000 Lyndale Av. N.
 Ralph, Harry W., 3959 Minnehaha Av. S.
 Raymer, W. H., St. Paul
 Read, William, 2734 Girard Av. S.
 Reak, Lawrence D., 3144 Clinton Av.
 Reed, George J., 3121 Aldrich Av. S.
 Rhea, Harold Hart, 1916 1st Av. S.
 Rickel, Francis J., 315 10th Av. S.E.
 Rickmire, P. L., 501 Kasota Bldg.
 Reikki, August, 20 E. 19th St.
 Riley, F. H., 155 Bedford St. S.E.
 Robins, John C., 3120 Humboldt Av. S.
 Roden, Thomas A., 3228 5th Av. S.
 Rodgers, Frank A., 3545 Park Av.
 Rodlun, Troy M., 519 11th Av. S.E.
 Roll, Helen, 2629 Dupont Av. N.
 Rose, Carroll H., 926 13th Av. S.

Rose, J. S., 1311 Yale Place
 Rotella, Joseph, 316 15th Av. S.E.
 Rotering, Victor F., 122 W. Grant St.
 Ruben, Albert G., 1824 Fremont Av.
 S.
 Russell, Ray E., 3644 Portland Av.
 Rutstrum, Caleri, 2229 8 $\frac{1}{2}$ St. S.
 Rychman, Joseph, 2644 3rd Av. S.
 Rydell, Edmund T., 2114 N. Dupont
 Av.
 Rye, Clarence S., 528 14th Av. S.E.
 Rye, James A., 3000 Morgan Av. N.
 Sage, Warren E., 3241 Dupont Av. S.
 Salland, J. F., Hopkins, Minn.
 Sandahl, Harold E., 3844 Elliott Av.
 S.
 Sande, Edwin, 1110 E. 36th St.
 Sandgren, Arthur N., 4103 Fremont
 Av. N.
 Sandgren, Rudolph T., 4103 Fremont
 Av. N.
 Sanford, Edward H., 2525 4th Av. S.
 Scharf, Elmer J., 3237 Grand Av.
 Schonebaum, Theo H., 33 23rd Av.
 N.E.
 Schmal, G. P., 803 Douglas Av.
 Schultz, Henry P., 821 12th Av. N.
 Schwab, Martin, 1005 6th Av. S.
 Schwartz, Alfred B., 828 12th Av. N.
 Schwartz, S., 51 N. Royalston Av.
 Scott, K. C., 1712 Elliott Av.
 Searle, Clinton E., 131 W. 36th St.
 Segelbaum, Charles S. M., 2600 Grand
 Av.
 Sharbach, Gordon H., 3544 Oakland
 Av.
 Shattuck, Irvine E., 2925 Emerson Av.
 S.
 Shedd, Franklin, 3406 Stevens Av.
 Sher, Ray L., St. Cloud, Minn.
 Sheridan, Charles R., 822 10th Av. S.
 Silber, Mary L., 127 Highland Av. N.
 Simonson, Adolph C., 953 24th Av. N.
 E.
 Skinner, F. T., 1725 University Av.
 S.E.
 Skog, Frank A., 4033 Garfield Av. S.
 Smith, Arthur P., 622 E. 17th St.
 Smith, A. V., 3708 Elliott Av.
 Smith, A. W., 4050 Wentworth Av.
 Smith, G. Woods, 1519 Mount Curve
 Av.
 Smith, James C., 1400 Harmon Place
 Smith, James Comstock, 714 E. 17th
 St.
 Smith, N. H., 2648 Humboldt Av. S.
 Smith, P. W., 2404 Garfield Av. S.
 Snyder, Henry F., 1773 Hennepin Av.
 Sodergren, Elmer H., 2418 Jackson St.
 Souba, Emil G., Hopkins, Minn.
 Spalth, Wesley W., 1563 Ashland Av.,
 St. Paul
 Stark, Helen, 1642 Queen Av. N.
 Stebbins, Robert S., 3119 Clinton Av.
 Stephen, R. B., 920 8th Av. S.
 Stier, Leslie G., 2701 Emerson Av. S.
 Stone, C. A., 2008 Dupont Av. S.
 Stonlie, Frederick O., 1900 3rd Av.
 S.
 Storm, Arthur V., 1827 4th St. S.E.
 Stratton, Thomas A., 3101 Girard Av.
 S.
 Strudwick, James, 511 Beacon St. S.E.
 Sussmilch, Adelbert A., 814 Washing-
 ton Av. S.E.
 Sutherland, Frederick, 1819 Dupont
 Av. S.
 Swenson, Albert L., 1126 Jefferson St.
 Swenson, Oscar Alvin, 1131 Monroe
 St. N.E.
 Tadsen, F. C., 105 E. 25th St.
 Talbott, Frank B., 3423 Nicollet Av.
 Tarbox, Charles W., 11 W. 25th St.
 Taylor, Charles P., 2810 W. 42nd St.
 Thompson, Edward, 630 E. 16th St.
 Thompson, Harvey E., 3007 Fremont
 Av. N.
 Thomson, Alexander, 4134 Blaisdell
 Av.
 Thorson, Alvin R., 3520 Colfax Av.
 S.
 Thrall, Ralph A., 2925 Lyndale Av.
 N.
 Thuras, H. C., 1520 1st Av. S.
 Timm, Margaret, 2909 2nd Av. S.
 Tingdale, Andrew R., 3815 Pillsbury
 Av.
 Titus, L. M., 1104 8th St. S.E.
 Toepel, A. L., 1219 N. Newton
 Towle, R. E., 3145 1st Av. S.
 Treacy, Charles, 3233 Holmes Av.
 Treat, Floyd C., 712 15th Av. S.E.
 Troedson, George E., 1401 19th Av. N.
 Turner, D. D., 1205 5th St. S.E.
 Turner, R. H., 1205 5th St. S.E.
 Turner, Walter H., 3224 Oakland Av.
 Tuscany, Edward James, 929 N. Penn
 Av.
 Umbach, L. H., 1816 Stevens Av.
 Vilett, R. A., 2633 Emerson Av.
 Villesnik, J. K., 3023 N. Dupont Av.
 Van Stocken, William J., 3535 2nd St.
 N.E.
 Vallinder, Gottfried, 3341 23rd Av. S.
 Wade, Henry H., Hopkins, Minn.
 Wadsforth, W. M., 209 Groveland Av.
 Wales, Charles Raymond, 2945 Oak-
 land Av.

Wallace, Edith M., Apt. 538 Leaming-
ton Hotel
Wallace, Warren Leslie, 1 Orlin Av. S.
E.
Wallis, R. P., Hotel Maryland
Walter, Ray B., 5216 Upton Av. S.
Walton, Dorothy, 802 Mount Curve
Av.
Way, Elwood J., 3712 Harriet Av.
Weaver, Eglantine M., 1401 Yale
Place
Weeks, Robert Whitman, 209 5th St.
S.E.
Weight, Walter Otto, 1235 Lincoln Av.
Wiенcke, Otto 1520 6th St. S.E.
Weisenbarger, Albert C., 313 W. 26th
St.
Welch, R. E., 4335 Abbott Av. S.
Werring, Rex E., 1088 22nd Av. S.E.
Westernman, Walter F., 2936 Dupont
Av. S.
Westerveld, Henry F., 3639 Columbus
Av.
Weston, C. D., 800 Physicians and Sur-
geons Bldg.
Widergren, Arthur, 3427 Elliott Av.
Will, Fred L., 1830 Stevens Av.

Williams, James E., 4232 Linden Hills
Blvd.
Willing, Le Roy, 163 Bedford St. S.E.
Williner, L. R., 163 Bedford St. S.E.
Wilson, Alfred E., 510 University Av.
N.E.
Wilson, J. G., 3244 3rd Av. S.
Wiltse, Merton A., 1403 4th St. S.E.
Wing, L. F., 4301 Nicollet Av.
Wistrand, Edwin R., 3026 N. Fremont
Av.
Woehler, Charles G., 4026 N. Lyndale
Av.
Wolff, Edwin A., 1727 Irving Av. N.
Wood, George B., 3144 Clinton Av.
Woodruff, Carrie M., 1810 Bryant Av.
S.
Woodward, M. Myrtle, 2525 4th Av.
S.
Woolley, John H., 1701 Bryant Av.
N.
Yerxa, Clifford M., 606 7th St.
Young, Marie L., 2420 Elliott Av.
Youngquist, Dewey, 3028 Stevens Av.
Zehrfeld, M. E., 30 Grove St.
Zinn, Charles F., 3700 Girard Av. N.

ST. PAUL

Adams, Lou M., 566 Edmund St.
Adams, Roman M., 566 Edmund St.
Algren, Theo W., 5 W. George St.
Allen, Phillip C., 1973 Goodrich
Anderson, C. A., 954 Westminster
Anderson, M. E., 339 W. George St.
Anderson, R. W., 65 W. College Av.
Anderson, W. L., 357 Hope St.
Angell, Frank M., 1665 Marshall Av.
Angell, J. F., 605 Ottawa
Anthony, Theo. M., 1603 Berkeley Av.
Arth, Frank J., 836 E. 3rd St.
Baker, O., 209 Gilfillan Blk.
Baillie, Monroe, 988 Lincoln
Barnes, F. A., 641 Ashland
Beinhorn, Genevieve, 710 Pelham St.
Benson, Ray J., 751 Fauquier
Berg, R. F., 616 E. Cook St.
Bergstrand, W. A., 915 Lawson St.
Billstein, Lewis P., 395 Eichenwald
St.
Blandin, A. A., 1578 Randolph
Blase, Esther M., 942 Beach St.
Bohen, Mark D., 2109 Grand Av.
Borovansky, I. J., 399 Superior
Boyer, Merl, 1655 Capitol Av.
Brokaw, Frederick A., 1805 Carroll Av.

Buckham, C. J., 2944 43rd Av. S.,
Minneapolis
Buctow, Herbert, 733 Charles St.
Bystrom, Richard A., 870 Burr St.
Cane, Thomas J., 2006 Dayton Av.
Carlson, A. G., 761 Lawson
Carlson, C. R., 1138 Jessie St.
Carroll, Charles P., 61 W. Delos St.
Castner, Paul, Peoples Bank of St.
Paul
Cavitzel, J. A., 139 W. 5th St.
Chase, Herbert F., 90 W. Isabel St.
Cherry, Geo. W., 193 Iglehart
Christ, Robert, 894 E. 3rd St.
Christenson, Le Roy, 141 E. Brompton
St.
Clapp, W. D., 770 N. Hamlin Av.
Clark, Paul G., 1577 Ashland
Coan, M. E., 2017 Carroll Av.
Cohn, Ben, 331 Aurora Av.
Colliton, R. A., 586 Laurel Av.
Cottor, Emil F., 193 Iglehart Av.
Crowl, Oliver, 2146 Marshall Av.
Danielson, Andrew W., 1910 Feronia
Av.
Daus, Dr. P. E., 5005 Washburn Av.
S.
Davidson, E. H., 478 Holly Av.

Dedon, Clarence L., 1609 St. Anthony
 Av.
 Delander, B. T., 733 E. Cook St.
 Delander, N. P., 733 E. Cook St.
 Delaney, F. H., 691 Aurora Av.
 Doherty, C. J., 402 Marshall Av.
 Donnelly, Ignatius, 808 Laurel Av.
 Doran, Lawrence, 1495 Sherburne Av.
 Driscoll, Paul F., 991 Wakefield Av.
 Driver, Elizabeth J., 147 Summit Av.
 Duff, J. W., 827 Linwood Pl.
 Dugan, Harry R., 867 Cherokee Av.
 Eckenstein, Robert, 35 S. Lexington
 Av.
 Eichorn, C. H., 759 E. 5th St.
 Ehlers, Edwin, 903 Reaney St.
 Ekstrom, Charles E., 796 Pusey Av.
 Elmer, Carl A., 621 Jackson St.
 Elmquist, Nan C., 356 Pleasant Av.
 Emery, Grace, 301 Dayton Av., No. 2
 Erbling, A. A., 299 W. 6th St.
 Erickson, John, 1368 Payne Av.
 Fargo, Charles H., Y. M. C. A.
 Fitzpatrick, E. R., 713 Tuscarora St.
 Fleming, James J., 1996 Ashland Av.
 Ford, Walter H., 810 Iglehart Av.
 Foss, L. N., 445 E. Minnehaha Av.
 Fox, L. A., 1674 Ross St.
 Frederick, S. B., 1981 Laurel Av.
 Fritsch, Alma, 664 Como Blvd.
 Fuller, Charles E. Jr., 736 Dayton Av.
 Gadacz, Stanley J., 15 W. George St.
 Gamble, John, 48 Central Terrace
 Gehan, J. P., 201 4th Av.
 George, Charles W., 17 W. Summit Av.
 Gerring, J. C., 1833 Lincoln Av.
 Glaunce, Ernst, 393 Eichenwald St.
 Gode, Fred J., 7th and Robert
 Goff, E. W., 724 E. 5th St.
 Goldberg, Isidore G., 148 E. Fairfield
 Av.
 Goodrich, Charles W., 2046 Dayton Av.
 Goodson, Curtis C., 753 Carroll Av.
 Gordon, Louis H., 309 Emerson Av. N.
 Gothe, Oscar E., 655 Case St.
 Green, Edward F., 2154 Dayton Av.
 Green, Q. M., 407 Dewey Av.
 Greenfield, Jos. W. Jr., 242 Baker Av.
 Griffin, C. B., 1229 Laurel Av.
 Grove, Harold A., 1398 Breda St.
 Gruber, Jeffney, 2349 Commonwealth
 Av.
 Gullickson, O. L., 1559 Dayton Av.
 Hamper, Thos. J., 935 E. 6th St.
 Hane, Ralph, 323 Kent St.
 Hanson, Earl S., 1063 Pacific Av.
 Harrington, Gerry, 305 Mackubin St.
 Harvey, Clifford, 483 Aurora Av.
 Haselbeck, H., 733 E. Jessamine St.
 Heard, Charles, 685 Capitol Heights
 Henly, Elkan N., 134 E. Colorado St.
 Henly, Harold J., 134 E. Colorado St.
 Hess, George H. Jr., Lorraine Apts.
 No. 34
 Hoerj, Vincent J., 1155 W. 7th St.
 Hoffman, Nathan W., 1378 Ashland
 Av.
 Hoklas, H. W., Y. M. C. A.
 Honebrink, W., 916 Beech St.
 Horn, Dora, 948 Linwood Pl.
 Horton, W. S., 551 Laurel Av.
 Hovig, Lawrence H., 219 Pleasant Av.
 Hueller, David S., 584 Grand Av.
 Huelster, Howard N., 1648 Portland
 Av.
 Hunt, Herbert, 1630 Laurel Av.
 Ifert, Carl N., 653 Marshall Av.
 Jackson, Leo B., 970 E. 3rd St.
 Jelinski, Joseph N., 591 St. Peter St.
 Jensen, Archie O., 883 Marshall Av.
 John, R. P., 373 Maple
 Johnson, Arthur G., 616 E. Jessamine
 Johnson, Gilbert O., 420 Dewey Av.
 Johnson, Harry L., 666 Magnolia St.
 Johnson, J. B., 652 Case St.
 Kasmirski, Aloysius W., 242 Forbes
 Av.
 Kelly, Tracy, 73 Oxford Av.
 Kerker, Thomas, 1250 Capitol Av.
 Kirn, H. E., 560 Mendota St.
 Klawter, Frederick C., 1166 Thomas St.
 Knebel, Robert L., 961 Grand Av.
 Knudson, Walter, 35 Como Av.
 Kopp, George M., 501 N. Livingston
 Av.
 Krieg, W. S., 389 Western Av.
 Kueffner, William R., 10 Benhill Rod
 Kulp, D. E., 251 Banfil St.
 Landman, Norman, 997 Portland Av.
 Lang, F. W., 1982 E. Minnehaha St.
 Larson, Edward J., 122 W. Arch St.
 Lawrence, Adolph A., 1222 Capitol Av.
 Leaf, Edward N., 932 Westminster St.
 Leavitt, F. A., 684½ Selby Av.
 Lemke, F. J., 911 Fuller Av.
 Lewis, Edward C., 1492 Lincoln Av.
 Lee, Joseph, 781 E. Maryland St.
 Lillengren, Harry, 219 Pleasant Av.
 Lilly, Lawrence, 305 Dayton Av.
 Linnervoth, Sidney, 1130 Fauquier
 Ludke, R. G., 1775 Reaney St.
 Lufkin, Hamilton, 617 Goodrich Av.
 McCullum, M. E., 668 St. Peter St.
 McCumber, K. H., 1061 Ashland Av.
 McDermott, J. Daniel, 902 Goodrich
 Av.
 McEllistvem, Marcus, 915 Linwood Pl.
 McElwell, S. P., 1984 Milwaukee Av.

McGillick, John, 103 Atwater
 McNanmon, John T., 499 Belvidere St.
 McNee, A. W., 1762 E. Minnehaha
 Mahoney, J. K., 641 Marshall Av.
 Maier, Theo, 1235 E. 6th St.
 Maley, C. A., 448 Virginia Av.
 Maley, Paul, 448 Virginia Av.
 Marien, Pierre B., 500 Jackston St.
 Maloney, William, 4 Virginia Flats
 Martin, George P., 115 Winifred St. E.
 Marriott, Edwin, 1510 Thomas St.
 Marvin, William, 569 Laurel Av.
 Matthews, Henry G., 1595 Wesley Av.
 Maurer, Paul G., 695 Lincoln Av.
 Melamed, Louis, 222 E. Fairfield Av.
 Melamed, M. L., 222 E. Fairfield Av.
 Meyer, M. F., 139 Amherst
 Michel, Clarence B., 610 Fuller Av.
 Michel, George A., 610 Fuller Av.
 Miller, Herbert, 982 Hastings Av.
 Miller, Hilda, 84 W. Lawson St.
 Miller, R. B., 93 Cambridge Av.
 Minea, B. V., 115 W. Robie
 Mingaye, H. T., 761 Osceola Av.
 Montgomery, Wm. S., 1698 Wesley Av.
 Moritz, Ray W., 1655 Stanford
 Morrell, J., St. Paul Workhouse
 Mulliken, C. E., 521 S. Cleveland
 Mulliken, Walter F., 521 S. Cleveland
 Munson, August A., 708 Broadway
 Munson, Clifford R., 549 Selby Av.
 Neass, A. E., 1690 Capitol Av.
 Nelson, D. P., 247 Aurora Av.
 Nelson, E. J., 679 Holtz Av.
 Nelson, Harold, 121 Manitoba
 Nelson, Henry, 704 Smith Av.
 Nelson, Hugo E., 2081 Roblyn Av.
 Nelson, J. A., 668 Olive St.
 Nelson, J. Edwin, 162 Annapolis Av.
 Nelson, Martin A., 453 Ashland Av.
 Oas, Edward R., St. Paul Park
 Oberg, Stafford L., 710 Rose St.
 Oberschulle L., 1048 Minnehaha Av.
 O'Connor, Thomas P., 201 4th Av. S.
 Olsen, Henry, 182 Webster St.
 Olson, Frank, 1146 Edgerton St.
 Olson, George, 604 Jenks St.
 Olson, Orde C., 1253 Lafond St.
 Owen, G., 420 Ohio St.
 Pabst, Geo. N. Jr., 390 Hope St.
 Parsons, Axel Edward, 1050 E. Mary-
 land Av.
 Patterson, D. K., 269 Brumhall Av.
 Pearson, Elmer, 748 Bradley
 Pearson, Godfrey, 1955 Lincoln
 Peterson, Arthur W., 1927 W. Minne-
 haha
 Peterson, George A., 60 E. Summit
 Av.
 Peterson, Melvin A., 65 W. College
 Av.
 Peterson, Paul B., 357 Hope St.
 Pettibone, E. M., 2127 Godrich Av.
 Pickering, Frank L., 1455 Laurel
 Pihaly, Louis, 700 James St.
 Prince, W. W., 591 Summit Av.
 Proran, Wilfred D., 961 Ashland
 Quinn, T. L., 114 Amherst Av.
 Quinn, S. J., 394 University Av.
 Quirnbach, C. H., 1078 Linwood Pl.
 Rangitsch, Frank J., 798 Thomas St.
 Reinhardt, H. A., 911 Hudson Av.
 Reinking, Benj. F., 358 Maria Av.
 Rice, J. M., 209 Dayton Av.
 Ringsin, Edward, 290 Sherburn Av.
 Ringold, Wm., Highland Pk.
 Robertson, G. A., 1580 Margaret St.
 Rosenthal, H., 365 Pleasant Av.
 Rudeen, F. J., 1660 Dayton Av.
 Schaber, Harold P., 908 Margaret
 Schaffelke, Henry A., 500 Bellows Av.
 Schiffer, Meyer J., 615 Ashland Av.
 Schilling, P. A., 879 Thomas St.
 Schulstad, Einar T., 922 Linwood Pl.
 Schulze, H. C., 160 Maria Av.
 Shannon, Thomas J., 638 Carroll
 Shapiro, A. H., 178 Sherburne Av.
 Shipstad, Harry, 554 St. Albans
 Simerman, G. A., 2068 Carroll Av.
 Skaar, H. O., 1223 Reaney St.
 Skok, Eugene, 455 Aurora Av.
 Sladek, A. L., 633 Palace St.
 Sladek, Jerome C., 649 Delaware Av.
 Smith, Leroy Raymond, Lowell Apts.
 Smith, Stanley J., 961 Ashland
 Spicker, W. E., 735 E. 4th St.
 Spinn, Frank G., 802 Thomas St.
 Spitalske, Leon P., 130 E. Rose St.
 Staberg, James, 138 W. George St.
 Stiehm, A. W., 1102 Pacific Av.
 Stodle, Nils, 925 Laurel Av.
 Stoffel, John J., 741 Arcade St.
 Stoffel, John C., 985 E. 5th St.
 Stolpestad, A. P., 445 Wheeler Av.
 Struble, Dwight, S., 1137 Portland Av.
 Stutzman, W. J., 1039 E. 5th St.
 Swan, I. J., 2124 Dayton Av.
 Swanson, Albert, 516 Laurel Av.
 Swanson, H. C., 931 E. Minnehaha
 Swenson, Oscar A., Monroe St. N.E.
 Timmerman, A. H., 1110 Mississippi
 St.
 Thomson, Clyde, 1126 W. Central
 Thomssen, R. H., 1129 Thorn St.
 Thorson, G. H., 1008 Lexington Av.
 Thorson, Oscar M., 1008 Lexington
 Av.
 Tobin, George L., 689 Carroll Av.

Ulsaker, M. O., care G. N. Ry., General Offices
Van Brunt, L. J., 1764 Lincoln
Vars, W. Keith, 1601 Edmund St.
Vernon, Arthur, 969 Edmund St.
Wagner, William E., 66 E. Summit Av.
Ward, Pier C., 87 Summit Av.
Warn, A. W., 1302 Earl W.

Weigel, Ernest J., 662 Armstrong Av.
Westfall, William G., 940 Portland Av.
Wicker, O. A., 485 E. Minnehaha St.
Williams, L. Stanley, Merchants Nat'l Bank
Wilson, F., 167 Macalaster Av.
Wolff, Otto, 1025 Laurel Av.
Wood, George F., 1342 Selby Av.
Woods, Leon I., 645 Central Park Pl.

DULUTH

Adair, Mark W., 122 E. 3rd St.
Arneson, Anke E., 101 E. 5th St.
Bescheubossel, Carl C., 415 E. 4th St.
Bethune, A. J., 3929 W. 4th St.
Bischoff, Ray W., 340 W. 4th St.
Brown, C. D., 316 S. 16th Av E.
Carlson, C. A., 212 N. 22nd Av.
Chisholm, J. A., 513 1st Av. W.
Christensen, Paul, 416 W. 4th St.
Coughlin, Lester W., 320 W. 1st St.
Crosby, Warren J., 822 E. 3rd St.
Culmer, W. C., 2230 Vermillion Rd.
Cyr, A. T., 423 13th Av. E.
Denney, Harry J., 227 E. 5th St
Drimple, Kenneth, Y. M. C. A.
Durham, K. W., 4621 Regent St.
Evans, Chas. Geo., 427½ E. 5th St.
Fischer, Sherwood S., 407 E. 6th St
Fossett, Charles R., 416 W. 4th St.
Franseen, Carl G., 712 1st Av. E.
Frestedt, Geo. W., 103 Exeter St.
Friestad, Anker F., Duluth, Minn.
Goss, Leander Mauritz, 22½ Devonshire St.
Grogan, C. R., 1712 Jefferson St.
Grogan, R. S., 1712 Jefferson St.
Hansen, Fred W., 131 E. 2nd St.
Hanson, J. W., 2721 W. Helm St.
Johnson, Arthur J., 110 Eden Lane
Johnson, Frederick S., 411 E. 1st St.
Johnson, P. A., 2211 W. 4th St.
Kane, Ralph W., Morgan Park

Kulger, Ernest, 1831 Greysolan Rd.
Larrabee, J. W., 215 W. 7th St.
Laskowski, Frank S., 2918 W. Huron St.

Leonard, William H., 2511 W. 1st St.
Linne, Elmer F., 2219 W. 10th St.
Linne, T. J., 2217 W. 10th St
Lundgren, G. F., 712 Lake Av. S.
Lundstrom, Roy, 119 32nd Av. N.
Lyle, Arthur J., 321 W. 3rd St.
McKibbin, T. E., 32 E. 5th St.
Marjamaa, Jofet, 506½ E. 4th St.
Meakin, James Jr., 220 12th Av. E.
Moore, Philip R., 418 N. 15th Av. E.
Mostin, Erling, 214 Osakis St.
Olson, Charles, 1422 E. 3rd St., Apt. B

Olson, M. J., 318 N. 26th Av.
Pattinson, C. R., 1218 E. 5th St.
Peterson, Arthur G., 3208 W. 3rd St.
Peterson, Carl William, 323 E. 1st St.
Pyfer, George A., 118 7th Av. E.
Sibbald, Bruce F., 425 1st Av. E.
Smith, Wm. M. Jr., 321 E. Superior St.

Spoeri, Elmer J., 829 W. 4th St.
Stadler, A. E., 1822 W. 2nd St.
Stinberg, E. W., 805 E. 5th St.
Syverson, S. H., R. F. D. No. 4
Townsend, R. E., 605 Woodland Av.
Williams, Maude, 227 W. 3rd St.

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

General Extension Division
Evening Courses in Engineering
1917-1918



Catalog Series No. 20c
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CALENDAR

1917-1918

1917

September	24-29	Week	Registration week
September	28	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	29	Saturday	Annual opening of Extension Courses, 8:15 p.m. Minneapolis
October	1	Monday	Regular class work begins
November	29	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	31	Monday	Class work resumed

1918

January	21-25	Week	Examination week, first semester
January	25	Friday	First semester ends
February	4	Monday	Second semester begins
February	4	"	Merchants' Short Course begins
May	20-24	Week	Examination week, second semester
May	24	Friday	Second semester ends

EVENING COURSES IN ENGINEERING

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
CYRUS NORTHROP, LL.D., President, Emeritus
RICHARD R. PRICE, M.A., Director of University Extension

JOHN ROBINS ALLEN, M.E., Dean of the College of Engineering and
Architecture, Professor of Mechanical Engineering

OLIVER C. EDWARDS, M.E., Assistant Professor of Mechanical Engineering,
in charge of Engineering Courses

WILLIAM E. BROOKE, B.C.E., M.A., Professor of Mathematics and
Mechanics

ALVIN S. CUTLER, C.E., Assistant Professor of Railway Engineering

JAMES H. FORSYTHE, M.A. in Arch., Assistant Professor of Architecture

ROBERT W. FRENCH, B.S., Assistant Professor of Drawing

ROY C. JONES, M.S., Assistant Professor of Architecture

FREDERICK M. MANN, M.S. in Arch., Professor of Architecture

FRANKLIN R. McMILLAN, C.E., Assistant Professor of Structural Engineering

GEORGE A. MANEY, C.E., Instructor in Structural Engineering

JOHN V. MARTENIS, M.E., Assistant Professor of Mechanical Engineering

CHARLES W. NICHOLS, M.A., Assistant Professor of Rhetoric

WILLIAM H. RICHARDS, Instructor in Carpentry and Pattern Work

WILLIAM T. RYAN, E.E., Assistant Professor of Electrical Engineering

GEORGE D. SHEPARDSON, D.S., Professor of Electrical Engineering

CHARLES F. SHOOP, B.S., Assistant Professor of Experimental Engineering

HUBERT M. TURNER, B.S., Instructor in Electrical Engineering

HOWARD T. VIETS, M.A., Instructor in Business English

OTTO S. ZELNER, B.S., Assistant Professor of Surveying

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (usually twenty-one years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under Engineering do not carry credits. The statement in regard to credit for Law courses will be found on page 40. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 20 and 21.

Students must indicate at the time of registration whether or not they desire university credit in the courses pursued.

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in Extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other Extension Schools or Departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for an extension course for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the Dean of his college.

FEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For Collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for Business courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

For Engineering courses the fees are \$7.50 or \$10 a semester as indicated in the description of the several courses.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

The requirements relative to the Law courses accompany the announcement of those courses in this bulletin. (See page 41.)

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. NO FEE WILL BE REFUNDED ON ACCOUNT OF WITHDRAWAL FROM ANY COURSE, unless application for refund be made within ten days after registration.

Special arrangements are made with organizations, clubs and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

The classes in Law will be held in the Law Building on the University campus. Most of the classes in Engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 24-29). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the Collegiate courses, the Business courses, the Engineering courses, and the Law courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the ground floor of the Main Engineering Building on Church Street, just north of Washington Avenue S. E. To telephone the office, call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

DEPARTMENT OF ENGINEERING INSTRUCTION

The increase in the number of students in the extension engineering classes last year indicates the importance of this work. The demand for men specially trained in engineering has been steadily increasing each year. Every branch of the profession has been calling for the services of trained men. By trained men is meant those who can plan work and use good engineering judgment in any given project.

To meet this demand the General Extension Division now offers groups of courses in Architecture, Civil Engineering, Electrical Engineering, and Mechanical Engineering. These course groups are arranged to be completed in either two- or three-year periods and are planned primarily for workers in industrial establishments.

The subject of engineering is one that requires very thoro study, and no step should be neglected. These courses have been laid out with great care, and are especially adapted to the needs of men working in shops and other industrial and manufacturing establishments, to the end that such men may have added to their practical training, a technical and theoretical knowledge which will enable them to advance more rapidly in their chosen line of work.

It has been found that many persons registered who could not take the work with any great profit to themselves because of inadequate preparation. For this reason it is desirable that students should consult with the Director of the General Extension Division before taking up any course, so that they may have proper guidance and direction.

Students who have had sufficient preparation need not start at the beginning, but may take up the work at the point where they can pursue it with advantage.

These courses also offer an opportunity to college graduates, who may wish to specialize in some subject not covered in their regular college work.

When the student completes any one of these consecutive courses, a certificate to that effect from the University of Minnesota will be given.

Each student will be required to take a course in "English for Engineers" before a certificate will be granted.

FEEES

The fee for a single course, meeting one night a week is \$7.50 a semester; for two courses, \$12 a semester; for three courses, \$15 a semester.

THREE-YEAR COURSE

The following courses, arranged to be completed in three years of two evenings a week, may also be finished in two years of three evenings a week. The work is divided into two semesters per year, and each semester of the Engineering Extension classes will be sixteen weeks long.

ARCHITECTURE

FIRST YEAR

First Semester
Elementary Architectural Design

Second Semester
Elementary Architectural Design

SECOND YEAR

First Semester
Intermediate Architectural Design
Shop Mathematics

Second Semester
Intermediate Architectural Design
Mechanics, Strength of Materials

THIRD YEAR

First Semester
Advanced Architectural Design
Structural Design

Second Semester
Advanced Architectural Design
Reinforced Concrete

If a class of 12 or more request it, the two following subjects may be taken during the first year:

Freehand Drawing

Architectural History

CIVIL ENGINEERING (For Office Men)

FIRST YEAR

First Semester
Shop Mathematics
Mechanical Drawing

Second Semester
Shop Mathematics—Advanced
Structural Drafting

SECOND YEAR

First Semester
Applied Mechanics
Elements of Structural Design

Second Semester
Strength of Materials
Structural Design—Advanced

THIRD YEAR

First Semester
Reinforced Concrete
Roof Trussed Bridges—Design

Second Semester
Reinforced Concrete Design
Bridge and Building Design

CIVIL ENGINEERING (For Field Men)

FIRST YEAR

First Semester
Shop Mathematics
Lettering and Sketching

Second Semester
Shop Mathematics—Advanced
Mapping

SECOND YEAR

First Semester
Plotting and Calculation
Plane Surveying

Second Semester
Stadia and Topographical Surveys
Curves and Earthwork

THIRD YEAR

First Semester
Highways
Municipal Engineering

Second Semester
Railways
Municipal Engineering

ELECTRICAL ENGINEERING

FIRST YEAR

First and Second Semesters

Shop Mathematics Elementary Electricity

SECOND YEAR

First Semester

Alternating Currents
Mechanical Drawing
or
Applied Mechanics

Second Semester

Alternating Currents
Mechanical Drawing
or
Strength of Materials

THIRD YEAR

First Semester

Direct and Alternating
Current Machinery
or
Telephony
Steam Boilers and Engines
or
Electrical Measurements

Second Semester

Central Power Stations
or
Telephony
Engine Testing
or
Electrical Measurements

Alternates in the third year will be given only every other year.

MECHANICAL ENGINEERING

FIRST YEAR

First Semester

Shop Mathematics
Mechanical Drawing

Second Semester

Shop Mathematics—Advanced
Mechanical Drawing

SECOND YEAR

First Semester

Applied Mechanics
Advanced Shop Work
or
Elementary Electricity

Second Semester

Strength of Materials
Gas Engines
or
Plumbing

THIRD YEAR

First Semester

Shop Management and Pattern Con-
struction
or
Steam Engines and Engine Testing
Heating and Ventilation
or
Mechanical Equipment of Buildings

Second Semester

Steam Boilers
or
Central Stations
Alternating Currents
or
Elementary Machine Design

DESCRIPTION OF COURSES

1. ARCHITECTURAL HISTORY. Twelve lectures illustrated with lantern slides, covering the ancient and Renaissance periods. One evening a week; second semester. Fee, \$7.50 a semester. FORSYTHE.

2. **ELEMENTARY ARCHITECTURAL DESIGN.** Shades and shadows and wash rendering. Architectural elements such as doors, windows, moldings, and the architectural orders; general drawing, exercises and lectures in the application of these elements to simple problems in design and a survey course of lectures in architectural history illustrated by lantern slides. Open to high school students who have had mechanical drawing, to those who have had one year or more in an architect's office, and to those who, in the opinion of the instructors, have had equivalent experience. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.
3. **INTERMEDIATE ARCHITECTURAL DESIGN.** Regular Class B "Analytique" or Order Problems of the Society of Beaux Arts Architects, or equivalent designs in architectural problems from the regular course of the University of Minnesota. Open only to those who have completed Course 2, or who have had two years or more in an architect's office, or have had equivalent preparation in an architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. Fee, \$5 a problem, or \$10 a semester. JONES.
4. **ADVANCED ARCHITECTURAL DESIGN.** Class B, Plan Problems, and Class A, Problems of the Society of Beaux Arts Architects, or equivalent design problems from the regular course in architecture at the University of Minnesota. Open only to those who have completed the required "Analytique" or Order Problems, or to those who have had one or more years of design in any architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. \$5 a problem or \$10 a semester. MANN.
Note.—Regular instruction will be given on Monday and Thursday evenings, but students in these classes may work in the drafting rooms of the architectural department on other evenings, except Sunday.
5. **FREEHAND DRAWING.** Drawing from casts and from memory. Details of the figure and architectural ornament in charcoal, pencil, pen and ink. Two evenings a week; both semesters. Tuesday and Friday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.
6. **MAP DRAWING.** (a) Farm and city plats. (b) Real estate display maps. (c) Landscape architect's maps. (d) Topographic and hydrographic symbols. One evening a week; second semester. Fee for course, \$7.50 a semester. ZELNER.
7. **LETTERING AND TITLES FOR ENGINEERS.** Principally freehand, Reinhardt lettering. Title lay-outs and lettering. One evening a week; first semester. Fee for course, \$7.50 a semester. ZELNER.
8. **PLANE SURVEYING.** Elements of plane surveying relating to method of chain, compass, transit and stadia surveys; leveling; methods of

keeping field notes; determination of area of irregular plots; computation and plotting of field notes; care, use, and adjustment of instruments; methods of subdivision of the United States public lands. One evening a week; first semester. Fee, \$7.50 a semester. CUTLER.

9. CURVES AND EARTHWORK. Mathematics of simple, compound, and spiral curves; preliminary and location surveys; plotting or profiles; vertical curves; cross-sectioning and computation of earthwork volume; methods of computation of overhaul; mass diagram, right-of-way and station ground maps. One evening a week; second semester. Fee, \$7.50 a semester. CUTLER.
10. CONCRETE MATERIALS: SELECTION AND TESTS. This course will cover the selection of materials entering into concrete, their properties and the tests to be applied. A study will be made of the proper combinations to obtain the best mixtures for given constituent materials at the lowest cost. Local materials will be used and those pursuing the course will make their own specimens and perform all the tests. One evening a week; first semester. Fee, \$7.50 a semester. McMILLAN.
11. REINFORCED CONCRETE. Covers the elements of the theory and practical design of reinforced concrete structures, including floors, roofs, walls, columns, foundations, and retaining walls. One evening a week; both semesters. Fee, \$7.50 a semester. McMILLAN.
12. STRUCTURAL DESIGN. This course will include a treatment of structural mechanics and stress computation, and the elements of the principles and practice governing the design of tension and compression members, beams, girders, and columns. Prerequisite: An elementary working knowledge of mathematics through trigonometry, and some knowledge of elementary physics. One evening a week; both semesters. Fee, \$7.50 a semester. MANEY.
13. ELEMENTARY ELECTRICITY. This course will start with the simple laws of magnetism, and advance through the theory of direct current machinery. Special attention will be given to direct current motors and generators, armature windings, commutators, and wiring diagrams. The course will be of value to those who wish to take up the study of alternating current machinery and power plants. Experiments will be made throughout the course. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
14. ELEMENTS OF ALTERNATING CURRENTS. An experimental study of alternating currents, including the modifications of Ohm's law to include effects of inductance and capacity, the fundamental principles of the impedance coil, transformer, generator, motor, telephone transmitter and receiver, and the like. One evening a week; both semesters. Fee, \$7.50 a semester. TURNER.
15. DIRECT AND ALTERNATING CURRENT MACHINERY. The operation and maintenance of direct and alternating current generators, motors, and

- electrical measuring instruments. A textbook by J. H. Morecroft will be used. One chapter will be taken each week, and a number of experiments will be made throughout the course. One evening a week; first semester. Fee, \$7.50 a semester. RYAN.
16. POWER STATION ELECTRICAL APPARATUS. A study of the problems involved in the operation and maintenance of direct and alternating current generators and motors, switchboards, electrical measuring instruments, and storage batteries. This course is designed for men connected with central stations and isolated plants. One evening a week; second semester. Fee, \$7.50 a semester. RYAN.
 17. ELEMENTS OF TELEPHONY. Nature of voice sounds, construction and operation of receivers and transmitters, reading blue-prints and circuits, magneto and central-energy circuits, the electro-magnet as used in telephony, batteries and other generating apparatus, signalling apparatus. Some previous knowledge of alternating currents is desirable, but not absolutely necessary. The treatment will be elementary, using only simple mathematics. Experimental illustrations will be given so far as practical. One evening a week; second semester. Fee, \$7.50 a semester. SHEPARDSON.
 18. SHOP MATHEMATICS. This course is designed to meet the needs of shopmen, and affords an opportunity to take up engineering work of a higher grade. Practical shop problems will be thoroly discussed. This course together with one in drafting is essential for all other engineering branches. It will cover the subject of fractions, decimals, percentage, weights of materials, areas and volumes, thread cutting, gearing, belts and pulleys, the milling machine, and a general drill in equations and the use of formulae. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
 19. ALGEBRA. A thorol course in elementary algebra, including the fundamentals, factoring, law of exponents, simple, simultaneous and quadratic equations, square and cube root, and the general application of the subject to practical problems. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
 20. GEOMETRY. A short course covering the first five books of plane geometry with numerous original exercises and theorems. One evening a week; both semesters. Fee, \$7.50 a semester.
 21. TRIGONOMETRY. This course is designed for those who have had the subjects of algebra and geometry and wish to pursue civil engineering studies. The solution of right and oblique triangles will be thoroly discussed and practical plane surveying problems will be given special attention. One evening a week; both semesters. Fee, \$7.50 a semester. EDWARDS.
 22. ELEMENTARY APPLIED MECHANICS. A short, practical course in elementary mechanics designed to meet the needs of students who have

had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, work, power, and energy. One evening a week; first semester. Fee, \$7.50 a semester. BROOKE.

23. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials, designed to follow the course in applied mechanics. The subjects to be treated are: the properties of materials, stress and strain, elastic and ultimate strength, deformations, principle of moments, moment of inertia, simple stresses, shear, riveted joints, the general elementary theory of beams, columns, and shafts. One evening a week; second semester. Fee, \$7.50 a semester. BROOKE.
24. **TESTING OF MATERIALS.** Investigation of the physical properties of various metals and other engineering materials, including the more common grades of commercial steels, wood, cement, concrete, ropes, cables, belting, chains, etc. Supplemented by lessons on the various materials of construction and standard methods of testing. One evening a week; first semester. Fee, \$7.50 a semester. SHOOP.
25. **ENGINE AND POWER PLANT TESTING.** This course is intended for stationary engineers who wish to become more efficient in their line of work. The course will consist of lessons supplemented by experimental demonstrations illustrative of certain portions of the work. Actual problems arising in power plant testing will be worked out in class with complete explanations and instruction for their solution. The laws of mechanics, heat, power, work, and energy will be applied to engine and power plant testing. One evening a week; first semester. Fee, \$7.50 a semester. SHOOP.
26. **STEAM BOILERS AND ENGINES.** Theory and practice of steam boiler operation; settings and accessories; type of boilers, chimneys, smoke prevention, mechanical stokers and economizers. Mechanism of the steam engine, work in the cylinder, steam distribution, effect of reciprocating parts. Indicator and indicator cards. Horsepower from cards; valve diagrams and valve setting. Exercises and problems. One evening a week; second semester. Fee, \$7.50 a semester.
27. **PATTERN MAKING.** A series of lessons on the theory and practice of pattern making. Open to mechanics and apprentices who are able to take the work with profit to themselves. A further course is offered to teachers who are now teaching manual training and desire to take up a more advanced branch of the work. This course can also be taken advantageously by those of mature years who wish to become teachers of manual training. One evening a week; first semester. Fee, \$7.50 a semester. RICHARDS.
28. **PLUMBING.** This course is designed to meet the needs of the practical shop man and will cover the principles of plumbing and the best practice in use at the present time. It is hoped that a standard text will

be available. One evening a week; second semester. Fee, \$7.50 a semester. MARTENIS.

29. HEATING AND VENTILATING. The course will cover present heating and ventilating practice and is designed for heating contractors and others desirous of obtaining a fundamental knowledge of the subject. The plan of instruction includes a study of heat; methods employed for heating and ventilating buildings of various kinds; piping systems and temperature regulation. One evening a week; first semester. Fee, \$7.50 a semester. MARTENIS.
30. GAS ENGINES AND PRODUCERS. Principles of operation of two-cycle and four-cycle engines; cylinder construction and arrangement, system of speed control, ignition, and cooling. Application of the indicator and consideration of indicator diagrams. A study of the power gas producer, including suction and pressure types for various fuels; construction and operation of the generator and accessory apparatus. Application to various industrial purposes. One evening a week; first semester. Fee, \$7.50 a semester.
31. ELEMENTARY MECHANICAL DRAWING. How to make machine and structural drawings and how to read them from blue prints, a practical course in drafting and drafting room methods preparing the student to start in commercial drafting room work. This is a general course taking up the work from the beginning and includes the use of instruments, lettering, drawing views and sections, dimensioning for shop use, making the finished shop drawings and exercises in reading drawings. The necessary geometry is taken up. Instruction is given individually and those with some previous training are given more advanced work. One evening a week; both semesters. Fee, \$7.50 per semester. FRENCH.
32. ENGLISH FOR ENGINEERS. A course in practical English, designed to meet the professional needs of engineering students. The material of this course will include business letters—about twelve types; reports; estimates; instructions, etc. Some attention will be given to oral English. The underlying purpose of this course is to acquaint the student with the various kinds of business letters, reports, etc., and to teach him how to prepare and use them effectively. A secondary purpose is to show the prospective engineer that training in expression—written or oral—is training in clear, straight thinking and hence is a real stimulus to general efficiency. Students will be expected to do a certain amount of writing and to take part in the weekly discussions of problems bearing upon the work of the course. Ability to write simple, grammatically correct English is a prerequisite to this course. One evening a week; both semesters. Fee, \$7.50 per semester. NICHOLS, VIETS.
33. CALCULUS. A short course in calculus will be offered to those who have completed trigonometry. Stress will be laid upon the various

derivatives and their application to tangents, normals, evolutes, involutes, envelopes and maxima and minima. A few of the more important integrals relating to engineering will be given. This course is intended to give the student a working knowledge of calculus and the value it has in the engineering field. One evening a week; both semesters. Fee, \$7.50 per semester. EDWARDS.

34. **THEORY OF ENGINEERING.** A general course given to those students who have had two years training in engineering work. Only students who have taken courses 11, 12, 13, 14, 18, 21, 22, 23, 24, 31, are eligible. Kent's "Mechanical Engineers' Pocket Book" will be used as a text. One evening a week; both semesters. Fee, \$7.50 per semester. EDWARDS.

REGISTRATION 1916-17

DEPARTMENT OF ENGINEERING INSTRUCTION

MINNEAPOLIS

- Allen, W. E., 3636 Elliott Av.
 Alton, Albert Roades, 402 2nd Av. S.E.
 Alton, William, 402 2nd S.E.
 Amidon, P. N., 27 Melbourn Av. S.E.
 Anderson, G. A., 1011 16th Av. S.
 Anderson, P. W., 27 Melbourne Av. S. E.
 Arness, O. J., 2911 Girard Av. N
 Baptiste, Noel, 1710 19th St. S.E.
 Batzli, Oscar, 218 6th St. S.E.
 Benson, R. E., 3028 Holmes Av. S.
 Bishop, W. E., 2017 St Anthony Av.
 Blade, J. Robert, 3318 E. 26th St.
 Black, Joseph D., 2841 30th Av. S.
 Blum, John K., 3109 43rd Av. S.
 Boardman, Douglas E., 2500 Jaskson N. E.
 Bratberg, Anton, 2805 9th St. S.
 Breneman, Louis A., 589 Aurora Av.
 Brinkman, A. L., 405 Ontario St. S.E.
 Brown, Mark G., 1107 Tyler St. N.E.
 Buckett, Leslie D., 5000 France Av. S.
 Buell, E. A., 2229 Pierce St.
 Carlson, C. A., 2641 Emerson S.
 Carman, Ernest C., Minneapolis Athletic Club
 Charlton, Leslie, 1419 Washington St.
 Christianson, Sigurd, 2321 Butler Place S.
 Cleworth, Frank, 211 Cecil St. S.E.
 Colberg, James J., 1307 4th St. S.E.
 Coleman, Wm. P., 427 5th St. S.E.
 Coolidge, R. A., 2334 Bayler Av.
 Conoling, Chas. N., 184 W. Robie St.
 Corwin, J. B., 1674 St. Anthony Av.
 Cory, H. H., Curtis Court, Apt. 52
 Cronon, Edmund D., 2505 Irving Av S.
 Dafron, Fayette A., 217 Montrose Av.
 Dahl, George L., 3125 Fremont Av. S.
 Dean, Charles Herman, 1125 Thomas Av. N.
 Depel, Herbert O., 913 Laurel
 Donald, D. C., 1122 7th St. S.
 Donelle, Samuel Rockston, 1401 Yale Pl.
 Ebin, Louis, 709 Plymouth Av.
 Enzler, Carl A., 316 Monroe
 Flecke, Albert, 628 2nd Av. S.
 Fornell, H. W., 3515 S. Aldrich
 Frank, Carl William, 2921 18th Av. S.
 Fullenwider, T. I., 611 Delaware St. S.E.
 Gauger, Paul Charles, 1169 Churchill Av., St. Paul
 Gauger, R. R., 1183 Como Blvd., St. Paul
 Gerdes, Robert L., 1218 25th Av. N.
 Godwin, W. R., 2710 Pleasant Av.
 Grabner, Walter, 823 26th Av. N.E.
 Grant, Mabel Kroll, 115 W. 15th
 Gronvall, John O., 1922 Buchanan St.
 Gunderson, Harold S., 36 S. 11th St.
 Hafner, J. M., 1621 Washington St. N. E.
 Hahn, Stanley V., 317 Y. M. C. A., St. Paul
 Hanson, Farley Le Roy, 4824 Xerxes Av. S.
 Haupt, Theodore G., 2102 Carter Av., St. Paul
 Hauskey, H. L., 955 Fuller Av.
 Heath, Donald C., 43 Dell Place
 Hemphill, Arthur D., 1842 Jackson St. N.E.
 Hepp, Maylon H., 3306 4th Av. S.
 Herman, C. Albert, 3240 Harriet Av.
 Herman, Maurice A., 729 Dayton Av.
 Herrick, Arne, 1829 University Av. S. E.
 Hill, Elmer M., 235 Illion Av. N.
 Hofmann, William Chas., 1514 Adams St. N.E.
 Hoglin, Ole J., 406 17th Av. S.E.
 Houghtaling, Jay, 1519 Brook Av. S.E.
 Huston, Robert A., 165 14th Av. N.E.
 Ingraham, Harry A., 2635 Harriet Av.
 Jacobson, David, 1635 Marshall Av., St. Paul
 Johansen, Henry, 217 Howard St. S.E.
 Johnson, Arthur K., 564 Fuller Av.
 Johnson, Axel C., 1509 10th Av. S.
 Johnson, Elmer A., 736 Geranium, St. Paul
 Johnson, Edward J., 2349 Territorial Rd., St. Paul
 Johnson, Fred J., 3017 41st Av. S.
 Johnson, Helge Robert, 2420 Blooming-
 ton

Johnson, Minard, 1627 Washington Av. N.
 Johnson, Nels O., Eitel Hospital
 Kaercher, George E., 2521 Central
 Kitzler, Philip, 1508 Park Av.
 Klees, Emil, 3022 26th St. E.
 Klingensmith, Frank, 2170 Marshall Av., St. Paul
 Knight, Ralph James, 3425 Hennepin Av.
 Knudtson, Morgan, 2018 Oakland Av.
 Kocourek, John F., 515 Ontario St.
 Kortsan, Frank A., 887 Raymond Av., St. Paul
 Krapp, Henry P., 369 W. Central Av., St. Paul
 La Du, Clarence A., 628 2nd Av. S.
 Lathinen, William E., 233 Humboldt Av. N.
 Lambert, Harry E., 2314 Aldrich N.
 Larson, Albert Oliver, 636 Selby Av., St. Paul
 Larson, Arnold, 2300 28th Av. S.
 Larson, Ernest O., 2638 Bryant Av. N.
 Larson, E. W., 2211 27th Av. S.
 Larson, Hans C., 3044 34th Av. S.
 Larson, Nathan, 242 Buchanan St.
 Lavers, Albert, 2837 17th Av. S.
 Lavers, Wallace, 2837 17th Av. S.
 Lavine, E. W., 833 18^{1/2} Av. N.E.
 Lawrence, Paul J., 2911 Lyndale Av. N.
 Levin, J. D., 210 S. 9th St.
 Linden, Chris J., 3608 3rd Av. S.
 Lindsay, Gordon, 1229 Hagues
 Loftfield, John E., 817 Carroll Av.
 Loberbaum, Max, 1513 E. 18th St.
 Lynch, Thomas E., 350 Pleasant Av., St. Paul
 McArthur, Francis, 1897 Selby Av, St. Paul
 McGuire, John J., 694 Carroll Av., St. Paul
 Macomber, William K., 3446 Pleasant Av.
 Mahoney, G. P., 1840 Roblyn Av.
 Marking, C. A., 3312 1st Av. S.
 Mayhew, J. H., 4160 Washington Av. N.
 Meyers, R. F., 4527 Penn Av. N.
 Miller, Howard L., 2323 Laurel Av.
 Mills, H. W. Jr., 51 Barton Av. S.E.
 Molmsten, P. C., 2117 Western Av.
 Moore, H. C., 2081 Buford Av.
 Moore, O. F., 1007 E. River Road
 Mosher, R. W., 225 5th St. S.
 Murray, Hary M., 907 W. Franklin
 Nelson, David, 325 6th Av. S. E.
 Nelson, John Walfred, 2206 4th St. N.
 Ness, Norman R., 615 Hoag Av. N.
 Nordstrom, Carl, 3725 Longfellow Av.
 Noren, Clifford, 2548 Taylor St. N.E.
 Overluck, Russell F., 3228 Hennepin Av.
 Peck, Victor L., 8230 5th Av. S.
 Peterson, Harvey F., 630 Filmore Av. N.E.
 Peterson, Rey K., 1359 W. 7th St., St. Paul
 Peterson, Wm. A., 629 Madison St. N. E.
 Peonides, Phillip, 707 Marquette Av.
 Pickard, L. W., 1711 University Av. S.E.
 Pich, Lillian M., 818 E. 18th St.
 Pitt, Samuel Wm., 2316 Logan Av. N.
 Potell, Charles, 335 Aldine St.
 Potter, De Loss M., 115 17th St. N.
 Preusch, Arthur F., 226 Charles St., St. Paul
 Radant, Alfred E., 622 5th St. S.E.
 Reeves, H. L., 152 Orlin Av S.E.
 Robinson, R. B., 811 Essex St. S.E.
 Salland, J. F., Hopkins
 Sanderson, Earle McKinley, 615 E. 26th St.
 Scharpf, Elmer Louis, 2745 Columbus Av.
 Schelen, J. Elmer, 1028 Magnolia St.
 Schilling, Charles W., 1022 Fulton St. S.E.
 Schultz, A. L., 1830 Stevens Av., Apt. 26
 Schultz, Theodore, 908 5th Av.
 Seclert, Frederic William, 2529 Pierce St. N.E.
 Shields, Joseph J., 2343 James Av. N.
 Shooglun, Howard, 501 Magnolia St.
 Skarnes, Jay A, 924 Franklin Terrace
 Skarnes, R. F., 924 Franklin Terrace
 Smith, Arthur J., Ford Motor Co.
 Staehle, Gilbert V., 1908 Hennepin Av.
 Sterling, Lawrence, 127 W. 15th St.
 Stowe, Charles, 1627 N. Washington Av.
 Strom, Fred A., 853 E. 5th St., St. Paul
 Tell, A. W., 807 Oliver N.
 Thomson, Harold, 3131 4th St. S.E.
 Thomson, H., 2304 6th St. S.
 Tomlinson, Wm., 1630 Dayton Av.
 Trask, Donald M., 3237 Aldrich Av. S.
 Trierweiler, Dominic G., 406 Maple St.
 Troyer, H. Y., 612 4th Av. S.E.

Urth, Edwin, 422 Y. M. C A.
Walquist, John A., 2528 Elliot Av.
Weidt, Alun, Merriam Pk. Sta., St.
Paul

Wolff, Fred P., Highwood Pk., St. Paul
Worejpha, James, 509 22nd Av. S.
Yarnell, Clyde S., 3025 Fremont Av.
S.

ST. PAUL

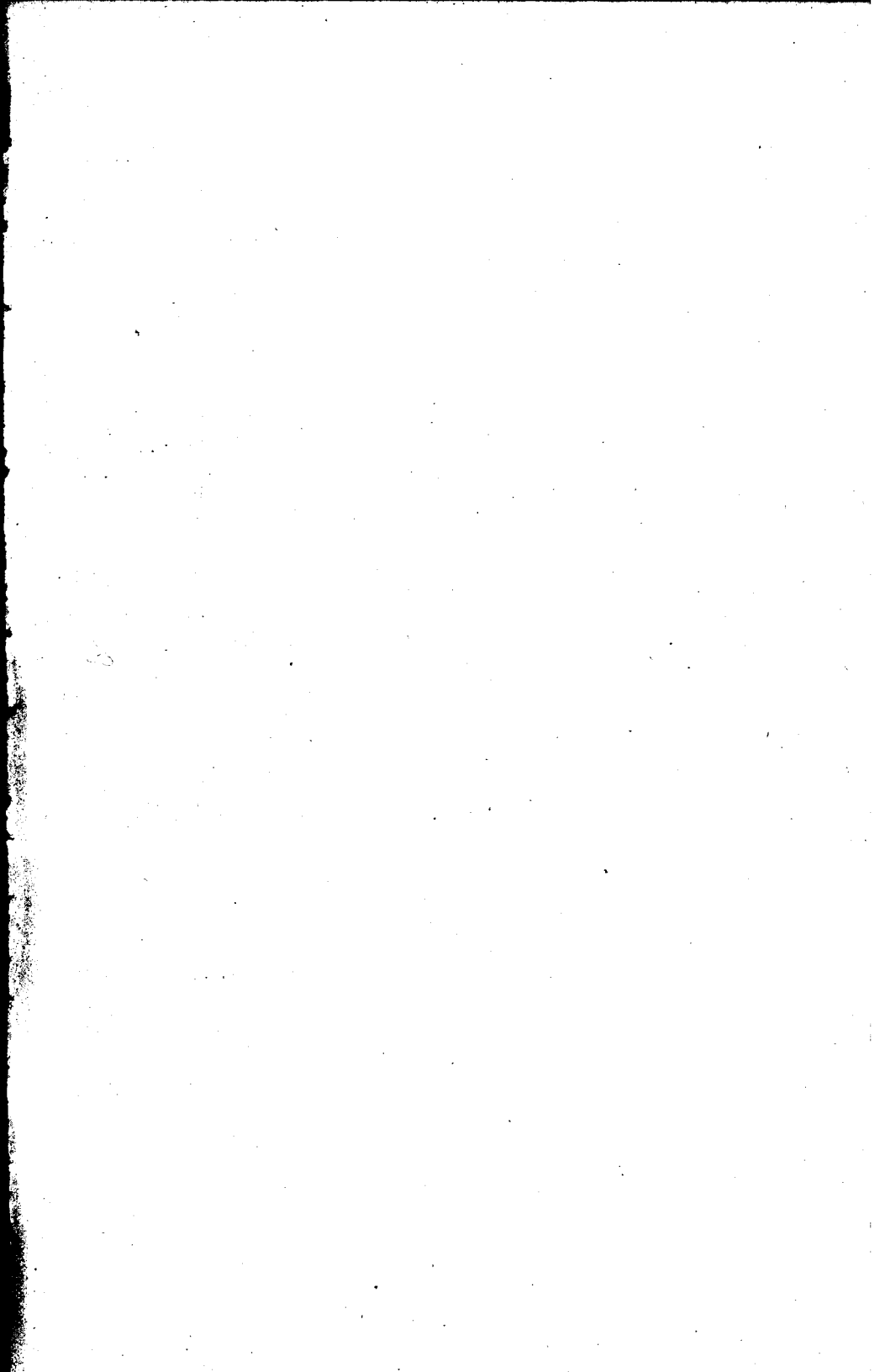
Appell, Caspar, 576 Ottawa Av.
Appell, Henry J., 576 Ottawa Av.
Berger, J. Jos., 1257 Rice St.
Berglund, R. W., 1860 Feronia Av.
Booraem, H., 2156 Dayton Av.
Conoling, Charles N., 184 W. Robie
St.
Culligan, F H., 1065 Portland Av.
Curry, J. S., 1039 Fauquer
Donovan, J. S., 265 Charles St.
Drake, L. R., 1897 Feronia Av.
Gray, Walter R. 1829 Goodrich
Gullickson, Oscar S., 1559 Dayton Av.
Johnston Harrison, 2 Crocus Hill
Keating, James E., 630 Virginia Av.
Ledy, Jay H., 966 Selby Av.

McGuire, John J., 694 Carroll Av.
Murtz, Rodney S., 1510 Carroll Av.
Nelson, Henry, 704 Smith Av.
Rand, F. L., 1924 Feronia Av.
Reiff, E. R., North St. Paul
Reilly, Roger, 614 Grand Av.
Rich, George S., 195 N. Snelling Av.
Rosenthal, Leo, 951 Front St.
Schuelter, H. A., 1466 Sherburne
Simons, Harry, 1873 Roblyn Av.
Stanton, D. R., 1404 Sargent
Villaume, Julius, 123 W. Isabel
Villaume, Louis, 172 Prospect
Walsh, Edward, 695 Lincoln Av.
Wirth Henry, 127 Lawson St.

DULUTH

Anderson, Edward, 2515 W. 2nd St.
Blade, Eric, 2427 W. 3rd St.
Chilsholm, John, 513 1st Av. W.
Diers, Charles B., 1727 New St.
Ericson, C. A., 101 S. 64th Av. W.
Hamilton, Clarence E., 409 N. 57th Av.
W.

Lyholm, Lawrence, 2005 N. 2nd St.
Melgard, Alfred, 1018 59th Av. W.
Scheuring, Frank W., 318-329 W. 2nd
St.
Schumann, John E. C., 307 Chestnut
St.
Sullivan, Henry J., 4711 W. 6th St.



The Bulletin
of the University of
Minnesota

General Extension Division
Evening Classes
Professional Courses in Law
1917-1918



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PROFESSIONAL COURSES IN LAW

SCOPE OF CURRICULUM

The General Extension Division offers professional courses in law which will be given under the immediate direction of the faculty of the Law School. These courses are designed to meet the needs of two distinct classes of students; first, those young men and women actively engaged in mercantile pursuits who desire to acquire a technical knowledge of law for the purpose of better qualifying themselves for business careers; second, those who desire to qualify themselves for admission to the bar by passing the examinations set by the State Board of Bar Examiners but whose circumstances are such as to make it impossible for them to attend classes excepting in the evening after business hours.

For the benefit of these two classes of students a course of instruction has been mapped out covering substantially all of the topics required by the Bar Examiners for admission to the bar, and extending over a period of four years. The topics to be given to the first- and second-year classes only are scheduled for the session of 1917-18. The announcement for the year 1918-19 will include also the topics to be given to the third- and fourth-year classes.

UNIVERSITY CREDIT

Since the courses given to the evening classes are necessarily less extensive than the corresponding courses given in the Law School, no University credit will be given for work in law excepting in those cases where students in evening classes achieve unusual success, as indicated by a grade of B or better. Such honor students will be permitted to take the Law School examinations in the subjects in which they are distinguished, and upon passing such regular examinations, will be given University credit, provided they have the preliminary education (two years of college work) required for admission to the Law School.

CERTIFICATE ON COMPLETION OF COURSE

No degree is given for night work in law, but upon the successful completion of the four-years' course herein announced, students will receive a certificate showing that they have completed the University Extension Course in Law.

TIME AND PLACE OF INSTRUCTION, AND TEXTBOOKS

All instruction in law will be given at the Law Building of the University of Minnesota, Minneapolis, beginning Monday, October 1, 1917, and ending Friday, May 24, 1918. Class exercises will be held on the evening of each week day, excepting Saturday, during the session, beginning at 7:30 and extending not later than 9:30.

Most of the textbooks used by students in pursuing the courses will be loaned by the University free of charge, upon payment of a deposit fee of \$5.00. This deposit will be repaid upon the student's returning in good condition all of the books loaned to him during the year.

REQUIREMENTS FOR ADMISSION

The requirements for admission to the Extension courses in Law are in general the same as for the day courses in the College of Science, Literature, and the Arts; namely, either (1) passing special entrance examinations, (2) graduation from an accredited high school, or (3) evidence by certificate, of equivalent scholastic preparation.

By special arrangement, persons who are at least twenty-one years of age, and who do not comply with the general requirements as above outlined, may attend the evening courses in Law. In such cases, it will be necessary for the applicant to satisfy the instructor in charge that he is qualified to carry the work which he proposes to take.

FEEES

The tuition fee for the regular Extension Course in Law is \$50.00 a year, payable one half at the beginning of the first semester and one half at the beginning of the second semester. Students taking less than the whole course will be required to pay at the rate of \$5.00 for each recitation a week for each semester. No other charge of any kind will be made excepting the deposit required for the safe return of textbooks loaned, as indicated above.

REGISTRATION

From September 24 to October 5 the office of the Dean in the Law Building will be open for the purpose of giving information and registering students for the Extension Law courses every evening, except Saturday and Sunday, from 7:30 to 9:30. At other times, and for further particulars apply to the Director of the General Extension Division, University of Minnesota, Minneapolis. The office of the Director is in the Main Engineering Building.

COURSES GIVEN IN 1917-18

The complete Extension curriculum in Law will extend through four years, with six lecture periods a week each year. The courses given the first- and second-year classes are described in outline below.

First Year

1. **PERSONAL PROPERTY.** This course includes a consideration of the distinction between real and personal property; the acquisition of title to personal property other than by sale; accession, confusion; gifts; finding; property rights of bailor and bailee; possessory liens and pledges. One hour; first semester. VANCE.

2. **CONTRACTS.** This course deals with the general principles of the Law of Contracts. The student considers fully the rules governing the making of contracts, their operation and discharge, and the legal consequences of a breach of contract. The general purpose of the course is to afford a foundation for the latter study of the important kinds of specific contracts, such as those of agency, bailments, partnership, commercial paper and sales, which are considered in separate courses. Two hours throughout the year. **LOBB.**
3. **DOMESTIC RELATIONS.** This course treats of marriage and divorce; parent and child; guardian and ward; property law peculiar to the marriage relation; rights and liabilities of persons under the disabilities of coverture, infancy, insanity, etc. One hour; first semester. **LOBB.**
4. **CRIMINAL LAW.** This course deals with the common and statutory law of crimes, its historical development and practical application. Two hours; first semester. **PAIGE.**
5. **REAL PROPERTY.** This course covers a general treatment of estates in real property, the rights incident to ownership of reality, powers, uses and trusts, easements, and the methods of transferring rights in real estate. Two hours; second semester. **LOBB.**
6. **BAILMENTS AND CARRIERS.** This course includes the general law of bailments, treating specially of bailments to pledgees, inn-keepers, and common carriers. Two hours; second semester. **DORSEY.**

Second Year

7. **EQUITY.** This course treats of the general nature of equity jurisdiction, and specifically of equitable rights and remedies connected with torts, trespass, and nuisance; of the specific performance of contracts; and of the cancellation and reformation of contracts by reason of accident, mistake, or fraud. Two hours; first semester. **DORSEY.**
8. **WILLS AND ADMINISTRATION.** This course treats of testamentary capacity; execution, revocation, and republication of wills; descent; probate of wills and administration of estates. One hour; first semester. **LOBB.**
9. **NEGOTIABLE INSTRUMENTS.** This course considers formal and essential requirements of negotiable instruments, and the nature of the liability of the respective parties thereto; acceptance; endorsement; transfer; presentment; notice of dishonor; the Negotiable Instruments Law. Two hours; second semester. **PAIGE.**
10. **DOMESTIC RELATIONS.** (Identical with Course 3 above.)
11. **CRIMINAL LAW.** (Identical with Course 4 above.)
12. **REAL PROPERTY.** (Identical with Course 5 above.)
13. **BAILMENTS AND CARRIERS.** (Identical with Course 6 above.)

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

Correspondence Courses
Announcement for the Year
1917-1918



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CORRESPONDENCE COURSES

FACULTY

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General Extension Division
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JOHN E. GRANRUD, Ph.D., Professor of Latin
CHARLES L. HARLAN, M.A., Instructor in Education
CYRIL A. HERRICK, B.A., Instructor in Rhetoric
LELAND H. JENKS, M.A., Instructor in History
WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Descriptive
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ALFRED E. KOENIG, M.A., Assistant Professor of German
SAMUEL KROESCH, Ph.D., Assistant Professor of German
AUGUST C. KREY, Ph.D., Associate Professor of History
ERNEST P. KUHLE, Ph.D., Instructor in Rhetoric
EDWARD M. LEHNERTS, M.A., Assistant Professor of Geography, General
Extension Division
RUPERT C. LODGE, M.A., Assistant Professor of Philosophy
JOHN V. MARTENIS, M.E., Assistant Professor of Mechanical Engineering
WILFORD S. MILLER, Ph.D., Assistant Professor of Education

- WALTER R. MYERS, Ph.D., Assistant Professor of German
CHARLES W. NICHOLS, M.A., Assistant Professor of Rhetoric
RUTH S. PHELPS, M.A., Assistant Professor of Italian
JOSEPH B. PIKE, M.A., Professor of Latin
GEORGE C. PRIESTER, B.E., M.S., Assistant Professor of Mathematics and
Mechanics
ALBERT W. RANKIN, B.A., Professor of Education
WILLIAM T. RYAN, E.E., Assistant Professor of Electrical Engineering
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CARLYLE SCOTT, Professor of Music
LESTER BURRELL SHIPPEE, Ph.D., Lecturer in History
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FLETCHER H. SWIFT, Ph.D., Professor of Education
ARTHUR H. TAYLOR, M.A., Lecturer in Sociology
PERCIVAL W. VIESSELMAN, M.A., LL.B., Instructor in Political Science
HOWARD T. VIETS, M.A., Instructor in Rhetoric
HERBERT WOODROW, Ph.D., Associate Professor of Psychology
JEREMIAH S. YOUNG, Ph.D., Professor of Political Science
OTTO S. ZELNER, B.S., Assistant Professor of Surveying

GENERAL INFORMATION

The developments of the last few years have clearly demonstrated the effectiveness of, and the necessity for, university teaching by correspondence. The foremost American universities have recently recognized this opportunity for specific service by extending their work beyond the lecture room and the campus, in order to reach students who are unable to comply with the traditional limitations of university and college study.

In thus extending its functions the University offers a plan of practical instruction whereby collegiate training is made available in every section of the state and to those who of necessity must devote a part of their time to other duties. Altho such instruction can not compensate for the lack of a complete cultural or professional course taken in residence, it makes available to persons unable to attend the University an opportunity to study along lines best adapted to their respective needs and interests.

By a careful economy of time it is possible to contribute largely to the requirements for a Bachelor of Arts degree by combining work in residence at the University Summer Session with correspondence study under the General Extension Division.

CORRESPONDENCE STUDENTS

Correspondence teaching is of significance to several kinds of students: to the teacher, whom experience has taught the need of further study for individual satisfaction and professional efficiency; to the college graduate, who desires to take up some study which he did not pursue in his resident work; to the man or woman who left school early and who now feels the value of broader training to make either life more interesting or work more productive; and to the young high school graduate who desires to begin his college course. When correspondence teaching is fully developed, it can offer something to every one in the community, whatever his age, training, occupation, or interests. Even at the present stage it meets the needs of very considerable numbers and many different classes.

SCOPE OF THE WORK

The subjects offered cover a wide range and give sufficient material for the needs of numbers of men and women intent on further study. Mathematics and certain lines of natural science, language, and literature, history, politics, economics, and the elements of philosophical and other social sciences, afford a considerable breadth of selection.

THE INSTRUCTION

Upon receipt of application and fee the first lesson will be sent, with instructions for study and methods of preparation, and directions for returning lesson sheets and reports. Each lesson will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Each assignment contains questions to test the student's methods of work as well as his understanding of the ground covered. After preparing for recitation the student writes his answers to the questions and returns them, together with a statement of any difficulties which may have arisen during his study.

INSTRUCTORS

The correspondence teaching is done by instructors from the various faculties in the University, who are in continuous charge of similar courses and who are familiar with the needs of non-resident students. The courses outlined are not mere duplicates of university work, but have been outlined and will be administered in such a way as to take advantage of the broader experience of the mature non-resident student and to make this experience serve as far as possible instead of the more intensive reading of the college student.

THE UNIT COURSE

The unit course is divided, where practicable, into forty assignments, representing a five-credit course in residence. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five full recitation-hours per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks with a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able. There are a few six-credit courses in modern languages. Shorter courses are ordinarily divided into fifths of the unit course of forty assignments, corresponding to three-credit, two-credit, or one-credit courses in resident work at the University. A three-credit course in residence, then, would be covered by correspondence teaching in twenty-four assignments, and shorter courses in proportion. Two assignments in correspondence approximately cover the ground in quantity of a week's work in residence.

CLASS WORK

The work here offered is primarily for individual students. When a group of twelve or more is pursuing the same course, however, in any

community, the University offers to send an instructor at a nominal charge of five dollars for each visit, in order to direct personally either in the beginning of the term or occasionally at intervals the studies of the group.

BOOKS AND OUTFIT

All necessary textbooks, drawing outfits, apparatus, dissecting material, chemicals, etc., are extra and *must be procured by the student*. The student also pays postage on lessons one way.

Every correspondence student, regardless of the course for which he enrolls, is expected to buy and use the pamphlet *How to Study*, by Swain, published by McGraw-Hill Book Company, 239 West 39th Street, New York, price twenty-five cents.

Some reference books may be borrowed from the University Library. This privilege does not apply to the necessary textbooks. The period of loan is one month. The student is expected to pay express or postage both ways. Requests for such reference books should be addressed to The Librarian, University of Minnesota, Minneapolis, and the student should state explicitly what books are desired, with the author's name, title of the book, and the volume number, naming the course taken by correspondence and giving full instructions for mailing.

No list of textbooks is published by the Division.

PROCEDURE

The student who wishes to undertake correspondence study should first select such course or courses as he may desire to take and send for an application blank. He should fill out the blank with all the information called for and return it with the required fee to the office of the General Extension Division.

HOW TO SEND MONEY

By post-office or express money order, personal check, or draft. *Make all checks and orders payable to the University of Minnesota.* Always address the General Extension Division, University of Minnesota, Minneapolis.

REGULATIONS

ADMISSION

All men and women who seem qualified to pursue successfully the courses offered will be admitted to registration without formal examination. The student is required to fill out an application blank giving such information as may be helpful in adapting the instruction to the personal needs of each student. It is desired that the student state fully the purpose he has in view in taking the work and also in detail such educational advantages, training, or experience as he may have had. The Division endeavors to meet the needs of the individual student by advice and suggestions, as well as by formal instruction, but whenever it finds that the course elected is not for the best interests of the student, it reserves the right to reject the application or to advise change or discontinuance.

TIME

Students may begin a correspondence course at any time during the year and will be required to complete the course within twelve months from the time of enrollment, but the Division *can not guarantee that all courses will be given during the summer months*. During an instructor's vacation, a substitute will be provided to carry on such course or courses, if possible, or the time for completing the courses will be extended.

NUMBER OF COURSES CARRIED

Not more than two courses may be carried through correspondence at one time.

FEEES

All fees are payable at the time the student files his application for registration. No reduction of fee is made for a combination of courses carried simultaneously.

Three-credit course—24 lesson assignments..... \$12.00
Five-credit course—40 lesson assignments..... 20.00

No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected, the fee is returned.

REINSTATEMENT

Any student whose registration has expired, or who has failed to complete a course within the prescribed time of one year through causes not within the control of the University, may be reinstated with the consent of the Director on payment of one dollar for each course.

CREDIT

Students who undertake correspondence study work for university credit must state this fact in advance and comply with all requirements of the University, including the prerequisites for each course. University credits allowed in this connection will be recorded separately until the student matriculates at the University, when they will be recorded permanently as university credits. Registrations for credit will not be accepted until university entrance requirements have been met. These requirements are ordinarily comprised in a four-year high school course.

Those seeking a university degree must conform to all the requirements exacted by the college or school in which such degree is sought. The bulletin of any college or school may be obtained from the University Registrar.

A maximum of one half the required credits for the B.A. degree may be accumulated through correspondence. The work of the earlier part of the course is more likely to be available for correspondence study. In any case the work of the senior year must be done in residence.

No credits may be earned by correspondence study to apply on the Master's Degree, or any other graduate degree. At present courses in Engineering subjects do not give credit.

PROFESSIONAL STATE TEACHERS' CERTIFICATE

After the academic year 1917-18, the State Department of Public Instruction will not accept grades acquired through correspondence study in lieu of examination for credit toward the State Professional or any other state teachers' certificate. Correspondence courses listed in this bulletin, however, may be taken as a preparation for the state examinations in the required branches.

RESIDENT STUDENTS

Registrations for correspondence courses will not be accepted from resident students of the University of Minnesota or of any other institution of learning unless acceptance would be justified by exceptional circumstances.

No university student may enroll for a correspondence course for the purpose of removing a condition or a failure.

EXAMINATIONS

All students on completing any course will be given an examination either at the University or, by arrangement, in their home towns under the supervision of an accredited representative of the University. This representative may often be the local superintendent of schools.

COURSES OF INSTRUCTION

ASTRONOMY

1. **DESCRIPTIVE ASTRONOMY.** A descriptive course designed to give accurate general information regarding the solar system and the stellar universe. Students will be expected to construct some simple inexpensive apparatus for themselves to aid in the comprehension of the subject. Altho not necessary, the student will find that a small telescope, or even an opera glass, will add greatly to the interest in the subject.

Twenty-four lessons (three university credits). BEAL.

2. **URANOGRAPHY.** A study of the constellations visible from the United States. The course includes an exposition of star magnitudes; use of star maps; identification of the constellations, brighter stars, variables, doubles, clusters, and nebulae; interpretation of the Milky Way; reading of star folk-lore; watching the motions of the brighter planets relative to the sun and stars. Each lesson is adapted to a particular month of the year. The course can be begun at any time.

Twelve lessons (no university credit). Fee, \$6.00. BEAL.

BUSINESS COURSES

1. **BUSINESS ENGLISH.** Mastery of materials, letters in general, complaint answers, reminder letters, recommendation letters, application letters, credit-adjustment letters, form letters, follow-up letters, general sales letters.

Twenty-four lessons (no university credit). VIETS.

2. **BUSINESS LAW A—CONTRACTS AND AGENCY**

The general rules of contracts being fundamental to all work in business law, this course should precede the others.

Contracts: Formation of contracts, offer and acceptance, consideration, capacity of parties, minors, married women, misrepresentation, fraud, legality of object, the operation of contracts, interpretation of contracts, methods of discharging contracts.

Agency: Methods of forming the relation of agency, who may act as agent, who may act as principal, liabilities of principal to third parties, liabilities of agents, termination of agency.

Sixteen lessons (two university credits). Fee, \$8.00. VIESSELMAN.

3. **BUSINESS LAW B—PERSONAL PROPERTY, SALES, BAILMENTS, NEGOTIABLE INSTRUMENTS**

Negotiable instruments, nature and characteristics (a) definition; (b) the uniform negotiable instruments law, essentials, non-essentials, negotiations, indorsements and delivery, holder in due course and his rights, notice of dishonor, protest, checks.

Personal property—bailments: definitions, distinction between real and personal property, nature of bailment, rights of bailor, rights of bailee.

Sales of personal property. Definition of a sale; when the title passes to the buyer; rights of the seller (a) to set the contract aside on the ground of fraud, (b) the seller's lien for the purchase money, (c) right of stoppage in transit; rights of the purchaser, (a) to demand goods of a certain quality, (b) warranty of the purchaser's title.

Sixteen lessons (two university credits). Fee, \$8.00. VIESSELMAN.

NOTE: See also Course 3 under "Economics."

ECONOMICS

1. ELEMENTS OF ECONOMICS, PART I. Price under competition and under monopoly; the factors of production and the principles determining the reward that the factors get in the shape of wages, rent, interest, and profit; principles of trade, including consideration of relative merits of free trade and protection; money; banks and banking; immigration; trade unions; stock exchange; concentration of industry; insurance; the economic functions of the state.

This course is designed to give a general understanding of our economic order. Special attention is given to a consideration of basic principles and to descriptive accounts of economic institutions.

Twenty-four lessons (three university credits). BLAKEY.

2. ELEMENTS OF ECONOMICS, PART II. This course undertakes a more intensive study of the principles of price determination than was possible in Course I, especially as related to the problem of distribution. Further attention will be given certain important economic questions, such as the business cycle, the tariff problem, corporation finance, monopoly, public utility regulation, and projects of economic reform. Course I or its equivalent is a prerequisite.

Twenty-four lessons (three university credits). BLAKEY.

3. BANKING. The subject-matter of this course constitutes the necessary basis of a thoro understanding of the principles of currency, banking, and finance. The lessons will survey all the practical operations of modern banks with chief emphasis upon commercial banking and with some attention to the legal problems to be met with in dealings between banks and their customers. Beginning with a description of the development of commercial banking, of savings banks and trust companies, the course will be developed under the following topics: how to organize a commercial bank; shareholders, directors and officers, their duties, powers, and liabilities; deposits, depositors, and the receiving teller; the paying teller and checks; the bank reserve; national bank notes; clearing houses; collections and domestic exchange; foreign exchange; loans and discounting, credit departments and how they judge credit; collateral loans; statements of condition; bank

policy; supervision and examinations; central banks of England, France, and Germany, and the Federal Reserve System of the United States. Prerequisite for credit, Course 1 above.

Twenty-four lessons (three university credits). EBERSOLE.

EDUCATION

1. INTRODUCTORY PSYCHOLOGY

See Course 1 under Philosophy and Psychology.

2. EDUCATIONAL PSYCHOLOGY

See Course 2 under Philosophy and Psychology.

3. HISTORY OF ANCIENT AND MEDIEVAL EDUCATION. An introductory study in the history of education, with special attention to the education of Greece, Rome, and the early Christian centuries, to the development of different types of schools in medieval times, and to the rise of the universities and of the humanistic schools of the Renaissance. The course is designed to arouse an interest in educational problems, to secure some perspective for use in current investigation, and to give some command of the facts of educational history and some facility in the methods of historical investigation. An attempt is made to bring out education as one phase of civilization and to show the connection of schools with other social institutions.

Twenty-four lessons (three university credits). SWIFT and ALEXANDER.

4. HISTORY OF MODERN EDUCATION. A somewhat intensive study of the periods in the history of modern education, with special reference to the development of the various national systems of public instruction. Different types of educational theory are considered in connection with a study of the men who first advanced them and of the schools in which they were first put into effect. This course is a direct preparation for an understanding of the educational systems, theories, and practices of the present.

Twenty-four lessons (three university credits). SWIFT and ALEXANDER.

5. RURAL EDUCATION. This course is intended to give the student a comprehensive understanding of rural life in its economic and social aspects so that he may, with better intelligence, organize the rural school and make it a power in the community for coöperation with all other constructive forces, and a factor in the promotion of leadership among the country people themselves. It is not a narrow academic course, but a broad, popularly arranged course that any intelligent person can pursue with satisfaction and profit.

Gillette's *Constructive Rural Sociology*, Carver's *Principles of Rural Economics*, supplemented by a number of rural surveys and

pamphlets on various special topics, are the required texts in the course.

Twenty-four lessons (three university credits). HARLAN.

6. THE MODERN HIGH SCHOOL. A brief review of its evolution to date will be followed by a thoro consideration of its place and function, especially its increasing usefulness in a democracy; its curriculum, particularly with reference to needed reconstruction of courses; the better organization of the high school to meet the demands of adolescence; relation of the high school to other parts of the system; the larger problems of organization and management, especially as these things affect the work of the regular teacher. In a word, this course is intended to give those who work in high schools the point of view that will insure the best results.

Much of the material of the course is drawn from practical observation and actual surveys. Monroe's *Principles of Secondary Education* is used.

Twenty-four lessons (three university credits). MILLER.

7. INDUSTRIAL EDUCATION. The principles fundamental to vocational training in the public school system as affecting the arrangement of school years, the course of study, and the methods of teaching. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). RANKIN.

8. THEORY OF TEACHING. An introductory course in educational theory, including a somewhat detailed study of the principles on which is based the present practice in teaching, with an interpretation of the fundamental facts of psychology as applied to the problems of education.

Twenty-four lessons (three university credits). ALEXANDER.

9. SCHOOL ORGANIZATION AND LAW. A comprehensive course in the organization and management of schools in American communities, with special reference to the duties of school boards and school superintendents, principals, and teachers, to the methods and equipment proper to schools of various grades, and to the main facts in the school law of Minnesota. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). RANKIN.

10. SCHOOL SANITATION. This course is designed for those who are concerned with schools of any and all grades. It deals with conditions affecting the health of school children of all ages. School architecture, courses of study, and the discipline of the school will be considered as well as all other questions affecting the well-being of pupils. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). RANKIN.

ENGINEERING

1. **SHOP MATHEMATICS, PART I.** This course will include mathematics from the elements through proportion, and will also include certain problems in areas, volumes, weights of materials, etc., and the fundamental elements of machines, such as levers, pulleys, inclined plane, etc.
Twenty-four lessons (no university credit). EDWARDS.
2. **SHOP MATHEMATICS, PART II.** This work will be in advance of Part I and will take up algebra, geometry, and trigonometry from a practical shop standpoint. A thoro working knowledge of formulae will be given. Each lesson in both Parts I and II will have numerous practical problems to be worked by the student.
Twenty-four lessons (no university credit). EDWARDS.
3. **MECHANICAL DRAWING, PART I.** The course includes the use of instruments, lettering, simple projections with sections and developments, working drawings of details of tools, machines, and structures. Geometrical problems and exercises will be studied in connection with their application. An elementary course designed to meet the needs of beginners.
Twenty-four lessons (no university credit). KIRCHNER and assistants.
4. **MECHANICAL DRAWING, PART II.** A continuation of Part I. (A complete outfit for these courses can be purchased for as little as six dollars. Set No. 1, \$6.00; Set No. 2, \$8.00; Set No. 3, \$10.00.)
Twenty-four lessons (no university credit). KIRCHNER and assistants.
5. **FREEHAND LETTERING.** This course is especially adapted for the use of teachers of drawing in high schools, manual training instructors, rural teachers, draftsmen, highway and county engineers. Capitals, lower case, numerals, and other symbols will be thoroly treated. Explanatory notes, dimensions, and title layouts will be illustrated.
Sixteen lessons (no university credit). Fee, \$8.00. ZELNER.
6. **PRACTICAL PHYSICS.** A short, practical course in physics giving the fundamentals that all students must know for engineering purposes. Force, pressure, stress, tension, motion, work, power, energy, elasticity, law of fluids at rest and in motion, heat, and electricity will be given a brief practical treatment. Prerequisite, Courses 1 and 2.
Twenty-four lessons (no university credit). HOLMAN.
7. **ELEMENTARY MECHANICS.** A short, practical course in elementary mechanics designed to meet the needs of students who have had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, velocity, acceleration, im-

pulse, momentum, work, power, and energy. Prerequisite, Courses 1, 2, and 6.

Twenty-four lessons (no university credit). BROOKE.

8. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials in common use. Properties of materials, stress and strain, elastic limit, ultimate strength, deformation, deflection, principle of moments, moments of inertia, and the general elementary theory of beams, columns, and shafts will be taken up. The student should have the equivalent of Shop Mathematics, Parts I and II. Prerequisite, Courses 1, 2, 6, and 7.

Twenty-four lessons (no university credit). EDWARDS.

9. **ELECTRICITY AND MAGNETISM.** An elementary study of magnetism and electricity. Simple laws of magnetism, and the relation of magnetism to direct current electricity will be developed. Series and parallel circuits, combinations of both, simple wiring and armature winding will be taken up. A knowledge of arithmetic and algebra would be helpful, but is not required. Prerequisite, Courses 1, 2, and 6.

Twenty-four lessons (no university credit). EDWARDS.

10. **HEATING AND VENTILATION.** The course is intended to meet the needs of those who wish to know about the principles and installation of heating and ventilating apparatus. The work will include an introduction and study of heat, heat losses, loss of ventilation, ventilation practice, air conditioning, heating systems—steam and hot-water, direct and indirect, use of exhaust steam, thumb rules, warm-air systems, fan systems—plenum and exhaust systems, vacuum systems, piping systems, central-station heating, and heating accessories. Prerequisite, Courses 1, 2, and 6.

Twenty-four lessons (no university credit). MARTENIS.

11. **ELEMENTS OF MACHINE DESIGN.** A short, practical course in machine design. Some elementary machines will be discussed and the laws of mathematics, mechanics, and strength of materials will be applied in each case, leading to the complete design of the particular machine under consideration. Working detail and general drawings will be made as the work advances. Prerequisite, Courses 1, 2, 3, 4, 6, 7, and 8.

Twenty-four lessons (no university credit). EDWARDS.

12. **TRIGONOMETRY.** A course in plane and spherical trigonometry, designed to meet the needs of beginners and to include the subject usually considered in the ordinary college course. The solution of triangles is treated quite fully, but not to the exclusion of analytical trigonometry. Prerequisite, Courses 1 and 2.

Twenty-four lessons (no university credit). PRIESTER.

13. **CALCULUS FOR ENGINEERS, PART I.** A brief course in Differential Calculus. Only the essential parts of the subject will be taken up and

all the formulae derived and explained. Prerequisite, Course 12.

Twenty-four lessons (no university credit). EDWARDS.

14. **CALCULUS FOR ENGINEERS, PART II.** This course will be a continuation of Part I, and will take up Integral Calculus. Application to engineering problems will be given wherever possible. Prerequisite, Course 13.

Twenty-four lessons (no university credit). EDWARDS.

15. **LUMBER AND ITS USES.** Structural and physical properties of wood, standard grades and sizes, structural timbers, seasoning and preservation, paints and stains, lumber prices, cost of wood construction, specific uses of woods and selection of materials.

Ten lessons (no university credit). Fee, including text material, \$6.00. CHEYNEY.

16. **PUBLIC ROADS AND HIGHWAYS.** This course has been designed for public officials and members of semi-public organizations interested in good roads.

The cost and economy of various types of roads, methods of administration, construction of earth, gravel, concrete and bituminous surfaces, of bridges and culverts will be successively studied.

In coöperation with the State Highway Commission, Minnesota materials and standards of construction will be given particular attention.

Twenty-four lessons (no university credit). BASS.

ENGLISH

1. **HISTORY OF ENGLISH LITERATURE I.** A general survey of English literature from the earliest times to 1700, with a good deal of emphasis upon the historical setting. Extensive readings from volumes of examples of the most famous poetry and prose. When feasible, the special study of the work of one of the major authors is recommended to be done at the same time as an intensive offset to so much rather sporadic reading. Prerequisite for credit, Rhetoric 1 and 2.

Twenty-four lessons (three university credits). COLBY.

2. **HISTORY OF ENGLISH LITERATURE II.** A general survey of English literature from 1700 to the present time. Prerequisite for credit, Course I above.

Twenty-four lessons (three university credits). COLBY.

3. **AMERICAN LITERATURE—GENERAL SURVEY.** A study of American literary development, with particular attention to the influence of English literature and the effect of our own national history upon the progress of thought and expression in the United States. The student must read extensively from American authors and answer questions which will call for constructive criticism and independent esti-

mates. Textbook comments will not be accepted. Prerequisite for credit, Courses 1 and 2 above.

Twenty-four lessons (three university credits). HERRICK.

4. **THE ENGLISH NOVEL.** An elementary course in the principles of fiction with the careful study of seven novels, selected to represent various aspects of the history of English prose fiction; also the study of a contemporaneous novel with an attempt to ascertain its literary value and its relationship to the masterpieces of the past. The consecutive study of the novels will be accompanied by selected assignments from Bliss Perry, *Study of Prose Fiction*, and W. L. Cross, *The Development of the English Novel*. Prerequisite for credit, Courses 1 and 2 above.

Twenty-four lessons (three university credits). KUHL.

5. **THE ROMANTIC MOVEMENT.** Poets and prose writers of the late Eighteenth Century and early Nineteenth Century with particular stress upon Wordsworth, Byron, and Shelley, and a consideration of the influence upon English literature of the revolution in France. Prerequisite for credit, Courses 1 and 2 above.

Twenty-four lessons (three university credits).

GEOLOGY

1. **GENERAL GEOLOGY.** A general course, including a study of natural forces and phenomena, plants and animals as geologic agents, structural geology, physiographic geology, and an outline of historical geology.

Twenty-four lessons (three university credits). LEHNERTS.

2. **PHYSICAL GEOGRAPHY.** A college course in the essentials of Physical Geography and Physiography, with special application of the conditions of surface and climate to human occupation and economic and national development.

Twenty-four lessons (three university credits). LEHNERTS.

GERMAN

1. **BEGINNING GERMAN A.** Grammar and easy composition.

Forty lessons (six university credits). Open to all who have had no German. BURKHARD.

2. **BEGINNING GERMAN B.** Grammar and composition continued; selected readings in easy prose and verse.

Forty lessons (six university credits). Both A and B must be completed before credit is given for A. BURKHARD.

3. **RAPID READING A.** Selections from modern narrative and descriptive prose. Assigned outside readings and reports.

- Twenty-four lessons (three university credits). Open to those who have completed Courses 1 and 2 or their equivalent. KROESCH.
4. RAPID READING B. Plays of Lessing, Goethe, Schiller, Hebbel. Assigned outside readings and reports.
Twenty-four lessons (three university credits). Both A and B must be completed before credit is given for A. Students who obtain credit for these courses can not receive credit also for Courses 5 and 6. KROESCH.
5. PROSE AND POETRY A. Spanhoffd's *Aus Vergangener Zeit*; selected lyrics and ballads. Geography, history, legend. Review of the morphology of grammar.
Twenty-four lessons (three university credits). Open to students with two years of preparatory German. MYERS.
6. PROSE AND POETRY B. Lyrics and ballads continued. Goethe's *Hermann und Dorothea*. Review of syntax.
Twenty-four lessons (three university credits). These courses not open to those who have obtained credit in Courses 3 and 4. Both A and B must be completed before credit is given for A. MYERS.
7. ELEMENTARY COMPOSITION A. Translation of short English selections. Paraphrasing of simple poems. Free narration. Exercises based on topical grammar review.
Sixteen lessons (two university credits). Open to those who are taking or have taken Courses 3 and 4 or 5 and 6. Fee, \$8.00. MYERS.
8. ELEMENTARY COMPOSITION B. Translation and grammar review continued. Simple description. Letter writing.
Sixteen lessons (two university credits). Both A and B must be completed before credit is given for A. Fee, \$8.00. MYERS.
9. DRAMA A. Study of the present-day drama in Germany. Selected plays of Hebbel, Hauptmann, or Sudermann, with assigned readings and reports.
Twenty-four lessons (three university credits). Open to those who have completed Courses 1 and 2, and 3 and 4, or 5 and 6. DAVIES.
10. DRAMA B. Study of the German drama of the eighteenth century and through the classic period. Selected plays of Lessing, Goethe, or Schiller, with assigned readings.
Twenty-four lessons (three university credits). DAVIES.
11. SURVEY OF GERMAN LITERATURE TO THE CLASSIC PERIOD. A study of the development of German literature from the earliest times through Lessing. Selected readings from representative works supplement the course. Prerequisite for credit, Courses 9 and 10 above.
Twenty-four lessons (three university credits). BURKHARD.

12. SURVEY OF GERMAN LITERATURE SINCE THE CLASSIC PERIOD. A study of the development of German literature from Goethe through the Romantic movement and the most prominent writers of the nineteenth century. Selected readings from representative works supplement the course. Prerequisite, Course II above.
Twenty-four lessons (three university credits). BURKHARD.

GREEK

1. BEGINNING GREEK A. The declensions and conjugations and the simpler rules of syntax, together with sentences based on the vocabulary of the *Anabasis*, and translation into Greek of idiomatic English sentences based upon the same text.
Forty lessons (five university credits). Open to those qualified, who have had no Greek. Both A and B must be completed before credit is given for Course A. SAVAGE.
2. BEGINNING GREEK B. Course A continued; general principles, inflections, word-formations, syntax, elementary readings, composition.
Forty lessons (five university credits). SAVAGE.
3. HISTORY—XENOPHON'S ANABASIS. Selections from Books 2, 3, 4; Hadley's *Greek Grammar*; etymology reviewed and syntax studied sufficiently to enable the student to proceed confidently in the translation of the text; the irregular verb. Prerequisite for credit, Courses I and 2 above.
Twenty-four lessons (three university credits). SAVAGE.
4. ELEMENTARY COURSE IN HOMER. Selections from the *Iliad* or the *Odyssey*. Open to those who have read in Greek prose the equivalent of at least three books of the *Anabasis*.
Twenty-four lessons (three university credits). SAVAGE.
5. ELEMENTARY COURSE IN THE DRAMA. Euripides' *Alcestis* or *Medea*; translation, study of mythology and of Greek life. Open to those who have read at least two books of Homer in addition to the prose equivalent of at least three books of the *Anabasis*.
Twenty-four lessons (three university credits). SAVAGE.
6. PHILOSOPHY. Plato's *Apology* and selections from other works of Plato; study of Greek philosophy. Open to those who have had at least two years of Greek. Prerequisite for credit, Course 3 above.
Twenty-four lessons (three university credits). SAVAGE.

HISTORY

1. ANCIENT HISTORY, PART I—GREEK. This course includes a brief preliminary survey of Egypt and Babylonia, showing their influence on later civilizations, followed by a study of Greek history, with special stress on the development of Sparta and Athens, the Persian Wars,

the Age of Pericles, the interrelation of politics with the artistic and literary development and finally the conquests of Alexander and the diffusion of Greek civilization over the East.

Twenty-four lessons (three university credits).

2. ANCIENT HISTORY, PART II—ROMAN. A course in Roman history, including the rise of Rome from a petty city to the position of mistress of the ancient world, the great struggle with Carthage, the causes that led to the fall of the Republic, the transition to the Empire, and its decline and fall, with special emphasis on the effect of imperial institutions on modern civilization.

Twenty-four lessons (three university credits).

3. MEDIEVAL AND MODERN HISTORY, PART I. A study of European history from the time of Charlemagne to the close of the Thirty Years War (800-1648 A. D.)

Twenty-four lessons (three university credits). KREY.

4. MEDIEVAL AND MODERN HISTORY, PART II. A study of European history from the close of the Thirty Years War to the present (1648-1914).

Twenty-four lessons (three university credits). KREY.

5. UNITED STATES HISTORY, PART I. This is the first half of a comprehensive course in American history. About two thirds of Part I is devoted to the colonial period, the remainder to the Revolution and the closing years of the eighteenth century. The work consists of a study of the text, supplemented by a considerable amount of source study and collateral reading. The student is required to prepare written answers to questions based on the text and on the supplementary readings.

Twenty-four lessons (three university credits).

6. UNITED STATES HISTORY, PART II. A continuation of Part I, devoted mainly to a study of the period from the beginning of the nineteenth century down to 1861, with a brief survey in conclusion of the principal events from that time to the present.

Twenty-four lessons (three university credits).

LATIN

1. ORATIONS OF CICERO A. Two orations, study of the life of Cicero and Latin composition.

Twenty-four lessons (three university credits). Open to those who have completed two years of preparatory Latin. GRANRUD.

2. ORATIONS OF CICERO B. Four orations, study of the times of Cicero and Latin composition.

Twenty-four lessons (three university credits). Open to those who have completed Course 1. GRANRUD.

3. VIRGIL'S AENEID A. The course will cover the first two books of the *Aeneid* and include the study of the life and times of Virgil, the principles of Latin prosody, the literary style of the *Aeneid*, and, to a limited extent, Roman mythology.

Twenty-four lessons (three university credits). Open to those who have completed three years of preparatory Latin. PIKE.

4. VIRGIL'S AENEID B. Books 3, 4, 5, 6 of the *Aeneid*. Textbooks: *Virgil's Aeneid* by Charles Knapp, Bennett's *Latin Grammar*. The student will, besides, be expected to read and report on Sellar's *Virgil*.

Twenty-four lessons (three university credits). Open to those who have completed Virgil's Aeneid A. PIKE.

5. LIVY, BOOK I. The work will comprise the study of the text, the life, times, and literary style of Livy, and, in some measure, early Roman institutions, and, lastly, Latin composition. Textbooks: Westcott's *Livy*, Book I, Bennett's *Latin Grammar*, and White's *Latin-English Lexicon*. The student will also read and report on Ihne's *Early Rome*.

Twenty-four lessons (three university credits). Open to those who have completed four years of preparatory Latin. PIKE.

6. PLAUTUS AND TERENCE: SELECTIONS. The course will consist of a study of the texts, the literary styles of Plautus and Terence, and an outline of the history and technique of the Roman drama. Textbooks: *Plautus' Menaechmi* by Fowler, *Terence's Phormio* by Elmer, and White's *Latin-English Lexicon*. The student will also be required to read and report upon Sellar's "Plautus and Terence" in *The Roman Poets of the Republic*.

Twenty-four lessons (three university credits). Open to those who have completed Course 5. PIKE.

MATHEMATICS

1. ELEMENTARY ALGEBRA I. This course covers the ground given in the average high school in the first half year of algebra.

Twenty lessons (no university credit). Fee, \$10.00. BARTON.

2. ELEMENTARY ALGEBRA II. This course covers the ground given in the average high school in the second half year of algebra up to and including quadratics.

Twenty lessons (no university credit). Fee, \$10.00. BARTON.

3. PLANE GEOMETRY I. This course covers the ground of the average high-school course as given in first half year of plane geometry.

Twenty lessons (no university credit). Fee, \$10.00. KIRCHNER.

4. PLANE GEOMETRY II. This course covers the ground of the average high-school course as given in the second half year of plane geometry.

Twenty lessons (no university credit). Fee, \$10.00. KIRCHNER.

5. **SOLID GEOMETRY.** This course is designed not only to give a knowledge of the standard theorems and exercises of the text, but to develop the student's own imagination and initiative and give a well-rounded view of the subject by practice in special proofs and original exercises. Prerequisites for credit, Courses 1, 2, 3, 4, above.
Twenty-four lessons (two university credits). KIRCHNER.
6. **HIGHER ALGEBRA, PART I.** A brief review of Courses 1 and 2, linear equations in one, two, and three unknowns, with solution by determinants, quadratic equation in one and two unknowns, with careful discussion of the general quadratic in x and graphical representation and solution of the quadratic in two unknowns, ratio and proportion, variation, binomial theorem, progressions, and equations in quadratic form. Prerequisites, Courses 1 and 2 above.
Forty lessons (five university credits). BARTON.
7. **HIGHER ALGEBRA, PART II.** A continuation of Part I, including a study of variation, quadratic equations, special higher equations, simultaneous equations of the second degree, maxima and minima of functions, logarithms, theory of equations, and solution of numerical higher equations.
Twenty-four lessons (three university credits). BARTON.
8. **TRIGONOMETRY.** A course in plane and spherical trigonometry, designed to meet the needs of beginners and to include the subject usually considered in the ordinary college course. The solution of triangles is treated quite fully, but not to the exclusion of analytical trigonometry. Prerequisite, a course in algebra including logarithms.
Twenty-four lessons (three university credits). PRIESTER.
9. **PLANE ANALYTIC GEOMETRY.** This course treats systems of coördinates, loci, the type forms of the equation of the straight line with applications; the circle, central and general conic sections, tangents, diameters, asymptotes, some higher plane curves, parametric loci, polar curves. The fundamental problem of the equation and its locus forms the basis of the course. Prerequisite, Course 8 above.
Twenty-four lessons (three university credits). BARTON.

NOTE: See also Courses 1 and 2, 13 and 14, under "Engineering."

MUSIC

1. **HARMONY.** Will begin with scales, major and minor; intervals; formation of triads, their inversions; the dominant seventh chord, its inversions; modulation; suspension; organ-point, etc.
Twenty-four lessons (three university credits). SCOTT.
2. **HISTORY OF MUSIC.** A general survey of the development of music, from the earliest times to the present; primitive scale-forms, Greek theory, changes due to Christian practices, the development of polyphony, the monodic revolution and the growth of opera, the rise of

instrumental music and instrumental forms, leading to a historical view of present-day music and musical tendencies. Considerable attention will be given to parallel movements and conditions in literature and history, the aim of the course being to present music as a literature.

Twenty-four lessons (three university credits). FERGUSON.

PHILOSOPHY AND PSYCHOLOGY

1. GENERAL PSYCHOLOGY I. The purpose of this course is to acquaint the student with the general characteristics and laws of mental life and with the aims and methods of modern psychology.

Twenty-four lessons (three university credits). WOODROW.

2. GENERAL PSYCHOLOGY II. The study of mental development in its relation to heredity and training, with an investigation of the facts and theories of childhood and adolescence with special reference to their bearing on education.

Twenty-four lessons (three university credits). WOODROW.

3. INTRODUCTION TO PHILOSOPHY. A survey course in philosophy, in which the main fields of investigation are mapped out, the permanent problems indicated, and the chief methods employed in their solution are discussed. The course leads up to an outline of the idealistic view of the world, with practical applications to conduct and religion.

Twenty-four lessons (three university credits). LODGE.

4. LOGIC. A study of the nature and place of thinking in human life, followed by some notice of points in logical theory. Main emphasis then to be laid upon the methods that naturally arise in human thinking, studying their technical developments with the Greeks, the Schoolmen, and the modern scientists.

Twenty-four lessons (three university credits). LODGE.

5. ETHICS. A study mainly of morality as a phase of the developing life of peoples. Some attention to individual morality, but especially to contemporary social problems.

Twenty-four lessons (three university credits). LODGE.

6. ANCIENT AND MEDIEVAL PHILOSOPHY. A general survey of the philosophical problems that arose in the Greek period, and their development through the Middle Ages. The philosophical problems will be considered as representing the fundamental attitudes of the particular periods toward experience. These fundamental attitudes will be studied in the formulations of the individual philosophers. The work of Plato and Aristotle will be particularly stressed.

This course will give credit only to those having six credits or their equivalent in the Department of Philosophy. Text: Rogers' *Students' History of Philosophy*, and readings in Plato and Aristotle.

Twenty-four lessons (three university credits). LODGE.

7. **MODERN PHILOSOPHY.** A continuation of the previous course. This course is intended to cover the reconstruction of the problems of human experience, and their intended solution. The traditions of Rationalism and Empiricism will be traced down to the Kantian Philosophy. As in the previous course, the special authors will be studied. Rogers' *Students' History of Philosophy*, with special readings, will be used. Same prerequisite as Course 6.
Twenty-four lessons (three university credits). LODGE.

PHYSICS

1. **GENERAL PHYSICS.** Mechanics of solids and fluids, sound, and heat. An elementary university course in the fundamental principles of the subject.
Twenty-four lessons (three university credits).
2. **GENERAL PHYSICS.** Electricity, magnetism, and light. A continuation of General Physics 1.
Twenty-four lessons (three university credits).

POLITICAL SCIENCE

1. **AMERICAN GOVERNMENT.** An elementary course in American Government and Politics intended as a preparation for teaching in secondary schools and for good citizenship. The course deals with the national government, treating its nature and origin. Special attention will be given to the organization of the executive, legislative, and judicial branches of the government, together with the various powers and duties of each department; to the conduct of foreign affairs; and the Federal Trade Commission.
Twenty-four lessons (three university credits). VIESSELMAN.
2. **STATE AND LOCAL GOVERNMENT.** A complementary course to I preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Prerequisite for credit, Course 1 above.
Twenty-four lessons (three university credits). BENNETT.
3. **AMERICAN MUNICIPAL ADMINISTRATION.** A study of the city problem in the United States. Organization, functions, and administration. Forms of charters. Commission and manager plans. Home rule. Inefficiency, corruption. Civil service and other reform measures. Finance, health, police, education, and other activities. Prerequisite for credit, Course 1 above.
Twenty-four lessons (three university credits). ANDERSON.

4. **INTERNATIONAL LAW.** Recognition, extinction, and succession of states. Inviolability of territory; freedom of the seas. Declaration of war; rules of war on land and on sea. Neutrality and neutral rights; blockade, contraband, unneutral service, visit and search. Mediation, arbitration, and judicial settlement of international disputes. A world court. Prerequisite for credit, Course 1 above.
Twenty-four lessons (three university credits). ANDERSON.

RHETORIC

1. **RHETORIC, PART I.** This course is designed to give practical training in composition as well as a knowledge of rhetorical principles. Besides the study of the text it includes practice in the analysis of the best specimens of English prose, and the writing of papers, mainly expository in character.
Twenty-four lessons (three university credits). VIETS.
2. **RHETORIC, PART II.** A continuation of Part I, with more advanced work in analysis, and practice in writing narration, description, and informal argument.
Twenty-four lessons (three university credits). VIETS.
3. **EXPOSITION.** Imitative and creative work in the various types of exposition with especial recognition in the latter part of the course of the way in which exposition merges into the other forms of discourse. Prerequisite for credit, Courses 1 and 2 above.
Twenty-four lessons (three university credits). HERRICK.
4. **NARRATION AND DESCRIPTION.** An attempt at an untechnical but thorough understanding and application of these associated forms of discourse. Prerequisite, Course 3 above.
Twenty-four lessons (three university credits). HERRICK.
5. **VERSIFICATION.** A study of the nature of poetry, and a detailed analysis of English meters and the various English verse forms. The theory accompanied by criticism of current poetry and practice in writing verse.
Twenty-four lessons (three university credits). Open for credit to those who have completed the equivalent of freshman and sophomore rhetoric (Courses 1, 2, 3, 4, above). Open to others without credit. NICHOLS.
6. **BUSINESS ENGLISH.** See Course 1 under Business Courses. VIETS.

ROMANCE LANGUAGES

FRENCH

1. **BEGINNING FRENCH A.** French grammar and reader; modern texts. Forty lessons (six university credits). FRELIN.
2. **BEGINNING FRENCH B.** A continuation of Course 1.

Both courses must be completed before credit is given for the first course. Forty lessons (six university credits). FRELIN.

3. INTERMEDIATE FRENCH A. Prose composition; modern texts, including some of the works of Coppée, Daudet, Scribe, *et al.*
Twenty-four lessons (three university credits). FRELIN.
4. INTERMEDIATE FRENCH B. A continuation of Course 3.
Twenty-four lessons (three university credits). Open to those who have completed Courses 1 and 2 or their equivalent. Both courses must be completed before credit is given for the first course. FRELIN.

SPANISH

1. BEGINNING SPANISH A. Spanish grammar and reader.
Forty lessons (six university credits). Open to all who have had no Spanish. BARTON.
2. BEGINNING SPANISH B. A continuation of Course 1. Modern texts, practical composition.
Forty lessons (six university credits). Open to those who have completed Beginning Spanish A or its equivalent. Both courses must be completed before credit is given for Course 1. BARTON.
3. INTERMEDIATE SPANISH A. Reading of modern Spanish texts.
Twenty-four lessons (three university credits).
4. INTERMEDIATE SPANISH B. A continuation of Course 3.
Open to those who have completed Courses 1 and 2. Both courses must be completed before credit is given for the first course. Twenty-four lessons (three university credits).

ITALIAN

1. BEGINNING ITALIAN. Rules of pronunciation, grammar, elementary composition, and easy readings in modern prose.
Twenty-four lessons (three university credits). PHELPS.
2. INTERMEDIATE ITALIAN. Continuation of grammar study and composition; readings in prose and verse.
Twenty-four lessons (three university credits). PHELPS.

SCANDINAVIAN LANGUAGES AND LITERATURE

NORWEGIAN

1. ELEMENTARY NORWEGIAN A. Elementary study of the language, grammar, composition, select readings in easy prose and poetry.
Forty lessons (six university credits).
2. ELEMENTARY NORWEGIAN B. A continuation of Course 1.
Forty lessons (six university credits). Open to all who are qualified to take the course. Both courses must be completed before credit is given for the first course.

3. MODERN NORWEGIAN LITERATURE A. History of Norwegian literature from 1814 to the present day.

Twenty-four lessons (three university credits). BOTHNE.

4. MODERN NORWEGIAN LITERATURE B. A continuation of Course 3.

Twenty-four lessons (three university credits). Open to advanced students. Both courses must be completed before credit is given for the first course. BOTHNE.

SWEDISH

1. ELEMENTARY SWEDISH A. Grammar and composition; select readings in easy prose and verse.

Forty lessons (six university credits). STOMBERG.

2. ELEMENTARY SWEDISH B. A continuation of Course 1.

Forty lessons (six university credits). Open to all who are qualified to take the course. Both courses must be completed before credit is given for the first course. STOMBERG.

3. SWEDISH LITERATURE A. History of Swedish literature from 1710 to the present time. History of the literature and study of modern authors, including Selma Lagerlöf, Gejerstam, Strindberg.

Twenty-four lessons (three university credits). STOMBERG.

4. SWEDISH LITERATURE B. A continuation of Course 3.

Twenty-four lessons (three university credits). Open to advanced students. Both courses must be completed before credit is given for the first course. STOMBERG.

SOCIOLOGY

1. RURAL SOCIOLOGY. A study of the conditions and problems of country life. Analysis of environmental, human, and general social conditions; how soil, climate, etc., the quantity and quality of the rural population, the interaction of city and country, determine the type of rural communities. Problems of sanitation, coöperation, education, religion, recreation, crime, and dependency, growing out of these conditions.

Twenty-four lessons (three university credits). BERNARD.

2. CHILD WELFARE. Study of social obligations to the child; development of the child-saving movement in the United States; infant and child mortality, recreation, education; courts, institutions, societies, and other public efforts for the child. Prerequisite for credit, one year's work in Sociology. Open to others without credit.

Twenty-four lessons (three university credits). TAYLOR.

OTHER EXTENSION ACTIVITIES

LANTERN SLIDES

The General Extension Division has organized a Bureau of Visual Instruction. Collections of lantern slides on subjects of interest to schools, and more especially high schools, are procured and sent out as loans to the schools which are provided with lanterns. Each set is accompanied by a typewritten lecture or reading.

The plan in the past has been to have these sets of slides available on call. In the future this plan will be abandoned in favor of the circuit system. Each year circuits of twelve to sixteen towns will be organized, each town to receive one set of slides at weekly or bi-weekly intervals. The towns on the circuits may thereby count on a regular supply and will be able to plan in advance for the use of the slides. It is believed that in this way the slides will be more continuously in service and the transportation charges will be lower. The slides are sent out in collections of fifty or one hundred on each subject.

Among the slides available are:

- The Aeneid of Virgil
- Ancient Rome, the Forum, and the Imperial Fora
- Birds of Minnesota
- Caesar's Helvetian Campaign
- Children in Different Lands
- Conquest of Tuberculosis
- The Development of Writing and Printing
- Farming in Different Lands
- Following Great Men through Greece
- Going to Church around the World
- History of Greek Architecture
- History of Roman Architecture
- History of Medieval Architecture
- History of Renaissance Architecture
- Home Life in Different Lands
- India
- Insect Pests of Minnesota
- Norway
- Passion Play of Ober-Ammergau
- Philippine Islands
- Pompeii
- Pompeii, the Roman House and Furniture
- Rome, the World Center of Olden Times
- Sweden
- Switzerland
- Thirteen Chapters of American Naval History
- Transportation in Different Lands
- Wild Flowers of Minnesota

From time to time additions to this collection will be made and offered as the demand arises.

EXTENSION LECTURES

Lectures, either single or in series, delivered by members of the University faculty, may be obtained by the people of the various communities of the state on very reasonable terms. These lectures attempt to present in popular form present knowledge of the various fields of research and investigation covered by the numerous departments of the University. Some of these lectures are primarily informational, others cultural, and all, it is hoped, inspirational. These lectures afford a good opportunity for any community to keep abreast of present thought and new ideas in the various fields of the world's activity. Some of the courses of lectures given will closely parallel similar courses given each year in the classrooms of the University. In order that courses of lectures may be inaugurated and successfully prosecuted in any town, it is necessary usually that an organization be effected. This may be called the Extension Committee, and through its means business details, advertising, etc., may be attended to systematically and well.

LYCEUM COURSES

In addition to the more strictly educational lectures offered by members of the University faculty, there are offered also professional lyceum courses of popular lectures, entertainments, concerts, and dramatics. The General Extension Division is in a position to obtain the services of the best lecturers as well as of the lyceum companies presenting entertainments, readings, and concerts, at a much lower rate than is possible for the average community. These courses are offered at cost, thereby eliminating the profits of the agent and of the middleman. In this way the lecturer will get just as much for his services while the community will obtain the same entertainment for much less money, or, better still, will obtain a very much higher order of entertainment for the same money. Only courses of lectures or of entertainments of marked merit will be sent out by the General Extension Division. It must be distinctly understood, however, that the University in offering these attractions is acting merely as a booking agency between the attractions and the public, and can not be held responsible for opinions, theories, or sentiments expressed by lecturers. A list of the lyceum attractions available for the season of 1918-1919 may be obtained on request.

COMMUNITY CENTERS

There is a movement now running through the country in the interest of a wider community use of the school plant and of other public buildings. It is realized that these buildings, in which the public has a large investment, are open for the use of the people for only a fraction of the

available time. There is need for a civic forum or community club house, where citizens may gather for discussion of public questions and for the expression of neighborhood civic and social life. The General Extension Division proposes to further this movement by offering guidance and co-operation, more particularly in the way of providing plans for organization, with a list of things that may be done. The Division also offers the services of an adviser on the organization and program of community and commercial clubs. Correspondence is invited from any citizen or organization of citizens interested in this subject.

DRAMA SERVICE

There is becoming apparent throughout the state an increasing interest in the drama. Many schools now plan to give amateur theatricals every year. The University Drama Service is planned to afford amateurs an opportunity without expense beyond postage, to select plays after reading three or four picked out with some regard for the special requirements of the applicant.

In addition advice is given as to costumes and also with respect to the purchase and the painting of scenery. It is hoped in the future it may be possible to send out University dramatic companies to give plays in the several communities of the state during vacations and at week-ends. If interest in this form of service develops it may also be possible to furnish amateurs in the state the assistance of a University dramatic coach. Correspondence is invited from interested schools.

MUNICIPAL REFERENCE BUREAU

The Municipal Reference Bureau is designed to provide the municipal officials of the state with a central clearing house for the dissemination of intelligent information on matters of municipal importance. To render this service the Bureau has collected charters, ordinances, and other municipal documents. This information is drawn upon in the answering of specific inquiries referred to the Bureau by municipal officials of the state, and in the preparation of reports of general interest to the villages and cities of Minnesota. Municipalities desiring information, public reports, statistics, and advice upon administrative matters are urged to communicate with the Bureau.

SHORT COURSES

The Agricultural Extension Division has been very useful to the people of the state through its system of short courses of one week offered in agriculture, home economics, and similar subjects. The General Extension Division now reaches another class of people in a similar way by offering one-week courses in such subjects as merchandising, retail selling, etc. These courses are of very great benefit to country merchants especially. The short course in retail merchandising is now

offered regularly during the second week of February each year at the University. Merchants and their clerks from all over the state attend this practical school for one week. Experts from the best talent in the country are brought in to expound the various phases of the subject and to outline fundamental principles.

AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

INFORMATION

It often happens that citizens of a state are in need of information on some specific subject not to be found in the ordinary books of reference, and in such cases the average person is at a loss where to turn. The General Extension Division has as one of its functions the business of obtaining and furnishing to inquirers information on the various subjects which from time to time may be called for. This information is obtained by research and by application to the proper university source, and thereby the department acts as a clearing house of the information which is gathered and stored up through the facilities of a great university. Inquiries for information are therefore invited and so far as the means at hand will permit, the information will be found and supplied.

The various subjects mentioned in the preceding pages lie within the province of the General Extension Division and inquiries on all of them should be addressed to The General Extension Division, University of Minnesota, Minneapolis.

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University Extension Lectures for
1917-1918

With Announcements for
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WILLARD E. HOTCHKISS, Ph.D., Professor of Economics and Director of Business Education
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ALBERT E. JENKS, Ph.D., Professor of Anthropology, Chairman of the Department of Sociology and Anthropology

* On leave of absence.

- WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Descriptive Geometry, Head of the Department of Drawing and Descriptive Geometry
- FREDERICK KLAEBER, Ph.D., Professor of Comparative and English Philology, Head of the Department of Comparative Philology
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- BURT L. NEWKIRK, Ph.D., Assistant Professor of Mathematics and Mechanics
- J. ANNA NORRIS, M.D., Director of Health and Physical Education for Women
- JOSEPH PETERSON, Ph.D., Professorial Lecturer in Philosophy
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- ALBERT B. WHITE, Ph.D., Professor of History
- JEREMIAH S. YOUNG, Ph.D., Professor of Political Science

UNIVERSITY EXTENSION LECTURES

GENERAL INFORMATION

The University of Minnesota through its General Extension Division makes the following announcement of lectures that are available to the communities throughout the State.

The lectures here listed have a bearing on the vital social, economic, and scientific problems of life. They may be given in courses of several lectures upon the same general theme, or as single lectures.

FEEES

There is no appropriation to cover the expense of these lectures. With only a few exceptions they are to be given by members of the faculty who have their full share of heavy work in the University and who volunteer to go out on this service simply to meet the increasing demand for this kind of educational effort.

In order that no community may be penalized because of its distance from the seat of the University, it has been determined to make a flat rate, uniform in all parts of the State, for most of the extension lectures. In pursuing the general policy to make the cost to the community as low as possible, the fee has been fixed at \$15 plus the local entertainment of the lecturer. This amount includes the lecturer's fee and traveling expenses. A few members of the faculty who are in demand on the lecture platform, and who for that reason have an established fee at a higher rate, are not included in the list of those who may be obtained at the \$15 rate. Their terms may be learned on application to this department. But generally speaking, the \$15 rate applies to the University lecturers listed in this bulletin.

HOW TO SECURE THE LECTURERS

1. Apply to the General Extension Division, University of Minnesota, Minneapolis, for the lecture or lecturers desired.
2. Duplicate contracts covering conditions and fee will be sent you.
3. If you can meet the conditions, sign and return one copy of the contract.
4. When the lecture is delivered, you will immediately forward the fee to the Director of the General Extension Division, who will pay the money to the Comptroller and forward the receipt to you.

HOW TO SEND MONEY

By post-office or express money order, personal check, or draft.

Make all checks, orders, and drafts payable to the University of Minnesota.

Always address the Director of General Extension Division at the University of Minnesota, Minneapolis.

SPECIAL LECTURES ON THE WAR

1. The Literature of the Great War. MR. BURTON.
2. The World War and Democracy. MR. YOUNG.
3. America's Chief Aim in the War. MR. VANCE.
4. The League to Enforce Peace. MR. VANCE.
5. The Forests and the World War. MR. CHEYNEY.
6. Geography and Topography of the War. MR. LEHNERTS.
7. How to Pay for the War. MR. BLAKEY.
8. The War Taxes. MR. BLAKEY.
9. The Meaning of the War. MR. CROSGRAVE.
10. The New War Government Insurance. MR. JAMES.
11. The Near East and the War. MR. TYLER.
12. Human Nature and War. MR. PETERSON.
13. Child Welfare in War Times. MR. BURT.
14. Health and Morals of the New Army and Navy. MR. BURT.
15. Social Welfare and the War. MR. TODD.
16. Women and Children in War Time. MISS BALL.
17. The War and Business. MR. HOTCHKISS.
18. A War Against Absolutism. MR. PRICE.

COURSES OF LECTURES

ANIMAL BIOLOGY

MR. SIGERFOOS

Series of Three Each

1. The Evolution Theory
2. The Nutrition of Animals

Single Lectures

1. The Evolution Theory
2. The Nutrition of Animals
3. Heredity and Environment in Animal Life
4. The Life and Work of Louis Pasteur and Human Welfare
5. The Method, Spirit, and Results of Scientific Work

MR. NACHTRIEB

One or Three Lectures

1. Heredity and Eugenics

ART AND ARCHITECTURE

MR. BURTON

1. The Development of Greek Sculpture
2. Renaissance Sculpture and Painting in Italy in the 15th and 16th Centuries

MR. MANN

Special topics on the history and practice of Architecture (Illustrated)

ASTRONOMY

MR. LEAVENWORTH

1. Bird's-eye View of the Universe
2. A Trip to the Moon
3. The Sun
4. Eclipses of the Sun
5. Are Other Worlds Inhabited?
6. Comets and Meteors

All are illustrated with lantern slides.

MR. BEAL

1. The Stars
2. The Planets

3. Evolution of the Solar System
4. Stars and Nebulae
All are illustrated with lantern slides.

ECONOMICS

MR. BLAKEY

1. How to Pay for the War
2. The War Taxes

MR. CROSGRAVE

1. The Meaning of the War
2. Compulsory Health Insurance for Wage Earners

MR. EBERSOLE

1. How Prices Control Business
2. The Conservation of Human Resources
3. Principles of Sound Investment
4. The Responsibilities of Citizenship
5. Prices and the Cost of Living
7. Rural Credits or Financing the Farmer
6. Our Present Monetary and Banking System

MR. HOTCHKISS

1. The War and Business
2. The Relation of the Government to Business

MR. JAMES

1. The Retail Merchant versus the Mail Order House
2. Some Methods by Which Retail Merchants Have Increased Their Business
3. What It Costs the Retail Merchant to Do Business
4. Opportunities for Young Men in Their Home Town in Retail Business
5. Coöperation between Manufacturer, Retailer, and Consumer to Reduce the Present Cost of Living
6. Life Insurance in War Times
7. The New War Government Insurance

MR. PRESTON

1. The Problem of Retail Marketing

EDUCATION

MR. SWIFT

1. Introductory. Standards of Education. Meaning and Importance of Standards
2. Culture as a Standard in a Democracy
3. Utility as a Standard

4. Religion and Morality
5. Child Life as a Standard
6. Social Standards
7. The Montessori System and Early Education
8. Present Conditions in European Schools; The Schools of England; The Schools of France; The Schools of Germany
9. The Story as a Factor in Moral Education, illustrated by readings from "The Most Beautiful Thing in the World"
10. Education our Birthright
- 11-15. Makers of Modern Education (given in series or separately): Rousseau, Herbart, Pestalozzi, Froebel, Dewey
16. Education and Social Betterment
17. Teachers of the East: Buddha, Socrates, Christ
18. Dramatization as a Method in Teaching
19. The Meaning of Play and Its Place in Education

LANTERN TALKS

1. Rome
2. Monasteries
3. Schools in Other Lands and Other Days
4. American Universities

ENGINEERING

ELECTRICAL ENGINEERING

MR. SHEPARDSON

1. The Electrical Transmission of Intelligence
2. The Use and Abuse of Light
3. Electricity in the Home
4. The Engineer in War

MECHANICAL DRAWING

MR. KIRCHNER

1. Significant Marks (Graphic, Theoretical, and Practical), Representation and Interpretation
2. The Science of Extension and Position (Geometry, Qualitative), Concepts of Space, and Spatial Relations
3. The World on Paper (Drawing, Mathematics, and Geography), Maps and Map Making
4. Lettering and Composition (Drawing and Design), the Alphabet: Origin, Development, and Application
- 5-6-7. Design and Ornament (Fine Arts and the Industries)
 - a. Design and Composition
 - b. Ornament, Symbolic and Aesthetic
 - c. Applied Design

MECHANICAL ENGINEERING

MR. MARTENIS

1. Development of the Locomotive (Illustrated with lantern slides)
2. The Heating and Ventilation of Homes and Buildings: History and Development (Illustrated)
3. Steam Boilers and Engines: Historical Development (Illustrated)

ENGLISH

MR. BURTON

Single Lectures

1. The Literature of the Great War
2. English Idiom: Its Uses and Abuses
3. The Theater and the People
4. The Short Story: A Modern Form of Art
5. The Return to Dickens

Lecture Courses

1. Ibsen: The Revolutionary of Modern Drama
2. Robert Browning: A Typical Modern Poet
3. The Short Story: A Modern Form of Art
4. Representative Modern Drama

MR. BEACH

1. The New Tendencies in English and American Poetry
2. The Technique of Henry James's Novels
3. George Meredith
4. The Nature and Function of Humor

MR. GLICK

1. Slaves of Tradition
2. What Am I?

LECTURE RECITALS

1. "The Melting Pot"—Zangwill
2. "The Right of Way"—Parker
3. "The Fortune Hunter"—Vance
4. "The Rift in the Clouds"—Glick
5. Program of miscellaneous readings

MR. KUHL

1. Biographies of Some Recent Great Americans
2. What Books Shall I Read to My Children?
3. What Magazines Shall I Read for
 - (a) Reviews of best books
 - (b) For best discussions on current topics
4. Great American Writers since 1870

MRS. PHELAN

1. Social Forces in the Drama
2. William Morris

ECONOMIC ENTOMOLOGY

MR. WASHBURN

1. The House-Fly; What It Does; and How Best to Combat It in Towns and Cities (Illustrated by lantern slides)
2. Protective Coloration and Mimicry in Insects (Illustrated by lantern slides)
3. Mill and Elevator Insects and Their Control
4. The Present Status of Economic Entomology in the United States
5. Four-footed Pests of the Farm, and Birds in Their Relation to the Farmer and Orchardist (Illustrated by lantern slides)

MR. RUGGLES

1. Shade Tree Insects (Illustrated by lantern slides)
2. Fundamentals of Spraying (Illustrated by lantern slides)

MR. MOORE

1. Garden Insects (Illustrated by lantern slides)
2. Snakes and Their Poisons

FORESTRY

MR. CHEYNEY

1. Winter Logging in North Woods (Slides)
2. Steam Logging in South and Pacific Coast (Slides)
3. History of the Forests in the United States
4. Our National Forests (Slides)
5. The Southern Appalachians and Their Forests
6. The Forests and the World War

GEOLOGY AND GEOGRAPHY

MR. EMMONS

1. The Mineral Resources of Minnesota

MR. LEHNERTS

1. Geography and Topography of the War
2. The Making of Minnesota
3. Minnesota: The Heart of Our Continent (Stereopticon Illustrations)
4. The Geology and Geography of Minnesota

Sixteen lectures, offered singly or in series, with or without stereopticon illustrations, on the geology and geography of our State, her vast natural resources and their utilization and conservation.

(1) The Geological Story of Minnesota. (2) The Climate and Weather of Minnesota. (3) The Soils of Minnesota. (4) The Crops of Minnesota. (5) Livestock and Dairying in Minnesota. (6) Minnesota Swamp Lands and Peat Beds and Their Utilization. (7) Forests, Lumbering, and Reforestation in Minnesota. (8) Minnesota Plant and Animal Life. (9) The Building Stones and Clays of Minnesota. (10) The Iron Mines of Minnesota. (11) The Waterpowers of Minnesota: Developed and Undeveloped. (12) The Manufacturing Industries of Minnesota. (13) Transportation, Commerce, and Commercial Centers in Minnesota. (14) The People of Minnesota. (15) Immigration: Opportunities for the Immigrant and for the State. (16) Minnesota's Place in the Sisterhood of States.

5. Wonderlands of America

Fourteen lectures, offered singly or in any desired combination. (1) The Glacier National Park. (2) The Yellowstone National Park. (3) Cripple Creek, Pike's Peak and Vicinity. (4) The Grand Canyon of Arizona. (5) The Yosemite National Park. (6) Mt. Rainier National Park. (7) Crater Lake National Park. (8) Alaska. (9) The Canadian Rockies. (10) Northeastern Minnesota and Isle Royal. (11) North Central Minnesota and the Lake of the Woods. (12) Along the Upper Mississippi and Its Tributaries. (13) The Great Lakes. (14) The Scenic St. Lawrence and Hudson River Regions.

MR. POSEY

1. Physical Environment as Affecting a People (Illustrated)

GERMAN

MR. SCHLENKER

1. Germany and the Germans
2. Social Questions in German Literature
 - (1) Literature as a mirror of social conditions
 - (2) Literature as a guide and a force in the reform of social wrongs
3. The Power of an Ideal (Commencement address)

MR. BURKHARD

1. Schiller: The Poet of Liberty
2. Goethe's Faust (Illustrated)
3. The Nibelungenlied (Illustrated)

MR. KOENIG

1. Theodor Storm (in German)
2. Rheinburgen und Legenden (in German or English, Illustrated)

MR. DAVIES

1. The Lyrics of Goethe and Heine in Musical Setting
2. German Educational Ideals

LECTURE-RECITALS

1. Rudyard Kipling
2. In and Out of Tune
3. Lieder and Literature
4. The Folk-Song
5. Robert Burns

GREEK

MR. SAVAGE

1. Greek Literature and Its Influence
2. Homer and the Homeric Age
3. Sappho and the Greek Lyric
4. Greek Plays and the Greek Theater
5. Demosthenes and Greek Oratory
6. Mythology in Greek Art
7. The Women of Greece

HISTORY

MR. BUCK

1. Scenes and Incidents in the History of Fort Snelling (Illustrated)
2. The Functions of a State Historical Society
3. Selections from the Manuscript Journal of Lucius C. Boynton

MR. DAVIS

1. Sicily: Its Past and Present
 2. The First Crusade: Its Misery and Its Triumph
- A series of five talks on Martin Luther considered as a man and as the hero of Protestant Germany

MR. WHITE

1. Ireland and the Beginnings of Modern Civilization

MR. TYLER

1. The New Imperialism, Its Aims, Character, and Results
2. The Near East and the War
3. Mittel-Europa, Meaning and Dangers
4. Bismarck

HYGIENE

DR. BEARD

DIVISION I

1. The Sanitary Conditions of the Dwelling
2. The Disposal of Refuse
3. The Sanitation of School Buildings
4. Medical Inspection in the Schools
5. The Hygiene of the Street and of Public Conveyances
6. The Water Supply

DIVISION II

1. The Value of Food Stuffs
2. The Uses of Water
3. The Feeding of School Children
4. The Hygiene of the Skin
5. The Uses of Clothing
6. The Ventilation of the Home

DIVISION III. PERSONAL HYGIENE

1. The Hygiene of the Human Skin
2. Pure Air in the Home
3. The Uses and Purity of Water
4. Food Values
5. The Symmetrical Development of the Human Being

DIVISION IV. THE HEALTH OF THE COMMUNITY

1. Health Inspection in the Schools
2. The Sanitation of School Buildings
3. The Disposal of Refuse
4. The Hygiene of the Street
5. The Public Water Supply
6. The Hygiene of the Public Conveyance

LATIN

MR. PIKE

1. The Latin Language
2. Roman Life in the Time of Pliny the Younger
3. Apuleius and the Ancient Short Story
4. Catullus, an Appreciation

MR. GRANRUD

1. Roman National Characteristics
2. The Forum, Its Life and Activities
3. Roman Amusements: Theaters, Amphitheaters, and Circuses
4. The Roman House and Its Furniture

5. Roman Portrait Sculpture
6. Characteristics of Roman Architecture
7. Representative Cathedrals of Italy
8. Select Masterpieces of Raphael and Michael Angelo
9. Roma Immortalis: Ancient, Medieval, and Modern

COMPARATIVE PHILOLOGY

MR. KLAEBER

1. The Life of Language
2. The Languages of Europe—a geographical and historical survey
3. The Idea of an International Language
4. Spelling and Spelling Reform
5. Jacob Grimm, the Typical German Scholar (Lecture in German)

PHILOSOPHY AND PSYCHOLOGY

MR. PETERSON

1. The Walls of the Prison House
2. Human Nature and War
3. The Dangers of Group Attitudes
4. The Determination of Fitness for the Vocations
5. The Psychology of Musical Harmony
6. Incentives in Advertising
7. The Intelligence of Higher Animals
8. Changing Conceptions of Mind and Personality

POLITICAL SCIENCE

MR. FLETCHER

1. The History of International Law

MR. VANCE

1. The League to Enforce Peace
2. America's Chief Aim in the War

MR. YOUNG

1. The World War and Democracy
2. The Commission Plan of City Government
3. State Education for Industrial and Civic Efficiency
4. The Social Function of the Church (suitable for a Sunday church service)
5. Community Team Play

ROMANCE LANGUAGES

MR. BARTON

1. Blasco Ibanez

MR. HENRÍQUEZ

1. Pan-Americanism
2. Latin-American Culture
3. Latin-American Ideals
4. Women in Latin America
5. Mexican Culture
6. What Spain Has Contributed to the World's Civilization
7. Spanish Literature (General, or special points)
8. Cervantes
9. Spanish Art
10. Life in the Tropics
11. Life in the High Plateaus of Mexico

SCANDINAVIAN

MR. BOTHNE

(In English or in Norwegian)

1. Ja, vi elsker dette landet (Norwegian)
2. Norway since 1814
3. Henrik Wergeland
4. Kings of Norway
5. Asbjørnsen and Moe
6. Björnson
7. Ibsen
8. Grundtvig and Denmark

MR. STOMBERG

1. Frithiof, the Viking
2. Democracy in Sweden in the Middle Ages
3. Educational Ideals in Sweden
4. Three Swedish Woman's Rights Advocates: Fredrika Bremer, Ellen Key, Selma Lagerlöf
5. August Strindberg, the Iconoclast
6. Selma Lagerlöf's Optimism
7. Viktor Rydberg
8. Alfred Hedenstierna
9. Sweden and Finland
10. The Land of the Midnight Sun (Illustrated)

SOCIOLOGY

MR. BURT

1. Health and Morals of the New Army and Navy
2. Minnesota's Social Hygiene Program
3. Child Welfare in War Times
4. Mobilizing the Social Forces of the Community

MR. TODD

1. Social Welfare and the War
2. Art for Man's Sake
3. Human Parasites
4. The Philosophy of Social Reform
5. The Scientific Spirit and Social Work
6. The Spirit of Efficient Philanthropy
7. How Communities Can Organize against Moral Hazards

MR. JENKS

1. America's Developing Nationalism
2. America's New Individualism

MISCELLANEOUS LECTURES

MR. ALLEN

1. Turkish Life and Customs (Illustrated)
2. Unknown Mexico (Illustrated)
3. Recent Information in Regard to Heating and Ventilation

MISS BALL

1. Vocations for Women
2. Women and Children in War Time
3. Household Arts Arithmetic

MR. ERIKSON

1. Liquid Air
Illustrated with apparatus and experiments

MR. HERRICK

1. Back through Bookdom
2. Forgotten Writers
3. The First Best Sellers in America
4. The Family Trail through American History
5. Italian Influences in English Literature

MR. NEWKIRK

1. The Gyroscope
A popular presentation with apparatus

MISS NORRIS

1. Things Women Ought to Know

MR. PRICE

1. Personal Efficiency
2. The Need of Business Education
3. Some Educational Ideals (an address for teachers)

4. A Plan of Life (commencement address)
5. The Easiest Way (commencement address)
6. Opportunity

MISS SANFORD

History of Art

Illustrated by very fine sets of lantern slides. Each lecture is complete in itself.

1. The Buried Cities of the East
2. Egypt and Its Mighty Ruins
3. Greek Art
4. Rome, Pagan and Christian
5. Florence and the Florentine Galleries
6. Venice and the Venetian Painters
7. Raphael and Michael Angelo
8. Paris and the Louvre

Literary Lectures

The Character and Works of Burns, Browning, Tennyson, Dickens, Kipling, Lowell, Longfellow, Whittier, Emerson, Mark Twain.

1. The Love Letters and Poems of Robert and Elizabeth Barrett Browning
2. The Beauty of the Bible
3. A Popular and Humorous Lecture: "How to Make Home Happy"
4. Literature for Everybody—with some humorous selections

Readings from Shakespeare

Macbeth, King Lear, Othello, Hamlet, Merchant of Venice

The principal scenes in a play are read, the story told, the characters and striking passages commented upon.

Addresses for Teachers' Institutes

1. The Cultivation of the Voice
2. Teaching Literature, Reading, English Composition, History
3. Growth, the Teacher's Duty
4. Moral Power in the School-Room

For Mothers' Meetings

1. The Training of Children
2. Teaching Sex Hygiene
3. The Influence of Good Art and Good Literature upon Character

MR. SKINNER

1. Two English Counties: Warwickshire and Devonshire
2. The English Lakes
3. The Country of Burns and Scott

4. Gothic Cathedrals

Lantern slides are available for all of these lectures.

MR. WASHBURN

1. Spain and the Spaniards from the Viewpoint of the Young Tourist
(Illustrated)

OTHER EXTENSION ACTIVITIES

LYCEUM COURSES

In addition to the more strictly educational lectures offered by members of the University faculty, there are offered also professional lyceum courses of popular lectures, entertainments, concerts, and dramatics. The General Extension Division is in a position to obtain the services of the best lecturers as well as of the lyceum companies presenting entertainments, readings, and concerts, at a much lower rate than is possible for the average community. These courses are offered at cost, thereby eliminating the profits of the agent and of the middleman. In this way the lecturer will get just as much for his services while the community will obtain the same entertainment for much less money, or, better still, will obtain a very much higher order of entertainment for the same money. Only courses of lectures or of entertainments of marked merit will be sent out by the General Extension Division. It must be distinctly understood, however, that the University in offering these attractions is acting merely as a booking agency between the attractions and the public, and can not be held responsible for opinions, theories, or sentiments expressed by lecturers. A list of the lyceum attractions available for the season of 1918-1919 may be obtained on request.

CORRESPONDENCE COURSES

For those who live away from the great centers of population and also for those who are interested in courses which are not offered in night classes, correspondence work is recommended. The lessons in these correspondence courses are prepared and taught by regular members of the University faculty and the courses offered embrace collegiate as well as professional and vocational branches. Each lesson assignment gives an outline of work, reference to text-books and collateral reading, topics for study, and a list of questions, the answers to which are to be sent in. This constitutes the student's recitation. The answers thus sent in are read, corrected, and graded by the instructor with the addition of marginal notations, suggestions, advice, and explanation. The lesson sheets thus annotated are then returned to the student. Persons who have the qualities of courage, energy, and persistence can do meritorious work by this plan. It is not contended that correspondence instruction is as good as residence instruction. Nothing can take the place of the living presence of the instructor in the classroom, and the stimulus of classmates. However, where residence instruction is for any reason impossible to obtain, correspondence instruction offers a fair substitute. This applies especially to persons of initiative, and to those persons able to cultivate the spirit of self-reliance, who will often thus obtain more from the course than will the more easy-going student in residence. Many of the courses command University credit when taken by properly qualified students, and all are of University grade.

For further particulars as to fees and courses now offered through correspondence, address the General Extension Division, Minneapolis.

MUNICIPAL REFERENCE BUREAU

The Municipal Reference Bureau is designed to provide the municipal officials of the state with a central clearing house for the dissemination of intelligent information on matters of municipal importance. To render this service the Bureau has collected charters, ordinances, and other municipal documents. This information is drawn upon in the answering of specific inquiries referred to the Bureau by municipal officials of the state, and in the preparation of reports of general interest to the villages and cities of Minnesota. Municipalities desiring information, public reports, statistics, and advice upon administrative matters are urged to communicate with the Bureau.

COMMUNITY CENTERS

There is a movement now running through the country in the interest of a wider community use of the school plant and of other public buildings. It is realized that these buildings, in which the public has a large investment, are open for the use of the people for only a fraction of the available time. There is need for a civic forum or community club house, where citizens may gather for discussion of public questions and for the expression of neighborhood civic and social life. One of the great purposes of the present movement is the realization by the people of the latent possibilities in every schoolhouse for what has been called "concentrated, coöperative, constructive citizenship." It is hoped that the people of every community in the state will organize for the purpose of using their public buildings for social and recreational purposes as well as for the wider education of the grown portion of the community through lecture courses and similar means. The General Extension Division proposes to further this movement by offering guidance and coöperation, more particularly in the way of providing plans for organization, with a list of things that may be done. It will also offer programs and lectures, musical entertainments and dramatics for such local centers as have effected a proper organization. Correspondence is invited from any citizen or organization of citizens interested in this subject.

DRAMA SERVICE

There is becoming apparent throughout the state an increasing interest in the drama. Many schools now plan to give amateur theatricals every year. The University Drama Service is planned to afford amateurs an opportunity without expense beyond postage, to select plays after reading three or four picked out with some regard for the special requirements of the applicant.

In addition advice is given as to costumes and also with respect to the purchase and the painting of scenery. It is hoped in the future it may be possible to send out University dramatic companies to give plays in the several communities of the state during vacations and at weekends. If interest in this form of service develops it may also be possible to furnish amateurs in the state the assistance of a University dramatic coach. Correspondence is invited from interested schools.

LANTERN SLIDES

The General Extension Division has organized a Bureau of Visual Instruction. Collections of lantern slides on subjects of interest to schools, and more especially high schools, are procured and sent out as loans to the schools which are provided with lanterns. Each set is accompanied by a typewritten lecture or reading.

The plan in the past has been to have these sets of slides available on call. In the future this plan will be abandoned in favor of the circuit system. Each year circuits of twelve to sixteen towns will be organized, each town to receive one set of slides at weekly or bi-weekly intervals. The towns on the circuits may thereby count on a regular supply and will be able to plan in advance for the use of the slides. It is believed that in this way the slides will be more continuously in service and the transportation charges will be lower. The slides are sent out in collections of fifty or one hundred on each subject.

Among the slides available are:

- The Aeneid of Virgil
- Ancient Rome, the Forum and the Imperial Fora
- Birds of Minnesota
- Caesar's Helvetian Campaign
- Children in Different Lands
- Conquest of Tuberculosis
- The Development of Writing and Printing
- Farming in Different Lands
- Following Great Men through Greece
- Going to Church around the World
- History of Greek Architecture
- History of Roman Architecture
- History of Medieval Architecture
- History of Renaissance Architecture
- Home Life in Different Lands
- India
- Insect Pests of Minnesota
- Norway
- Passion Play of Ober-ammergau
- Philippine Islands
- Pompeii
- Pompeii, the Roman House and Furniture

Rome, the World Center of Olden Times
Sweden
Switzerland
Thirteen Chapters of American Naval History
Transportation in Different Lands
Wild Flowers of Minnesota

From time to time additions to this collection will be made and offered as the demand arises.

SHORT COURSES

The Agricultural Extension Division has been very useful to the people of the state through its system of short courses of one week offered in agriculture, home economics, and similar subjects. The General Extension Division now reaches another class of people in a similar way by offering one-week courses in such subjects as merchandising, retail selling, etc. These courses are of very great benefit to country merchants especially. The short course in retail merchandising is now offered regularly during the second week of February each year at the University. Merchants and their clerks from all over the state attend this practical school for one week. Experts from the best talent in the country are brought in to expound the various phases of the subject and to outline fundamental principles.

AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

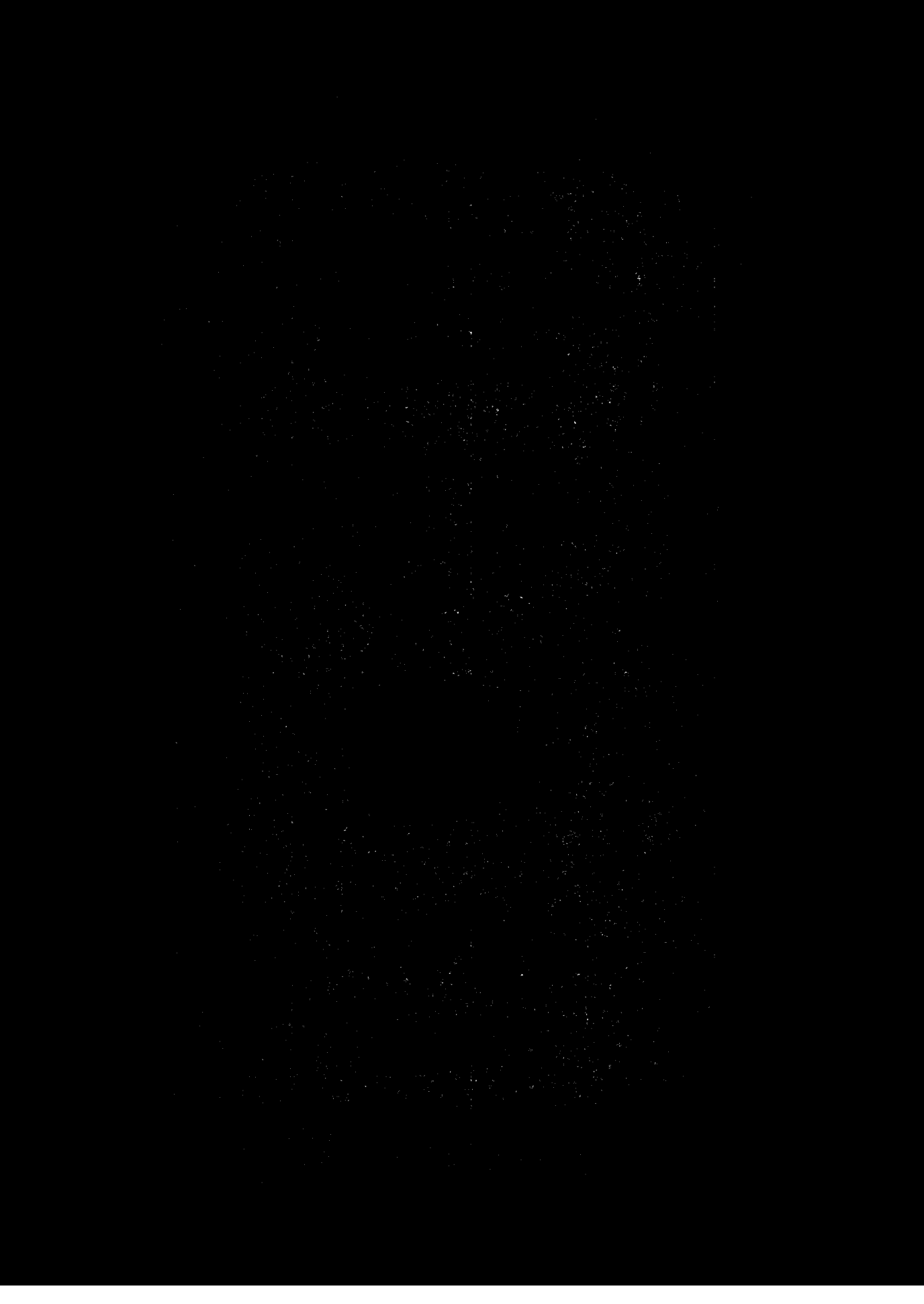
INFORMATION

It often happens that citizens of a state are in need of information on some specific subject not to be found in the ordinary books of reference, and in such cases the average person is at a loss where to turn. The General Extension Division has as one of its functions the business of obtaining and furnishing to inquirers information on the various subjects which from time to time may be called for. This information is obtained by research and by application to the proper university source, and thereby the department acts as a clearing house of the information which is gathered and stored up through the facilities of a great university. Inquiries for information are therefore invited and so far as the means at hand will permit, the information will be found and supplied.

The various subjects mentioned in the preceding pages lie within the province of the General Extension Division and inquiries on all of them should be addressed to The General Extension Division, University of Minnesota, Minneapolis.

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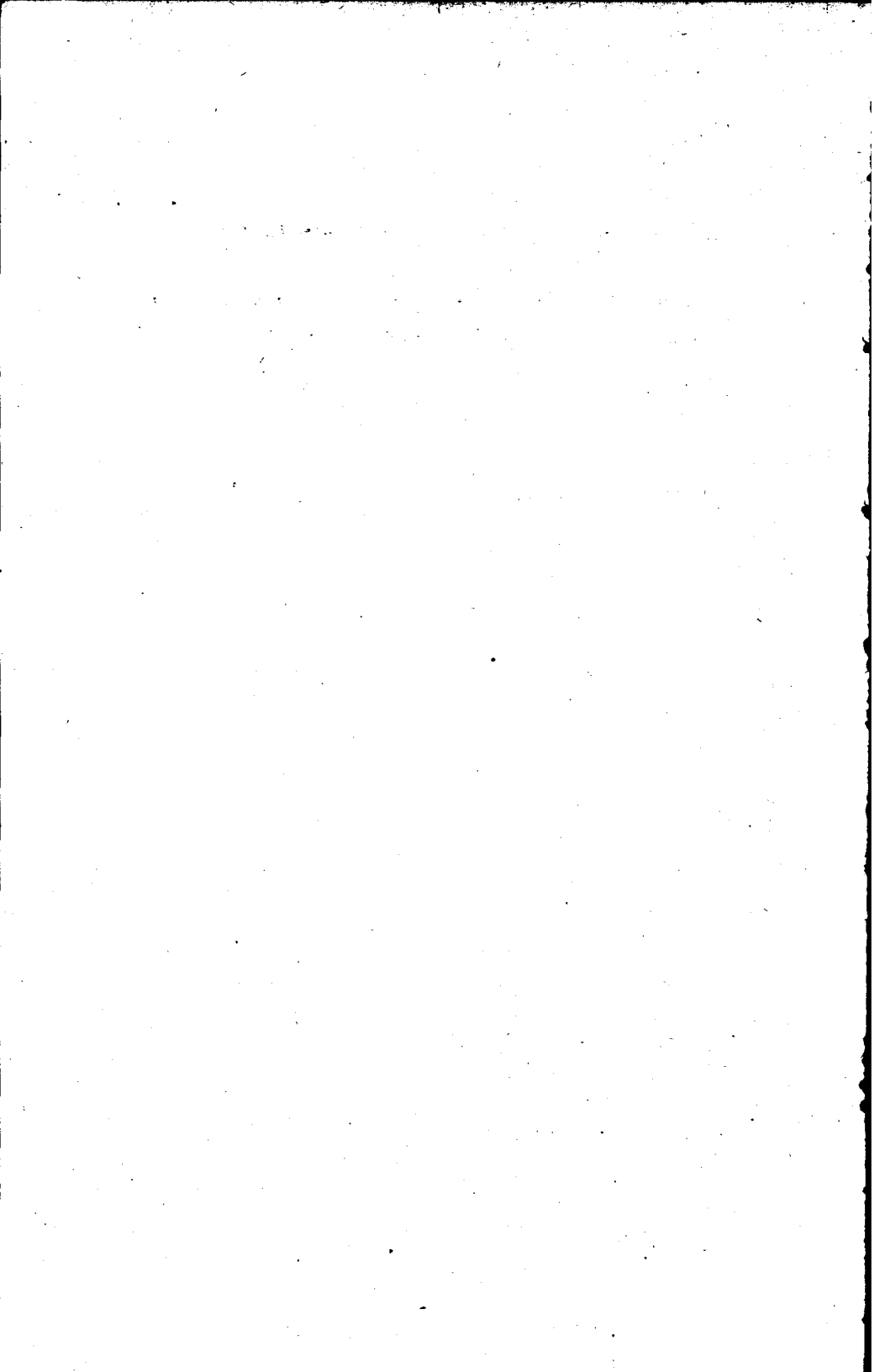
THE SUMMER SESSION

The Colleges of Science, Literature, and the Arts, Education,
Engineering, Dentistry, Agriculture, and
The Medical School

ANNOUNCEMENT OF COURSES

JUNE 18 - JULY 27

1917



THE SUMMER SESSION

FACULTY

ADMINISTRATION

- *GEORGE E. VINCENT, Ph.D., LL.D., President
†MARION LEROY BURTON, D.D., Ph.D., LL.D., President
CYRUS NORTROP, LL.D., President Emeritus
LOTUS D. COFFMAN, Ph.D., Director of Summer Session, Professor of
Education
ASHLEY V. STORM, M.A., Vice Director of Summer Session, College of
Agriculture
EDWARD E. NICHOLSON, M.A., Chairman Administrative Board

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

- WILLIAM ANDERSON, B.A., Instructor in Political Science
CAROL ARONOVICI, Special Lecturer in Sociology
ROSS A. BAKER, Ph.D., Instructor in Chemistry
RALPH M. BARTON, B.A., Instructor in Mathematics
GEORGE N. BAUER, Ph.D., Professor of Mathematics
WILLIAM O. BEAL, Ph.D., Assistant Astronomer
ROY G. BLAKEY, Ph.D., Assistant Professor of Economics
CARLETON BROWN, Ph.D., Professor of English
OSCAR BURKHARD, Ph.D., Assistant Professor of German
MARTIN B. CHITTICK, B.A., Assistant in Chemistry
HARDIN CRAIG, Ph.D., Professor of English
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WILLIAM W. DAVIS, Ph.D., (University of Kansas), Professor of History
JOHN F. DASHIELL, Ph.D., Instructor in Psychology
MAXIMILLIAN DICK, Instructor in Music
ERNEST O. DIETERICH, Ph.D., Instructor in Physics
GERHARD DIETRICHSON, Ph.D., Instructor in Chemistry
FREDERICK C. EASTMAN, Ph.D., (University of Iowa), Professor of Latin
THEODORE GEISSENDOERFER, Ph.D., Instructor in German
EARL L. BAKER, (Minneapolis Public Schools), Instructor in Public School
Music
EVERHARD P. HARDING, Ph.D., Associate Professor of Chemistry
CYRIL A. HERRICK, B.A., Instructor in Rhetoric
GERTRUDE HULL, B.A., Instructor in Music
ALBERT E. JENKS, Ph.D., Professor of Anthropology
GUERNSEY JONES, Ph.D., (University of Nebraska), Professor of History

* Term of office ends June 30, 1917.

† Term of office begins July 1, 1917.

SUMMER SESSION

- PAUL E. KLOPSTEG, M.A., Instructor in Physics
 AUGUST C. KREY, Ph.D., Assistant Professor of History
 ERNEST P. KUHL, Ph.D., Instructor in Rhetoric
 EDWARD M. LEHNERTS, Assistant Professor of Geology
 RUPERT C. LODGE, M.A., Assistant Professor of Philosophy
 OSCAR LUFT, B.A., Assistant in Chemistry
 ROBERT J. MCFALL, Ph.D., Instructor in Economics
 LOUIS W. MCKEEHAN, Ph.D., Assistant Professor of Physics
 MARJORIE MORTLAND, B.A., Theme Clerk, Rhetoric
 WALTER O. MYERS, Ph.D., Assistant Professor of German
 HENRY F. NACHTRIEB, B.S., Professor of Animal Biology
 GEORGE N. NORTROP, M.A., Assistant Professor of English
 EVERETT W. OLMSTED, Ph.D., Professor of Romance Languages
 VINNIE A. PEASE, B.A., Assistant in Botany
 ANNA PETERSON, B.A., Assistant in Chemistry
 JOHN PHELAN, Ph.D., (Massachusetts Agricultural College), Professor of
 Sociology
 CHESLEY J. POSEY, M.S., Assistant Professor of Geology
 FRANK M. RARIG, M.A., Assistant Professor of Public Speaking
 WILLIAM D. REEVE, B.S., Instructor in Mathematics
 CHARLES A. SAVAGE, Ph.D., Professor of Greek
 CARL SCHLENKER, B.A., Professor of German
 CARLYLE SCOTT, Professor of Music
 COLBERT SEARLES, Ph.D., Professor of Romance Languages
 GEORGE D. SELLEW, Ph.D., (Knox College), Professor of Mathematics
 HERMON L. SLOBIN, Ph.D., Assistant Professor of Mathematics
 STERLING TEMPLE, Ph.D., Instructor in Chemistry
 JOSEPH M. THOMAS, Ph.D., Professor of Rhetoric
 JOSEPHINE E. TILDEN, M.S., Professor of Botany
 ERMINA TUCKER, (Minneapolis Public Schools), Instructor in Physical
 Education for Women
 FRANCIS D. TYSON, Ph.D., (University of Pittsburgh), Professor of
 Sociology
 JOHN C. WEST, B.S., Instructor in Physical Education for Men
 JEREMIAH S. YOUNG, Ph.D., Professor of Political Science

COLLEGE OF EDUCATION

- LOTUS D. COFFMAN, Ph.D., Professor of Education
 MABEL CARNEY, Lecturer in Methods of High School Teacher Training
 Departments
 CHARLES L. HARLAN, M.A., Instructor in Education
 CHARLES H. KEENE, (Minneapolis Public Schools), Special Lecturer in
 Education
 GEORGE A. MCGARVEY, B.A., Instructor in Manual Training
 WILFRED S. MILLER, M.A., Assistant Professor of Education
 RUDOLPH PINTNER, Ph.D., (Ohio State University), Professor of Edu-
 cation

ALBERT W. RANKIN, B.A., Professor of Education
 FLETCHER H. SWIFT, Ph.D., Professor of Education
 GILBERT H. TRAFTON, M.A., M.S., (Mankato State Normal School), Professor of Nature Study

LIBRARY TRAINING SCHOOL

CLARA F. BALDWIN, Secretary, Minnesota Public Library Commission
 MARTHA WILSON, Supervisor of School Libraries, State Department of Education

COLLEGE OF ENGINEERING

ROBERT W. FRENCH, B.S., Instructor in Engineering Drawing and Descriptive Geometry
 FRANCIS C. HOBART, Instructor in Engineering Shop Work
 WILLIAM F. HOLMAN, Ph.D., Assistant Professor of Mathematics
 WILLIAM F. KIRCHNER, B.S., Professor of Drawing and Geometry
 GEORGE C. PRIESTER, B.E., M.S., Instructor in Mathematics
 WILLIAM H. RICHARDS, Instructor in Engineering Shop Work

COLLEGE OF DENTISTRY

GEORGE M. DAMON, D.D.S., Associate Professor of Dental Anatomy
 CHARLES A. GRIFFITH, D.D.S., Associate Professor of Oral Surgery
 WILLIAM F. LASBY, B.A., D.D.S., Associate Professor of Prosthetic Dentistry and Orthodontia
 ALFRED A. PAGENKOPF, D.D.S., Associate Professor of Crown and Bridge Work
 JOSEPH F. SHELLMAN, D.D.S., Assistant Professor of Operative Dentistry

THE MEDICAL SCHOOL

ERRETT C. ALBRITTON, B.S., Assistant in Anatomy
 EDWARD D. ANDERSON, B.A., Assistant in Physiology
 MOSES BARRON, B.S., M.D., Assistant Professor of Pathology
 RICHARD O. BEARD, M.D., Associate Professor of Physiology
 ELEXIOUS T. BELL, B.S., M.D., Associate Professor of Pathology
 EDGAR D. BROWN, Ph.D., M.D., Associate Professor of Pharmacology
 WYMAN S. COLE, B.S., Assistant in Anatomy
 CHARLES A. ERDMANN, M.D., Professor of Anatomy
 CHARLES C. GAULT, B.S., Assistant in Physiology
 ARTHUR T. HENRICI, M.D., Instructor in Pathology
 CLARENCE M. JACKSON, M.S., M.D., Professor of Anatomy
 JOHN A. KITTELSON, B.S., Assistant in Anatomy
 WINFORD P. LARSON, M.D., Associate Professor of Bacteriology
 EDGAR H. NORRIS, Assistant in Anatomy
 CHAUNCEY J. V. PETTIBONE, Ph.D., Instructor in Physiological Chemistry
 ANDREW T. RASMUSSEN, Ph.D., Instructor in Anatomy
 RICHARD E. SCAMMON, Ph.D., Professor of Anatomy

ALBERT M. SNELL, B.S., Assistant in Physiology
 MARGARET WARWICK, B.S., M.D., Instructor in Pathology

COLLEGE OF AGRICULTURE

ALBERT C. ARNY, B.S. in Agr., Associate Professor of Farm Crops
 ROBERT C. ASHBY, M.S., Assistant Professor of Animal Husbandry
 WILBUR H. BENDER, M.Di., Ph.B., Associate Professor of Agricultural
 Education

ALVA H. BENTON, M.S., Assistant Professor of Farm Management
 JOSEPHINE T. BERRY, M.A., Professor of Nutrition
 WILLARD L. BOYD, D.V.S., Assistant Professor of Veterinary Medicine
 and Surgery

WILFRID G. BRIERLEY, M.S., Assistant Professor of Horticulture
 LEROY CADY, B.S. in Agr., Associate Professor of Horticulture
 GUSTAV W. GEHRAND, Ph.M., Assistant Professor of Dairy Husbandry
 HARRIET I. GOLDSTEIN, Assistant Professor of Drawing and Design
 CHARLES W. HOWARD, B.A., M.S., Assistant Professor of Entomology
 FRANCIS JAGER, Professor of Bee Culture
 DEXTER D. MAYNE, Professor of Agricultural Pedagogics
 JOSEPH S. MONTGOMERY, B.S. in Agr., Assistant Professor of Animal
 Husbandry

WILLIAM MOORE, B.A., Assistant Professor of Entomology
 PETER J. OLSON, M.S., Assistant Professor of Agronomy
 WIELAND L. OSWALD, Assistant Professor of Agricultural Botany
 THOMAS G. PATERSON, B.S. in Agr., Assistant Professor of Animal Hus-
 bandry

MYRON H. REYNOLDS, B.S.A., D.V.M., M.D., Professor of Veterinary
 Medicine and Surgery

ARTHUR G. RUGGLES, M.A., Associate Professor of Entomology
 ARTHUR C. SMITH, B.S., Professor of Poultry Husbandry
 ELVIN C. STAKMAN, Ph.D., Associate Professor of Plant Pathology
 ROSCOE W. THATCHER, M.A., Professor of Plant Chemistry
 MABEL B. TRILLING, B.S., Assistant Professor of Textiles and Clothing
 FREDERIC L. WASHBURN, M.A., Professor of Entomology
 ROBERT M. WASHBURN, M.S. in Agr., Professor of Dairy Husbandry
 GRACE I. WILLIAMS, B.S., Assistant Professor of Foods and Cookery
 ARNE W. AAMODT, Field Assistant

PHILIP A. ANDERSON, B.S., Instructor in Animal Husbandry
 NORTON E. CHAPMAN, M.A., Lecturer and Assistant Professor Poultry
 Husbandry

JAMES M. DREW, Assistant

LLOYD V. FRANCE, M.S. in Agr., Instructor in Beekeeping

EDWIN O. HANSON, Instructor in Dairy Husbandry

PAUL R. McMILLER, M.S., Instructor in Soils

ETHEL L. PHELPS, B.S., Instructor in Textiles and Clothing

WILLIAM T. TAPLEY, B.Sc., Instructor in Vegetable Gardening

ELIZABETH VERMILYE, B.A., Instructor in Foods and Cookery

MILDRED WEIGLEY, Instructor in Foods and Cookery

GENERAL INFORMATION

The University of Minnesota offers each year a considerable list of courses for summer work. They are planned for college students, for experienced teachers, and for other men and women who seek the advantage of advanced study. This year courses will be offered by the Colleges of Agriculture, Dentistry, Education, Engineering, Science, Literature, and the Arts, and Medicine.

ENTRANCE REQUIREMENTS

Statements of the entrance requirements of the various colleges offering work in the Summer Session will be found in this bulletin in connection with the general announcement of each college.

LOCATION

These summer courses, with the exception of those in Agriculture and in Home Economics, are given on the main campus in Minneapolis and the full equipment of the University in buildings, libraries, laboratories, observatory, and museums is at the service of students, who may in addition, under certain restrictions, use other large public and semi-public libraries both in St. Paul and in Minneapolis.

The climate of the city is especially favorable for summer residence, and in addition the vicinity offers much that is worthy the attention of visitors and students. The neighborhood of the Twin Cities is rich in natural beauty, while the cities themselves, with their parks, lakes, public buildings, libraries, and art galleries, afford students ample opportunities for the profitable use of leisure hours. Numerous personally conducted excursions will be arranged.

ORGANIZATION

For the first time the Summer Session will retain the form of organization in use during the regular college year and all the courses offered will be of college grade. Students will be required to register in colleges in exactly the same manner as during the regular year. Special announcements describing the courses in Agriculture and in Home Economics may be secured by addressing the Secretary, College of Agriculture, University Farm, St. Paul. Special announcements describing the courses in the College of Dentistry, the College of Education, the College of Science, Literature, and the Arts, or in the College of Medicine may be secured by addressing the Registrar, University of Minnesota, Minneapolis.

COURSES OPEN TO WHOM

The summer courses are arranged not merely for college students, but also for the benefit of experienced teachers, particularly those who

are seeking a State Professional Certificate, or are looking forward to more specialized work. Courses have been organized, therefore, in nearly all of the required and optional subjects of the State Professional Certificate, while high school teachers will find an opportunity to pursue advanced courses in the subjects of the secondary curriculum. These courses will be conducted by trained specialists.

Courses of special interest to superintendents, principals, and supervisors, and to normal school and college teachers of education are being offered by the College of Education.

All of the courses offered carry university credit, and they amount to much more than the total number of hours required for the Bachelor's degree. By taking advantage of these opportunities teachers and others who have not finished their university work may be enabled to meet a considerable part of the requirements for graduation. Earnest and capable college students, by combining summer study with the courses of the academic year, may with no great difficulty gain in three years the necessary credits for the Bachelor's degree.

GRADUATE WORK

Work of graduate character done in the Summer Session of the University of Minnesota under a member of the Graduate Faculty may be counted for residence credit for advanced degrees. The course work for the Master's degree may be completed in four Summer Sessions. The rest of the residence needed to cover in the academic year of thirty-six weeks may be completed after the thesis is begun by registering early and remaining in residence working under direction after the Summer Session has closed. Students working for the Master's degree in Summer Sessions must file the subjects for their theses before the completion of the first half of the required work.

An increasing amount of graduate work in fields of interest to graduate students in education is being offered in the Summer Session.

Students who intend to offer work in the summer for an advanced degree should register for purposes of record with the Dean of the Graduate School.

Members of the Graduate Faculty may, with the approval of the Dean, offer summer work for graduate students apart from the work regularly listed in the Summer Session bulletin. Students taking such properly authorized summer work may be allowed by the Executive Committee to substitute it for an equal amount of residence during the academic year.

GENERAL OFFICES

The office of the Director of the Summer Session is Room 103, Education Building. During registration days the Director and members of the faculty may be found in the Library Building. The offices of the Registrar and the Cashier are on the first floor of the Library Building.

The offices at the College of Agriculture are in Room 209, Administration Building.

ADMISSION

The courses of the Summer Session are open to all men and women who after consultation with the respective instructors are found qualified to pursue the chosen work to advantage.

Students desiring advanced standing will be expected to file a petition with the Committee on Relations to other Institutions showing the credits that they have earned in other institutions.

REGISTRATION

Saturday, June 16, and Monday, June 18, are regular registration days. Students may register on any preceding day. Students should complete registration and be ready for class work before 8 a.m., Tuesday, June 19. After Monday, June 18, students may register by special permission only. No student will be permitted to register after Monday, June 25. To complete registration, fees must be paid the same day.

Those who desire to enroll in Arts, Education, Engineering, Dentistry, or Medicine will secure their registration blanks in the entrance lobby of the Library Building. They should bring with them their credentials showing from what schools they have been graduated, including particularly their diplomas from high schools, normal schools, or colleges, or their certificates of admission to, and work done in, each of those grades of schools.

Students desiring to enroll in Agriculture will secure their registration blanks of the Registrar at the University Farm.

Students desiring to carry extra work or having any irregularity in the matter of entrance or courses will be expected to petition the Administrative Board for change. Those who desire credit toward the State Professional Teachers' Certificate will be careful to indicate their wish on the registration blank.

VACATION

Only one day will be allowed for the Fourth of July vacation.

CREDITS

Courses requiring eight recitation hours a week or their equivalent will carry three hours credit. Courses requiring four recitation hours a week or their equivalent will carry one and one-half credits. Two hours of laboratory work will be regarded as the equivalent of one recitation hour. No student may secure more than six credits in the session except by special permission.

Students who do not enroll for credit will be given, on application, certificates of attendance showing the character of the work done.

SUMMER SESSION

GENERAL ASSEMBLY

On the Main Campus a General Assembly of the faculty and students will be held on Tuesdays and Thursdays, 10:00 to 10:30 a.m. The exercises will include music, readings, and short, snappy talks. On Tuesdays and Thursdays the third and fourth period classes will continue a half hour later.

On the Campus of the College of Agriculture, assemblies will be held daily from 9:30 to 10:00 a.m.

GENERAL LECTURES

A series of popular lectures open to the students, faculty, and the general public will be announced in the weekly bulletins.

LECTURES ON CURRENT ECONOMIC QUESTIONS

A series of lectures, open to the public, will be offered twice a week during the Summer Session under the auspices of the Economics Department. The subjects will include important matters of current interest, such as compulsory arbitration of labor disputes, compulsory health insurance, industrial education, the farm loan act, needed changes in taxation, conservation of natural resources, et cetera. Among the speakers will be both members of the faculty and individuals from off the campus who are especially well qualified to present the respective subjects. At the close of each lecture there will be an open forum at which questions may be asked. Definite announcement of the lectures will be made in the weekly bulletins.

EXERCISE AND RECREATION

A special feature of the Summer Session is the use of Northrop Athletic Field and the entire equipment of the University Gymnasium, for men and the Physical Education Building, for women, including the swimming pool, tennis courts, baseball field, outdoor and indoor running tracks, and basket-ball and hand-ball courts.

FEES

Each student pays a registration fee of \$5.00, and a tuition fee of \$2.00 for each credit hour for which he is enrolled, with an extra charge of \$1.50 for each laboratory course. Each student will also be required to have on deposit \$5.00 to cover breakage, loss of library books, locker keys, etc. The difference between the losses and the deposit will be refunded at the close of the session. All of the courses in Dentistry, and Medicine, and a few of the courses in other colleges require special fees.

REFUNDS

The five-dollar registration fee is not refunded under any conditions. Students cancelling their registration during the first week of the ses-

sion may receive a pro rata refund of the credit hour and laboratory fees. Such refund shall not exceed five sixths of the amount paid on these items and must be approved by the Director of the Summer Session.

No refunds whatsoever shall be made to students who attend more than one week.

EXPENSES

The living expenses for students at the University are never very high, and this is true especially for the Summer Session. Good accommodations for room and board may be had from \$4.00 to \$7.00 per week. A list of boarding places, stating location and prices, will be sent to any address on application to the Registrar. It will usually be found more satisfactory to engage accommodations after arrival than to reserve them in advance. Several good restaurants are to be found in the immediate vicinity of the University.

SANFORD HALL

Sanford Hall is situated on the corner of Eleventh avenue and University avenue southeast. It is divided into two distinct houses, East Sanford and West Sanford. Sanford East contains 17 single and 12 double rooms, and accommodates 41 students. Sanford West has 20 single and 13 double rooms, and accommodates 46 students. The building is lighted with electricity, and each room is provided with hot and cold water. Each double room has two closets.

The furniture consists of a cot, with mattress and bedding, a dresser, study table, chair and rug for each student. Students must supply towels, bureau scarf and couch cover.

Applications for rooms should be addressed to Miss Helen F. Jackson, Director of Sanford Hall, and will be considered in the order in which they are received. No application will be recorded until a deposit fee of \$2.00 (to apply on Residence Fee) is received. A rate of \$2.00 per week is charged for each single room, and \$1.25 per week for each person occupying a double room. Room rent is refunded if notice is received before June 1. Residence fee for remaining time is refunded if the vacancy is taken by some other student.

Regulations.—No articles shall be tacked or fastened in any way to the walls. Pictures and other ornaments must be suspended from the picture moulding. Alcohol lamps and chafing dishes are forbidden. Any use of gasoline, naphtha, or benzine in the building is forbidden. Trunks are not allowed in rooms. Trunk rooms are provided.

Reservations should be made early, certainly not later than May 30.

MINNESOTA UNION

The Minnesota Union will open its building for both men and women of the Summer Session of 1917. Three meals a day will be provided following the plan which obtains during the regular University year with corresponding prices. The usual facilities offered by the Minnesota

Union will be available for all men of the Summer Session and special rest rooms with a matron in charge will be set aside for the women students.

TEACHERS' SUMMER TRAINING SCHOOL

The work formerly conducted for graded and rural school teachers in the elementary section of the University Summer School is given now as a special State Teachers' Training School at the University Farm. For bulletin address the Secretary, University Farm, St. Paul, Minnesota.

EXAMINATIONS

At the close of the Summer Session examinations for the State Professional Certificate will be conducted at the State Normal Schools and at the University of Minnesota by the State Examining Board.

UNIVERSITY POST-OFFICE

The University Post-office, through which mail addressed to the University is distributed, is in the Mechanic Arts Building. Students are assigned post-office boxes at the time of registration, and should leave forwarding addresses with the Postmaster at the close of the session.

INFORMATION

Correspondence with reference to the Summer Session and requests for circulars and additional information may be addressed to the Registrar, University of Minnesota, Minneapolis, Minnesota.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

ENTRANCE REQUIREMENTS

1. English, four units, or three units of English accompanied by either four units of one foreign language, or two units each of two foreign languages.

2. Mathematics: Elementary Algebra, one unit; Plane Geometry, one unit.

3. Enough additional work to make in all fifteen units, of which not more than four may be in vocational and miscellaneous studies.

Graduates of the Advanced Graduate course of a Minnesota State Normal School are admitted with advanced standing equivalent to one year's credit, and receive the degree of Bachelor of Arts upon completing in this College ninety credits provided they comply with the usual requirements for graduation.

Individual graduates of the Advanced Latin course (five years) or of the Advanced English course (five years) of a Minnesota State Normal School, who, on the basis of maturity and ability, present from the President of the Normal School certificates of special fitness, will be admitted with advanced standing under the same regulations.

Unclassed students.—(1) Persons of mature years engaged in teaching or other occupation, but registered in this college without having satisfied the entrance requirements in full; (2) all others who have been permitted to register for less than eleven hours of work. Only by permission of the Administrative Board and upon the presentation of satisfactory reasons for not taking the regular course will an applicant be admitted as an unclassified student.

For specific and detailed information concerning entrance requirements, consult the bulletin of the College of Science, Literature, and the Arts.

EXPLANATION OF COURSE NUMBERS

All undergraduate courses are numbered from 1 to 100. All courses open to undergraduates and graduates are numbered from 101 to 200. Strictly graduate courses are numbered from 201 up.

STARRED COURSES

Courses marked with an asterisk (*), called starred courses, are courses which are open only to juniors, seniors, and graduate students, and which have at least nine prerequisite credits if the department offers work in the freshman year, and at least six prerequisite credits if the department offers no work in the freshman year. It is provided, however,

that courses in foreign languages for which there is a prerequisite of five years in secondary school and college, at least one year of which is in college, shall be starred courses.

For graduation a student must secure during the junior and senior years thirty credits in starred courses.

The following abbreviations are used: A, Armory; AB, Animal Biology; Ar indicates that the days, hours, or room are to be arranged (for information, apply to head of the department concerned); C, Chemistry Building; Ed, Education Building; En, Engineering Building, University Farm; F, Folwell Hall; G, Greenhouse; He, Home Economics Building, University Farm; IA, Institute of Anatomy; IPH, Institute of Public Health; L, Law Building; Lib, Library Building; MA, Mechanic Arts; ME, Main Engineering Building; Mech E, Mechanical Engineering Building; MH, Millard Hall; Mu, Music Building; O, Observatory; P, Pillsbury Hall; Ph, Physics Building; WGm, Women's Gymnasium.

The symbol ¶ indicates that the instructor is to be assigned.

COURSES OF INSTRUCTION

ANIMAL BIOLOGY

Professor HENRY F. NACHTRIEB.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
18	3	General Zoology	All	None
		8:00-11:50 MTWThF	312 & 101 AB	Nachtrieb
28	3	General Zoology	All	1
		8:00-11:50 MTWThF	312 & 101 AB	Nachtrieb

18. GENERAL ZOOLOGY. An elementary study of homology and the classification of animals, the cell, histology, and embryology; a detailed study of representatives of the major groups of animals is begun. Equivalent to the first half of the University year course. NACHTRIEB.

28. GENERAL ZOOLOGY. Continues study of representatives of the major groups of animals, with brief consideration of the more important facts and theories of evolution and heredity. Concluded by study of early embryology of the chick. Equivalent to the second half of the University year courses. NACHTRIEB.

ASTRONOMY

Assistant Astronomer WILLIAM O. BEAL.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
118	3	Descriptive Astronomy	Soph., jr., sr.	None
		10:00-11:50 MTWTh	124F	Beal
628	3	Elements of Practical Astronomy....	Soph., jr., sr.	1 yr. Math.
		Ar Ar	124F	Beal

118. DESCRIPTIVE ASTRONOMY. A course of lectures and recitations on the general principles of astronomy, illustrated by lantern slides and by the use of the telescope. This course carries university credit for Astronomy II. BEAL.

628. ELEMENTS OF PRACTICAL ASTRONOMY. Theory and use of astronomical instruments in determining time, latitude, longitude, azimuth, and positions of heavenly bodies. BEAL.

BOTANY

Professor JOSEPHINE E. TILDEN; Instructor VINNIE A. PEASE.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
18	3	General Botany	All	None
		10:00-11:50 TWThF	207P	Pease
118	3	Industrial Botany	Soph., jr., sr.,	6 cr. including
		1:00-2:50 TWThF	212P	grad. courses 2 or 3
1198	3	Advanced Industrial Botany	Jr., sr., grad.	11, 12 or 12 cr.
		1:00-2:50 TWThF	212P	Tilden
1058	3	Algae	Jr., sr., grad.	9 credits
		2:00-5:00 TWThF	212P	Tilden

18. GENERAL BOTANY. This course will be practically the same as Botany I carrying university credit. PEASE.

118. INDUSTRIAL BOTANY. Laboratory study of the plants useful to man, including those which furnish food, shelter, fuel, clothing, etc. (With extra work may be starred in certain cases.) TILDEN.

*1198. ADVANCED INDUSTRIAL BOTANY. A study of the origin, distribution, and cultivation of plants yielding products of economic value; the nature and uses of these products and the processes by which they are obtained from the plants. TILDEN.

*1058. ALGAE. A study of the structure and classification of the algae, including an examination of blue-green and green freshwater forms and the more important brown and red marine species. TILDEN.

CHEMISTRY

Associate Professor EVERHART P. HARDING; Instructors ROSS A. BAKER, GERHARD DIETRICHSON, and STERLING TEMPLE.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
18	3	General Chemistry		
		10:00 and 1:00-4:00 Daily	225-110C	Baker
28	3	General Chemistry (Continued)		
		11:00 and 1:00-4:00 Daily	225-110C	Baker

39	3	Adv. Gen. and Qual. Analysis.....	.....	.....	.....
		10:00 and 1:00-4:00 Daily	111-110C	Dietrichson	
49	3	Adv. Gen. and Qual. Anal. (Cont.).....	.....	.....	.....
		11:00 and 1:00-4:00 Daily	111-110C	Dietrichson	
1318	2	Food Analysis			Gen. Chem., Qual. Anal. & Quan. Anal.
		8:00 and 9:00-11:00	215C	Harding	
1328	2	Food Analysis			Gen. Chem., Qual. Anal. & Quan. Anal.
		11:00 and 9:00-11:00	215C	Harding	
138	3	Organic Chemistry .....	.....	.....	.....
		Lec. 8:00, Lab. 9:00-12:00,	111-110C	Temple	
		Rec. TTh 12:00-1:00			
208	2	Teachers' Course .....	.....	.....	.....
		9:00	225C	Baker	

15. **GENERAL CHEMISTRY.** The equivalent of Course 1, offered during the academic year, and designed for those without preliminary training in chemistry. The fundamental laws and theories of chemistry will be developed, based primarily upon the chemistry of the important non-metals. Special emphasis will be placed upon stoichiometry. Six experimental lectures or recitations and twelve hours laboratory work per week. **BAKER.**
25. **GENERAL CHEMISTRY.** The equivalent of Course 2, offered during the academic year, and designed for those who have had Course 1 or its equivalent. The more important elements will be studied in groups, according to their periodic arrangement. Courses 1 and 2, combined, meet the requirements in chemistry for the State Professional Certificate. Six experimental lectures or recitations and twelve hours laboratory work per week. **BAKER.**
35. **ADVANCED GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS.** The equivalent of Course 3, offered during the first semester to students in the College of Science, Literature, and the Arts, and the College of Agriculture, of Course 5 in the School of Chemistry, and the School of Mines, and of Course 25 in the College of Engineering. It consists of experimental lectures, recitations, and laboratory work. Includes a systematic study of the non-metals, and a thorough consideration of the fundamental laws and theories of chemistry. The applications of the latter in stoichiometrical calculations will be emphasized. Six experimental lectures or recitations and twelve hours laboratory work per week. This course runs parallel with Course 45. **DIETRICHSON.**
45. **ADVANCED GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS.** The equivalent of Course 4 offered during the second semester to students in the College of Science, Literature, and the Arts, and in the College of Agriculture, of Course 6 in the School of Chemistry and the School of Mines, and of Course 26 in the College of Engineering.

The laboratory work will consist principally of the qualitative analysis of the acid radicals and the metals. The lectures and recitations will include a discussion of the qualitative analysis procedures and also the descriptive chemistry of the metals. Six experimental lectures or recitations and twelve hours laboratory work per week. This course runs parallel with Course 3s. DIETRICHSON.

131s. FOOD ANALYSIS. Lectures and laboratory work; a discussion of methods used in the analysis of articles of food and in detecting preservatives, coloring matters, and adulterants. Runs parallel to Course 14s. HARDING.

132s. FOOD ANALYSIS. Lectures and laboratory work; a discussion of methods used in the analysis of articles of food and in detecting preservatives, coloring matters, and adulterants. Runs parallel to Course 13s. HARDING.

13s. ORGANIC CHEMISTRY. This course is primarily intended for students who wish to take in the Summer School work corresponding to Chemistry 13 offered during the academic year. It will take up the aliphatic series as far as the carbohydrates. The laboratory work will be varied somewhat to meet the needs of the student. TEMPLE.

20s. TEACHERS' COURSE IN CHEMISTRY. For those interested in the teaching of elementary chemistry, and who have had Chemistry 1 and 2 or their equivalent. Carries University credit for Chemistry 20. The following phases will be discussed: Training of the teacher; equipment of library; laboratory and museum; order of presentation of subject matter; relative importance of and method of conducting experimental lectures, recitations, and laboratory work; relation of elementary chemistry to general science; the balance between theoretical and applied chemistry, the vitalization of chemistry. Standard elementary texts will be reviewed by assignment and discussed in class. The construction and repair of simple forms of glass apparatus will be demonstrated. If desired, hours for laboratory practice in glass-blowing may be arranged. Those taking Chemistry 20s are advised to visit Chemistry 1s. BAKER.

ECONOMICS

Assistant Professor ROY G. BLAKEY; Instructors LLOYD M. CROSGRAVE, WILLIAM W. CUMBERLAND, ROBERT J. MCFALL.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
2s	3	Industries and Commerce of the United States		
		10:00-11:50 TWThF	202MA	McFall
3s or 7s	3	Principles of Economics.....		
		Sec. 1, 8:00-9:50 TWThF	102MA	Cumberland
		Sec. 2, 10:00-11:50 TWThF	109MA	Crosgrave

4s or 8s	3	Economic Problems	8:00-9:50	TWThF	209MA	Blakey
13s	1½	Economic Geography of Foreign Countries	9:00-9:50	TWThF	202MA	McFall
143s	1½	Banking	10:00-10:50	TWThF	104MA	Cumberland
161s	1½	Labor Problems	8:00-8:50	TWThF	202MA	Crosgrave
191s	1½	Public Finance	11:00-11:50	TWThF	104MA	Blakey

2s. **INDUSTRIES AND COMMERCE OF THE UNITED STATES.** Agricultural, mining, manufacturing industries, and commerce. Leading individual industries and characteristics of the several sections of the country. Required in vocational course in business education. **McFALL.**

3s or 7s. **PRINCIPLES OF ECONOMICS.** A study of the economic principles which underlie the present social order with special emphasis upon their application to present-day problems. Prerequisite of all advanced courses. **CUMBERLAND, CROSGRAVE.**

4s or 8s. **ECONOMIC PROBLEMS.** An introductory survey of the fundamentals in the problems of labor, social insurance, socialism, government ownership, corporations, trusts, monopolies, transportation, banking, protection, free trade, and taxation. Required of all students majoring in economics. **BLAKEY.**

13s. **ECONOMIC GEOGRAPHY OF FOREIGN COUNTRIES.** Geographic basis of modern economic life; trade routes; principal extractive, manufacturing and distributive industries of representative foreign countries, with a view to American Trade. **McFALL.**

161s. **LABOR PROBLEMS.** Modern labor problems; woman and child labor, industrial education, unemployment, poverty, industrial hygiene, welfare work, profit sharing, coöperation, labor unions, strikes, boycotts, conciliation, and arbitration; economic causes and effects of immigration. **CROSGRAVE.**

191s. **PUBLIC FINANCE.** Public expenditures in cities, states, and nation; budget making; war financiering; taxation, including general property, income, inheritance, corporation, tariff, excise, single, and other taxes. **BLAKEY.**

ENGLISH

Professors HARDIN CRAIG, CARLETON BROWN; Assistant Professor GEORGE N. NORTHROP; Instructors CYRIL A. HERRICK, ERNEST P. KUHL.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
1as	1½	General Survey English Literature... 8:00-8:50 MTWTh	Soph., jr., sr. 205F	Rhet. 1-2 Northrop
1bs	1½	General Survey English Literature... 9:00-9:50 TWThF	Soph., jr., sr. 204F	Rhet. 1-2 Craig
2as	1½	General Survey English Literature... 10:00-10:50 MTThF	Soph., jr., sr. 305F	Rhet. 1-2 Kuhl
2bs	1½	General Survey English Literature... 11:00-11:50 MTWTh	Soph., jr., sr. 125F	Rhet. 1-2 Brown
5s	1½	Chaucer	Soph., jr., sr. 125F	Rhet. 1-2 Brown
*55s	1½	Shakespeare	Jr., sr., grad. 204F	Eng. 1-2 Craig
*63s	1½	Victorian Literature	Jr., sr. 205F	Eng. 1-2 Northrop
*80s	1½	Teachers' Course	Jr., sr. 311F	See statement Thomas
*122s	1½	American Literature	Jr., sr., grad. 204F	Eng. 1-2 Craig
*125s	1	Biography	Sr., grad. 205F	See statement Northrop
*143s	1	Beginnings of Drama	Jr., sr., grad. 125F	See statement Brown

1as. GENERAL SURVEY OF ENGLISH LITERATURE (from beginning to Steele.) Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for more minute study of special periods. This course in combination with the other three parts of the General Survey listed below gives preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the first half of English I. NORTHROP.

1bs. GENERAL SURVEY OF ENGLISH LITERATURE (from Steele to Wordsworth). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey herewith listed gives preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the second half of English I. CRAIG.

2as. GENERAL SURVEY OF ENGLISH LITERATURE (from Wordsworth to Carlyle). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of

- special periods. This course in combination with the other three parts of the General Survey herewith listed gives preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the first half of English 2. KUHL.
- 2bs. GENERAL SURVEY OF ENGLISH LITERATURE (from Carlyle to the present time). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey listed above gives preparation for the examinations in English Literature towards the state professional certificate. This course carries university credit for the second half of English 2. BROWN.
- 5s. CHAUCER. An introductory study of the language of Chaucer, and the reading of selected Tales from the Canterbury collection together with a discussion of their sources and the literary types to which they belong. BROWN.
- *55s. SHAKESPEARE. An introductory study of Shakespeare's development as a poet and dramatist, with reading of representative plays. This course carries university credit for the second half of English 55. Properly qualified graduate students may gain credit for this course by doing work provided in addition to the work of the course. CRAIG.
- *63s. VICTORIAN LITERATURE. A study of certain outstanding features of Nineteenth Century literature in England. Lectures and discussions. NORTHROP.
- *80s. TEACHERS' COURSE. (See statement in the Departments of Rhetoric and Education.)
- *122s. AMERICAN LITERATURE. Lectures on American Literature, with extensive readings from the principal poets and prose writers of the United States. This course carries credit for one half of English 122. CRAIG.
- *126s. BIOGRAPHY. A study of the development of English biography in the 18th and 19th centuries, with attention to journals, memoirs, and letters. Open to graduates with a major in English or History, and, upon approval of the instructor to seniors with twelve credits in English. NORTHROP.
- *143s. THE BEGINNINGS OF THE ENGLISH DRAMA. A study of dramatic origins in the field of English literature before the Sixteenth Century. Open to graduates, and upon approval of the instructor, to juniors and seniors who have completed English 1. BROWN.

FIELD WORK IN GLACIER NATIONAL PARK

Three credits.

Assistant Professor EDWARD M. LEHNERTS.

A travel course offered by the General Extension Division of the University of Minnesota. Two weeks, June 18 to July 2, will be devoted to an educational tour of Glacier National Park for the study and interpretation of the local glaciers, the mountain-making processes, and the noted Alpine scenery. A written report based on the field work is required for credit, and may be submitted any time before the end of the fall semester.

Registration for this course must be made on or before June 1. The fee for credit students is \$11. The fee for tourist members, not studying for university credits, is \$5. To register by mail, send the fee to the General Extension Division, University of Minnesota, Minneapolis.

If subsequent circumstances cause a member to withdraw, his fee will be refunded in full, provided written notice of the withdrawal is received at least ten days before the tour begins.

The class will be limited to thirty members; and, on the other hand, unless at least twenty registrations have been received by June 1, the course will be withdrawn and the fees refunded.

The cost of the tour is approximately \$35 for round trip railroad fare, \$16 for lower berth in Standard Pullman, \$6 for meals en route, \$48 for living expenses in Glacier Park, \$10 for automobile and boat service in the Park, and \$15 for saddle and pack horses. Total, \$130.

The class leaves the Twin Cities on the evening of June 18. Those who find it more convenient may join the class at Glacier Park Station, the east entrance to the Park, on the morning of June 20. For detailed itinerary and further information write Mr. E. M. Lehnerts, Columbia University, New York City.

GEOLOGY

Assistant Professor CHESLEY J. POSEY.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
298	3	Physiography	All	None
		8:00-9:50 MTWTh	105P	Posey
558	2	Teachers' Course in Geography.....	See statement	See statement
		10:00-10:50 MTWThF	105P	Posey
1168	1½	Geography of Latin America	See statement	See statement
		11:00-11:50 TWThF	105P	Posey

298. **PHYSIOGRAPHY.** Principles of earth sculpture; physiographic changes in progress, and agencies causing them; planetary relations; climatology; laboratory conferences on interpretation of topographic maps; field excursions. This course is adapted to teachers who wish a de-

tailed study of the subject and to those who wish to pursue further courses in geology. It carries university credit for Course 29. POSEY.

558. **TEACHERS' COURSE IN GEOGRAPHY.** A study of the content of grade and high school geography and of the methods of teaching it. Six credits from the Department of Geology are required as prerequisites; three being from Courses 1, 29, and 31; and three from Courses 36, 116, 118, 188. Those who have had equivalent courses elsewhere or mature teachers who take either Course 298 or 1168 are considered as fulfilling the prerequisites. This course carries university credit for Course 55. POSEY.
1168. **GEOGRAPHY OF LATIN AMERICA.** The regional geography of the Latin-American countries; their geology, topography, climate, natural resources, people, industries, and trade. The trade relations between Latin-American countries and the United States given special attention. A course in physiography is a desirable prerequisite. To those who can meet the prerequisites this course carries half the regular university credit for Course 116. POSEY.

GERMAN

Professor CARL SCHLENKER; Assistant Professors OSCAR BURKHARD, WALTER O. MYERS; Instructor THEODORE GEISSENDOERFER.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
18	3	Elementary	All	None
		8:00-9:50 TWThF	209½F	Myers
218	3	Scientific	All	3 or 2 yrs. prep.
		8:00-9:50 MTWTh	207F	German
				Geissendoerfer
*548	3	Classic Period	All	7-8 or 9-10 or
		8:00-9:50 TWThF	209F	11-12
				Burkhard
*608	3	Teachers' Course	All	53-54 or 29-30
		10:00-11:50 TWThF	209½F	and 30-31
				Schlenker
*1198	1½	Schiller	Sr., grad.	4 starred credits
		Ar Ar Ar	Ar	Myers
*1318	1½	Novelle	Sr., grad.	4 starred credits
		Ar Ar Ar	Ar	Burkhard

18. **ELEMENTARY COURSE.** This course is designed for students who have little or no previous knowledge of German. It will be conducted in German and will include practice in speaking and reading, together with inductive instruction in the elements of German grammar. This course carries university credit for German 1. MYERS.
218. **SCIENTIFIC GERMAN.** The aim of this course is to give students a reading knowledge of German for use in scientific studies. One

year of German is required as a prerequisite. Fee, \$10. GEISSEN-DOERFER.

- *548. CLASSIC PERIOD. A historical survey of German Literature since Goethe. BURKHARD.
- *608. TEACHERS' COURSE IN GERMAN. Introduction to German phonetics; elements of historical grammar, together with a survey of the more difficult points in grammar, from the teacher's point of view; discussion of methods of modern language teaching; practice lessons as far as possible in composition and reading. SCHLENKER.
- *1198. THE DRAMA OF SCHILLER. The plays considered with reference to the development of the dramatic idea, from the expression of the Storm and Stress movement in the early plays to the classic from of his last works. MYERS.
- *1318. DIE NOVELLE. A study of the technique and development. Assigned readings and reports. BURKHARD.

GREEK

Professor C. A. SAVAGE.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
628	2	Greek Literature and Life	All	None
		10:00-10:50 MTWThF	114F	Savage
638	1	Greek Mythology	All	None
		11:00-11:50 MWF	114F	Savage
618	2	The Greek Drama	All	None
		2:00-2:50 MTWThF	114F	Savage
18	4	First Year Greek	All	None
		8:00, 9:00 MTWThF	114F	Savage

- 628. GREEK LITERATURE AND LIFE. Deals with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. Lectures and illustrative readings by instructor and assigned readings in translation and textbook work by class; conferences and informal discussions. The character and influence of Greek culture, especially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. SAVAGE.
- 638. GREEK MYTHOLOGY. Lectures, readings, and textbook work dealing with the legends and myths which appear in the literature and art of ancient Greece. The stories of gods and heroes found in Homer and the tragic and lyric poets will be presented and interpreted; and the course will be illustrated with stereopticon slides. The origin and evolution of the myth, its relation to Greek literature, philosophy,

and religion, and its influence upon later literature, will also be touched upon. No knowledge of Greek required. SAVAGE.

61s. THE GREEK DRAMA. The reading and interpretation of representative Greek plays, together with lectures on the origin, growth, character, and influence of the Greek drama. Lectures richly illustrated with the stereopticon, portraying Greek dramatic art in its various aspects will also be given. No knowledge of Greek required. Students taking this course may not receive credit for Course 62. SAVAGE.

1s. FIRST YEAR GREEK. General principles, inflection, word-formation, syntax, elementary readings and composition. SAVAGE.

HISTORY

Professors GUERNSEY JONES, WILLIAM WATSON DAVIS; Assistant Professor AUGUST C. KREY.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
2s	3	Modern Europe	All	None
		11:00-11:50 MTWThF		
		2:00-2:50 MWF	111L	Krey
4s	3	Modern England from the Seventeenth to the Nineteenth Century	All	None
		8:00-8:50 MTWThF		
		1:00-1:50 MWF	112L	Jones
6s	3	History of the United States from 1789-1876	Soph., jr., sr.	6 cr. in History or Pol. Sci.
		9:00-9:50 MTWThF		
		3:00-3:50 MWF	111L	Davis
*56s	2	Teachers' Course in History and Government	Jr., sr.	18 cr. incl. starred courses
		12:00-12:50 MTWTh	218bL	Krey
106s	1½	Contemporary History of the United States, 1876-1912	Jr., sr., grad.	See statement
		11:00-11:50 MTWF	111L	Davis
132s	1½	Industrial and Social History of Modern England	Jr., sr., grad.	See statement
		10:00-10:50 MTWF	112L	Jones
206s	2	Selected Topics in American History..	Grad.	Grad. standing
		Ar. First Meeting Tuesday		
		June 19, 2:00	218aL	Davis
210	2	Selected Problems in English History.	Grad.	Grad. standing
		Ar. First Meeting Tuesday		
		June 19, 4:00	218aL	Jones

2s. MODERN EUROPE. Europe from the end of the Thirty Years' War to the present. This course may be taken to remove failures in either semester of History 1-2. KREY.

4s. MODERN ENGLAND FROM THE SEVENTEENTH TO THE NINETEENTH CENTURY. The social, political, and institutional development of England

- since 1603. This course may be taken to remove failures in either semester of History 3-4. JONES.
68. HISTORY OF UNITED STATES FROM 1789-1876. A general survey of national history under the constitution. Lectures, readings, and text. DAVIS.
- *568. TEACHERS' COURSE IN HISTORY AND GOVERNMENT. Deals chiefly with the practical problems of teaching history and government in the secondary schools. Lectures, readings and directed investigation of teaching problems. KREY.
1068. CONTEMPORARY HISTORY OF THE UNITED STATES, 1876-1912. An advanced course open to those who have had a college course in American History, and others by permission of the instructor. DAVIS.
1328. INDUSTRIAL AND SOCIAL HISTORY OF MODERN ENGLAND. Open to students who have had a general college course in English history and others by permission of the instructor. JONES.
2068. SELECTED TOPICS IN AMERICAN HISTORY. Conferences and papers. Open only to graduate students. Those registering will also be required to attend lectures in 1068. DAVIS.
210. SELECTED PROBLEMS IN ENGLISH HISTORY. Graduate students will be guided through conferences and criticism in research on assigned topics. Open only to graduate students who will also be held for attendance in History 1328. JONES.

LATIN

Professor FREDERICK C. EASTMAN.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
538	1½	Roman Private Life	All	None
		10:00-10:50 TWThF	107F	Eastman
558	1½	Latin Teachers' Course.....		Minimum of five yrs. of Latin if carried for cr.
		11:00-11:50 TWThF	107F	Eastman
2038	Ar	Graduate Seminar in Roman Satire....	Grad.	See statement
		Ar Ar	107F	

538. ROMAN PRIVATE LIFE. A study of the private life in Rome and Pompeii in the early Empire, amply illustrated by lantern slides. Lectures, assigned readings and reports. Among the subjects discussed will be the Roman house and villa; household furniture and utensils; wearing apparel and ornaments; the coiffure of the Roman woman; letter writing and book making; transportation; vehicles; roads; games; the Roman theater, amphitheater, and circus; the Roman

baths; funeral customs, etc. This course is arranged to correlate in part with Course 558, though either may be taken separately. EASTMAN.

558. **LATIN TEACHERS' COURSE.** A survey of the Latin work in the high school designed particularly for those teaching, or intending to teach, secondary Latin. The course consists of lectures, conferences, and reports, and includes a consideration of methods and principles in the teaching of First Year Latin, Caesar, Cicero, Vergil, and Latin Composition. The various problems and difficulties pertaining to the teaching of Latin in its several phases in the high school courses are discussed and methods that have been found most efficient are exemplified. The intent is to make the course as practically helpful as possible. Special conferences will be arranged as occasion requires. EASTMAN.
2038. **GRADUATE SEMINAR IN ROMAN SATIRE.** The work in this course may be varied, as may be decided upon by conference, to accord with special needs of students. EASTMAN.

MATHEMATICS

Professors GEORGE N. BAUER, WILLIAM KIRCHNER, GEORGE T. SELLEW; Assistant Professor HERMON L. SLOBIN; Instructors RALPH M. BARTON, WILLIAM D. REEVE.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
18	3	Higher Algebra, Part I..... 8:00-9:50 MTWTh	204Ed	Reeve
38	3	Higher Algebra, Part II..... 2:00-3:50 MTWTh	105F	Barton, Sellaw
48	3	Trigonometry 2:00-3:50 MTWTh	101F	Bauer
68	..	Solid Geometry 8:00-9:50 TWThF	205ME	Kirchner
78	3	Plane Analytical Geometry 4:00-5:50 MTWTh	105F	Barton
118	3	Differential Calculus 8:00-9:50 MTWTh	104F	Slobin
518	3	Integral Calculus 4:00-5:50 MTWTh	103F	Sellaw
548	3	Teachers' Course in Math..... 10:00-11:50 MTWTh	204Ed	Reeve
608	1½	Fundamental Concepts of Secondary Mathematics 4:00-5:50 MTWTh	101F	Bauer
628	1½	Theory of Equations..... 10:00-10:50 MTWTh	104F	Slobin

18. **HIGHER ALGEBRA, PART I.** The fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evo-

lution, surds, simple equations with one, two, and several unknown quantities, inequalities, ratio, and proportion, arithmetical and geometric progressions, quadratic equations and numerous problems requiring both simple and quadratic equations. This course will be credited either for university entrance or three credits will be given under Mathematics I and the student will not be allowed to register for Mathematics I. REEVE.

38. HIGHER ALGEBRA, PART II. The first three days given to review of factoring, highest common divisor, least common multiple, fractions, surds and the theory of exponents. The course proper will include the following topics: Quadratic equations, equations in quadratic form, graphical representations, graphical solution of quadratics, simultaneous quadratics with graphs, progressions, mathematical induction with the binomial theorem, permutations and combinations, simple determinants, theory of equations, and the process of finding irrational roots by graphic methods. This course is the equivalent of Mathematics 3, usually taken in the first semester of the freshman year and in combination with the preceding offers a direct preparation to candidates for the examination in Higher Algebra toward the State Professional Certificate. BARTON, SELLEW.
48. TRIGONOMETRY. This course covers the ordinary work in logarithms and plane trigonometry and is the equivalent of Mathematics 4, ordinarily taken in the second semester of the freshman year. This course offers a direct preparation to candidates for the examination in Trigonometry towards the State Professional Certificate. It also gives university credit. BAUER.
68. SOLID GEOMETRY. This course includes the subject matter of Books VI, VII, VIII, and IX of the American texts in solid geometry and covers the study of points and lines in space, polyhedrons, cylinders and cones and the sphere. This course is intended for those who are preparing for the examination in Solid Geometry towards the State Professional Certificate. It also meets the entrance requirements of the University. KIRCHNER.
78. PLANE ANALYTICAL GEOMETRY. Rectilinear and polar coördinates, producing equations of given loci, discussion of equations and construction of their loci, transformation of axes, properties of straight line, the conic sections and certain higher plane curves by means of their equations. This course carries university credit for Mathematics 7. BARTON.
118. DIFFERENTIAL CALCULUS. Differentiation of algebraic and transcendental functions, development of functions, indeterminate forms, maxima and minima, treatment of tangents, subtangents, normals, subnormals, asymptotes, curvature, envelopes, evolutes, and singular points. This course carries university credit for Mathematics 11. SLOBIN.

- 51s. **INTEGRAL CALCULUS.** Integration of standard forms, integration as a summation, rectification of curves, quadrature of plane and curved surfaces, cubature of volumes, successive integration, applications. This course carries university credit for Mathematics 51. SELLEW.
- 54s. **TEACHERS' COURSE IN SECONDARY MATHEMATICS.** This course deals with the mathematical curriculum of the secondary schools and the methods of teaching the several subjects. The current high school courses will be examined in the light of modern educational aims and principles. Constructive criticism will be offered on these courses of study. Methods will be discussed in connection with the relevant subject-matter and sufficient practice will be given by way of exercises and problems fully to illustrate the methods recommended. The student will be expected to do readings and to take part in the daily discussion of assigned topics. A text-book will be recommended to serve as the permanent outline and to help in unifying the course. The leading subjects, Algebra and Geometry, will be given special consideration under the following topics: Aims in the study of the subject; subject-matter-development and classification; methods of teaching-origin and application; relation to other mathematical subjects and to other studies; educational values belonging to the subject. This course carries university credit for Mathematics 54. REEVE.
- 60s. **FUNDAMENTAL CONCEPTS OF SECONDARY MATHEMATICS.** Axioms and postulates of elementary geometry. Properties of numbers. Theory of limits. Ruler and compass constructions. Lectures, assigned readings, and problems. BAUER.
- 62s. **THEORY OF EQUATIONS.** Algebraic solution of cubic and quartic equations, properties of roots of an equation, solution of numerical equations, complex numbers, determinates, discriminant resultants. Texts and lectures. SLOBIN.

MUSIC

Professor CARLYLE SCOTT; Special Instructors MAXIMILIAN DICK, GERTRUDE HULL, EARL L. BAKER.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
1-2s	3	Harmony		None
		10:00-11:50 TWThF	Music	Scott
15-16s	1½	Piano		
		Ar Ar	Music	Ar
21-22	1½	Voice		
		Ar Ar	Music	Hull
27-28	3	Public School Music		
		3:00-4:50 MTWTh	8Ed	Baker
19	1½	Violin		
		Ar Ar	Music	Dick

15. **HARMONY.** The study of chords, their construction, relations, and progressions. Written exercises on basses, the harmonization of given melodies. SCOTT.
- 15-16s. **PIANOFORTE.** Open to students who have mastered technical difficulties of the degree of Czerny's School of Velocity, and the easier Haydn and Mozart Sonatas. Fee, \$24. (Two lessons per week.)
.....
- 21-22s. **VOICE CULTURE.** While the individual ability varies greatly all students may learn to use their voices correctly, through proper training in relaxation and breath control, the foundation of tone production. Great advantages are also offered to the advanced singer in the study of the best in vocal literature, songs, oratorio, and opera. Fee, \$24. (Two lessons per week.) HULL.
- 27-28s. **PUBLIC SCHOOL MUSIC.** See statement Public School Music under Education. BAKER.
- 19s. **VIOLIN.** Open to students who are qualified to play the first ten of Kreutzer's Forty Etudes, and the easier Handel and Mozart Sonatas. Fee, \$24. (Two lessons per week.) DICK.

PHILOSOPHY AND PSYCHOLOGY

Assistant Professor RUPERT C. LODGE; Instructor JOHN F. DASHIELL.

COURSES

No.	Credit	Title	Offered to	Prereq. courses
*20s	3	Present Day Philosophy.....	Jr., sr.	6 cr.
		8:00-9:50 MTWTh	322F	Lodge
8s	1½	Ethics	Jr., sr.	None
		10:00-10:50 MTWTh	322F	Lodge
1s	3	Gen. Psychology, first half.....	Soph., jr.	None
		8:00-9:50 MTWTh	321F	Dashiell
18s	1½	Child Development	Soph., jr., sr.	Phil. 1 or 5
		10:00-10:50 MTWTh	321F	Dashiell

*20s. **PRESENT DAY PHILOSOPHY.** An untechnical discussion of the main types of contemporary thought; Idealism, Neo-Realism, Pragmatism, Bergsonism, etc. Text-book, assigned reading, reports. This course carries university credit for Philosophy 20. LODGE.

8s. **ETHICS.** A discussion of the central moral problems, leading up to a constructive theory of ethics, and followed by an application of the theory to present-day problems in social ethics. Text-book, assigned reading, essays. This course carries one and one-half university credits. LODGE.

1s. **GENERAL PSYCHOLOGY, FIRST HALF.** Study of human nature from the point of view of objective behavior and including the conscious processes involved therein. A complete, tho brief, survey. Credit

for first half of Philosophy 1-2, and one half credit towards State Professional Certificate or University Teachers' Certificate. DASHIELL.

188. CHILD DEVELOPMENT. A study of the factors and stages of development from infancy through adolescence, largely from the psychological point of view. DASHIELL.

PHYSICAL EDUCATION FOR WOMEN

Instructor **ERMINA TUCKER.**

COURSES

No.	Credit	Title	Offered to	Prereq. courses
1	1½	Physical Training for Elementary Children	All	None
		8:00-8:50 MTWThF	WGm	Tucker
2	1½	Physical Training for Secondary Children	All	None
		9:00-9:50 MTWThF	WGm	Tucker
3	0	Beginning and Advanced Swimming...	All	None
		2:30-5:30 TTh	WGm	
4	0	General Swimming	All	None
		3:00-5:00 MWF		
		Ar TTh		

1. GYMNASTICS, GAMES, AND FOLK DANCING FOR ELEMENTARY CHILDREN. Suitable for school rooms, halls, and play grounds. Methods of teaching. Gymnasium shoes required, gymnasium costumes recommended. TUCKER.
2. GYMNASTICS, GAMES, AND FOLK DANCING FOR SECONDARY CHILDREN. Suitable for school rooms, halls, and play grounds. Methods of teaching. Gymnasium suits and shoes required. TUCKER.
3. BEGINNING AND ADVANCED SWIMMING. Technique of various simple strokes and dives. Fee, \$3.00, including towels and bath sheets.
4. GENERAL SWIMMING. Fee, one ticket for fifteen cents, seven tickets for \$1.00, including towels and bath sheets.

PHYSICAL EDUCATION FOR MEN

Instructor **JOHN C. WEST.**

COURSES

No.	Credit	Title	Offered to	Prereq. courses
1	..	Gymnastics	.....	.....
		3:00-3:50 MTWThF		West
2	..	Athletics	.....	.....
		4:00-4:50 MTWThF		West
3	..	Swimming	.....	.....
		5:00-5:50 MTWThF		

1. GYMNASTICS. (1) Instruction in class leadership, tactics, marching, etc.; (2) Calisthenics: free hand, dumb-bells, Indian clubs, bar-bells, etc.; (3) light apparatus: bar vaults, height jumps, elementary mat drills, etc.; (4) heavy apparatus: horizontal and parallel bars, buck, horse, flying rings, tumbling, etc.
2. ATHLETICS. Group games: basketball, volley-ball, hand-ball, Newcomb, indoor baseball, relay races, and regulations governing athletic contests.
3. SWIMMING. Beginning strokes, advanced swimming, simple and fancy diving, life saving, and instruction in conducting swimming contests.

NOTE. Tennis courts, baseball field, and track open to Summer Session students.

PHYSICS

Assistant Professor LOUIS W. MCKEEHAN; Instructors ERNEST O. DIETERICH, PAUL E. KLOPSTEG.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
7s	4	General Physics .....	.....	Hi. Alg. and Pl. Trig. McKeehan
		8:00, 9:00 MTWThF	17-30Ph	
8s	4	General Physics .....	.....	7 or equiv. Klopsteg, Dieterich
		8:00, 9:00 MTWThF	16-30Ph	
9s	1	General Laboratory Practice.....	.....	Regis. in 7s
		10:00, 11:00 MWF	23Ph	Dieterich
		or 2:00, 3:00 MWF	23Ph	Dieterich
10s	1	General Laboratory Practice.....	.....	Regis. in 8s
		10:00, 11:00 MWF	23Ph	Dieterich
		or 2:00, 3:00 MWF	23Ph	Dieterich
90s	2	Teachers' Course .....	.....	Gen. Physics Klopsteg
		10:00 MTWThF	16Ph	
19s	Ar	Research .....	.....	See statement
		Ar Ar	Ar	

No student will be permitted to register for more than Courses 7s and 9s or 8s and 10s, except that students who have credit in Course 7 may register for 8s, 9s, and 10s.

7s. GENERAL PHYSICS. Mechanics of solids and fluids, sound and heat. The requirement for this course is a working knowledge of algebra. Familiarity with the common trigonometric functions is desirable. The course is designed to give the student a general information about the fundamental laws and their applications. This course is completed during the six weeks' session. It carries university credit for Course 7 and in combination with Course 8 meets the requirements for Physics toward the State Professional Certificate. Courses 7, 8, 9, and 10s meet the requirement in Physics in the Pre-Medical and Engineering courses. MCKEEHAN.

88. **GENERAL PHYSICS.** Light, electricity, and magnetism. This course has Course 78 as a prerequisite and continues the study of the fundamental laws and their application. This course is completed during the six weeks' session. It carries university credit for Course 8 and in combination with Course 7 meets the requirements for Physics towards the State Professional Certificate. KLOPSTEG, DIETERICH.
98. **GENERAL LABORATORY PRACTICE.** Physical measurements in the mechanics of solids and fluids, sound and heat, giving the student a knowledge of experimental methods and an acquaintance with the fundamental facts of the subject. No charge is made for this course except the usual laboratory fee, if taken in conjunction with Course 78. MCKEEHAN, DIETERICH.
108. **GENERAL LABORATORY PRACTICE.** Physical measurements in electricity, magnetism and light, giving the student a knowledge of the experimental methods and an acquaintance with the fundamental facts of the subject. No charge is made for this course except the usual laboratory fee, if taken in conjunction with Course 8. MCKEEHAN, DIETERICH.
908. **TEACHERS' COURSE IN HIGH SCHOOL PHYSICS.** This course includes a brief history of the teaching of Physics; its present status; function of class room work, of laboratory, and methods in each; criticism of high school texts and manuals; selection, purchase, and care of apparatus. This course carries university credit for Physics 90. KLOPSTEG.
1918. **RESEARCH.** Students who satisfy the instructor in advance by personal conference or by mail will be guided in their research. Credits arranged. MCKEEHAN.

POLITICAL SCIENCE

Professor JEREMIAH S. YOUNG; Instructor WILLIAM ANDERSON.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
18	3	American Government	Soph., jr., sr.	None
		10:00-11:50 TWThF	102MA	Young
68	3	American Municipal Administration...	Soph., jr., sr.	1a
		10:00-11:50 TWThF	209MA	Anderson
38	1½	Comparative Government	Soph., jr., sr.	1a
		8:00-8:50 TWThF	104MA	Anderson
518	1½	Business Law	Soph., jr., sr.	1a or consent of Instructor
		9:00-9:50 TWThF	104MA	Young

18. **AMERICAN GOVERNMENT.** A preparation for the advanced courses in Political Science, for teaching in secondary schools, and for good citizenship. Organization and actual workings of the National Government. Some attention will be given to the recent tariff act, the

new financial and banking legislation, and the trade commission act. This course carries university credit for Political Science 1a. Courses 1s and 3s in Political Science and Course 1s in Economics prepare for the examination in Political Science toward the State Professional Certificate. YOUNG.

- 6s. AMERICAN MUNICIPAL ADMINISTRATION. A study of the organization and chief functions of the American cities; their growth, relation to the state, forms of charters, inefficiency and corruption, reform measures, and the administration of finance, police, health, and other activities. ANDERSON.
- 3s. COMPARATIVE GOVERNMENT. A study of the government and politics of the leading countries in modern Europe. This course carries one-half university credit for Political Science 3. ANDERSON.
- *51s. BUSINESS LAW. A study of contracts—the fundamental subject in business law. Essentials in the formation, classification, interpretation, breach, discharge and the practical application of contracts. Special attention given to the teaching of Business Law in the high schools. This course carries part credit for Political Science 51. YOUNG.

RHETORIC

Professor JOSEPH M. THOMAS; Assistant Professor FRANK M. RARIG; Instructors CYRIL A. HERRICK, ERNEST P. KUHLE.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
1s	3	Composition and Rhetoric..... 8:00-9:50 MTThF	205F	Kuhl
2s	3	Composition and Rhetoric..... 8:00-9:50 MTWTh	306F	Herrick
11s	1½	Exposition..... 11:00-11:50 MTWTh	306F	Herrick
80s	1½	Teachers' Course in English and Rhetoric..... 11:00-11:50 TWThF	311F	Thomas
110s	1½	Short Story..... 10:00-10:50 TWThF	311F	Thomas
121s	Ar	Research and Special Work..... Ar Ar	303½F	Thomas
41s	3	Public Speaking..... 8:00-9:50 TWThF	308F	Rarig
81s	1½	Interpretative Reading..... 11:00-11:50 TWThF	308F	Rarig

- 1s. (DOUBLE COURSE) COMPOSITION AND RHETORIC. Practical training in the art of writing, study of the principles of structure, and analysis of specimens of good prose. This course carries university credit for Rhetoric I first semester. KUHLE.

SUMMER SESSION

25. (DOUBLE COURSE) COMPOSITION AND RHETORIC. This course is a continuation of the preceding course. It carries university credit for Rhetoric 1-2, second semester. HERRICK.
118. (SINGLE COURSE) EXPOSITION. Analysis of specimens of exposition; short daily themes and longer essays, with emphasis on planning and amplification. Open to those who have credit in Rhetoric 1-2. This course, which is a continuation of 118 in the Summer Session of 1916, carries university credit for the second half of the semester's work in Rhetoric II. THOMAS.
808. (SINGLE COURSE) TEACHERS' COURSE IN ENGLISH. An analysis of some of the problems in the teaching of English literature and composition with suggestions toward their solution. Open to all juniors and seniors who have credit for English 1-2, and Rhetoric 11-12, or 15-16. THOMAS.
1108. (SINGLE COURSE) THE TECHNIQUE OF THE SHORT STORY. Accompanied by constructive work in story writing. Open to those who have credit for Rhetoric 11-12 or its equivalent. This course carries university credit for the first half of the semester's work in Rhetoric 110. THOMAS.
1218. RESEARCH AND SPECIAL WORK. Hours and credits to be arranged. Graduate students and seniors with the necessary preparation may undertake research in some selected field. THOMAS.
418. (DOUBLE COURSE) PUBLIC SPEAKING. Fundamentals of effective speaking; breathing, voice-production, enunciation, and action; delivery of extracts from the works of well-known writers and speakers; principles underlying speech-making applied in both oral and written compositions. Limited to twenty-five. This course carries university credit for Public Speaking 41. RARIG.
818. (SINGLE COURSE) INTERPRETIVE READING. The interpretation and oral expression of the various forms of literature, such as the essay, the short story, lyric and narrative poetry, and the drama. This course carries university credit for the first half of the semester's work in Public Speaking 81. RARIG.

ROMANCE LANGUAGES

Professors EVERETT W. OL MSTED and COLBERT SEARLES.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
18	3	Beginning Course in French.....	Beginners	None
		10:00-10:50 MTWThF	201F	Olmsted
		11:00-11:50 MWF	201F	Olmsted
38	1½	Intermediate Course in French.....	.....	1 or equiv.
		9:00-9:50 MTWTh	202F	Searles
		(In case of conflict this hour may be changed)		

1113	Ar	Research in Romance Languages.....	Grad.	Adv. preparation
		Ar Ar Ar		Olmsted, Searles
313	3	Beginning Course in Spanish.....	Beginners	None
		10:00-10:50 MTWThF	202F	Searles
		11:00-11:50 MWF	202F	Searles
353	1½	Intermediate Course in Spanish.....		31 or equiv.
		9:00-9:50 MTWTh	201F	Olmsted
		(In case of conflict this hour may be changed)		

FRENCH

13. BEGINNING COURSE. This course is intended for beginners in French and for teachers of the language who desire to follow the course for method. Particular attention will be given to the teaching of pronunciation by the aid of phonetic symbols, to a systematic presentation of grammar, to conversation and to reading. A modified direct method will be used throughout the course. OLMSTED.
33. INTERMEDIATE COURSE. Reading and discussion in French, of representative modern authors, and composition. This course gives one and one half credits toward university Course 3. SEARLES.
113. RESEARCH IN ROMANCE LANGUAGES. Graduate students with necessary preparation may undertake research in some selected field. OLMSTED, SEARLES.

SPANISH

313. BEGINNING COURSE. This course is intended for beginners in Spanish. Particular attention will be given to pronunciation, through grammar drill and reading of selected prose. Modified direct method will be used throughout the course. SEARLES.
353. INTERMEDIATE COURSE. Nineteenth Century Spanish and Spanish-American authors. Spanish conversation and commercial correspondence. One and one-half credits toward university Course 35 or 37. OLMSTED.

SOCIOLOGY AND ANTHROPOLOGY

Professors ALBERT E. JENKS, JOHN PHELAN, FRANCIS D. TYSON; Special Lecturer CAROL ARONOVICI.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
13	3	Introduction to Sociology and Anthropology	Soph., jr., sr.	None
		8:00-9:50 MTWTh	9F	Tyson
43	3	Cultural Anthropology	Soph., jr., sr.	
		10:00-11:50 MTWTh	F	Jenks
63	1½	Social Legislation	Jr., sr.	1 or equiv.
		11:00-11:50 MTWTh	9P	Tyson

148	3	Introduction to Rural Sociology.....	Jr., sr.	1
		1:00-2:50 MTWTh	9F	Phelan
158	1½	Rural Social Development.....	Jr., sr.	1
		10:00-10:50 MTWTh	...	Phelan
1008	Ar	Individual Research in Special Prob- lems in Sociology.....		
		Ar Ar Ar		Phelan, Tyson
1148	3	The American People.....	Jr., sr., grad.	
		1:00-2:50 MTWTh	F	Jenks
558	1½	Social Statistics and Social Surveys..		
		Ar Ar	...	Aronovici

18. **INTRODUCTION TO SOCIOLOGY AND ANTHROPOLOGY.** A study of the origin and development of human societies; the various agencies which have determined the type of social life; social organization, social institutions, social progress; the individual and the group; the bearing of Sociology upon other social sciences and arts. **TYSON.**
48. **CULTURAL ANTHROPOLOGY.** Origin and development of the most important activities and institutions which have their beginning in primitive society. Textbook, lectures, readings, and essays. **JENKS.**
68. **SOCIAL LEGISLATION.** The historical background of modern social legislation. Factory legislation, English and American. Social insurance: Workingmen's compensation; health, invalidity, and unemployment insurance. Widows and old age pension schemes and other legislation proposed to prevent poverty. **TYSON.**
148. **INTRODUCTION TO RURAL SOCIOLOGY.** A survey of the field of rural sociology, its methods and problems; a consideration of such topics as: religious, educational, and social ideals of rural people; rural environment; effects of immigration; rural institutions; rural progress. **PHELAN.**
158. **RURAL SOCIAL DEVELOPMENT.** An intensive study of the organized ways and means for the betterment of rural social life; purpose and achievements of the various rural organizations including schools; types of community work; a study of leadership. **PHELAN.**
1008. **INDIVIDUAL RESEARCH ON SPECIAL PROBLEMS IN SOCIOLOGY.** This course will be open only to selected seniors and graduates after consultation with and approval of instructors. It is designed to offer the opportunity for investigation of special problems under supervision. Credit will be assigned according to the amount and quality of work done. **PHELAN, TYSON.**
1148. **THE AMERICAN PEOPLE.** Essential and unique historical Americanisms, and their value and virility for the future; facts and forces of amalgamation and assimilation in America; America's ethnic problems. Lectures, readings, and essay. **JENKS.**
558. **SOCIAL STATISTICS AND SOCIAL SURVEYS.** A study of the methods of community diagnosis. **ARONOVICI.**

COLLEGE OF EDUCATION

Professors LOTUS D. COFFMAN, RUDOLPH PINTNER, ALBERT W. RANKIN, FLETCHER H. SWIFT; Assistant Professor WILFRED S. MILLER; Instructors EARL L. BAKER, CHARLES L. HARLAN, GEORGE A. MCGARVEY, WILLIAM D. REEVE; Special Lecturers MABEL CARNEY, CHARLES H. KEENE.

For other faculty members of the College of Education see the Arts Bulletin.

The courses offered by the College of Science, Literature, and the Arts are accepted by the College of Education.

ENTRANCE REQUIREMENTS

Applicants for admission to this college must present credentials showing:

1. The completion of a regular four-year high-school course.
2. The completion of two full years of college work, (not less than sixty credits) in Science, Literature, and Arts at this or some other college or university of equal rank.

Graduation from advanced graduate normal courses (two years beyond the high school), is considered equivalent to (1) and (2) above.

Graduates of a five-year normal course, if individually recommended by the normal school president, are allowed forty-two credits and are admitted to the college as unclassified students pending the completion of eighteen additional credits.

Teachers in service unable to carry full work, teachers preparing for examination for the First Grade Professional Certificate, but who are unable to meet the regular requirements for admission, and certain other classes of students are also admitted to the College of Education as unclassified students. Each case must, however, be dealt with individually as the result of formal application to the Dean of the College of Education.

For specific and detailed information concerning entrance requirements consult the bulletin of the College of Education.

Graduate students.—Students wishing to work upon problems immediately concerned with the writing of a graduate thesis are advised to consult with the Dean of the College of Education.

Undergraduates.—Students holding a teachers' certificate may register for the degree of B.A. in Education in the College of Education without complying with the requirements of the University for a teachers' certificate.

The Department of Education requires fifteen credits of all university students who are candidates for the University State Teachers' Certificate, and that they be distributed as follows: History of Education,

three credits; Principles of School Practice, three credits; the High School as a Social Institution, Its Organization and Administration, three credits; Special Methods covering at least two subjects, three credits; Practice Teaching, three credits. Reference to the courses named below, supplemented by conference with the instructors will make clear how these requirements, with the exception of Practice Teaching may be fulfilled during the summer session. An introductory course in Psychology will be required as a prerequisite for all courses in education.

PROFESSIONAL TRAINING OF TEACHERS

At the 1913 session of the Legislature the following act was passed: "From and after August 1, 1915, all candidates for teachers' certificates by examination, renewal, or endorsement of credentials, except those who have taught successfully for at least eighteen months in the public schools prior to such dates, or those receiving a second or limited certificate, must have completed such a course of professional training for teaching not exceeding thirty-six weeks, as may be prescribed by the state superintendent. Training courses in the state university, in state normal schools, in state high schools, or in private schools fully and fairly the equivalent of those given in state schools and approved by the said superintendent shall be accepted as meeting the requirements for teachers' training under this section."

College graduates who wish to qualify as high-school teachers, and who have not had the required teaching experience or professional training may qualify by attending two sessions, 1916 and 1917 of the University Summer School for the full term of six weeks. The work must total not less than six credits each session and must include:

1. Special study from the high-school teachers' viewpoint during each summer session of some one subject which the candidate expects to teach.
2. One other general professional subject such as history of education, educational psychology, principles of teaching, general pedagogy, school administration, or any other professional subject offered in the summer school.

A provisional certificate will be issued for some designated school upon satisfactory completion of one summer session of professional work and upon the recommendation of the Dean of the College of Education or the Director of the Summer School. This certificate may be renewed as a professional certificate after one year's successful teaching and the completion of a second summer session of professional training and study in 1916.

STATE PROFESSIONAL TEACHERS' CERTIFICATE

The State Professional Certificate of the first grade is issued to applicants who have secured a state first grade teachers' certificate, who have taught successfully not less than eighteen months in a public school in the state, and who have passed successfully examinations in the fol-

lowing studies: Psychology, General Pedagogy, History of Education, School Organization and Law; in at least two of the following: Higher Algebra, Solid Geometry, and Trigonometry; in at least two of the following: American Literature, English Literature, Rhetoric; in at least three of the following: Ancient History, Modern History, English History, United States History; in at least three of the following: Astronomy, Botany, Chemistry, Geology, and Physiography, Physics, Political Science, Zoology.

Candidates for the above certificate may secure credit accepted by the State Department in Psychology, History of Education, General Pedagogy, School Organization, and in the laboratory sciences, Physics, Chemistry, Botany, and Animal Biology (Zoology). In no other subjects will credit be given directly, but the courses in the other studies required for this certificate will be planned with the idea of directly preparing students for the examinations conducted by the State Department.

Students taking subjects that may be applied towards a professional certificate, who receive in each subject a mark of at least one grade above the minimum required for passing in such subject, will be exempt from the state examinations in these subjects. Those failing to get such mark in any subject must take the professional examination in that subject.

COURSES FOR THE TRAINING OF TEACHERS OF SPECIAL CHILDREN IN MINNESOTA SCHOOLS

In coöperation with the State Department of Education, the College of Education has outlined a four years' course for the training of teachers of special children in Minnesota Schools. According to the tentative program so far outlined it will be possible for students to pursue this course and at the same time to secure the Bachelor's Degree at this University. It is further intended that a number of the courses from this four-year program will be offered in the summer. During the current summer the following courses from this program will be offered and may be later used in fulfilling the requirements for this degree:

Rhetoric 1s-2s

Animal Biology 1s-2s

Chemistry 1s-2s

Psychology 1s

Sociology 1s

Physiology 3s

Education 3s, 11s, 134s, 136s, 105s, 123s, and

Courses 12, 13, and 14 offered by Dr. Keene.

Students who have had two years teaching experience in the public schools and who carry a group of these courses satisfactorily during the current year will be given a provisional certificate by the State Department, enabling them to qualify for teaching in special classes.

For key to abbreviations see page 14.

EDUCATION

COURSES

No.	Credits	Title	Offered to	Prereq. courses
1018	1½	Foundations of Modern Education... 2:00-2:50 TWThF	Jr., sr., grad. 205Ed	Phil. 1-2 or equiv. Swift
1028	1½	History of Education from Reform. ... 2:00-3:50 TWThF	Jr., sr., grad. 205Ed	Phil. 1-2 or equiv. Swift
2018	2	Seminar in History of Education..... 4:00-5:30 TWF	Sr., grad. 205Ed	101-102 or equiv. Swift
1058	1½	Educational Psychology	Jr., sr., grad. 206Ed	Phil. 1-2 Pintner
1348	1½	Mental Diagnosis	Sr., grad. 206Ed	Phil. 1-2 Pintner
1368	1½	Mental Tests	Jr., sr., grad. 202Ed	Phil. 1-2 Pintner
12	1½	Physical Education in Public Schools. 9:00-9:50 MTWTh	206Ed	Keene
13	1½	Exceptional Children in Pub. Schools. 10:00-10:50 TWThF	206Ed	Keene
14	1½	Special Classes for Exceptional Children	Ar	Keene
388	1½	Social Aspects of Education..... 10:00-10:50 MTWTh	Jr., sr. 101Ed	1 Harlan
118	1½	Technique of Teaching..... (1) 3:00-3:50 TWThF (2) 4:00-4:50 TWThF	Jr., sr. 204Ed 204Ed	Phil. 1-2 Miller Miller
138	1½	Secondary Educ. Movements	Jr., sr., grad. 112Ed	Ed. 1 or equiv. Miller
1198	1½	School Curricula	Sr., grad. 205Ed	1 or 101-102 and 3 Rankin
1218	1½	School Organ. and Administration... 11:00-11:50 TWThF	Sr., grad. 205Ed	1 or 101-102 and 3 Rankin
1238	1½	School Supervision	Sr., grad. 204Ed	1 or 101-102 and 3 Coffman
1418	1½	School Sanitation	Sr., grad. 205Ed	1 or 101-102 and 3 Rankin
1118	1½	The Teaching of Supervision of Manual Training	Sr. 101Ed	..... McGarvey
18	1½	Mechanical Drawing .....	.....	.....
		8:00-8:50 MTWTh Other hours arranged	115Ed	McGarvey
28	1½	Mechanical Drawing .....	.....	.....
		2:00-2:50 MTWTh Other hours arranged	115Ed	McGarvey
A8	1	Graphic Methods of Presenting Facts and Chart Making .....	.....	.....
		11:00-11:50 F Rec. Drafting room hours arranged	114Ed	McGarvey
58	2	Problems of the Training Department. 10:00-10:50 LTWThF	215Ed	Carney

24	3	Nature Study	All	None
		8:00-9:50 TWThF	215Ed	Trafton
543	3	Teachers' Course in Mathematics.....	Jr., sr.	11
		10:00-11:50 MTWTh	204Ed	Reeve
278	3	Public School Music.....	Jr., sr.	.....
		3:00-4:50 MTWTh	8Ed	Baker

I. HISTORY OF EDUCATION

1018. FOUNDATIONS OF MODERN EDUCATION. An interpretative historical study of those elements in modern education derived from the Hebrews, Greeks, Romans, Middle Ages, and the Renaissance. Emphasis will be laid upon secondary education and the origin and results of the monopoly of the cultural conception of education and cultural studies. SWIFT.

1028. HISTORY OF EDUCATION FROM THE REFORMATION. Modern educational institutions, current theories and problems in the light of their history. Special emphasis upon elementary education. SWIFT.

2015. SEMINAR IN HISTORY OF EDUCATION. Problems in educational history; a seminar course for advanced students; devoted to the historical investigation of selected problems in education designed especially for those working for advanced degrees. Prerequisite: a general course in History of Education. SWIFT.

II. EDUCATIONAL PSYCHOLOGY

1058. EDUCATIONAL PSYCHOLOGY; MENTAL DEVELOPMENT. The origin and nature of the human organism, the origin, development, and control of instincts, and the relation of instincts to the formation of habits, individual differences, their nature, extent, and causes. PINTNER.

1348. MENTAL DIAGNOSIS. A study of mental variation in children, its nature, degree, causes, and effects and a discussion of methods of treating superior and subnormal individuals in the schools. PINTNER.

1368. MENTAL TESTS. Study of individual differences by means of mental tests. Laboratory work in giving and taking tests, introductory to the use of group tests for the measurement of age-level, etc. PINTNER.

III. COURSES FOR THE TRAINING OF TEACHERS OF SPECIAL CHILDREN

12. PHYSICAL EDUCATION IN PUBLIC SCHOOLS. The need of physical education; growth of children at different ages; the conditions met with in elementary and secondary schools; the physiology of exercise; the nature and function of play; gymnastics; games; mass competitions; athletics; and rhythmic exercises; physical education in rural schools; physical education for the deaf, for the blind, for sub-normals, and other defectives. KEENE.

13. EXCEPTIONAL CHILDREN IN THE PUBLIC SCHOOLS. Need of segregation; special training of subnormals; deaf; blind; of those having

defects of speech; for other misfits; special training for the exceptionally bright; organization and equipment of special classes; their relations to the school system; methods of selecting and training exceptional children. KEENE.

14. SPECIAL CLASSES FOR EXCEPTIONAL CHILDREN. A practice course. Opportunity offered for observation and practice teaching in special classes for subnormal children. Practice in use of tests. Must be accompanied by No. 2. KEENE.

IV. SCHOOL ADMINISTRATION

- 3as. SOCIAL ASPECTS OF EDUCATION. The social principles underlying public education. The interpretation and application of these principles in our system of education and its institutions. Prerequisite: History of Education. HARLAN.
115. TECHNIQUE OF TEACHING. Types of classroom instruction; preparation of lesson plans, hygiene of instruction, classroom management. MILLER.
135. SECONDARY EDUCATION MOVEMENTS. Some of the movements considered are: changed concepts of method, reorganization both as affecting the grades below the high school and the work beyond the four years of high school, supervised study, socialization of curricula, public control. Prerequisite: History of Education. MILLER.
1195. SCHOOL CURRICULA. The curriculum as related to social, industrial, and economic conditions; a survey of the grammar grades and of the high school; consideration of the possibilities of developing a curriculum better adapted to community needs. RANKIN.
1215. SCHOOL ORGANIZATION AND ADMINISTRATION. An introductory course in school administration for students of teaching experience and for those looking forward to work as principals and superintendents. RANKIN.
1235. SCHOOL SUPERVISION. The problems involved in the training of teachers in service; studies of qualities of merit in teachers; factors in selecting teachers; the distribution of subject matter by grades; the time allotment of studies. COFFMAN.

V. SCHOOL SANITATION

1415. SCHOOL SANITATION AND PUBLIC HEALTH. A course in school hygiene in its broader aspects; designed for all teachers and supervisors who are responsible for the health of school children; treats of medical supervision and other problems arising from school environment. RANKIN.

VI. MANUAL TRAINING

In the drawing courses offered below the recitation or demonstration hour will be scheduled definitely in the program but the work in the drafting room can be arranged either forenoon or afternoon to meet individual requirements.

It will be possible for a student to take courses 1s and 2s in drawing totaling three credits.

For other courses offered during the summer session for which credit will be given in Manual Training in the College of Education consult the Instructor in Manual Training.

11s. THE TEACHING AND SUPERVISION OF MANUAL TRAINING. A study of the history and aim of Industrial Education and methods of presenting Manual Training and Drawing to grade and high school pupils. The outlining of courses and the selecting of equipment adaptable to different types of school systems. MCGARVEY.

1s. MECHANICAL DRAWING. A course to develop the principles of free-hand drawing and simple perspective. The use of drawing instruments, lettering, the making of working drawings, tracing, and blue printing. MCGARVEY.

2s. MECHANICAL DRAWING. Orthographic and isometric projection, lettering, drawing from machine models, cabinet drawing, topographical drawing, shop details, and elements of architectural drawing. Courses of study and methods of teaching drawing. MCGARVEY.

As. GRAPHIC METHODS OF PRESENTING FACTS AND CHART MAKING. A course designed to show the best method of presenting facts after data has been secured. It will include work in lettering, spacing, and elementary drafting. The making of charts for classroom use will be taken up. The process will involve the use of straight line drawing, isometric projection and freehand perspective sketching. The method of using lantern slides and illustrative material will be discussed. MCGARVEY.

NOTE. In Courses 1s, 2s, and As students provide their own drawing instruments and materials.

VII. HIGH SCHOOL TRAINING TEACHERS

Attention is called to the fact that Course 5s on the "Problems of Training Departments" is required by the High School Board of all teachers entering normal work next year for the first time. Experienced teachers should select courses according to individual need and preference. The supervisor will be present during enrollment to assist all who desire help and advice in planning their programs.

Among the courses especially recommended for training teachers are the following:

- 123s. School Supervision (Coffman)
- 11s. Technique of Teaching (Miller)
- 24. Nature Study for Training Departments (Trafton)
- 1s. Introduction to Sociology (Tyson)

(Also Mr. Phelan's courses and those in Educational Psychology given by Dr. Pintner this summer.)

- 5s. PROBLEMS OF THE TRAINING DEPARTMENT. A general course in the organization and management of training departments. The chief problems and topics considered will be: the history, status and tendencies of training work in Minnesota; how to establish a training department; equipment required; organization and program; the course of study and its content and presentation; practice teaching; observation work; lesson plans; criticism and its presentation; rural demonstration schools and how to conduct them; social and extension activities; the supervision of training graduates; coöperation and relationships of the training teacher; rural teacher-training throughout the United States and a comparison of the Minnesota high-school system with that of other states. CARNEY.

VIII. NATURE STUDY

24. NATURE STUDY FOR TRAINING DEPARTMENTS. Attention will be given chiefly to the pedagogy of nature-study, and to biological and agricultural nature-study. A few suggestions will be given on some simple experiments that may be performed in hygiene and physical nature-study. Special attention will be given to the working out of a course that may be used in training departments. The field work will deal largely with the following topics: birds, trees, flowers, insects, flowerless plants, weeds, and gardening. TRAFTON.

IX. TEACHERS' COURSE IN ENGLISH

- 80s. TEACHERS' COURSE IN ENGLISH. Methods of teaching English in high schools. Course of study, textbooks, and equipment. This course carries university credit for the first half of English 80. THOMAS.

X. TEACHERS' COURSE IN MATHEMATICS

- 54s. TEACHERS' COURSE IN SECONDARY MATHEMATICS. This course deals with the mathematical curriculum of the secondary schools and the methods of teaching the several subjects. The current high school courses will be examined in the light of modern educational aims and principles. Constructive criticism will be offered on these courses of study. Methods will be discussed in connection with the relevant subject-matter and sufficient practice will be given by way of exercises and problems fully to illustrate the methods recommended. The

student will be expected to do readings and to take part in the daily discussion of assigned topics. A text-book will be recommended to serve as the permanent outline and to help in unifying the course. The leading subjects, Algebra, and Geometry, will be given special consideration under the following topics: Aims in the study of the subject; subject-matter-development and classification; methods of teaching-origin, and application; relation to other mathematical subjects and to other studies; educational values belonging to the subject. This course carries university credit for Mathematics 54. REEVE.

XI. PUBLIC SCHOOL MUSIC

27s. PUBLIC SCHOOL MUSIC. This course is for supervisors of music, for students who wish to become supervisors, for teachers who wish to specialize in music. The work in each grade and in the high school will be taken up with reference to material used, methods of presentation and results to be required. The care, growth, and proper use of the child voice will receive careful attention. Testing of voices in the upper grades will be demonstrated. A comparative study of the different prevailing methods of school music teaching will be a part of the course. This course carries university credit for Course 27 in Music. BAKER.

XII. SPECIAL METHODS

SPECIAL METHODS OF TEACHING HIGH SCHOOL SUBJECTS. A full description of each course appears elsewhere in this bulletin in connection with the work of the department concerned. Special attention is called to the recent ruling of the State Department of Education which requires courses in special methods of at least two different high school subjects and totaling at least three credits for all applicants for the State Professional Teachers' Certificate.

Department	Course No.	Credits	Instructor
Chemistry	20s	2	Baker
English	80s	1½	Thomas
Geography	55s	2	Posey
German	60s	3	Schlenker
History	56s	2	Krey
Latin	55s	1½	Eastman
Manual Training	11s	1½	McGarvey
Mathematics	54s	3	Reeve
Metal Work	4s	3	Hobart
Music	27s	3	Baker
Physics	90s	2	Klopsteg
Wood Work	2as-2bs	3	Richards

EDUCATIONAL COURSES IN OTHER COLLEGES AND DEPARTMENTS

AGRICULTURAL EDUCATION

All courses dealing with agricultural and rural education except the course in Rural Sociology will be offered at the Agricultural College. For complete description consult the Agricultural College Summer Session Bulletin, which may be secured by writing to the Secretary, University Farm, St. Paul. For complete description of the course in Rural Sociology, see Department of Sociology, of this bulletin.

HOME ECONOMICS

The courses in Home Economics are offered at the Agricultural College. For complete description consult the Agricultural College Summer Session Bulletin.

LIBRARY TRAINING SCHOOL

MISS BALDWIN
MISS WILSON

College of Education III, 113, 117.

The course in library training is under the direction of the Minnesota Public Library Commission and the Department of Education. It is intended for librarians of small public libraries and school librarians and assistants in larger libraries, who are not able to attend a regular library school. Its object is to prepare the students for better work in their present positions, and not to provide a substitute for regular library school training.

The course is open only to those holding library positions, or under definite appointments to such positions, and to teachers in charge of school libraries in Minnesota. The work will require the entire time of the student, who may not register for other courses in the Summer School.

The course includes instruction and practice work in classification, cataloging, book-selection, reference work, administration of public and school libraries.

For further information regarding the outline of work, program, fees, etc., address Miss Clara F. Baldwin, Director of Public Library Commission, St. Paul, Minn., or Miss Martha Wilson, Supervisor of School Libraries, Department of Education, St. Paul, Minn.

COLLEGE OF ENGINEERING

ENTRANCE REQUIREMENTS

1. English, three units.
2. Mathematics: Elementary Algebra, one unit; Plane Geometry, one unit; Higher Algebra, one-half unit; Solid Geometry, one-half unit.
3. Chemistry, one unit.
4. Enough additional work to make in all fifteen credits. One unit may be accepted in lieu of any one of the above required subjects; but if this is offered as a substitute for Mathematics, or Chemistry the resulting deficiency must be removed as specified by the college requirements.

For detailed statement of entrance requirements consult the bulletin of the College of Engineering.

For key to abbreviations see page 14.

DRAWING AND DESCRIPTIVE GEOMETRY

Professor WILLIAM H. KIRCHNER; Instructor ROBERT W. FRENCH.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
18	1½	Engineering Drawing 8:00, 9:00 TWThF	All 201ME	None French
28	1½	Engineering Drawing 8:00, 9:00 TWThF	All 201ME	1 French
38	1½	Descriptive Geometry 10:00, 11:00 TWThF	All 201-205ME	Solid Geom. Kirchner
48	1½	Descriptive Geometry 10:00, 11:00 TWThF	Fr. 201-205ME	1, 3, and Math. 71 Kirchner
58	2	Graphics 8:00-12:00 (Ar) TWThF	Soph., C.E. 201ME	1-2, 3-4 French
78	2	Graphics 8:00-12:00 (Ar) TWThF	..... 201ME	1-2, 3-4 French

18. **ENGINEERING DRAWING.** The elements of drafting. Drawing as a language. Lines, views, sections, dimensions, isometric and oblique projection. Sketching and lettering. Details of casting. Interpretation of working drawing. FRENCH.
28. **ENGINEERING DRAWING.** A continuation of Course 18. Details of machine parts and assembly drawings. General conventional signs, abbreviations, standards, and explanatory notes. Tracing and blue printing. FRENCH.
38. **DESCRIPTIVE GEOMETRY.** Introductory course in descriptive geometry.

Systems of representation, methods, loci, and constructive geometry. Recitations and drawing room exercises. KIRCHNER.

45. **DESCRIPTIVE GEOMETRY.** Central projection and special cases. Representations of lines, planes, and solids, and of their relations; tangencies, intersections, and development. Recitations, lectures, and the solution of problems. KIRCHNER.
55. **GRAPHICS FOR CIVIL ENGINEERS.** Developments and intersections, shades and shadows and stereotomy. Descriptive Geometry applied to the solution of such problems as oblique structural connections, battered and skewed surfaces in concrete, earthwork, and contours. FRENCH.
75. **GRAPHICS FOR MECHANICAL AND ELECTRICAL ENGINEERS.** Developments and intersections, shades and shadows, and perspective. Descriptive Geometry applied to the solution of such problems as occur in sheet metal work, equipment layouts, skew belting, spiral conveyors. FRENCH.

ENGINEERING SHOP WORK AND MANUAL TRAINING

Instructors WILLIAM H. RICHARDS and FRANCIS A. HOBART.

COURSES

No.	Credits	Title	Offered to
1as	2	Engineering Shop Work..... 8:00-1:00 MTWThF	Fr., soph., teachers Richards
1bs	1	Foundry Practice 8:00-1:00 MTWThF	Fr., soph., teachers Richards
2as	2	Teachers' Course in Woodwork..... 8:00-1:00 MTWThF	All Richards
2bs	1	Teachers' Course in Woodwork..... 8:00-1:00 MTWThF	All Richards
3s	3	Machine Work 8:00-1:00 MTWThF	Soph., jr., teachers Hobart
4s	3	Teachers' Course in Metal Work..... 8:00-1:00 MTWThF	All Hobart
1as.	WOOD WORK. Pattern making, joinery, wood working, (use of tools, lathe, and bench work). RICHARDS.		
1bs.	FOUNDRY PRACTICE. Applied to making simple pattern, and core boxes, for cast iron, brass, and aluminum castings. RICHARDS.		
2as.	TEACHERS' COURSE IN WOOD WORK. Manual training, joinery, wood carving, and wood turning. Care and adjustment of tools and wood working machines. RICHARDS.		

2bs. **TEACHERS' COURSE IN WOOD WORK.** Wood finishing, staining, filling, varnishing and polishing. RICHARDS.

NOTE. Courses 2as and 2bs are designed with special reference to the needs of teachers of manual training.

3s. **MACHINE WORK.** Machine and bench work with tool and machine construction. Engineering sophomores and juniors or teachers of manual training who have had previous experience in machine shop work, may select from this course such work as may be required to a maximum of three credits. HOBART.

4s. **TEACHERS' COURSE IN METAL WORK.** Elementary machine and bench work including soldering, brazing and autogenous welding, arranged to meet the needs of teachers of manual training. The course will include: bench and vise work in metal chipping, filling, scraping, and fitting; machine tool work in metals, including turning, planing, threading, drilling, and milling. HOBART.

NOTE. Each of the above subjects will require forty-eight hours actual shop practice for one credit. Students taking machine work for credit in the College of Engineering will be given lectures throughout the course, which are included in the forty-eight hours specified.

MATHEMATICS

Assistant Professor WILLIAM F. HOLMAN; Instructor GEORGE C. PRIESTER.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
72s	5	Analytical Geometry and Calculus... 8:00-11:00 MTWThF	106ME	Priester
74s	5	Integral Calculus... 8:00-11:00 MTWThF	203ME	Holman

72s. **ANALYTICAL GEOMETRY AND CALCULUS.** Parametric equations of loci, intersections of curves, graphical solutions of equations, tangents and normals, construction of conics, equations and properties of conics, empirical equations; coördinates in space, locus of an equation in three variables, surfaces of revolution, plane and straight line, quadric surfaces, differentiation and integration of simple forms with applications. This course is the equivalent of the second semester of freshman mathematics in the College of Engineering. PRIESTER.

74s. **INTEGRAL CALCULUS.** Short review of differentiation and integration. Definite integrals, integration as a process of summation, areas, lengths, volumes, center of gravity, moments of inertia, liquid pressure, approximate integrations, infinite series, expansion of functions by Maclaurin's and Taylor's series, indeterminate forms, partial derivatives, some simple differential equations with applications. This course is the equivalent of the second semester of sophomore mathematics in the College of Engineering. HOLMAN.

COLLEGE OF DENTISTRY

A Summer Course of two months is offered in the Departments of Anatomy, Dental Anatomy, Chemistry, Crown and Bridge Work, Operative Dentistry, Orthodontia, Physiology, and Prosthetic Dentistry. The privilege is also granted the College of Dentistry to extend its courses beyond the usual six weeks' term.

ENTRANCE REQUIREMENTS

1. English, three units.
2. Mathematics: Elementary Algebra, one unit; Plane Geometry, one unit.
3. Enough additional work to make in all fifteen units. Preparation of at least one year in Chemistry and two or more years in Manual Training is recommended.

The student's entire scholastic and industrial record will be taken into consideration in determining admission, and applicants will be notified promptly after the date set (see statement) concerning the possibility of their matriculation.

For detailed information concerning entrance requirements consult the bulletin of the College of Dentistry.

For courses in Animal Biology, Chemistry, Rhetoric, Anatomy, Histology, Physiology, Bacteriology, Pathology, see announcement in respective departments.

Schedule of hours for all courses in Dentistry: Technique Courses, MTWThF, 8:00 to 12:00 and 2:00 to 5:00; Clinical Courses, MTWThF, 9:00 to 12:00 and 2:00 to 5:00.

DENTAL ANATOMY

Associate Professor GEORGE M. DAMON.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
1	1	Dental Anatomy	Fr.	None
2	2	*Dental Anatomy	Fr.	1
3	3	Dental Anatomy	Soph.	2

* Time will be extended beyond the regular summer session to complete this course.

1. **DENTAL ANATOMY.** A course of lectures and recitations on the anatomy and nomenclature of the teeth. Fee, 1 and 2 combined, \$20.

2. **DENTAL ANATOMY.*** The course will consist of lectures, recitations, and such laboratory work as drawing, dissection, modeling, and carving of the teeth. Fee, 1 and 2 combined, \$20.
3. **DENTAL ANATOMY.** Continuation of Course 1 as outlined above. Fee, \$15.

DENTAL PROSTHESIS

Associate Professors **GEORGE M. DAMON, WILLIAM F. LASBY.**

COURSES

No.	Credits	Title	Offered to	Prereq. courses
1	4	Prosthetic Technique	Fr.	None
2	2	*Prosthetic Technique	Fr.	1
3	3	Prosthetic Technique	Soph.	2
4	2	Prosthetic Practice	Soph.	3
5	2	Prosthetic Practice	Jr.	4
6	1	Prosthetic Practice	Jr.	5
7	1	Prosthetic Practice	Sr.	6
8	1	Prosthetic Practice	Sr.	7

* Time will be extended beyond the regular summer session to complete this course.

1. **PROSTHETIC TECHNIQUE.** This course consists of lectures and technique work in the laboratory, comprising impression materials and their uses and the different processes of plate work. Fee, Courses 1 and 2 combined, \$30.
2. **PROSTHETIC TECHNIQUE.*** Continuation of Course 1 as outlined above. Fee, Courses 1 and 2 combined, \$30.
3. **PROSTHETIC TECHNIQUE.** The course consists of lectures, recitations, and laboratory work covering the principles and practice of plate work. Fee, half time, \$15; full time, \$30.
4. **PROSTHETIC PRACTICE.** A course of lectures, recitations, and clinical work covering the simpler forms of prosthetic practice. Fee, half time, \$15; full time, \$30.
5. **PROSTHETIC PRACTICE.** A course of lectures, recitations, and clinical work covering cleft palate and other special cases in addition to the general prosthetic practice. Fee, half time, \$15; full time, \$30.
6. **PROSTHETIC PRACTICE.** Continuation of Course 5 as outlined above. Fee, half time, \$15; full time, \$30.
7. **PROSTHETIC PRACTICE.** A course in general practice of prosthetics. Fee, half time, \$15; full time, \$30.
8. **PROSTHETIC PRACTICE.** A continuation of Course 7 as outlined above. Fee, half time, \$15; full time, \$30.

ORTHODONTIA

Associate Professor WILLIAM F. LASBY.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
2	2	Orthodontia Technique	Jr.	Pros. Tech. 4
3	1	Orthodontia Practice	Jr.	1
4	1	Orthodontia Practice	Sr.	2

2. **ORTHODONTIA TECHNIQUE.** A course of lectures, recitations, and laboratory work in the technique of steel and the making of regulating appliances. Fee, half time, \$15; full time, \$30.
3. **ORTHODONTIA PRACTICE.** A course of lectures, recitations, and clinical work on the theory and practice of orthodontia. Every student is required to treat at least one irregularity of the teeth. Fee, half time, \$15; full time, \$30.
4. **ORTHODONTIA PRACTICE.** A continuation of course as outlined above. Fee, half time, \$15; full time, \$30.

CROWN AND BRIDGE WORK

Associate Professor ALFRED A. PAGENKOFF.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
1	4	Crown and Bridge Technique.....	Jr.	Dent. Anat. 3
2	3	Crown and Bridge Technique.....	Jr.	1
3	4	Crown and Bridge Practice.....	Sr.	2
4	4	Crown and Bridge Practice.....	Sr.	3

1. **CROWN AND BRIDGE TECHNIQUE.** A course of lectures, demonstrations, and laboratory work that includes all the more important forms of crowns and bridges. Fee, half time, \$15; full time, \$30.
2. **CROWN AND BRIDGE TECHNIQUE.** Continuation of Course 1 as outlined above. Fee, half time, \$15; full time, \$30.
3. **CROWN AND BRIDGE PRACTICE.** A course of lectures and clinical practice covering the entire field of crown and bridge work. Fee, half time, \$15; full time, \$30.
4. **CROWN AND BRIDGE PRACTICE.** Continuation of Course 3 as outlined above. Fee, half time, \$15; full time, \$30.

OPERATIVE DENTISTRY

Assistant Professor JOSEPH F. SHELLMAN.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
2	4	Operative Technique	Soph.	Dent. Anat. 3
3	3	Operative Practice	Jr.	1
4	4	Operative Practice	Jr.	2
5	4	Operative Practice	Sr.	3
6	4	Operative Practice	Sr.	4

2. **OPERATIVE TECHNIQUE.** (Second quarter.) This course consists of lectures, recitations, demonstrations, and laboratory work of a technical nature. Fee, half time, \$15; full time, \$30.
3. **OPERATIVE PRACTICE.** This course consists of lectures, recitations, and clinical practice. Fee, half time, \$15; full time, \$30.
4. **OPERATIVE PRACTICE.** A course of lectures, recitations, conference work, demonstrations, and clinical practice covering the entire field of operative dentistry. Fee, half time, \$15; full time, \$30.
5. **OPERATIVE PRACTICE.** Continuation of Course 3 as outlined above. Fee, half time, \$15; full time, \$30.
6. **OPERATIVE PRACTICE.** A course in the general practice of operative dentistry. Fee, half time, \$15; full time, \$30.

ORAL SURGERY

Associate Professor CHARLES A. GRIFFITH.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
1	1	Oral Surgery Practice	Jr.	Path., Ther.
2	2	Oral Surgery	Sr.	1

1. **ORAL SURGERY.** This course is taught by lectures, recitations, and practical demonstrations, covering the field of oral diseases, physical diagnosis, anesthesia, urinalysis, and a clinical course in pyorrhea treatment. Fee, half time, \$15; full time, \$30.
2. **ORAL SURGERY.** Continuation of Course 1 as outlined above. Fee, half time, \$15; full time, \$30.

THE MEDICAL SCHOOL

The College of Medicine announces courses in Anatomy, Pharmacology, Pathology and Bacteriology, and Physiology.

Additional courses or extension courses may be offered in the College of Medicine provided the enrollment is large enough to warrant the establishment or the continuation of the courses.

ENTRANCE REQUIREMENTS

Prospective medical students must first complete two full years (not less than sixty credits) of collegiate work, including certain required courses, in Science, Literature, and Arts in this or some other university or college of equal rank. The high school preparation of such students should satisfy the requirements for admission to the College of Science, Literature, and the Arts and should include two units of Latin, two units of German, and one unit of Chemistry.

For detailed information concerning entrance requirements consult the Bulletin of the College of Medicine.

CLINICAL OPPORTUNITIES

All the practical departments will maintain daily clinics during the summer at the University Dispensary. Visiting physicians will be welcome at these clinics and also may attend University Hospital rounds at stated hours. Clinics at the Minneapolis City Hospital and at the City and County Hospital are open to physicians. Any of the courses in the laboratory branches may likewise be taken by them. Upper undergraduate classmen may register for work in the Dispensary; and so far as possible any required or elective clinical courses will be arranged when five or more students apply.

ANATOMY

Professors CLARENCE M. JACKSON, RICHARD E. SCAMMON; Associate Professor CHARLES A. ERDMANN; Instructor ANDREW T. RASMUSSEN; Assistants ERRETT C. ALBRITTON, WYMAN S. COLE, JOHN A. KITTELSON, EDGAR H. NORRIS,

The laboratories are open from 8 a.m. to 5 p.m.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
35	6	Gross Human Anatomy..... 8:00-12:00 and 2:00-4:00 MTWThF 8:00-12:00 S	3d yr. med. 304, 305IA	An. Biol. 1-2 Erdmann and Assistant
45	4	Gross Human Anatomy..... 8:00-11:30 MTWThFS	3d yr. med. 304, 306IA	Anat. 3 Erdmann and Assistant
55	4	Gross Anatomy 8:00-11:30 MTWThFS	2nd yr. dent. 304, 301IA	An. Biol. 1-2 Jackson and Assistant

68	4	Gross Anatomy	2nd yr. dent.	Anatomy 58
		8:00-11:30 MTWThFS	304, 302IA	Erdmann and Assistant
78	4	Histology and Embryology.....	2nd yr. dent.	An. Biol. 1-2
		8:00-11:30 MTWThFS	104, 105IA	Jackson and Assistant
1018	5	Human Histology	3d yr. med.	An. Biol. 1-2
		9:00-12:00 MTWThFS	102, 106IA	Scammon and Assistant
		2:00-4:00 MTWThF		
1028	3	Human Embryology	3d yr. med.	Anat. 101 (or equivalent)
		1:00-4:15 MTWThF	102, 107IA	Scammon and Assistant
1038	3	Human Neurology	4th yr. med.	Anat. 101, 102
		1:00-4:15 MTWThF	213IA	Rasmussen
1138	1	Advanced Histology	4th, 5th, 6th yr. med.	Anat. 101
		Ar Ar	214IA	Rasmussen
1198	1 or 2	Special Dissections	4th, 5th, 6th yr. med.	Anat. 3-4
		Ar Ar	307IA	Erdmann
1248	Ar	Advanced Anatomy	4th, 5th, 6th yr. med. or grad.	Permission required
		Ar Ar	IA	Jackson and Scammon
2028	Ar	Research	Grad.	Permission required
		Ar Ar	.....	Jackson and Scammon

38. GROSS HUMAN ANATOMY. Osteology (complete) and dissection of the lower extremity, abdomen, and head. (208 hours.) Fee, \$40. ERDMANN and Assistant.
48. GROSS ANATOMY. Dissection of the neck, thorax, and upper extremity. (128 hours.) Fee, \$25. ERDMANN and Assistant.
58. GROSS ANATOMY. General morphology of the various systems. Osteology and splanchnology, with special reference to the digestive tract. (128 hours.) Fee, \$25. JACKSON and Assistant.
68. GROSS ANATOMY. Dissection of the head and neck. (128 hours.) Fee, \$25. ERDMANN and Assistant.
78. HISTOLOGY AND EMBRYOLOGY. The mouth region and digestive tract are especially emphasized. (128 hours.) Fee, \$25. JACKSON and Assistant.
1018. HUMAN HISTOLOGY. General and special histology of the various tissues and organs. (160 hours.) Fee, \$30. SCAMMON and Assistant.
1028. HUMAN EMBRYOLOGY. Development of the human body. (96 hours.) Fee, \$20. SCAMMON and Assistant.
1038. HUMAN NEUROLOGY. A study of the central nervous system and sense organs. (96 hours.) Fee, \$20. RASMUSSEN.
1138. ADVANCED HISTOLOGY. A study of special preparations, including practice in the identification of unknown specimens. Elective. (48 hours.) Fee, \$10. RASMUSSEN.

- 119S. SPECIAL DISSECTIONS. Advanced study of regional anatomy. Elective. (48 or 96 hours.) Fee, \$10 or \$20. ERDMANN.
- 124S. ADVANCED ANATOMY. Advanced work, largely individual in character, upon special topics in gross anatomy, histology or embryology. Admission only upon approval of instructor. (48 hours or more.) Fee, \$10. JACKSON, SCAMMON.
- 202S. RESEARCH IN ANATOMY. Research work in anatomy, histology or embryology is offered to properly qualified students. Admission only upon approval of instructor. (48 hours or more.) Fee, \$5. JACKSON, SCAMMON.

Continuation courses in gross anatomy or embryology (3s, 4s, 6s, 102s, see statements above), may be offered during the six weeks following the regular summer session, provided there is sufficient demand for them. Registration for such courses (if given) must be arranged before the close of the regular summer session.

PHARMACOLOGY

Associate Professor EDGAR D. BROWN.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
104S	1½	Experimental Pharmacology 9:00-12:00 MWF	4th yr. med. Ar MH	Physiol. 102 Brown
105S	1½	General Pharmacology 8:00-9:00 MTWTh	5th yr. med. Ar MH	Pharm. 105a Brown
109S	1 (or more)	Pharmacology Elective Ar Ar	5th and 6th yr. med. and grad. Ar MH	Pharm. 102-104 Brown
110S	1	Toxicology Ar Ar	5th and 6th yr. med and grad. Ar MH	Pharm. 102-104 Brown
111S	½	Prescription Writing Ar Ar	5th and 6th yr. med. Ar MH	Pharm. 102-104 Brown

- 104S. EXPERIMENTAL PHARMACOLOGY. Laboratory exercises. (48 hours.) Fee, \$10. BROWN.
- 105S. GENERAL PHARMACOLOGY. Lectures and recitations. A course covering the subjects given in the second semester of the junior medical year. (24 hours.) Fee, \$5. BROWN.
- 109S. ELECTIVES IN PHARMACOLOGY. A laboratory course in which special problems are offered for study. Hours to be arranged with instructor. (24 hours or more.) Fee, \$5. BROWN.
- 110S. TOXICOLOGY. A study of poisons and their antidotes. Lectures and laboratory. Elective. (24 hours.) Fee, \$5. BROWN.

111S. PRESCRIPTION WRITING. A course covering the elementary principles of the subject. (8 hours.) Fee, \$1.50. BROWN.

PATHOLOGY AND BACTERIOLOGY

Professor HAROLD E. ROBERTSON; Associate Professors ELEXIOUS T. BELL, WINFORD P. LARSON; Assistant Professor MOSES BARRON; Instructors ARTHUR HENRICI, MARGARET WARWICK.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
101S	4	General Pathology	4th yr. med.	Anat. 101
		8:00-11:00 MTWTh	Ar IPH	Bell
		8:00-12:00 F		
103S	2	Clinical Pathology	5th yr. med.	Path. 101 and 102
		9:00-12:00 MTThF	Ar IPH	Barron
104S	4	General Bacteriology	3rd yr. med.	
			and others	See statement
		8:00-11:00 MTWTh	Ar IPH	Henrici
		8:00-12:00 F		
105S	3	Special Bacteriology	4th yr. med.	Path. 104
		9:00-12:00 TWThF	Ar IPH	Larson
Sp.	1	Clinical Pathology	Nurses and	
			others	None
		1:00-2:30 MTWThFS	Disp. MH	Warwick
111S	Ar	Autopsies	5th and 6th	
			yr. med.	Path. 101 and 102
		Ar Ar	Ar	Staff
114S	1	Advanced Bacteriology	5th and 6th yr.	Permission
			med. and grad.	required
		Ar Ar	Ar IPH	Larson, Henrici
204S	Ar	Research	5th and 6th yr.	Permission
			med. and grad.	required
		Ar Ar	Ar IPH	Staff

101S. GENERAL PATHOLOGY. The general principles governing pathologic changes, including disturbances of the circulation and metabolism; inflammation, regeneration and repair; tumor formation. The study and recognition of gross and microscopic lesions. (96 hours.) Fee, \$20. BELL.

103S. CLINICAL PATHOLOGY. The principles and methods involved in the examination of urine, blood, stomach contents, feces, sputum, exudates and transudates; the relation of pathologic findings to the diagnosis of disease. (64 hours.) Fee, \$15. BARRON.

104S. GENERAL BACTERIOLOGY. The preparation of culture media; the morphology of bacteria; methods of staining and identification; anaerobic bacteria; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. Third year medical students and others. Prerequisites: general

- chemistry, and botany or zoology. Students who do not desire medical credit for this course will be admitted without the prerequisites, and will be given a separate examination. (96 hours.) Fee, \$10. HENRICI.
- 105S. SPECIAL BACTERIOLOGY. The study of pathogenic bacteria, especially in relation to definite diseases; bacteriological methods in clinical diagnosis; principles of infection and immunity with practical application of serum reactions. (72 hours.) Fee, \$15. LARSON.
- Sp. CLINICAL PATHOLOGY FOR NURSES. Demonstrations and practical work in the routine procedures for the examination of blood, urine, stomach contents, etc. The course is designed for those wishing a non-professional technical training in this subject. (54 hours.) Fee, \$10. WARWICK.
- IIIS. AUTOPSIES. Attendance upon and participation in selected post-mortem examinations, with training in autopsy technique and demonstrations in gross pathology. Written approval of the instructor required for admission. Credits, hours, and fee to be arranged. Staff.
- II4S. ADVANCED BACTERIOLOGY. Advanced work with opportunity for special problems. Written approval of the instructor required for admission. (48 hours.) Fee, \$10. LARSON, HENRICI.
- 204S. RESEARCH. Students with the necessary preliminary training may undertake special research work in pathology or bacteriology. Written approval of the instructor required for admission. Credits and hours to be arranged. Fee, \$5. Staff.

PHYSIOLOGY

Associate Professors RICHARD O. BEARD, FREDERICK H. SCOTT; Instructor CHAUNCEY J. V. PETTIBONE; Assistants EDWARD D. ANDERSON, CHARLES C. GAULT, ALBERT M. SNELL.

Laboratories open from 8 a.m. to 6 p.m. daily, excepting Saturdays when they close at noon.

COURSES

No.	Credits	Title	Offered to	Prereq. courses
3s	3	Elementary Physiology	Soph., jr., sr.	1 yr. Chem., $\frac{1}{2}$ yr. Biol.; for teachers, no prereq.
		10:00-12:00 MWF		
		8:00-12:00 TTh	214, 301MH	Beard and Snell
43	3	Elementary Physiology	Dent. students	Elem. Chem. and Anat.
		10:00-12:00 TThF		
		8:00-12:00 MW	214, 301MH	Beard and Snell
6s	3	Elementary Physiologic Chemistry..	Soph., jr., sr. & dent. students	Elem. Gen. and Org. Chem.
		3:00-6:00 MWF		
		3:00-4:00 TTh	214, 301MH	Anderson

102s	5	Physiologic Chemistry	Jr., sr., grad.	Organ. Chem.
		1:00-6:00 MTWThF	214, 310MH	Pettibone, Anderson
103s	4	Physiology of Cells, Muscles, etc...	Jr., sr., grad.	An. Biol. 1-2
		8:00-12:20 MTWThF	214, 301MH	Scott, Gault, Snell
104s	4	Physiology of Nervous System, etc..	Jr., sr., grad.	An. Biol. 1-2
		8:00-12:20 MTWThF	214, 301MH	Scott, Gault, Snell
113s	Ar	Advanced Physiology	Sr., grad.	Physiol. 103 104
		Ar Ar	301MH	Scott
153s	Ar	Advanced Physiologic Chemistry...	Sr., grad.	Physiol. 102
		Ar Ar	310MH	Pettibone
203s	Ar	Research in Physiology.....	Sr., grad.	Physiol. 103 104
		Ar Ar	301MH	Scott
205s	Ar	Research in Physiologic Chemistry..	Sr., grad.	Physiol. 102
		Ar Ar	310MH	Pettibone

3s. ELEMENTARY PHYSIOLOGY. Offered to teachers, home economics students and others who desire a general knowledge of the subject. Fee, \$7.50. BEARD, SNELL.

4s. ELEMENTARY PHYSIOLOGY. Offered to dental students. (80 hours.) Fee, \$20. BEARD, SNELL.

6s. ELEMENTARY PHYSIOLOGIC CHEMISTRY. Offered to dental students and others. (64 hours.) Fee, \$15. ANDERSON.

102s. PHYSIOLOGIC CHEMISTRY. A study of the components, foods, secretions, digesta and excreta of the human body. (160 hours.) Fee, \$30. PETTIBONE, ANDERSON.

103s. PHYSIOLOGY OF CELLS, MUSCLE AND NERVE, BLOOD, CIRCULATION, AND DIGESTION. (128 hours.) Fee, \$25. GAULT, SNELL.

104s. PHYSIOLOGY OF RESPIRATION, NERVOUS SYSTEM AND SPECIAL SENSES; SECRETION AND METABOLISM. (128 hours.) Fee, \$25. SCOTT, SNELL

113s. ADVANCED PHYSIOLOGY. Study of special problems. Offered to properly qualified students. Fee, \$10. SCOTT.

153s. ADVANCED PHYSIOLOGIC CHEMISTRY. Study of special problems. Offered to properly qualified students. Fee, \$10. PETTIBONE.

203s. RESEARCH IN PHYSIOLOGY. Offered to properly qualified students. Fee, \$5. SCOTT.

205s. RESEARCH IN PHYSIOLOGIC CHEMISTRY. Offered to properly qualified students. Fee, \$5. PETTIBONE.

COLLEGE OF AGRICULTURE

GENERAL INFORMATION

The work of the Land Grant Colleges of the United States is now finding expression in three great fields of educational activity, viz., Instruction, Experimentation, and Extension.

Two of these, Experimentation and Extension, are serving the people throughout the entire year, and the conviction is growing that the great plant, equipment, organization, and faculty of these institutions should likewise be utilized for instruction during more than the nine months of the college year.

In response to this demand the Summer Session is established in order that the field plots, orchards, livestock, libraries, laboratories, museums, shops, machinery, classrooms, instruction, and other facilities used by regular college students shall be available to those who for any reason find it more convenient to attend during the summer months.

The work offered seeks to meet the needs of graduates of arts colleges and normal schools, teachers of secondary schools, principals of schools (especially of consolidated schools), superintendents of schools, and others who desire courses in Agriculture or Home Economics, and who wish to obtain therefor college credit, as well as to meet the needs of students seeking to complete the undergraduate college work.

The work also furnishes an opportunity for graduates of other colleges of agriculture to improve their knowledge of Minnesota agriculture, preparatory to teaching in this state.

The Summer Training School and the Special Conference of Agricultural Instructors mentioned elsewhere add to the Session features of great value.

COURSES AND CREDITS

The courses offered are selected from those offered during the regular college year in which the same amount of work will be done and for which the same credit will be given.

As the Summer Session (six weeks) is one third the length of a regular college semester (eighteen weeks), the number of recitations and amount of work per week for each credit hour will be approximately *three times that required each week during the college year*. Sixteen hours per week constitutes standard work and gives six semester-hour credits.

FACULTY

The Summer Session faculty will consist of members of the regular college faculty aided by specialists from other institutions who are of known efficiency in their fields of labor.

COURSES OFFERED

Preparations have been made to offer such of the following courses as are applied for by a sufficient number of students, six regular students being the minimum.

Agronomy and Farm Management 1, Farm Crops I
 Agronomy and Farm Management 102, Farm Management II
 Agronomy and Farm Management 104, Grain- and Corn-Judging
 Agricultural Chemistry 3, Types of Carbon Compounds
 Agricultural Education 68, Home and School Gardening. See Hort. 94
 Agricultural Education 131, Methods
 Bee Culture 5, Elements of Beekeeping
 Dairy and Animal Husbandry 1, Breeds and Types of Livestock
 Dairy and Animal Husbandry 11, Poultry
 Dairy and Animal Husbandry 11s, Elements of Feeding
 Dairy and Animal Husbandry 18, Dairy Stock Judging
 Dairy and Animal Husbandry 26, Elements of Dairy Husbandry
 Dairy and Animal Husbandry 30, Incubating and Brooding
 Dairy and Animal Husbandry 41, Milk and Its Products
 Economic Zoology 3, Economic Entomology
 Home Economics 1, Textiles
 Home Economics 11, Garment-Making
 Home Economics 13, Dressmaking
 Home Economics 21, Foods and Cookery
 Home Economics 22, Food Economics
 Home Economics 35, Home Management, Laboratory
 Home Economics 42s, Home Economics Education
 Home Economics 51, Drawing and Design
 Home Economics 103, Dietetics
 Horticulture 32, Market Gardening
 Horticulture 71, Landscape Gardening
 Horticulture 90, General Horticulture
 Horticulture 94, Home and School Gardening. See Agr. Educ. 68
 Soils 3, Soil Physics and Management
 Plant Pathology and Botany 1, Plant Pathology
 Plant Pathology and Botany 9, Weeds and Seed-Testing
 Veterinary Science 6, Veterinary Medicine
 Veterinary Science 12, Common Diseases of Domestic Animals

FEES

A fee of \$5 is charged for registration. In addition, \$2 is charged for each credit hour for which the student registers and a further \$1.50 for each laboratory course.

A deposit of \$5 is also required to cover unusual breakage and safe return of apparatus and books. This deposit will be returned at the close of the session, less charges for breakage and losses. All fees are payable at the time of completing registration.

The registration fee (\$5) is not refunded under any conditions. Students cancelling their registration during the first week of the session may receive a pro rata refund of the credit hour and laboratory fees. Such refund shall not exceed five-sixths of the amount paid on these items and must be approved by the Director of the Summer Session.

No refunds whatsoever shall be made to students who attend more than one week.

ADMISSION

The courses of the Summer Session are open to all mature men and women who are considered qualified to pursue the chosen work to advantage, but college credit will be given only when college entrance requirements have been fulfilled.

If you have not registered at the Collège of Agriculture heretofore and wish to receive college credit for work done in the Summer Session, you should send to the Secretary, on a suitable blank, a properly certified copy of your preparatory credits.

A blank for this purpose can be procured from the principal of your high school or from the Secretary, University Farm, St. Paul.

REGISTRATION

Saturday, June 16 and Monday, June 18, are regular registration days. Students may register on any preceding day after May 1. Students should complete registration and be ready for class work before 8 a.m. Tuesday, June 19. After Monday, June 18, students will register by special permission only.

LOCATION

From St. Paul or Minneapolis, take a Como-Harriet car. One fare (5 cents) takes you to Doswell Avenue. A short walk to the northeast brings you to the Administration Building, University Farm, where you register. If you wish to ride the entire distance, change at Eustis Avenue from the Como car to the Inter-campus car, which takes you, for an additional fare, into the University Farm grounds. No Inter-campus car after 6 p.m., on Sundays or holidays. Walk west to the Administration Building, the third on your left.

Altho the school is located in the country and has all the advantages of the quiet and the fresh air of the country, yet it is close enough to the Twin Cities to get all the benefits of these large centers. No more beautiful spot between the two cities could have been selected for such a school. Situated on picturesque hills, overlooking Midway and the two cities, the buildings are grouped conveniently about the undulating campus. Nature has done much to make this a beauty spot, and the landscape artist has added to the beauty by the arrangement of paths and the replacing of trees and shrubs with many varieties suited to the climate.

ACCOMMODATIONS

Those taking regular work at the Summer Session may obtain rooms in the dormitories. Rooms will be assigned at the time of registration. The dormitories contain a very few single rooms; other rooms are intended to accommodate two or three persons. The rooms are furnished with necessary bedding. A change of linen is made twice each week, and of towels every other day. Students residing in the Twin Cities will not be given dormitory rooms. Those who do not expect to remain at the school for the entire six weeks should obtain rooms outside the dormitories. Good board and room may be obtained within a short distance from the school for \$5 per week and upward. Dormitories and dining hall will be opened Saturday, June 16.

EXPENSES IN DORMITORIES

Fee for upkeep of dormitory rooms.....	\$1.00
Room rent, use of bedding, and laundering of same.....	6.00
Post-office box .....	.10
Regular board at dining hall, at \$3.50 per week.....	21.00
	<hr/>
Total.....	\$28.10

Entire amount to be paid in advance at time of registration.

In order to facilitate registration and to avoid delay and inconvenience to yourself, come prepared to pay your fees in cash or by bank draft, postal money order or certified check drawn for the exact amount you are to pay. One issued for a larger amount will not be accepted for payment of fees.

Students should carry sufficient cash with them to pay their incidental expenses.

The cashier is not required to cash checks, drafts or other negotiable papers and has a right to demand identification, or guarantee, or to refuse payment. Bank drafts, post office money orders and certified checks are more easily negotiated than are personal checks.

Students who for any cause leave the school before the end of the term will have returned to them for the portion unused a pro rata amount of the total paid for board or room. Those leaving board or room, but not leaving the school before the end of the term, will have three-fourths of the pro rata amount returned.

The fee (\$1) for upkeep of room will not be refunded.

No rebate will be made for occasional absences.

A cafeteria with reasonable charges is maintained on the campus for those who prefer that form of service, or for those who can not be prompt in attendance at regular meals.

BAGGAGE

Baggage will be carried between either city and University Farm by the service section for a uniform charge of fifty cents for each piece. Delivery will be made as promptly as the limited facilities of the section will permit. Those wishing special attention or quick delivery are advised to arrange with city express or transfer companies for delivery of their baggage and for the charges for the same. Students wishing to have their baggage handled by the service section should hand the checks in at the general service office, near the postoffice, promptly after arrival so as to avoid, as far as possible, charges for storage.

MAIL

Mail for students may be sent to University Farm, St. Paul. Post-office boxes are assigned to all students and a charge of 10 cents made therefor. As soon as your post-office box has been assigned, notify your correspondents to put the number of your box on your mail. This will facilitate distribution and enable you to receive your mail more promptly.

LIBRARY

Good library facilities, including books, bulletins, reports, and papers on Agriculture and Home Economics, will be available to all students in the library of the College, in the Administration Building.

EXCURSIONS

The vicinity of the Twin Cities abounds in objects of geologic and physiographic interest, such as rock formations, old river gorges, and glacial moraines; while the cities themselves, with their parks, lakes, buildings, libraries, and art galleries, afford students every opportunity for profitable use of their leisure hours.

The campus, in connection with the Experiment Station farms, gives the best of opportunity to study agricultural problems and to study nature.

THE ASSEMBLY HOUR

An assembly hour has been arranged for each day, from 9:30 to 10 a.m. At this time subjects of special interest will be considered. There will be short opening exercises, followed by lectures and talks by educators and other specialists.

Through the State Department of Education and the administrative officers of the training school opportunity is given to hear a large number of people of state and national reputation. At least one such person will be present each day.

All students should be in attendance at chapel during this period.

SPECIAL WEEK FOR AGRICULTURAL INSTRUCTORS

Many of the instructors in agriculture in Minnesota high schools are from other states and only partially familiar with Minnesota conditions. All instructors have found during the last year need for special study and conference. Some men will come into the state for their first work this fall. To help all of these men a special program has been prepared for the week of the Summer Session, July 16-21.

This is the time of the Rural Life Conference held annually at University Farm, for which a special bulletin is issued. The agricultural men will combine with the other rural leaders in many exercises but will hold some separate conferences on topics of special interest to themselves.

Definite, condensed instruction will be given by the principal members of the faculty on problems found to be most valuable to these teachers, and conferences will be held in which the experience and advice of each will be made available to all. The State High School Board Inspectors will meet the men in several conferences.

Details will be furnished later to those interested.

CONSULTATION

Opportunity will be given for conference with the members of the faculty on subjects of special interest to the individual students.

STATE TEACHERS' TRAINING SCHOOL

Beginning and closing at the same time as does the Summer Session of the College of Agriculture, will be held at the same place (University Farm, St. Paul) the State Teachers' Training School, wherein courses will be offered in methods of teaching and school organization and management; also review and credit work in subjects required for common school certificates and in non-college credit work in Agriculture, Manual Training, Home Economics, Drawing, and Music. For bulletin, address Secretary, University Farm, St. Paul.

For Principals of Consolidated Schools.—Special non-college credit courses in Agriculture and other industrial subjects will be offered to those who have served, or who will serve next year, as principals of consolidated schools under the Holmberg Act. The courses will be progressive in character and will afford special opportunity for study, not only to those who will be in attendance for the first time, but also to those who have taken the course in previous summers. Meetings and conferences of the consolidated school principals will be held from time to time to deal with problems peculiar to their work.

ENTERTAINMENT

From time to time throughout the term evening entertainments will be given in the assembly room for the special benefit of the members of the summer school.

PHYSICAL EXERCISES, PLAYS, AND GAMES

Experienced instructors will be in charge of the gymnasium, athletic field, and play grounds to teach and supervise the various activities in these directions. Classes and teams will be organized to suit the convenience of the members wishing to participate in gymnasium drill, tennis, baseball, volleyball, and many other sports and games.

PERIODICAL AND TEACHERS' HELPS ROOM

A room will be maintained at University Farm during the Summer Session where all may examine the various teachers' journals, books, appliances, and supplies and where purchases may be made if desired.

SWIMMING POOL

The swimming pool in the gymnasium will be open to the use of men and women during stated periods throughout each week for a very moderate fee to cover actual expenses. A skilled man will be in charge during the time the men are using the pool and a skilled woman will be in attendance during those hours in which the use of the pool is devoted to the women.

ADVANCED COURSES AT THE UNIVERSITY

The University of Minnesota offers advanced courses in the Colleges of Science, Literature, and Arts, and of Education for college credit or for the state professional certificate and also courses in the College of Medicine and the College of Dentistry during the summer season. Those interested may obtain information from Registrar, University of Minnesota, Minneapolis.

SPECIAL INFORMATION

Inquiry concerning courses and scope of the work in the Summer Session of the College of Agriculture, or in the State Teachers' Training School, should be addressed to A. V. Storm, University Farm, St. Paul.

DESCRIPTION OF COURSES

Note.—Since there are only one third as many weeks in the Summer Session as in the regular semester, each course will require approximately three times as many hours per week as in a regular semester. One credit hour is equivalent to (1) 16 lecture or recitation periods requiring two hours of preparation each; (2) 32 periods of laboratory work requiring one-half hour of preparation each; or (3) 48 hours of laboratory work with no preparation.

KEY TO BUILDINGS, UNIVERSITY FARM

- Ad—Administration Building
- Bo—Botany Building
- Ch—Chemistry Building
- Dh—Dairy Hall
- HE—Home Economics Building
- Hr—Horticulture Building
- St—Stock Pavilion
- Ve—Veterinary Building

AGRICULTURAL CHEMISTRY

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
3	3	Types of Carbon Compounds..... 8:00-9:25 TWThF	Soph., jr. 1Ch	Chem. 1 yr. Thatcher

3. TYPES OF CARBON COMPOUNDS. An elementary study of the different groups of carbon compounds, with special reference to their relationships and their occurrence in plant and animal materials used as food. THATCHER.

AGRICULTURAL EDUCATION

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
68	3	Home and School Gardening..... Lect. 1:20-2:05 MTWThFS Lab. 2:15-4:00 MW	Jr., sr. 20Hr	None Brierley, et al.
131	3	Methods in Teaching H. S. Agri. ... 8:00-9:25 MTWThF	Sr. 306Ad	11 Bender

68. HOME AND SCHOOL GARDENING. See Horticulture 94.

131. METHODS IN TEACHING HIGH-SCHOOL AGRICULTURE. Fundamental elements of method in teaching as related to teaching agriculture in high school. Organizing subject matter of daily work; selection and manipulation of devices. Classroom and laboratory method. Specific plans for teaching secondary agriculture. BENDER.

AGRONOMY AND FARM MANAGEMENT

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
1	3	Farm Crops I 8:00-9:25 MTWThF	Fr. 317Ad	None Olson
102	3	Farm Management II 8:00-8:40 WF, and 8:50-9:25 MTWThFS	Sr. 24Ad	1, Econ. 3 Benton
104	3	Grain- and Corn-Judging..... 10:10-12:25 MTWThFS	Jr., sr. 2Ad	1, Bot. 1 yr. Army

1. FARM CROPS I. An elementary study of the important field crops of the United States, with emphasis on those of local importance; distribution, economic importance, agricultural classifications, cultural methods, and principles of improvement. OLSON.

102. FARM MANAGEMENT II. A course in which the business side of farming is emphasized. Special attention is given to farm organization, equipment, and operation. BENTON.

104. GRAIN- AND CORN-JUDGING. A study in detail of representative samples of the leading varieties of grains and corn and grass seeds, with score card practice in comparative judging of grain, corn, and grass seed. ARMY.

BEE CULTURE

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
5	3	Elements of Bee-keeping 8:00-9:25 MTWFS	Jr., sr. 1Bo	None France

5. ELEMENTS OF BEE-KEEPING. Elementary study of queens, drones, and workers; hives and appliances; handling bees; spring, summer, and winter management; swarming and increase; honey- and wax-production; feeding; and diseases. FRANCE.

DAIRY AND ANIMAL HUSBANDRY

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
1	3	Breeds and Types of Livestock..... 10:10-10:50 MTWThFS, and 11:00-12:25 MTWThF	Fr., soph. St	None Anderson
11	3	Poultry 2:15-3:00 MTWThF 3:10-4:00 MWF	All 39Dh 39Dh	None Smith Smith
11s	3	Elements of Feeding..... 1:20-3:00 TWThF	Jr. 40Dh	None Ashby
18	2	Dairy-Stock Judging 8:00-9:25 MTWThFS	Jr. St	26 Gehrand

No.		Title	Credits	Offered to	Prereq. courses
26	3	Elements of Dairy Husbandry..... 10:10-11:40	Fr. MTWThFS	39Dh	None Gehrand, Washburn, Hanson
30	2	Incubating and Brooding..... 11:50-12:25	All MTWThFS	39Dh	None Smith
41	3	Milk and Its Products 8:00-9:25	Soph., jr., sr. MTWThF	26 39Dh	Washburn, Hanson

- I. BREEDS AND TYPES OF LIVESTOCK. A study of the types and breeds of beef cattle, swine, sheep, and horses with special reference to the origin and leading characteristics of each of the important breeds. ANDERSON.
- II. POULTRY. A study of the poultry industry; best methods of care and management of fowls, turkeys, ducks, and geese, and the most important breeds of each. SMITH.
- III. ELEMENTS OF FEEDING. A general course giving a brief survey of dairy and livestock feeding designed for those students not specializing in either Dairy or Animal Husbandry. Not open to those who have completed Course No. 7. ASHBY.
18. DAIRY-STOCK JUDGING. Practice work in judging animals of the leading dairy breeds. Herds in the vicinity of the Twin Cities are visited. GEHRAND.
26. ELEMENTS OF DAIRY HUSBANDRY. Origin, characteristics, and adaptation of the dairy breeds of cows; particular attention is given to feeding, followed by the study of the chemical and physical constituents of milk. Practice work in butter-making, and milk-testing required. Laboratory fee, \$1.50. GEHRAND, WASHBURN, HANSON.
30. INCUBATION AND BROODING. Includes instruction and practice in incubation and brooding, selection of breeding-stock and eggs for hatching, and feeding young chicks. Of practical value to teachers of agriculture and poultry-raisers. SMITH.
41. MILK AND ITS PRODUCTS. Milk secretion, composition, properties, variation, and testing. Cream separation, testing, care, methods of marketing. Butter, cheese, and ice cream making. Market milk handling, standardizing, clarifying, pasteurizing, bottling, and marketing. Laboratory fee, \$1.50. WASHBURN, HANSON.

ECONOMIC ZOOLOGY

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
3	3	Economic Entomology	Jr.	An. Biol. 3-4
		Lect. 2:15-3:00	MTWThF	
		Lab. 3:10-4:50	MTWTh 306-307Ad	Howard

3. **ECONOMIC ENTOMOLOGY.** A consideration of the most important insect pests; methods of control; insecticides and insecticidal apparatus; beneficial insects. All students entering this course make a collection of insects. HOWARD.

HOME ECONOMICS

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
1	2	Textiles	Fr. 8:00-9:25 MTWThF 305HE	None Trilling
11	3	Garment-Making	Fr. 2:15-4:50 MTWThF 304HE	None Phelps
13	3	Dressmaking	Jr. 10:10-12:25 MTWThFS 304HE 2:15-4:50 MTWThF 309HE	1, 11 Phelps Trilling
21	3	Foods and Cookery.....	Soph. 8:00-9:25 MTWThFS 209HE	H. S. Do. Sci. 1 unit; Chem. 3 or 33; Physiol. 3, parallel Weigley
22	3	Food Economics	Soph. 2:15-4:50 MTWThFS 207HE	21 Williams
35	3	Home Management—Laboratory	Sr. Berry, Williams, Vermilye	22
428	3	Home Economics Education.....	Jr. 2:15-3:00 MTWThF 213HE	22, Psychol. 5b Berry
51	3	Drawing and Design.....	Fr. 2:15-4:50 MTWThF 313HE	None Goldstein
103	3	Dietetics	Sr. 10:10-12:25 MTWThFS 207HE	102 Williams

- I. **TEXTILES.** A study of textile fibers, their structure, properties, and chemical reactions; of fabrics, their structure and processes of manufacture; of art and economic considerations in selection and purchase of materials for clothing and household furnishing. TRILLING.
- II. **GARMENT-MAKING.** Instruction and laboratory practice in hand sewing; reading and adaptation of commercial patterns; construction and use of the sewing machine; designing, cutting, and making simple outer garments from washable materials. PHELPS.
13. **DRESSMAKING.** Consideration of quality, suitability, and cost of materials adapted to technique involved in construction of simple wool and silk dresses; adaptation of art principles in selection of designs; instruction and practice in methods of construction. TRILLING, PHELPS.
21. **FOODS AND COOKERY.** (a) Production, manufacture, chemical composition of typical foods; their classification into food principles; changes in digestion; function in nutrition. (b) Fundamental science principles from chemistry, physics, biology, and bacteriology, and their application in typical cookery processes. Laboratory fee, \$1.50. WEIGLEY.

22. **FOOD ECONOMICS.** Cost and nutritive value of typical foods; the study of dietaries; preparation and serving of meals, the cost bearing a definite relation to the family budget. Laboratory fee, \$1.50. WILLIAMS.
35. **HOME MANAGEMENT: OPERATION AND MAINTENANCE, LABORATORY PRACTICE.** (a) Nine weeks' experience as manager and helper in a household of twenty members. (b) A dietary study covering a period of one month in the above household. BERRY, WILLIAMS, VERMILYE.
- 42s. **HOME ECONOMICS EDUCATION.** Curricula, equipment, methods of teaching, for Home Economics. BERRY.
51. **DRAWING AND DESIGN.** Composition, perspective, color, theory, and color harmonies applied to costume design and interiors; harmony, balance, rhythm, in line and area design. GOLDSTEIN.
103. **DIETETICS.** The fundamental principles of human nutrition as applied to the feeding of individuals and groups under conditions of health, and under such pathological conditions as are chiefly dependent upon dietetic treatment. Laboratory fee, \$1.50. WILLIAMS.

HORTICULTURE

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
32	3	Market Gardening	Soph., jr., sr. 10Hr	Bot. 1 yr. Tapley
		Lect. 8:00-9:25 TWTh		
		Lab. 2:15-4:00 TTh		
71	3	Landscape Gardening	Soph., jr., sr. 20Hr	None Cady
		8:00-9:25 TWThF		
90	3	General Horticulture	All 20Hr	None Brierley
		10:10-11:40 MTWTh		
94	3	Home and School Gardening.....	Jr., sr. 20Hr	None Brierley, Cady, Tapley, Aamodt
		Lect. 1:20-2:05 MTWThFS		
		Lab. 2:15-4:00 MW		

32. **MARKET-GARDENING.** The principles of vegetable-growing for market, including the study of all important vegetable crops from seed to harvest. Lectures, recitations, references, laboratory work, and excursions. TAPLEY.

71. **LANDSCAPE GARDENING.** A general course in the practice and principles of landscape gardening as applied to the home and community. Lectures and field trips to parks and private grounds. CADY.

90. **GENERAL HORTICULTURE.** A general survey of horticulture with a consideration of the elementary principles of fruit-growing, vegetable gardening, floriculture, landscape gardening, plant-breeding, plant-forcing, and plant propagation. BRIERLEY.

94. HOME AND SCHOOL GARDENING. Lectures and laboratory. A consideration of the elements of horticulture as applied to high-school instruction, plant propagation, fruit-growing, home gardening, school gardening, and the planning of home and school grounds. Same as Agr. Educ. 68. BRIERLEY, CADY, TAPLEY, AAMODT.

PLANT PATHOLOGY AND BOTANY

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
1	3	Plant Pathology	Jr.	Bot. 1 yr.
		Lect. 10:10-10:50	MTWThF 1-2Bo	Stakman
		Lab. 11:00-12:25	MTWThF 1-2Bo	Stakman
9	3	Weeds and Seed-Testing	Soph., jr., sr.	Bot. 1
		10:10-12:25	MTWThFS 24Bo	Oswald

1. PLANT PATHOLOGY. Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lecture, laboratory, and reference. STAKMAN.
9. WEEDS AND SEED-TESTING. Detailed study of seed-testing methods and seed legislation. Weed and crop seeds and weed plants studied with special reference to identification. OSWALD.

SOILS

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
3	3	Soil Physics and Management.....	Jr.	Chem. 1 yr.
		Lect. 10:10-10:50	MTWThF 251Ch	McMiller
		Lab. 11:00-12:25	MTWThF 253Ch	McMiller

3. SOIL PHYSICS AND MANAGEMENT. Origin, mechanical composition, classification, and physical properties of soils; tillage operations in relation to moisture supply, micro-organisms of the soil. Lecture, laboratory, and field work. Laboratory fee, \$1.50. McMILLER.

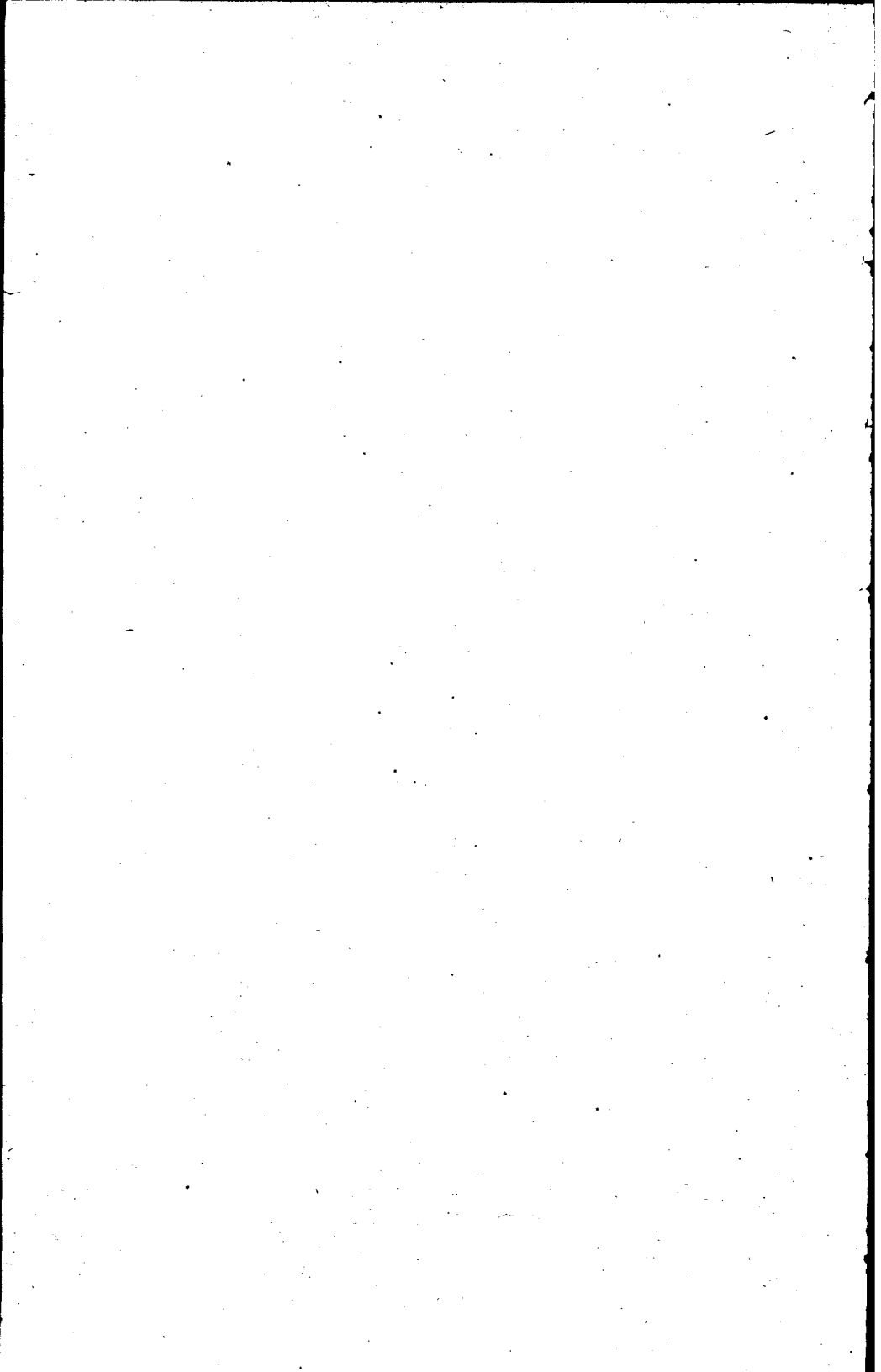
VETERINARY SCIENCE

COURSES

No.	Credits	Title	Offered to	Prereq. Courses
6	3	Veterinary Medicine	Jr.	None
		8:00-9:25	TWThF 11Ve	Reynolds
12	3	Common Diseases of Domestic Animals	Sr.	24
		2:15-4:00	TWThF 11Ve	Boyd

6. VETERINARY MEDICINE. Planned for students who can take only one semester of veterinary work. Includes preparatory work for the study of diseases; causes, prevention, diagnosis and treatment of the common diseases including lameness and unsoundness; and common medicines. REYNOLDS.

12. COMMON DISEASES OF DOMESTIC ANIMALS. Planned as an introductory course. Cause, diagnosis, prevention, and treatment of common diseases capable of easy diagnosis and either prevention or simple treatment. General principles of diagnosis, preparation and administration of common medicines. Boyd.



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The Bulletin
of the University of
Minnesota

The Graduate School
Announcement of Graduate Work
in Medicine in the Medical School
and the Mayo Foundation
1917-1918



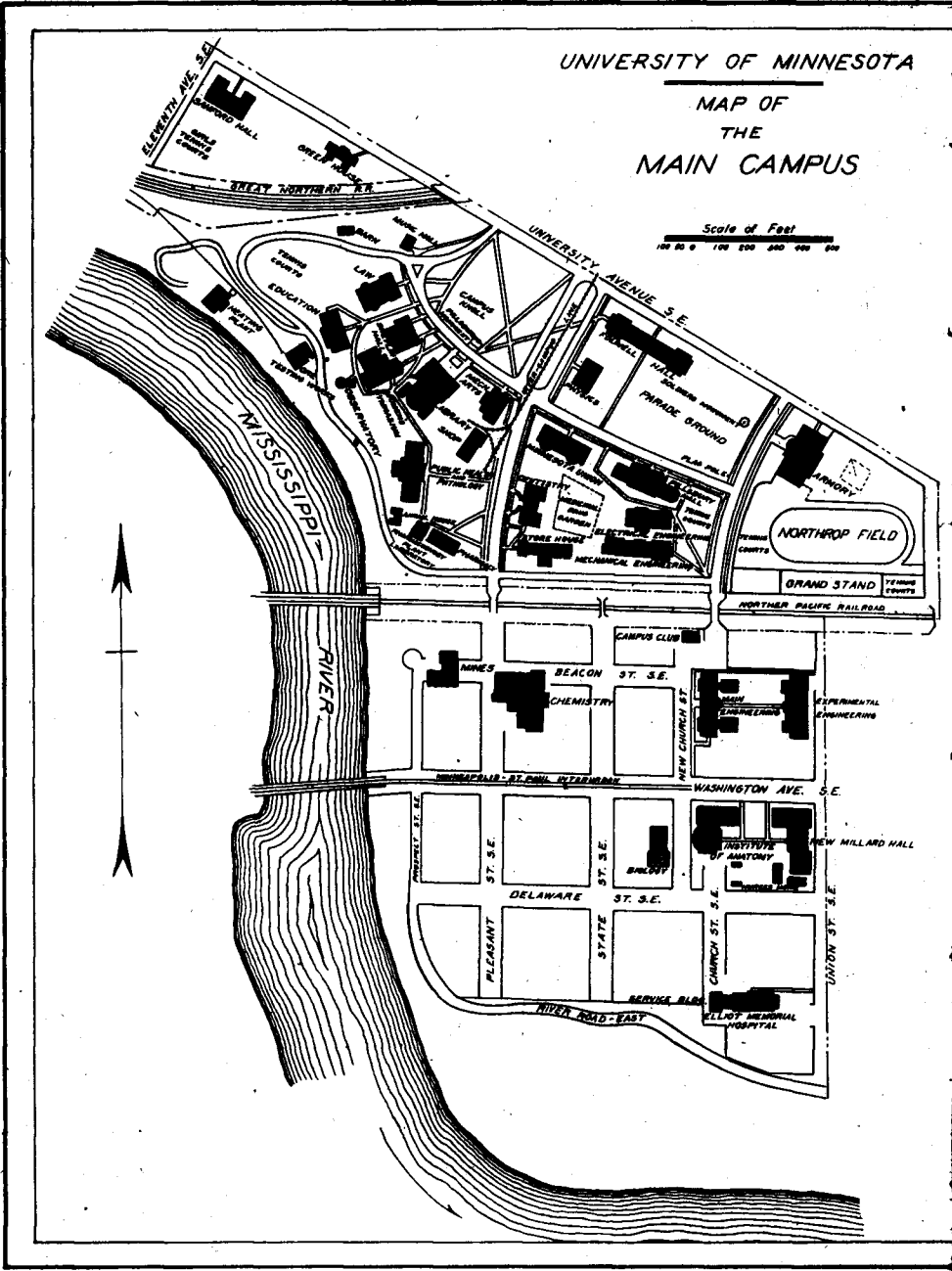
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UNIVERSITY OF MINNESOTA

MAP OF THE MAIN CAMPUS

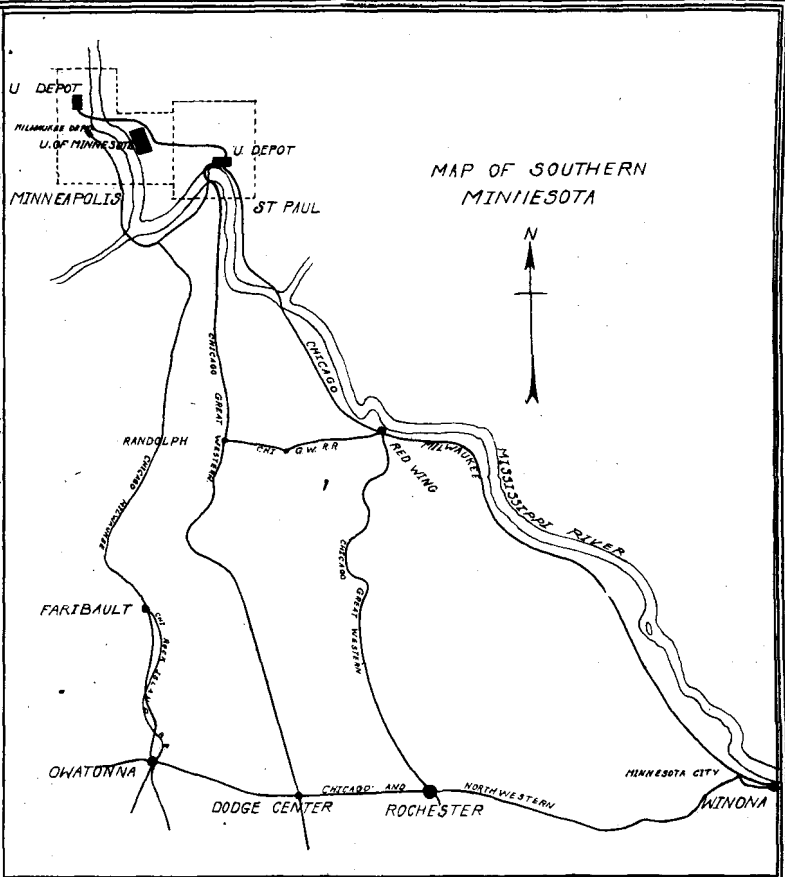
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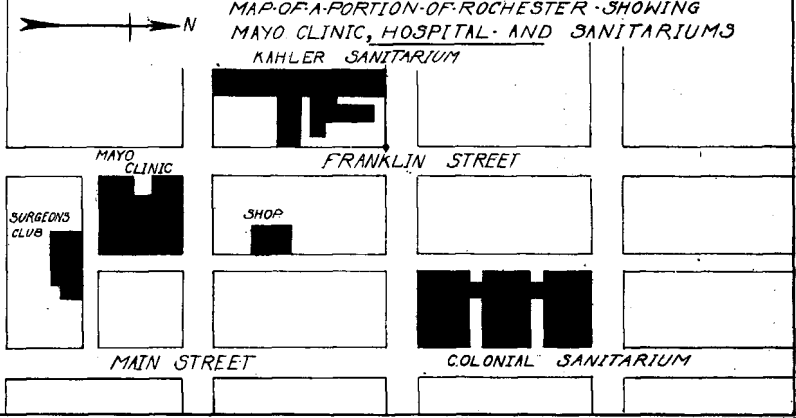


STIMARY'S HOSPT.

ZUMBRO STREET (9 BLOCKS)



MAP OF A PORTION OF ROCHESTER SHOWING MAYO CLINIC, HOSPITAL AND SANITARIUMS



UNIVERSITY CALENDAR

(As Applicable to Graduate Work in Medicine)

1917-1918

The University year for Fellows doing graduate work in clinical medicine looking toward an advanced degree covers a period of fifty-two weeks, less two or three weeks' vacation to be arranged by the head of the department in which the student is working. In the fundamental laboratory branches in the Medical School, the academic year of nine months is followed.

1917

August	1	Wednesday	First semester (first quarter) begins for the Mayo Foundation. Nominations of Fellows on the Mayo Foundation, service to begin February 1, 1918.
October	2-9	Week	Registration of new students and payment of fees.
October	10	Wednesday	First semester begins at the Medical School.
October	20	Saturday	Last day for registration of graduate students for the first semester.
November	1	Thursday	Nominations of Fellows on the Mayo Foundation, service to begin May 1, 1918.
November	15	Thursday	Last day for filing at the Dean's office thesis subjects for the Master's degree.
1918			
February	1	Friday	Nominations of Fellows on the Mayo Foundation, service to begin August 1, 1918.
February	4	Monday	Registration for second semester closes, except for new students.
February	18	Monday	Second semester begins.
March	1	Friday	Last day for filing applications for the Shevlin Fellowship in Medicine.
April	1	Monday	Nominations of Teaching Fellows in the Medical School, service to begin August 1, 1918.
May	1	Wednesday	Nomination of Fellows on the Mayo Foundation, service to begin November 1, 1918.

GRADUATE WORK IN MEDICINE

May	1	Wednesday	Last day for filing at the Dean's office three copies of all theses submitted for the Master's or Doctor's degree.
May	23	Thursday	Last day for written examinations, in the field of the major, of candidates for the Master's or Doctor's degree.
June	6	Thursday	Last day for final oral examination of candidates for the Master's or Doctor's degree.
June	19	Wednesday	Alumni Day.
June	20	Thursday	Forty-sixth annual commencement.
June	24	Monday	Summer Session begins.

GRADUATE WORK IN MEDICINE

ORGANIZATION

The graduate work in medicine in the Medical School and the Mayo Foundation is a part of the work of the Graduate School of the University. Its management is entrusted by the Board of Regents to a committee composed as follows:

The President of the University, MARION LEROY BURTON, Ph.D., D.D., LL.D.

The Dean of the Graduate School, GUY STANTON FORD, Ph.D.

The Dean of the Medical School, ELIAS POTTER LYON, Ph.D., M.D.

JAMES E. MOORE, M.D., of the Medical School.

CLARENCE MARTIN JACKSON, M.S., M.D., of the Medical School.

JENNINGS C. LITZENBERG, B.S., M.D., of the Medical School.

LOUIS BLANCHARD WILSON, M.D., of the Mayo Foundation.

WILLIAM FREDERICK BRAASCH, B.S., M.D., of the Mayo Foundation.

MELVIN STARKEY HENDERSON, M.D., of the Mayo Foundation.

FACULTY

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ELEXIOUS T. BELL, B.S., M.D., Associate Professor of Pathology

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GEORGE B. EUSTERMAN, M.D., Assistant Professor of Medicine (Mayo Foundation)

CARL FISHER, B.S., M.D., Associate Professor of Ophthalmology and Otolaryngology (Mayo Foundation)

EMIL S. GEIST, M.D., Assistant Professor of Orthopedic Surgery

HERBERT Z. GIFFIN, B.S., M.D., Associate Professor of Medicine (Mayo Foundation)

- ARTHUR J. GILLETTE, M.D., Professor of Orthopedic Surgery
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- HENRY S. PLUMMER, M.D., Professor of Medicine (Mayo Foundation)
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- FRANK C. TODD, M.D., Professor of Ophthalmology and Oto-Laryngology.
- HENRY L. ULRICH, B.S., M.D., Associate Professor of Medicine
- S. MARX WHITE, B.S., M.D., Professor of Medicine
- LOUIS B. WILSON, M.D., Professor of Pathology (Mayo Foundation)

GENERAL INFORMATION

The graduate work in medicine here outlined is not intended for those seeking brief practitioners' or review courses. Opportunities of this kind are to be found in the bulletin of the Medical School and in the announcements of medical work during the Summer Session.

HISTORY

In the fall of 1914, the University of Minnesota began graduate work in various fields of medicine and surgery in addition to that already offered for some time in the laboratory branches. The conditions laid down for this work as regards admission, residence, thesis, and examinations were those already applied by the Graduate School in approving all candidates for the degrees of doctor of philosophy and doctor of science.

Since June, 1915, the Board of Regents have had at their command for this work, in addition to the facilities of the Medical School, the income and resources of the Mayo Foundation* and of the staff, clinics, laboratories, library, and records at Rochester, Minnesota.

PURPOSE

In an age of specialization and of the development of graduate work in all fields and phases of the sciences, letters, and arts, such an educational experiment needs no elaborate justification. In a subject like medicine, intimately connected with established fields of research such as biology, chemistry, anatomy, physiology, pathology, and bacteriology, the possibilities of real scientific results and of the training of scientifically-minded and -equipped specialists, investigators, and teachers are as great as in any subject and of as vital importance.

The possibilities of such work hitherto have suffered less from neglect than they have from the lack of organization, standardization, and certification by the educational institutions who have found it possible and advisable to put such applied subjects as agriculture, education, engineering, and commerce upon the basis of scientific investigation, and have freely recognized the accomplishments of trained students by the granting of higher earned degrees. In medicine, in the United States, the specialist

*Research in pathology, clinical medicine, and surgery has been carried on at Rochester for several years. In 1912, definite three-year courses in these subjects for graduates in medicine were instituted. In order to perfect the organization and place the work on a permanent basis, February 9, 1915, a corporation, the Mayo Foundation for Medical Education and Research, was founded by Drs. William J. and Charles H. Mayo. On June 9, 1915, the University of Minnesota and the Mayo Foundation for Medical Education and Research entered into an agreement, by the terms of which the funds and income of the Mayo Foundation for Medical Education and Research are devoted, under the direction of the Regents of the University of Minnesota, to the promotion of graduate work in medicine and to research in this field. It supports fellowships, scholarships, special investigations, salaries, and other expenses for the teaching done by graduate instructors in medicine in Rochester or elsewhere.

in practice and the trained investigator have come to us either as a development from extended practice narrowing to a particular field; by periods, long or short, of foreign study; by what has been called postgraduate or polyclinic medical courses; or by the simple and convenient method of self-proclamation. Taken as a whole, the results of such processes can hardly be called satisfactory, nor do they supply any sure protection to the public or any open avenue for the specialist to the public's confidence. And medical education, if it is to advance, must at least be able to supplement a faculty of skilled practitioners with men trained to carry forward the frontiers of medical science.

The objects of this graduate work in medicine are accordingly the training for medical practice of fully equipped and properly certified specialists and of investigators and teachers of medicine.

STANDARDS AND REQUIREMENTS

In entering upon this work the best methods for securing results and safeguarding scientific standards have, it would seem, already been indicated by the graduate work developed here and elsewhere in other pure and applied sciences. The proper development of any experiment in graduate work in medicine would then depend upon real standards of admission, qualified teachers supplied with adequate laboratory, clinical, and library equipment, and rigid tests in course and examinations in residence, together with evidence of the power of productive research on the part of the students as evidenced in a thesis.

In doing this work the University of Minnesota is not seeking to multiply the opportunities for securing simply technical training through practitioners' courses. The graduate work is definitely intended to make the three-years' work a training for the well-prepared and serious-minded student who wants to be a scientist, working in some special field of medicine or surgery. Entrance upon the work and continuance in it, as well as the holding of scholarships or fellowships in the Medical School or on the Mayo Foundation, will be strictly conditioned upon evidences of power and growth along scientific lines. The value of technical or mechanical skill as a practitioner or operator has its place, but will be subordinated to and measured by the power and product of the brain that guides the hand. From the standpoint of both the University and the prospective student it is highly important that this distinction in purpose be kept clearly in mind.

In the selection of graduate medical students, and in making appointments to Fellowships for medical graduate work, preference will be given, other things being equal, to students who have done more than the usual amount of undergraduate medical work in the fundamental medical sciences (i.e., anatomy, physiology, pathology, etc.) through which they should make their approach to the specialty which they wish to take as a major subject.

By the present arrangement of courses in arts, science, and medicine, a properly prepared student may enter the University, and in seven years

secure the usual doctorate degree in arts, in science, or in medicine. The object of the new plan is to provide three years of additional work on the basis of the degree of Doctor of Medicine, and leading to the special degree of Doctor of Philosophy (Ph.D.) in Internal Medicine, in Surgery, in Pathology, etc.

LABORATORY AND CLINICAL EQUIPMENT

The laboratory and clinical equipment for the prosecution of graduate work in medicine is located in Minneapolis, St. Paul, and Rochester.

The laboratory branches are well housed and in excellently-equipped buildings on the campus at Minneapolis and in Rochester. Anatomy, chemistry, and pathology and bacteriology are in modern buildings especially designed for them. Physiology, physiological chemistry, and pharmacology are located in Millard Hall, a modern building of the best type. The laboratories for experimental medicine and surgery, and extensive animal quarters are also in this building.

The University owns and controls Elliot Memorial Hospital with its service building. This provides a clinic of 200 beds, and has the accumulated hospital records of eight years. The Out-Patient Department of the Hospital is housed in Millard Hall and received 15,876 new patients and 56,186 patients' visits during the year ending July 31, 1917. The University museums of anatomy, pathology, and surgery contain a large number of specimens available for teaching and study.

The State Hospital for the Crippled and Deformed at Phalen Park, St. Paul, offers the University full participation in its clinical opportunities.

The City Hospital of Minneapolis and the City and County Hospital of St. Paul, representing in all some 1,400 beds, exhibit every phase of clinical service in their wards and amphitheatres.

In Rochester, St. Mary's Hospital and other local hospitals at the disposal of the Mayo Foundation for Medical Education and Research aggregate 800 beds. These, with the Mayo Clinic building, include a modern and extensive equipment in laboratories, museums, and examining and operating rooms with equipment for roentgenologic, cardiographic, cystoscopic, and photographic work. In the Mayo Clinic building there are twenty-four experimental and research laboratories.

During 1916, 42,637 patients were examined clinically in Rochester. More than 200,000 clinical histories are on file. During 1916, 14,192 surgical operations were performed. Of all patients dying, 86.7 per cent were examined post mortem. The working museum contains more than 57,000 pathologic specimens. All case histories and specimens are classified and arranged so as to be readily available for scientific research.

Arrangements have been made whereby Fellows or other graduate students in Medicine may divide their time, part of their work being taken on the Mayo Foundation at Rochester, and part in the Medical School in Minneapolis and St. Paul.

LIBRARIES

Besides the University Library and the departmental libraries, there are at the disposal of the student the general medical libraries in Millard Hall and the Mayo Clinic Building, and the collections of the Hennepin County and Ramsey County Medical Societies. Current issues and complete files of most important medical periodicals are available either in Minneapolis or Rochester.

REGISTRATION AND NUMBER OF STUDENTS

Students entering upon graduate work in medicine will register with the Dean of the Graduate School. Students who begin their residence work in Rochester may fulfill the preliminary requirements by registering there with the chairman of the local committee on graduate work, Dr. Louis B. Wilson.

The number of graduate students who will be registered for work is limited to approximately sixty, most of whom will be on the list selected for fellowships on the Mayo Foundation or as teaching fellows in the Medical School. This limitation in numbers is determined by the clinical opportunities. It applies to those doing their major work in clinical medicine and surgery and not to those majoring in the laboratory departments.

TUITION

The tuition fee for the graduate work in clinical medicine and surgery is twenty-five dollars per semester. For students in the fundamental laboratory branches, the tuition fee is fifteen dollars per semester. Extra fees may be charged to cover the cost of materials and supplies for exceptional laboratory experimentation. The fees for graduate work in the summer session are stated in the special summer session bulletin. Fellows, scholars, and members of the teaching or scientific staff are exempt from tuition and fees.

FELLOWSHIPS AND SCHOLARSHIPS

Teaching fellowships in the Medical School are now established as follows: in surgery, two; in internal medicine, two; in obstetrics, two; in ophthalmology and oto-laryngology, two; in mental and nervous diseases, two; and in pediatrics, two. They carry a stipend of \$500 the first year, \$750 the second, and \$1,000 the third. These teaching Fellows are required to devote their entire time (excepting an annual vacation of three weeks) to graduate work, including a small amount of teaching.

Similar teaching fellowships have been established in the fundamental laboratory department of the Medical School as follows: in anatomy (including histology and embryology), five; in physiology and physiological chemistry, one; in pathology and bacteriology, one. These fellowships carry a stipend of \$500 the first year, \$600 the second, and \$700 the third year. They require a small amount of teaching, the re-

mainder of the time being devoted to graduate work leading to advanced degrees.

Special fellowships in Ophthalmology and Oto-Laryngology have been established by Dr. Frank C. Todd, of Minneapolis, and Dr. Frank E. Burch, of St. Paul. These fellowships carry the same stipends as the teaching fellowships. Students holding these fellowships spend half their time in the private clinics of Doctors Todd and Burch, where they act as clinical assistants and graduate students. The other half of their time is spent in correlated graduate work in the fundamental laboratories at the Medical School.

In addition, there are at Minneapolis five scholarships, without stipend, carrying free tuition with opportunity for graduate study in any of the clinical departments.

The attention of prospective medical graduate students is also called to the Shevlin Fellowship in Medicine yielding \$500 and tuition. Applications should be in the hands of the Dean of the Graduate School before March 1.

The Mayo Foundation carries the following fellowships: in clinical and experimental surgery, twelve; in clinical and experimental medicine, three; in pathology, two; in bacteriology, two; in orthopedic surgery, urology and proctology, ophthalmology and otology, rhinology and laryngology, and roentgenology, one each. In addition there are available, without stipend, opportunities for residence work in Rochester for twelve students majoring in clinical and experimental surgery, three in clinical and experimental medicine, two in pathology, and one in bacteriology. The fellowships pay \$600 the first year, \$750 the second, and \$1,000 the third year. They require full time, with an annual vacation of two weeks.

The variation in stipend between the Foundation and Medical School is based upon the length of period per year in residence and differing opportunities to reduce the cost of living.

Nominations for fellowships upon the Mayo Foundation are made each quarter, beginning with August 1, for residence to begin six months later. In the Medical School appointments are made May 1 for residence to begin August 1.

All appointments are for one year and renewable for a period of three years upon the basis of satisfactory progress in the work pursued. Requests for blanks for application for fellowships and scholarships should be addressed to the Dean of the Graduate School, University of Minnesota, Minneapolis, Minnesota, or to the Chairman of the local committee on graduate work, Mayo Foundation, Rochester, Minn.

ASSISTANTSHIPS

A few qualified research assistants (not candidates for a degree) may be accepted at Rochester in the laboratory branches for short periods. The number is necessarily limited in order not to interfere with the work of the resident fellows, scholars, and students. Cor-

response concerning this work should be directed to Dr. Louis B. Wilson, Rochester, Minnesota.

Several of the departments in the Medical School (including anatomy, physiology, and pathology) have paid assistantships which may furnish means of self-support while the holder is pursuing graduate work. For further information, address the Dean of the Medical School.

SUMMARY OF REQUIREMENTS

The various steps involved in the requirements for the degree of Doctor of Philosophy (Ph.D.) in any one of the clinical or laboratory departments are briefly summarized in the following. The requirements for the Master's degree (M.A. or M.S.) are also indicated. This degree is offered in the laboratory departments, but not in the clinical departments (except in rare cases, by special vote of the Medical Graduate Committee). Further information concerning graduate work in general may be found in the general Graduate School Bulletin.

REQUIREMENTS FOR ADVANCED DEGREES IN MEDICINE

1. *Admission.*—All graduate students are admitted by the Dean of the Graduate School. Entrance upon work for the advanced degree of Doctor of Philosophy (Ph.D.) in the clinical departments of medicine is limited to those who have: (a) the Bachelor's degree in arts or science, or its equivalent; (b) the degree of Doctor of Medicine from acceptable institutions (i. e., those in Class "A" of the American Medical Association); and (c) one year's experience as an interne in an approved hospital or as an assistant in a laboratory in an acceptable medical school. In the fundamental laboratory sciences (anatomy, physiology, bacteriology, pathology and pharmacology) properly prepared students may be admitted without (b) and (c) as candidates for the Master's degree (M.A. or M.S.) or the Doctor's degree (Ph.D.).

Upon entrance to the Graduate School, the candidate, with the approval of the Dean, will select his adviser in the field of his major work. With the approval of his adviser and the Dean, he will outline a study program for the year.

The study program for the second and third years is subject also to the approval of the Medical Group Committee.

2. *Residence.*—For the Doctor's degree (Ph.D.) at least three full years of successful graduate study are required, including certain special requirements noted below. For the Master's degree (in the laboratory sciences) only one year of residence is required.

3. *Language requirements.*—A reading knowledge of French and German must be certified by the professors in charge of these languages at least one year before the Doctor's degree is conferred, and before admission to the preliminary examination. For the Master's degree (offered in the laboratory sciences) a reading knowledge of only one foreign language is required, which must be certified before the end of the first semester.

4. *Minor.*—With the approval of his adviser and the Dean of the Graduate School, each student upon entrance selects a minor, which must be logically related to his major subject, and (for the Doctor's degree) must be completed before the end of the second year. The minor is preferably a laboratory subject in some other department, and should amount to not less than one sixth of the total work for the degree. At least one fourth of the work offered for the degree in a clinical subject should consist of graduate work in the fundamental laboratory branches, which will serve as a basis for the proposed clinical specialization. This fundamental work should be concentrated in the first part of the course so far as possible. The final examination in the minor for the Doctor's degree is included in the preliminary examination, as noted below. For the Master's degree no special examination is required in the minor, aside from the usual course examinations.

5. *Major.*—The major is that department in which the student desires to specialize. Together with the thesis, it should occupy at least two thirds of the total work for the degree. At least one year before attaining the Doctor's degree, the following procedure is required in order that the candidate may become eligible for the preliminary examination. In addition to the completion of the minor work and of the language requirement, he must have the written approval of the Department Committee (which includes the Graduate Faculty members) of the major subject. The statement of the Department Committee should include the subject of the special problem for the thesis, and should certify as to the ability of the candidate to meet all requirements for the degree sought.

6. *Admission to candidacy.*—For the Master's degree, students who have met the language requirement and whose thesis subject has been properly approved are admitted to candidacy at the beginning of the second semester by vote of the Executive Committee of the Graduate School. For the Doctor's degree, the student is required to pass a preliminary examination, as noted below, before admission to candidacy.

7. *Preliminary examination.*—At least one calendar year before the Doctor's degree is conferred, a preliminary examination of the student shall be given by a committee consisting of the student's adviser as chairman, a representative of the Medical Graduate Committee (other than the adviser) and all members of the Graduate Faculty in his major and minor departments. Certificates of proficiency in French and German, completion of the minor work and the recommendation of the major department shall be required before admission to this examination. The examination is in addition to the usual course examinations. It shall cover the graduate work previously taken by the student, and may include any work fundamental thereto. The examination may be either written or oral, or both, as determined by the examining committee. Only after the successful completion of this examination may the student be enrolled as a candidate for the Doctor's degree. Students failing to pass this preliminary examination shall not be reexamined until at least one semester has passed.

8. *Thesis.*—Each candidate for an advanced degree (Master's or Doctor's) must submit a thesis. For the Master's degree, the subject of the thesis should be filed with the Dean of the Graduate School by November 15. The subject must be approved by the adviser and by the Medical Graduate Committee. The topic should be within the field of the major, and the thesis should represent approximately half of the year's work of the student. The thesis must be written in acceptable English. It must show ability to work independently, give evidence of power of independent thought both in perceiving problems and in making satisfactory progress toward their solution. Familiarity with the bibliography of the special field and correct citation of authorities are expected.

The Master's thesis must be typewritten in triplicate, one copy on a special form of linen stock, the other two as carbon copies. Samples of the paper required should be examined in the Dean's office. The three copies of the thesis must be filed in the Dean's office not later than May first. The thesis will be examined by a committee appointed by the Dean, on recommendation of the Medical Graduate Committee. Unanimous approval by the thesis committee is necessary for the acceptance of the thesis. If the thesis is accepted, the candidate must deposit with the Registrar, at least one week before Commencement, the sum of one dollar for binding one copy of the thesis, which will be cataloged and deposited in the University Library.

For the Doctor's degree, a more elaborate thesis is required. The subject is to be stated in the written department recommendation, which precedes the preliminary examination at the end of the second year. The accumulation of material for the thesis should be started much earlier. The thesis must give evidence of originality and power of independent investigation. It must embody results of research forming a real contribution to knowledge and must exhibit a mastery of the literature of the subject and a familiarity with the sources of knowledge. The matter must be presented with a fair degree of literary skill.

The thesis must be typewritten in triplicate, to facilitate reading by the thesis committee. No special size or form is required for the Doctor's thesis, since it is to be printed subsequently. The three copies must be filed in the Dean's office not later than May first. The Dean will appoint a thesis committee with the student's adviser as chairman. Unanimous approval by this committee will be necessary for the acceptance of the thesis. If the thesis is accepted, the candidate must deposit with the Registrar, not later than one week before Commencement, a sufficient bond or such sum of money as will be required to print 100 copies of the thesis for the use of the University and as many additional copies as the candidate may require for himself. If the thesis is to be published elsewhere, reprints will be acceptable, if bound with covers in the special form required by the University.

9. *Final written examination.*—In addition to the usual course examinations in all subjects where such are given, the candidate for the Master's degree must pass a final written examination in the field of the major. (No special final examination is required in the minor.) The

final written examination will be held not later than four weeks before Commencement. It is given by the members of the Graduate Faculty in the major department, the adviser acting as chairman. This examination shall cover all the work done in the major, and may include any work fundamental thereto.

For the Doctor's degree, a final written examination in the major subject is similarly given, after the thesis is presented and at least four weeks before Commencement.

10. *Final oral examination.*—If all other requirements for the degree have been met, including the final written examination and the acceptance of the thesis, the final oral examination will be held, not less than two weeks before Commencement.

For the Master's degree, the adviser will act as chairman of the examining committee, which will include all the instructors with whom the student has taken work, the thesis committee, and *ex-officio*, the head or chairman of the department in which the major work is done. Any member of the Graduate Faculty may attend as a visitor, and written notice shall be sent by the Chairman of the Committee to all members of the Graduate Faculty in the major and minor departments. The final oral examination will cover all the work offered for the degree, and may include other work fundamental thereto. At the close of the examination, the Committee will vote upon the candidate, taking into account all of his work. A majority vote is required for approval.

For the Doctor's degree, the committee conducting the final oral examination will consist of the adviser as chairman, of a majority of the members of the Graduate Faculty in the major department, and of at least three other members of the Graduate Faculty appointed by the Dean. At least one member of this Committee shall be from another group than the one in which the major department is included. This examination is to cover the field of knowledge represented by the major work, and shall not exceed three hours. The date of the final oral examination for the doctorate shall be publicly announced, and the examination shall be open to any member of the Graduate Faculty. Upon completion of the examination, a formal vote of the Committee shall be taken and an affirmative vote of at least two thirds of the members shall be necessary for recommendation of the candidate for the degree.

11. *Recommendation by the Faculty.*—The Dean will report to the Graduate Faculty the names of those who have completed the requirements for the Master's and Doctor's degrees, and those duly approved will be recommended by the Faculty to the Board of Regents of the University. Unless excused by the Dean of the Graduate School and the President of the University, all candidates are required to be present at Commencement when the degrees are conferred.

TABULAR SUMMARY OF REQUIREMENTS
FOR THE MASTER'S DEGREE

WORK	UNDER THE DIRECTION OF	DATE
Program, Major and Minor	Adviser and Dean of the Graduate School.	On entrance.
Approval of thesis subject	Adviser and Group Committee....	November 15.
Language requirement....	Adviser and language department..	Before close of first semester.
Approval of candidacy....	Executive Committee.....	Beginning of second semester.
Filing of thesis	Dean of the Graduate School.....	May 1.
Examination of thesis....	Thesis Committee.....	Before admission to final oral examination.
Final written examination in major	Major department members of the Graduate Faculty	Not later than four weeks before Commencement and before final oral.
Final oral examination on all work.	Thesis Committee; all instructors; head of major department.	Not later than two weeks before Commencement.
(Course examinations as required at the usual time).		
Fee for binding thesis....	Registrar.....	One week before Commencement.

TABULAR SUMMARY OF REQUIREMENTS
FOR THE DOCTOR'S DEGREE

WORK	UNDER DIRECTION OF	DATE
FIRST YEAR		
Major.....	Adviser and Dean of Graduate School	
Minor.....	School	
SECOND YEAR		
Tentative program of entire second and third year's work.	Adviser, Medical Graduate Committee and Dean of Graduate School	Before beginning work of second year.
Major including thesis..	As for tentative program	
Minor.....	Adviser and minor department....	} Before admission to preliminary examination.
Language.....	Adviser and language department..	
Recommendation.....	By major department.....	} One calendar year before degree is to be conferred.
Preliminary Examination	Special Committee.....	
THIRD YEAR.		
Major, including thesis..	Adviser, Medical Graduate Committee and Dean of Graduate School	
Filing of thesis.....	Dean.....	May 1.
Examination of thesis...	Thesis Committee.....	Before admission to final oral examination.
Final written examination in major	Major Department members of the Graduate Faculty.	Four weeks before Commencement and before final oral examination.
Final oral examination..	Adviser, majority of members of major department and other members appointed by Dean of Graduate School	Not later than two weeks before Commencement.
Bond for publication... of thesis.	Registrar.....	Not later than one week before Commencement.

CLINICAL AND CLASS WORK FOR VISITING OR RESIDENT
PRACTITIONERS

In order that there may be no misunderstanding, it should be stated that the graduate work for a limited number described above in no way changes or modifies the opportunities for observation hitherto extended visiting surgeons by the Mayo Clinic in Rochester, or the arrangements offered in Minneapolis by the Medical School for practitioners who wish to attend such undergraduate medical classes as may be of profit to them without interfering with the regular work of the staff and students of the Medical School. Special and review work for practitioners is also provided for in the Summer Session of the Medical School. Inquiries concerning these opportunities should be addressed to the Dean of the Medical School.

DEPARTMENTAL STATEMENTS

The members of the faculty at Rochester (Mayo Foundation) are indicated by an asterisk (*) in the list at the head of each departmental statement. The courses given at Rochester are grouped separately, and the numbers given the special prefix "M." In general, the odd numbers indicate first semester courses; even numbers, second semester courses. A combination (e. g., 101-102) indicates courses continuing through the year. Courses repeated each semester are denoted by the suffix a or b (e. g., 101a,b). The courses numbered between 100 and 200 are less advanced in character and in some cases are open as electives to properly qualified undergraduates. The courses above 200 are primarily graduate in character, of the more advanced or research type.

The various divisions are grouped under the following departments:

1. Anatomy (including Histology and Embryology).
2. Physiology and Physiologic Chemistry.
3. Pathology, Bacteriology, and Public Health.
4. Pharmacology and Therapeutics.
5. Medicine (including General Medicine and Mental and Nervous Diseases).
6. Pediatrics.
7. Surgery (including General Surgery, Experimental Surgery, Orthopedic, and Genito-Urinary Divisions).
8. Ophthalmology and Oto-Laryngology.
9. Obstetrics and Gynecology.
10. Roentgenology.

ANATOMY

Professors CLARENCE M. JACKSON, JOHN B. JOHNSTON, THOMAS G. LEE, RICHARD E. SCAMMON.

The new Institute of Anatomy offers excellent facilities to students who wish to take advanced work or to pursue investigations in anatomy.

The prerequisite work for all students who desire a major or minor in the Department of Anatomy includes general zoology (animal biology), six credit hours, and advanced zoology or elementary courses in anatomy (including histology, embryology, and neurology), six hours. In addition, each student who desires a major in anatomy must have had the elementary courses in that branch of anatomy in which he desires to specialize—gross anatomy, histology, embryology, or neurology. Students majoring in clinical subjects who desire a minor in anatomy must have had the courses in anatomy usually required of medical students (including courses 101, 102 and 103). A reading knowledge of German is required of students who desire a major in anatomy for the Master's degree, and a reading knowledge of both French and German is required of those who are candidates for the Doctor's degree.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

101. **HUMAN HISTOLOGY.** A microscopic study of the various tissues and organs. Prerequisite: Animal Biology 1-2. Five credits. SCAMMON.
102. **HUMAN EMBRYOLOGY.** The development of the human body. Prerequisite: Anatomy 101, or equivalent. Three credits. LEE, SCAMMON.
103. **HUMAN NEUROLOGY.** A study of the gross and microscopic structure of the central nervous system and sense organs of man. Prerequisites: Anatomy 101 and 102, or Animal Biology 7-8 or 19-20. JOHNSTON.
- 107-108. **COMPARATIVE NEUROLOGY OF VERTEBRATES.** Prerequisites: Anatomy 103 or Animal Biology 19-20. JOHNSTON.
- 111a,b. **ANATOMICAL TECHNIQUE.** Lectures and laboratory work upon the principles and practice of microtechnique. Prerequisites: Anatomy 101, or Animal Biology 7-8. Three credits. LEE.
114. **TOPOGRAPHIC ANATOMY.** Based upon a study of cross-sections of the human body. Lectures and laboratory work. Prerequisite: Anatomy 3-4. Three credits. JACKSON.
115. **FETAL ANATOMY.** Dissection of the fetus and new-born. Prerequisites: Anatomy 3-4 and 102, or Animal Biology 131-132. Three credits. SCAMMON.
117. **IMPLANTATION AND PLACENTATION.** A study of the implantation of the ovum, the formation of the placenta and the earliest stages of development in man and mammals. Prerequisites: Anatomy 102 or equivalent. Three credits (or less). LEE.
- 123-124. **ADVANCED ANATOMY.** Individual topics for advanced work in gross anatomy, histology, embryology, or neurology will be assigned to students who have completed the elementary courses in the corresponding subjects. Special courses are arranged for clinical graduate students. JACKSON, JOHNSTON, LEE, SCAMMON.

PRIMARILY FOR GRADUATE STUDENTS

- 201-202. **RESEARCH IN ANATOMY.** Qualified students may undertake the investigation of problems in anatomy, including histology, embryology, and neurology. Special facilities are offered to graduate students in the clinical departments for work upon problems in applied anatomy. JACKSON, JOHNSTON, LEE, SCAMMON.
- 203-204. **ANATOMICAL SEMINAR.** Reviews of the current literature and discussion of research work being carried on in the department. Reading knowledge of French and German required. JACKSON and staff.

PHYSIOLOGY AND PHYSIOLOGIC CHEMISTRY

Professor ELIAS P. LYON; Associate Professors RICHARD O. BEARD, JESSE F. McCLENDON, FREDERICK H. SCOTT; Assistant Professors EDWARD C. KENDALL,* FRANCIS B. KINGSBURY, CHAUNCEY J. V. PETTIBONE.

The Department of Physiology is well equipped for the various types of physiologic investigation. The library facilities are good.

For a minor in Physiology, general zoology, six credits, general chemistry, six credits, and college physics, are prerequisites. (In exceptional cases high-school physics may be accepted.) For a major, organic chemistry is an additional prerequisite, and physical chemistry is desirable.

For a minor or major in physiologic chemistry, general and organic chemistry, twelve credits, are prerequisite, and physical chemistry is desirable.

In addition, each student majoring in physiology or physiologic chemistry must have had the general courses, Physiology 102, 103, 104, or the equivalent.

Students majoring in clinical subjects, and who desire to minor in physiology or physiologic chemistry, must have had the courses in these branches usually required of medical students.

A reading knowledge of German is required of candidates for the Master's degree in this department, and a reading knowledge of both French and German, of candidates for the Doctor's degree.

A. COURSES OFFERED AT MINNEAPOLIS

102. **PHYSIOLOGIC CHEMISTRY.** The components of the animal body; foods, digestion, the excreta. Lectures and laboratory work. Prerequisite: Organic chemistry. Five credits. PETTIBONE, KINGSBURY.
103. **PHYSIOLOGY OF MUSCLE, NERVE, BLOOD, CIRCULATION, AND DIGESTION.** Lectures and laboratory work. Prerequisite: Animal Biology 1-2. Four credits. SCOTT, LYON, BEARD, McCLENDON.
104. **PHYSIOLOGY OF THE NERVOUS SYSTEM AND SPECIAL SENSES; RESPIRATION, METABOLISM, NUTRITION, AND EXCRETION.** Lectures and laboratory work. Prerequisite: Animal Biology 1-2. Four credits. LYON, BEARD, SCOTT, McCLENDON.
111. **PHYSICAL CHEMISTRY OF CELLS.** Osmotic pressure, surface tension and electric conductivity of blood and urine; colloids; permeability of cells and tissues and changes in permeability produced by electrolytes. Prerequisites: animal biology and two courses in chemistry. Three credits. McCLENDON.
112. **ELECTRO-PHYSIOLOGY.** The bio-electric currents and the theory of stimulation and narcosis. Hydrogen ion concentration and its rela-

- tion to enzyme activity and irritability. Prerequisites: animal biology and two courses in chemistry. Three credits. McCLENDON.
- 113-114. PROBLEMS IN PHYSIOLOGY. Arranged by instructors with qualified students. Each student will be assigned a topic for special laboratory study, leading in some cases to original investigation. Prerequisite: Physiology 103. Three credits or more. LYON, SCOTT, McCLENDON.
- 115-116. CONFERENCE COURSE IN PRINCIPLES OF PHYSIOLOGY. Student Seminar. Informal lectures and library study. Basis of study Bayliss' text-book. Open to graduates and advanced undergraduates, 12 hours, each quarter; one and one-half credits, each semester. LYON, SCOTT or McCLENDON.
131. PHYSIOLOGY OF THE BLOOD. Alterations due to physiologic conditions. Methods of examination. Limited to sixteen students. Second quarter. 48 hours. SCOTT.
132. PHYSIOLOGY OF THE CIRCULATION. Conference and laboratory work. Limited to sixteen students. Conference may be taken separately. Third quarter. 12 or 48 hours. SCOTT.
- 137a,b. FOODS AND PRACTICAL DIETETICS. A study of human foods and food values; principles of food selection; caloric indices and balanced dietaries. Exercises in the practical preparation of foods. Second quarter; repeated fourth quarter. Limited to twelve students. Prerequisite: Physiology 3 or equivalent. 40 hours. Two credits. BEARD.
138. PHYSIOLOGY OF DEVELOPMENT. The physiology of the ovum, the embryo, the fetus; the functions of menstruation, ovulation, pregnancy, parturition and lactation; the functional characteristics of birth, infancy, childhood, adolescence, maturity, and old age. Prerequisite: Physiology 3 or equivalent. 32 hours; two credits. BEARD.
139. EXAMINATION OF THE EYE AND EAR. A study of advanced methods. Lectures, demonstrations, and laboratory exercises. Prerequisite: Physiology 104. First quarter. 24 hours.
140. PHYSIOLOGY OF ACCOMMODATION. A study of optical principles and methods. Prerequisite: Physiology 104. Lectures, demonstrations, and laboratory exercises. Fourth quarter. 24 hours.
- 151-152. PHYSIOLOGIC CHEMISTRY. The components of the body, foods, digestion, and metabolism. Prerequisite: organic chemistry. Open to qualified students in all divisions of the University. 96 hours each semester. Six credits. KINGSBURY.
- 153-154. ADVANCED PHYSIOLOGIC CHEMISTRY. Course arranged by instructors with qualified students for special work. Either or both

semesters may be elected. 96 hours, or more, either semester or both. Six credits or more. KINGSBURY, PETTIBONE.

161. URINALYSIS. Advanced methods. Prerequisite: physiologic chemistry. First quarter. 48 hours. One and one-half credits. PETTIBONE.
163. METABOLISM. Students are placed on known diets and the excreta are studied chemically. Prerequisite: physiologic chemistry. Second quarter. 48-hours. One and one-half credits. PETTIBONE.
164. QUANTITATIVE METHODS. The estimation of certain important substances in the urine, blood, and other body fluids. 96 hours. Three credits. KINGSBURY.
- 201-202. SEMINAR IN PHYSIOLOGY AND PHARMACOLOGY. For instructors and advanced students. 16 hours (one credit) each semester. LYON, HIRSCHFELDER, and staff.
- 203-204. RESEARCH IN PHYSIOLOGY. LYON, SCOTT, McCLENDON.
- 205-206. RESEARCH IN PHYSIOLOGIC CHEMISTRY. KINGSBURY, PETTIBONE.
208. SEMINAR IN PHYSIOLOGIC OPTICS. 24 hours. LYON.
210. LABORATORY WORK IN PHYSIOLOGIC OPTICS. 48 hours. LYON.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

- M. 251-252. PHYSIOLOGIC CHEMISTRY. Research work in problems related to metabolism; includes training in the use of methods of organic and inorganic analysis. KENDALL.

NOTE: For course in applied physiology, see announcement of the Department of Surgery.

PATHOLOGY, BACTERIOLOGY, AND PUBLIC HEALTH

Professors HAROLD E. ROBERTSON, EDWARD C. ROSENOW,* LOUIS B. WILSON;* Associate Professors ELEXIOUS T. BELL, WINFORD P. LARSON, WILLIAM C. MACCARTY,* ARTHUR H. SANFORD;* Assistant Professor WAYNE W. BISSELL.*

Graduate students who desire to take their major or minor work in pathology or bacteriology must present credits in the following subjects: physics, eight credits; general and organic chemistry, twelve credits; zoology, six credits; and a reading knowledge of German.

In addition, students who elect their major work in pathology must present credits for the equivalent of the first two years' work of the Medical School of this University.

Students who elect their major work in bacteriology must present credits in general bacteriology or its equivalent.

A. COURSES OFFERED AT MINNEAPOLIS

101. **GENERAL PATHOLOGY.** General principles governing pathologic changes, including disturbances of the circulation, disturbances in metabolism, inflammation, regeneration and repair, and tumor formation. Assigned reading, didactic instruction with lantern demonstrations, and laboratory exercises upon gross and microscopic lesions. 96 hours. ROBERTSON, BELL.
102. **SPECIAL PATHOLOGY.** Applications of the principles of general pathology in infectious diseases, and the special pathology of lesions in the various organs and tissues. Lectures, special readings, study of museum specimens, fresh specimens, and microscopic preparations. 232 hours. ROBERTSON, BELL.
- 103-104. **CLINICAL-PATHOLOGICAL CONFERENCE.** Weekly conference over specimens obtained from post-mortems and operations in which the clinical and pathologic features are presented by those who have personally studied the cases and the specimens. Staff.
106. **PATHOLOGIC TECHNIC.** Practical work in general and special methods for the preparation of microscopic and gross pathologic specimens. Practice with the freezing microtome, celloidin and paraffin embedding methods, general and special stains, preparation of museum specimens, etc. Limited to ten students. Prerequisite: general pathology. 48 hours. Third quarter. ROBERTSON.
108. **HEMATOLOGY.** Advanced studies in diseases of the blood, including lectures, laboratory demonstrations, and special reading, with particular attention to special technical procedures and the significance of laboratory findings. 48 hours. Fourth quarter.
- 109-110. **COURSE IN IMMUNITY.** The study of natural and acquired immunity, including experiments to show the several types of protective substances and the principles and technic of serum diagnosis. Limited to ten students each semester. 48 hours. LARSON.
112. **GYNECOLOGICAL PATHOLOGY.** Special study of pathologic conditions found in the female genital tract. Prerequisite: special pathology. Fourth quarter; 24 hours. BELL.
114. **NEUROPATHOLOGY.** Special study of pathologic conditions of the nervous tissue in lesions of the central and peripheral nervous system. Prerequisite: special pathology. Fourth quarter; 24 hours. HAMILTON, BELL.
- 115-116. **PRINCIPLES OF BACTERIOLOGY.** Preparation of cultural media. The morphology of bacteria; methods of staining and identification; anaerobic bacteria; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. 80 hours. LARSON.

117. **GENERAL AND SPECIAL BACTERIOLOGY.** General and special methods for the cultivation and examination of bacteria; special morphologic and biologic characters of bacteria; pathogenic bacteria; bacteriologic methods in clinical diagnosis; principles of infection and immunity; practical application of serum reactions. 160 hours. LARSON.
119. **ADVANCED BACTERIOLOGY.** An advanced course giving additional work in bacteriology and the opportunity of working out special problems. Limited to ten students. 48 hours. LARSON.
201. **SPECIAL BACTERIOLOGY OF EYE, EAR, NOSE, AND THROAT.** Laboratory investigations of special problems in the bacteriology of the organs mentioned. Only a limited number of medical graduate students, preferably those intending to specialize in this field, can be accepted. 48 hours.
- 203-204. **RESEARCH.** Graduate students of the necessary preliminary training may elect research in pathology or bacteriology, either as a major or minor subject. Hours to be arranged. ROBERTSON, BELL, LARSON.
- 205-206. **SEMINAR.** A weekly meeting of the members of the departmental staff at which the results of original investigation or reports of recent literature of special subjects are presented and discussed. Open to graduate students by special permission. ROBERTSON and Staff.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

The graduate course in pathology is designed to prepare selected men for diagnostic and research work in pathology. The three years' service should be prefaced by a year's intensive study of normal histology and embryology.

The graduate courses in bacteriology are open to students with previous training in bacteriology, holding only their baccalaureate or master's degrees in arts or science, as well as to graduates in medicine. They are designed to train well-equipped students for special work in bacteriologic diagnosis and research, and for the teaching of bacteriology.

The graduate courses in pathology and bacteriology are open also as minor courses to Fellows in surgery, medicine, etc.

- M151-152. **PATHOLOGIC DIAGNOSIS OF SURGICAL SPECIMENS AT OPERATION.** Gross and microscopic study of fresh tissues. MACCARTY.
- M153-154. **NECROPSY SERVICE.** Junior assistant (three months); senior assistant (three months); demonstrator of pathology in clinicopathologic conference (three months); microscopic examination of fixed tissue removed at necropsies and operation. BISSELL.

- M155-156. CLINICAL AND BACTERIOLOGIC LABORATORY SERVICE. Routine clinical and special research work in hematology, serology, bacteriology, and parasitology. ROSENOW, SANFORD.
- M157-158. CLINICAL BACTERIOLOGY AND PARASITOLOGY. Making and examination of cultures; preparation and administration of autogenous vaccines; Wasserman tests; examination of stools and a study of intestinal parasites; special clinical laboratory methods, and opportunity for clinical or bacteriological research. SANFORD.
- M225-226. SPECIAL PATHOLOGY OF THE BONES AND JOINTS. Gross and microscopic study of lesions of bones and joints; research work on assigned problem in pathologic anatomy. WILSON.
- M257-258. SPECIAL PATHOLOGY OF THE GENITO-URINARY ORGANS. Animal experimentation; research on assigned problem. WILSON, MANN.
- M259-260. SPECIAL PATHOLOGY OF THE MOUTH, NOSE, AND THROAT. Research work on assigned problem in the pathology of lesions of the mouth, nose, and throat. WILSON.
- M261-262. SPECIAL PATHOLOGY OF THE GASTRO-INTESTINAL TRACT. Research work on assigned problem. WILSON.
- M263-264. SPECIAL PATHOLOGY OF THE EYE AND EAR. Research work on assigned topic in the pathology of diseases of the eye and ear. WILSON.
- M265-266. SPECIAL PATHOLOGY OF THE NERVOUS SYSTEM. Research work on assigned problem. WILSON.
- M267-268. RESEARCH ON ASSIGNED PROBLEMS IN GENERAL PATHOLOGY, MORPHOLOGICAL AND EXPERIMENTAL. WILSON, MANN.
- M269-270. RESEARCH STUDIES UPON THE ETIOLOGY OF NEOPLASMS. Work assigned. MACCARTY.
- M271-272. RESEARCH IN CLINICO-PATHOLOGIC STANDARDIZATION. Work assigned. MACCARTY.
- M273-274. GROSS AND MICRO-PHOTOGRAPHY FOR SCIENTIFIC AND RESEARCH PURPOSES. WILSON.
- M275-276. EXPERIMENTAL BACTERIOLOGY. Research in the bacteriology of normal and diseased tissues, the blood, secretions, and exudates. Experimental inoculation of animals and immunological studies. Study of the therapeutic value of dead bacteria. ROSENOW.

NOTE: For course in applied pathology, see announcement of the Department of Surgery.

PHARMACOLOGY AND THERAPEUTICS

Professor ARTHUR D. HIRSCHFELDER; Associate Professor EDGAR D. BROWN.

102. **GENERAL PHARMACOLOGY.** The principles underlying the structure, physico-chemical properties, physiologic, therapeutic, and toxic actions of substances, natural or synthetic, used as medicines. At least one semester of physiology is prerequisite. 32 hours. HIRSCHFELDER, BROWN.
104. **EXPERIMENTAL PHARMACOLOGY.** Exercises illustrating the preparation and actions of medicine, their relation to chemical structure and their mode of administration. At least one semester of physiology is prerequisite. 48 hours. HIRSCHFELDER, BROWN.
- 105a,b. **GENERAL PHARMACOLOGY AND THERAPEUTICS.** A more detailed study of drugs important in clinical practice, covering the relations of chemical structure to physiologic and therapeutic action and modes of application in clinical medicine. 64 hours. HIRSCHFELDER, BROWN.
- 109a,b. **ADVANCED EXPERIMENTAL PHARMACOLOGY.** Special investigation and experimental study of one or more of the following topics: anesthetics; circulatory stimulants and depressants; drugs acting upon the kidneys; urinary antiseptics; poisons and antidotes; effects of common harmless drugs; internal secretions; action of drugs upon parasites, tumors, etc. 24 or 48 hours. HIRSCHFELDER, BROWN.
110. **POISONS.** Their detection, actions and antidotes. 48 hours. BROWN.
111. **PRESCRIPTION WRITING.** The principles of prescription writing; study of flavoring, coloring, and incompatibilities of drugs. 16 hours. BROWN.
112. **PRACTICAL MATERIA MEDICA.** The study of crude drugs, pharmaceutical preparations and the flavoring and compounding of prescriptions. 8 hours. BROWN.
- 113a,b. **THE PHYSIOLOGICAL AND CHEMICAL BASIS OF PHARMACOLOGY.** The relation of drug action to chemical structure; the mode of action and therapeutic application of various synthetic drugs; the study of chemotherapy. An adequate training in chemistry is prerequisite. 80 hours. HIRSCHFELDER.
- 201-202. **SEMINAR IN PHYSIOLOGY AND PHARMACOLOGY.** Reviews of recent literature bearing upon physiologic and pharmacologic subjects. Conducted by department directors, with the collaboration of the staffs and of qualified graduate or undergraduate students. 32 hours.
- 203-204. **RESEARCH IN PHARMACOLOGY.** HIRSCHFELDER, BROWN.

MEDICINE

(Including General Medicine, Dermatology, and Nervous and Mental Diseases)

Professors CHRISTOPHER GRAHAM,* ARTHUR S. HAMILTON, THOMAS B. HARTZELL, HENRY S. PLUMMER,* LEONARD G. ROWNTREE, S. MARX WHITE; Associate Professors HERBERT Z. GIFFIN,* WALTER D. SHELDON,* HENRY L. ULRICH; Assistant Professors WALTER M. BOOTHBY,* GEORGE B. EUSTERMAN,* ARCHIBALD H. LOGAN,* ROBERT D. MUSSEY,* JOHN H. STOKES.*

The graduate work in the department of medicine is designed to prepare students for practice of the specialty of internal medicine, research in the problems of general medicine, and for the specialty of nervous and mental diseases, as the case may be. Prospective students who have had no special work in addition to that of the undergraduate course in physiology, physiologic chemistry, therapeutics, experimental medicine or pathology are advised to devote a year or more to these subjects before entering the regular three years' graduate course. In addition, it is recommended that a minor be carried throughout the course in one or more of the following departments: Physiology, pharmacology, pathology, bacteriology and public health, and pediatrics. For students specializing in nervous and mental diseases, minors in anatomy and psychology are especially valuable, and for those desiring it, a minor could be arranged in the Department of Ophthalmology and Oto-Laryngology, giving a special opportunity to study lesions of the eye occurring in systemic disorders. In the Medical School, during at least the third year of the three-year fellowship, the fellow acts as an officer of the clinic with definite responsibility in the care of patients in the University Hospital.

A. COURSES OFFERED AT MINNEAPOLIS

- 121-122. **CLINICAL MEDICINE.** A study of physical diagnosis and the methods of investigation and recording clinical data. The laboratory of experimental medicine is open for the study of special problems arising in the investigation of cases. Emphasis placed on methods of treatment. ROWNTREE, WHITE.
- 123-124. **DISEASES OF CARDIOVASCULAR APPARATUS.** A special study of diseases of the heart and blood vessels, including the technique and application of the polygraph, electrocardiograph, and the interpretation of outlines of the heart and great vessels obtained by means of the radiogram and orthodiagram. WHITE.
125. **PATHOLOGY OF THE NERVOUS SYSTEM.** The preparation of gross and microscopic material from diseased nerve tissues; the relations existing between pathologic lesions, signs and symptoms; the chief neuron systems and principles underlying their degeneration. HAMILTON.

126. **ADVANCED NEUROPATHOLOGY.** A course consisting of several hours of demonstrations in papillo-edema and work of similar character, with study of the microscopic sections, etc. Opportunity for individual work for any desired period. HAMILTON.
- 127-128. **CLINICAL NEUROLOGY.** Advanced diagnosis of nervous diseases; practical experience in diagnostic procedures employed in the study of diseases of the nervous system. The diagnosis and treatment of syphilis of the central nervous system. HAMILTON.
- 201-202. **NEUROLOGIC RESEARCH.** HAMILTON.
- 203-204. **RESEARCH IN MOUTH INFECTIONS.** A study of dental and parodontal infections as related to systemic disease. Experimental study to determine the lesion produced in animals by bacteria from these sources. HARTZELL.
- 205-206. **MEDICAL CHEMISTRY.** Chemical and metabolic studies in nephritis, diabetes, acidosis, diseases of the liver, etc., together with research work along biochemical lines. ROWNTREE.
- 207-208. **PROBLEMS IN MEDICINE.** Specific problems in diagnosis and treatment, including problems in immunology viewed from the clinical standpoint. ULRICH.
- 209-210. **RESEARCH IN MEDICINE.** ROWNTREE, WHITE.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

The work in diagnosis consists of history taking, physical diagnosis, the correlation of the various special examinations and the formation of an independent judgment concerning diagnosis, indications for medical and surgical treatment and recommendations, under the immediate direction of the chief of the section and his first assistant. A study of methods of investigation, the recording and tabulating of case records for special work and the study of special laboratory problems in connection with the sectional work is encouraged.

- M151-152. **HEMATOLOGY, URINALYSIS, CLINICAL BACTERIOLOGY AND PARASITOLOGY.** SANFORD.
- M153-154. **GASTROLOGICAL LABORATORY.** GRAHAM, EUSTERMAN.
- M155-156. **LABORATORY OF CLINICAL BACTERIOLOGY AND PARASITOLOGY.** SANFORD.
- M157-158. **LABORATORY OF HEMATOLOGY AND URINALYSIS.** SANFORD.
- M159-160. **PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS,** with special reference to diseases of the gastro-intestinal tract. GRAHAM, EUSTERMAN.

- M161-162. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the female genitourinary system. GRAHAM, MUSSEY.
- M163-164. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the ductless glands, and the esophagus. PLUMMER.
- M167-168. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the blood and blood-forming organs. GIFFIN.
- M169-170. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the chest. LOGAN.
- M171-172. PRACTICAL WORK IN NEUROLOGY AND PSYCHIATRY. SHELDON.
- M251-252. ADVANCED WORK IN ELECTROCARDIOGRAPHIC LABORATORY. PLUMMER.
- M253-254. PRACTICAL AND RESEARCH WORK IN DERMATOLOGY. STOKES.

For courses in pathology, physiologic chemistry, urologic diagnosis, diagnosis of diseases of the eye, ear, nose, and throat, orthopedic diagnosis, and roentgen plate reading, see announcements by the corresponding departments.

PEDIATRICS

Professor J. P. SEDGWICK.

The graduate work of the Department of Pediatrics is arranged with the intention (a) of preparing students to become competent pediatricists; (b) to put them in position to attack original pediatric problems; and (c) to make them competent teachers in the subject.

As a prerequisite a general understanding of physiologic and analytic chemistry and a working knowledge of French and German are essential.

Prospective students will find preparatory study in physiology and quantitative analysis of value.

Students will be encouraged to carry a minor in some of the fundamental branches.

COURSES OFFERED AT MINNEAPOLIS

The following electives in other departments are desirable. (For further information see description of courses under departmental headings.)

Quantitative Analysis (Chemistry 139-140)

Organic Chemistry (Chemistry 175-176)

Physical Chemistry (Chemistry 121-122)

Mental Retardation (Psychology 105)

Physiologic Chemistry (Physiology 102, 153-4)

Physiology of Muscle, Nerve, Blood, Circulation, and Digestion (Physiology 103)

Physiology of the Nervous Systems and Special Senses: Respiration, Metabolism, Nutrition, and Excretion (Physiology 104)

Physical Chemistry of Cells (Physiology 111)

Electro-Physiology (Physiology 112)

Metabolism (Physiology 163)

Quantitative Methods (Physiology 164)

Human Neurology (Anatomy 103)

Fetal Anatomy (Anatomy 115)

General Roentgenologic Technic (Roentgenology M151-152)

Interpretations of Roentgenologic Findings (Roentgenology M255-256)

Hematology (Pathology 108)

Course in Immunity (Pathology 109-110)

The Physiological and Chemical Basis of Pharmacology (Pharmacology 113a,b.)

Diseases of Cardiovascular Apparatus (Medicine 123-124)

Medical Chemistry (Medicine 205-206)

Orthopedic Service (Surgery 119-120)

Orthopedic Diagnosis (Surgery M169-170)

Advanced Ophthalmoscopy (Ophthalmology 138)

The following courses are offered in the Department of Pediatrics by Professor Sedgwick and staff:

123. DISEASES OF THE NEW-BORN.

125. CONTAGIOUS DISEASES. The advanced study of contagious diseases, including the practice of intubation and tracheotomy, with training upon the cadaver.

126. THEORY AND PRACTICE OF INFANT FEEDING, including diseases of the Gastro-Intestinal Tract.

131. INFANT FEEDING. Lymanhurst Hospital.

133X. PEDIATRIC CLINIC. Out-Patient clinic; University Hospital.

133Y. PEDIATRIC CLINIC. Similar to 133X but largely upon school children.

142. PREPARATION OF INFANT FOODS. Practical Work.

144. CONTAGIOUS DISEASES. Advanced Study of Contagious Diseases.

200-201. ADVANCED STUDY IN DISEASES OF INFANTS AND CHILDREN.

202-203. RESEARCH IN DISEASES OF NEW-BORN. Students undertaking this work should have had the equivalent of Anatomy 115 and Pediatrics 123.

- 204-205. RESEARCH IN PHYSIOLOGY OF NEW-BORN. Prerequisites: General Pathology and Pediatrics 123. Prerequisite preparation in Physiology will depend upon the type of work undertaken.
- 206-207. RESEARCH IN DISEASES OF INFANTS AND GROWING CHILDREN. Required for major in Pediatrics. Prerequisite work will depend upon the type of work undertaken.
- 208-209. RESEARCH IN PHYSIOLOGY OF INFANTS AND GROWING CHILDREN. Required for major in Pediatrics. Prerequisite preparation will depend upon the type of work undertaken (Physiology 203-204 or 205-206).
- 210-211. RESEARCH IN ANATOMY OF INFANTS AND GROWING CHILDREN. Required for major in Pediatrics. Prerequisite preparation will depend upon the type of work undertaken.

SURGERY†

(Including General Surgery, Experimental Surgery, Orthopedic, and Genito-Urinary Divisions)

Professors WILLIAM F. BRAASCH,* ARTHUR J. GILLETTE, CHARLES H. MAYO,* JAMES E. MOORE; Associate Professors J. FRANK CORBETT, MELVIN S. HENDERSON,* EDWARD S. JUDD,* ARTHUR A. LAW; Assistant Professors EMIL S. GEIST, FRANK C. MANN,* SAMUEL ROBINSON,* WALTER E. SISTRUNK,* ARTHUR C. STRACHAUER.

The graduate courses listed below are designed to prepare selected men for general, orthopedic, or genito-urinary surgery. Since the field of surgery is so generally overcrowded, the young man who would attain eminence therein must either possess great genius or supplement an excellent general medical training with at least three years' work in surgical anatomy, surgical pathology, surgical diagnosis and surgical treatment. Unless his previous training in anatomy has been unusually good, one or two semesters may be spent very profitably in an intensive study of this subject before the special three years' graduate work is undertaken. General surgery is a major subject and may not be taken as a minor.

A. COURSES OFFERED AT MINNEAPOLIS AND ST. PAUL

- 101-102. ADVANCED MINOR SURGERY. The student is required to assist in the dispensary (out-patient) surgical clinic, and in this connection makes a special study of the diagnosis and treatment of selected cases. STRACHAUER.
103. OPERATIVE SURGERY ON THE CADAVER. The technic of abdominal incision and closure; of bowel suturing, appendix removal, kidney

† Dr. William J. Mayo, being a regent of the University, is not a member of the instructional staff. His services in instruction and consultation, however, are available.

exploration, nephrotomy, tracheotomy, amputations, ligations, etc. Graduate students act as laboratory assistants, and may work out upon the cadaver various independent problems in emergency surgery. CORBETT.

105-106. EXPERIMENTAL SURGERY. A study of surgical technic by cardinal operations upon animals. CORBETT.

108. TUMORS. The surgical pathology and diagnosis of tumors, classified by anatomical relation. CORBETT.

110. SURGICAL PROBLEMS. A study of selected surgical problems by operative, physiological, histological, or chemical methods. CORBETT.

112. LOCAL ANESTHESIA. Methods and application of local anesthesia in both major and minor surgery. STRACHAUER.

113-114. SURGICAL DIAGNOSIS. In this course the graduate student assists in the practical instruction of the clinical clerks and internes in the University Hospital, and makes a special study of problems in surgical diagnosis. MOORE.

115-116. SURGICAL SERVICE. The graduate student acts as house surgeon, and in connection with this service is required to make a special study of the patients, preparing them for clinics and observing them after operations. MOORE.

117-118. OPERATIVE SURGERY. In this course the surgical fellow acts as first assistant at all operations by the surgical staff at the University Hospital. When properly qualified, the fellow will be permitted to operate, beginning with simpler surgical procedures. MOORE, LAW, STRACHAUER.

119-120. ORTHOPEDIC SERVICE. Three months' service as house surgeon in the State Hospital for Crippled and Deformed Children at Phalen Park. Special facilities for the study of orthopedic diagnosis and treatment. GILLETTE.

201-202. SURGICAL RESEARCH. Properly qualified students may undertake original investigation of problems in either experimental or clinical surgery. The work may be used for thesis purposes. MOORE, CORBETT, LAW, STRACHAUER.

203-204. SURGICAL SEMINAR. Weekly conference for reports on surgical literature, with presentation and discussion of especially interesting cases and research work by members of the surgical staff. MOORE.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

M151-152. EXPERIMENTAL SURGERY. The purpose of this course is to develop technic for special operative work. Open to fellows in surgery. MANN.

- M155-156. **POST-OPERATIVE CARE OF PATIENTS; TREATMENT OF COMPLICATIONS, SURGICAL AND MEDICAL.** BALFOUR.
- M157-158. **OPERATIVE SURGERY.** Second assistantship in operating rooms; occasional substitute service as first assistant. Total service, one year general surgery. MAYO, BALFOUR, JUDD, ROBINSON, SISTRUNK.
Regular first assistants on surgical service in the Mayo Clinic will be selected from men who have completed the three years' fellowship service in general surgery.
- M159-160. **SURGERY OF THE ABDOMINAL ORGANS AND THE DUCTLESS GLANDS.** Operative technic; study of special problems involved. MAYO.
- M161-162. **SURGERY OF THE ABDOMINAL AND GENITO-URINARY ORGANS.** Operative technic; study of special problems involved. JUDD.
- M163-164. **SURGERY OF THE GASTRO-INTESTINAL TRACT AND PELVIC ORGANS.** Operative technic; study of special surgical problems. BALFOUR.
- M165-166. **SURGERY OF THE THORACIC ORGANS.** Operative technic; study of special problems involved. ROBINSON.
- M169-170. **ORTHOPEDIC DIAGNOSIS.** History-taking and physical examination of orthopedic cases. HENDERSON.
- M171-172. **ORTHOPEDIC TECHNIC.** Study of braces, material and construction, measurement and fitting; application and use of plaster of Paris; radiography of orthopedic cases; care of non-surgical orthopedic cases. HENDERSON.
- M173-174. **ORTHOPEDIC SURGERY.** After service as assistant in general surgery, service may be chosen as second assistant in orthopedic surgery, with occasional substitute service as first assistant in orthopedic surgery. This service gives opportunity for the special study of selected cases, and the after-care of surgical cases. HENDERSON.
One year or more of service is offered for those desiring to specialize in orthopedic surgery; three months' service for those desiring a limited training in orthopedic surgery as part of a general course in surgical diagnosis.
- M175-176. **UROLOGIC DIAGNOSIS.** Cystoscopic examination and history-taking in diseases of the genito-urinary tract. BRAASCH.
- M177-178. **CYSTOSCOPY, PROCTOSCOPY, AND URETHROSCOPY.** Cystoscopic and proctoscopic examination; pyelography; intravesical operations; fulguration. BRAASCH.
One year or more of service is offered for those desiring to specialize in urology; three months' service for those desiring a limited training in urology as part of a general course in surgical diagnosis.

M251-252. APPLIED PHYSIOLOGY. Experimental physiology as applied to surgical problems. Open to fellows in surgery, medicine, and pathology. MANN.

M253-254. APPLIED PATHOLOGY. Experimental pathology as applied to surgical problems. Open to fellows in pathology, medicine, and surgery. MANN.

M255-256. SURGICAL RESEARCH. Investigation of special problems in surgery. Open only to fellows of the department. MANN.

M257-258. SPECIAL PROBLEMS IN ANESTHESIA. ROBINSON.

M259-260. SURGICAL RESEARCH. Investigation of problems in various divisions of general surgery and surgical specialties. Staff.

M261-262. SURGICAL SEMINAR. Conference for the discussion of original work, problems and surgical literature. Staff.

NOTE: For courses in surgical anatomy, pathology, clinical diagnosis, surgery of the eye, ear, nose, and throat, and roentgen plate reading, see announcements of corresponding departments.

OPHTHALMOLOGY AND OTO-LARYNGOLOGY

Professor FRANK C. TODD; Associate Professors CARL FISHER,* JUSTUS MATTHEWS,* WILLIAM R. MURRAY; Assistant Professors FRANK E. BURCH, GORDON B. NEW.*

The graduate courses in these subjects are designed to prepare selected men for advanced work in the various lines, to prepare them for practice in these specialties, and to develop research and productive work in these subjects.

Of elective courses in other departments, the following are highly desirable:

Physics of Light (Physics 52) and Acoustics (Physics 31).

Advanced Optics (Physics 181-182).

Advanced Anatomy of the Head and Neck (Anatomy 123).

Topographic Anatomy of the Head and Neck (Anatomy 114).

Advanced Histology and Embryology of the Eye, Ear, Nose, and Throat (Anatomy 124).

Advanced Physiology of Vision and Hearing (Physiology 139-140, 210).

Physiologic Optics Seminar (Physiology 208).

Special Pathology and Bacteriology of the Eye, Ear, Nose, and Throat (Pathology 201).

Immunity, Serology and Vaccines (Pathology 109-110).

Advanced Neuropathology (Medicine 126).

The following courses are offered within the Department:

A. COURSES OFFERED AT MINNEAPOLIS

131. **ADVANCED OPERATIVE SURGERY OF THE EYE.** Demonstrations upon the cadaver and live and dead animal eyes, with the usual operative procedures of practical value. Each graduate student will perform all the usual operations upon the cadaver and animals. Two and one-half hours a week.
132. **ADVANCED OPERATIVE SURGERY OF THE NOSE AND THROAT.** A course consisting of demonstrations upon the cadaver and the usual operative procedures of practical value. Each student will be given an opportunity to do work in the laboratory, performing all usual and practical operations. Two hours a week.
133. **ADVANCED OPERATIVE SURGERY OF THE TEMPORAL BONE.** A course of eight to twelve hours consisting of demonstrations and exercises on the cadaver at the Institute of Anatomy. Limited to four students.
134. **OPERATIVE SURGERY ON THE LABYRINTH.** A course consisting of lectures and practical demonstrations of diagnostic methods. Eight hours; Millard Hall.
- 135-136. **ADVANCED COURSE IN REFRACTION WORK.** A course consisting of eight lectures and illustrated demonstrations upon the errors of refraction and motor anomalies, supplemental and practical work in out-patient clinic on the refraction work (600 hours).
138. **ADVANCED OPHTHALMOSCOPY.** Training in the use of the ophthalmoscope by (a) direct method, and (b) indirect method. Examination in detail of the normal fundus oculi. Diagnosis of abnormalities (a) in the media, (b) in the fundus oculi.
- 139-140. **ADVANCED OPHTHALMOLOGY.** Three years' service in the wards and Out-Patient Department of the University Hospital with clinic and laboratory research. Those taking this course will act as assistants in out-patient clinics in operative and other clinical work. TODD and Assistants.
- 141-142. **ADVANCED OTO-LARYNGOLOGY.** Three years' service in the wards of the University Hospital and Out-Patient Department with clinic and laboratory research. Those taking this course will act as assistants in out-patient clinics, in operative and other clinical work. TODD, MURRAY, and Assistants.
- 143-144. **CLINICAL OPHTHALMOLOGY AND OTO-LARYNGOLOGY.** Special half-time assistantship and service in the private clinic of Professor Todd. A systematic course of assigned readings and study, with final examination, is included. For credit beyond one year, work in investigation must be included. TODD.

- 145-146. **CLINICAL OPHTHALMOLOGY AND OTO-LARYNGOLOGY.** Special half-time assistantship and service in the private clinic of Assistant Professor Burch. A systematic course of assigned reading and study, with final examination, is included. For credit beyond one year, work in investigation must be included. BURCH.
- 201-202. **SEMINAR IN OPHTHALMOLOGY AND OTO-LARYNGOLOGY.** Given by members of the staff and open to fellows, scholars, and other properly qualified graduate students. One and one-half hours a week throughout the year.
- 203-204. **RESEARCH.** Each graduate student will be required to pursue some line of original research in ophthalmology or oto-laryngology. MURRAY, TODD.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

- M101-102. **REFRACTION.** Theory, diagnosis and treatment of refractive and muscular errors of the eye. Practical work on patients under supervision of the instructor. BENEDICT.
- M103-104. **CLINICAL OPHTHALMOLOGY.** Theory and practice of diseases of the eye, including instruction in operative ophthalmology, ophthalmoscopy, and ophthalmology in general diagnosis. BENEDICT.
- M105-106. **CLINICAL OTOTOLOGY.** Theory and practice with differential diagnosis of diseases of the ear, including instruction in operative otology, and the relations of diseases of the ear to nose and throat and to general diagnosis. LILLIE.
- M107-108. **CLINICAL RHINOLOGY, LARYNGOLOGY, AND STOMATOLOGY.**
(a) Diagnosis and treatment of diseases of the nose, accessory sinuses, pharynx and larynx, including the diagnosis of surgical conditions of the face, jaws, mouth, and neck; (b) relation of nose, throat, and mouth to general diseases. LILLIE, NEW.

NOTE: For courses in pathology of the eye, ear, nose, and throat, see announcement of the Department of Pathology.

OBSTETRICS AND GYNECOLOGY

Professor JENNINGS C. LITZENBERG.

Of the courses in other departments open to graduate medical students, the following are especially recommended for those desiring to specialize in obstetrics and gynecology:

Advanced Anatomy; gross and histological, of the female generative organs (Anatomy 123-124).

Fetal Anatomy: dissection of fetus and new-born (Anatomy 115).

Implantation and Placentation (Anatomy 117).

Advanced Physiologic Chemistry (Physiology 153-154).

Gynecological Pathology (Pathology 112).

Experimental Pharmacology (Pharmacology 104, 109a,b).

Other courses in fundamental or clinical subjects may be elected.

The following graduate courses are offered in the department of Obstetrics and Gynecology (at Minneapolis):

- 107-108. **ADVANCED PATHOLOGY OF THE FEMALE GENERATIVE ORGANS.** Required of first or second year fellows in obstetrics and gynecology. Prerequisite: pathology 108, or equivalent.
- 111-112. **CLINICAL OBSTETRICS AND GYNECOLOGY.** A course in diagnosis and treatment, with special study of selected cases. Clinic in the out-patient department of the University Hospital, M.W.F., throughout the year. Required of first year fellows, and may be elected by second year fellows.
- 113-114. **CLINICAL OBSTETRICS AND GYNECOLOGY.** Similar to course 111-112, but on T.Th.S. Required of second year fellows; and may be elected by first year fellows.
- 115-116. **ADVANCED OBSTETRICS AND GYNECOLOGY.** Includes service in the University Hospital, affording ample opportunity for experience in diagnosis, care and treatment (operative and non-operative) of patients. Special facilities offered for study of problems and cases of unusual interest. Required of first year fellows. LITZENBERG.
- 117-118. Similar to course 115-116, but more advanced, both in clinical and research aspects of the subjects, so as to be adapted to the increased training and experience. Required of second year fellows. LITZENBERG.
- 119-120. Similar to courses 115-116 and 117-118, but more advanced. Required of third year fellows. LITZENBERG.
- 201-202. **SEMINAR.** A conference of the staff, including the fellows and graduate students. Presentation and discussion of original work and reports upon the current literature in obstetrics and gynecology. Reading knowledge of French and German is necessary. LITZENBERG.
- 203-204. **RESEARCH.** Clinical and laboratory research upon problems in obstetrics and gynecology. Required of third year fellows, who must complete a satisfactory thesis during the year. Elective for second year fellows or other properly qualified graduate students. LITZENBERG.

ROENTGENOLOGY

Professor RUSSELL D. CARMAN;* Assistant Professor ALEXANDER B. MOORE.*

The course in roentgenology is designed to prepare selected men for advanced work in this specialty. Unless the prospective student's prep-

aration in normal anatomy, physiology, and pathology has been unusually good, at least a year should be spent in intensive study of these subjects before entering on the special three years' course.

M151-152. GENERAL ROENTGENOLOGIC TECHNIC. Roentgenography; plates, intensifying screens, developers; stereoscopy; roentgenoscopy; vertical, horizontal. CARMAN, MOORE.

M153-154. SPECIAL APPLICATIONS OF ROENTGENOLOGY. The osseous system, chest and lungs, urinary system, pyelography; gastro-intestinal tract. CARMAN, MOORE.

M155-156. ROENTGEN THERAPY. Superficial, deep; technic; apparatus; filters; dosage and measurements; cross firing; protection. CARMAN, MOORE.

M157-158. DANGERS OF THE ROENTGEN RAY. Effect upon tissues, normal and pathologic; protection, operator, patient; roentgen dermatitis, cause, results, treatment. CARMAN, MOORE.

M251-252. ELECTRO-PHYSICS. Electricity and magnetism, phenomena, nature and properties; source of electric energy; types of currents, continuous and alternating; units of electric measurement; resistance; Ohm's Law; voltage, amperage, and wattage; the static machine; the induction coil; interrupters; condensers; the interrupterless transformer. CARMAN, MOORE.

M253-254. PHYSICS OF THE ROENTGEN RAY. History, nature, and phenomena; the vacuum tube; the roentgen tube; types, penetration, measurements. CARMAN, MOORE.

M255-256. INTERPRETATION OF ROENTGENOLOGIC FINDINGS. Normal, abnormal; roentgen signs of disease, direct, indirect; correlation of plate and screen observations; correlation of clinical and roentgen findings. CARMAN, MOORE.

GRADUATE STUDENTS IN MEDICINE

1916-1917

Names and degrees	Date of Entrance	Major	Minor
Adair, Fred L., B.S., M.D.	Feb. 27, 1915	Anatomy	Pathology
†Adson, Alfred Washington, B.S., M.D.	July 1, 1914	Surgery	Pathology
Albritton, Everett Cyril, A.B.	Sept. 26, 1916	Anatomy	Physiology
†Alley, Albert G., M.D.	Sept. 27, 1916	Pediatrics	Chemistry
†Archibald, Alexander, M.B., Ch.B.	April 1, 1911	Medicine	
†Ashby, Winifred Mayer, B.S., M.S.	Feb. 1, 1917	Bacteriology	Pathology
‡Barry, Lee Willis, M.D.	Sept. 23, 1916	Obstetrics	Anatomy
†Bell, Leo Pecci, B.A., M.D.	July 1, 1916	Surgery	Pathology
Benton, Anne, B.A.	Sept. 12, 1914	Bacteriology	Physiologic Chem.
†Berkman, David Mayo, B.S., M.D.	Nov. 1, 1913	Medicine	Physiologic Chem.
Binger, Henry Ernest, M.D.	Nov. 10, 1914	Ophthalmology	Anatomy
†Blackford, John Minor, M.D.	Jan. 1, 1911	Medicine	Pathology
†Bragdon, James Chester, A.B., M.D.	Feb. 1, 1917	Surgery	Pathology
†Broders, Albert Compton, M.D.	Aug. 12, 1912	Pathology	Bacteriology
†Buie, Louis Arthur, B.A., M.D.	Feb. 1, 1917	Surgery	Pathology
†Bumpus, Hermon Clay, Jr., Ph.B., M.D.	July 1, 1915	Surgery	Pathology
†Butsch, John Louis, M.S., M.D.	July 1, 1916	Surgery	Urology
†Cameron, Don F., M.A., M.D.	Oct. 1, 1915	Surgery	Anatomy
Camp, Walter E., M.A.	Oct. 21, 1913	Anatomy	Pathology
†Carber, Frank Hough, M.D.	Feb. 1, 1915	Pediatrics	Physiology
†Chase, E. Frank, M.D.	May 14, 1915	Ophthalmology and Oto- laryngology.	
‡Clark, Gordon McCall, B.S., M.D.	July 1, 1917	Obstetrics	Anatomy
Cole, Wyman Charles C., B.S.	Oct. 9, 1916	Anatomy	Pathology
†Connor, Charles Ed., B.A., M.A., M.D.	Feb. 14, 1917	Ophthalmology	Anatomy
†Crenshaw, John Lewis, M.D.	June 1, 1910	Urology	Roentgenology
†Crispin, Egerton L., Ph.B., M.D.	Oct. 1, 1913	Medicine	Roentgenology
†Crumley, William Gregg, M.D.	Jan. 1, 1914	Surgery	Pathology
†Dederer, Carlton, B.A., M.D.	June 1, 1916	Surgery	Pathology
†Desjardine, Albert Ulderic	Feb. 1, 1917	Surgery	Pathology
Diehl, Harold Sheely, B.A.	Oct. 31, 1916	Bacteriology	Pathology
†Doe, Charles Herbert, M.D.	May 1, 1915	Surgery	Pathology
†Drips, Della Gay, B.A.	Mar. 23, 1913	Pathology	Physiology
†Evans, Raymond Myers, B.S., M.D.	July 1, 1916	Surgery	Pathology
†Ferrier, Paul Alexander, B.A., M.D.	July 1, 1915	Surgery	Pathology
†Forsythe, Samuel Thomas, B.A., M.D.	Jan. 17, 1916	Ophthalmology	Pathology
†Frelich, Wilfred Protacio, B.A., M.D.	July 1, 1914	Surgery	Pathology
†Fricke, Willa May, B.A., M.D.	Aug. 1, 1915	Bacteriology	
Gault, Charles Cullom, B.A.	Sept. 26, 1916	Physiology	Anatomy
†Grave, Floyd, B.S., M.D.	April 1, 1916	Medicine	Pathology
†Gray, Hazel Marie, M.S.	Oct. 1, 1915	Bacteriology	Pathology
Guha, Upendranarayan, L.C.	Feb. 7, 1917	Bacteriology	
†Hallenbeck, Dorr Foster, M.D.	Oct. 1, 1915	Medicine	Surgery
†Harrington, Stuart William, M.D.	Jan. 1, 1914	Surgery	Pathology
†Hartman, Howard Russell, B.S., M.D.	July 1, 1914	Surgery	Pathology
†Hayes, James Martin, B.S., M.D.	Oct. 1, 1916	Surgery	
†Heard, Joseph Eugene, M.D.	Oct. 1, 1916	Surgery	Pathology

† Fellows on the Mayo Foundation.

‡ Teaching Fellows in the Medical School.

Names and degrees	Date of Entrance	Major	Minor
†Hedblom, Carl Arthur, M.A., M.D.	June 1, 1916	Surgery	Pathology
†Henry, Michael Joseph, M.D.	Oct. 1, 1913	Surgery	Pathology; Roentgenology
†Hoke, Clarence Calvin, M.A., M.D.	Feb. 1, 1917	Surgery	
†Horgan, Edmund Joseph, M.D.	Jan. 1, 1915	Surgery	Pathology
Huenekens, Edgar J., B.A., M.D.	Oct. 1, 1916	Bacteriology	Chemistry
†Hunt, Verne Carlton, B.S., M.D.	April 1, 1915	Surgery	Pathology
†King, Clapham Price, M.D.	Aug. 18, 1915	Surgery	Pathology
Kittelson, John A., B.S.	Sept. 22, 1915	Anatomy	Pathology
Koerber, Paul Ernest, M.D.	Feb. 7, 1917	Pediatrics	
†Looney, John Joseph Williams, M.D.	Oct. 1, 1914	Ophthalmology and Oto- laryngology.	
†Lowell, Henry Matthew, M.D.	Oct. 1, 1916	Surgery	Pathology
†Luden, Georgine (Arzt), M.D.	Jan. 1, 1914	Pathology	Physiologic Chemistry
†McEvoy, Frank Edward, B.S., M.D.	Feb. 1, 1916	Surgery	Pathology
McKinley, John C., B.S.	Sept. 8, 1915	Anatomy	Pathology
†McMahon, Francis Bartholomew, B.S., M.D.	Feb. 1, 1914	Surgery	Medicine; Pathology
†McVey, James Robert, M.A., M.D.	July 1, 1916	Surgery	Pathology
†McWhorter, Golder L., B.S., M.D.	Oct. 5, 1914	Surgery	Anatomy
Mark, Arthur Edward, B.S., M.D.	Sept. 28, 1916	Ophthalmology	Anatomy
†Masson, James Carruthers, M.D.	April 1, 1914	Surgery	Medicine
†Mattson, William Whitelock, M.D.	April 1, 1915	Surgery	Pathology
†Mensing, Edmund Herman, M.D.	April 1, 1914	Surgery	Pathology
†Meyerding, Henry William, B.S., M.D.	July 1, 1910	Orthopedic Surgery	Bacteriology
†Miller, Albert, B.A., M.D.	Jan. 1, 1913	Roentgenology	Pathology
†Morris, Ralph E., M.D.	Sept. 25, 1914	Medicine	Physiology
†Nixon, Charles Edward, B.A., M.D.	June 21, 1917	Neurology	
Norris, Edgar H., B.S.	Oct. 1, 1915	Anatomy	Pathology
†Ott, William Oscar, B.S., M.D.	July 1, 1916	Surgery	Pathology
†Owens, Esther M., B.A.	Sept. 20, 1915	Pathology	Physiology
Pearce, Naboth Osborne, M.D.	Feb. 7, 1917	Pediatrics	Chemistry
†Pemberton, John de Jarnette, B.A., M.D.	May 1, 1913	Surgery	Pathology
†Pettibone, Dorothy F., B.S.	June 15, 1916	Bacteriology	Pathology
Picha, Benjamin, B.S.	Oct. 5, 1916	Physiology	Bacteriology
†Plum, Frank Arents, B.A., M.D.	July 1, 1916	Surgery	Pathology
†Plummer, William Albert, M.D.	June 1, 1910	Medicine	Physiology
†Pollock, Lee Wesley, B.S., M.D.	Nov. 16, 1914	Medicine	Pathology
†Rankin, Fred Wharton, B.A., M.D.	Oct. 1, 1916	Surgery	Pathology
†Redelings, Leslie Hall, M.S., M.D.	Oct. 1, 1915	Surgery	Pathology
†Reeves, Thaddeus Benjamin, B.S., M.D.	Feb. 1, 1916	Medicine	Pathology
Rutledge, Lloyd H., B.A.	Sept. 7, 1915	Anatomy	Pathology
†Saeger, Stanley Joseph, M.D.	April 21, 1915	Surgery	Pathology
†Sanders, Robert Lee, M.D.	July 1, 1914	Surgery	Urology
Schlutz, Frederic W., B.A., M.D.	Nov. 20, 1911	Physiologic Chemistry	Anatomy
†Shepard, John Hunt, B.S., M.D.	Mar. 1, 1917	Surgery	Pathology
†Smith, Ernest Vernon, M.D.	June 1, 1912	Surgery	Pathology
†Smith, Taylor Bivens, B.A., M.D.	July 1, 1917	Surgery	Anatomy
†Stacy, Leda June, M.D.	Feb. 1, 1908	Medicine	Pathology
Stewart, Chester A., M.A.	Sept. 11, 1914	Anatomy	Pathology
†Sutton, George Douglas, B.S., M.A.	Oct. 1, 1915	Surgery	Pathology
†Sutton, George Ellsworth, B.S., M.D.	Oct. 1, 1915	Surgery	Urology

Names and degrees	Date of Entrance	Major	Minor
†Szapka, Thaddeus Louie, B.S., M. D.	Oct. 1, 1915	Surgery	Pathology
‡Taylor, Rood, M.D.	Nov. 1, 1914	Pediatrics	Chemistry
†Tucker, William Joseph, M.A., M.D.	Oct. 1, 1916	Surgery	Pathology
Vaughan, Gladys Eloise, B.A., M.A.	Oct. 21, 1916		Pathology
Vaughn, Florian, B.A.	Sept. 9, 1915	Anatomy	Pathology
†Vinson, Porter Paisley, M.A., M.D.	Sept. 1, 1916	Medicine	Pathology
†Wagner, Henry Patrick, B.S., M.D.	July 15, 1917	Ophthalmology	
†Walker, James Cloudsley, M.D.	Oct. 1, 1915	Orthopedics	Pathology
†Weld, Edward Howland, B.A., M.D.	Feb. 1, 1916	Surgery	Pathology
†Weyrens, Joseph Peter, B.S., M.D.	May 1, 1917	Surgery	Pathology
Ward, Percy Alson, B.S., M.D.	Oct. 28, 1916	Bacteriology	Pathology
†Willius, Frederick Arthur, B.S., M.D.	July 1, 1915	Medicine	Physiology
‡Woltmann, Henry W., B.S., M.D.	Nov. 2, 1914	Neurology	Pathology

† Fellows on the Mayo Foundation.

‡ Teaching Fellows in the Medical School.

The Bulletin of the University of Minnesota

Teachers' Training School

Department of Agriculture and

State Department of Education

University Farm, St. Paul

June 17 to July 26, 1918

C. G. Schulz, Superintendent of Education, St. Paul,

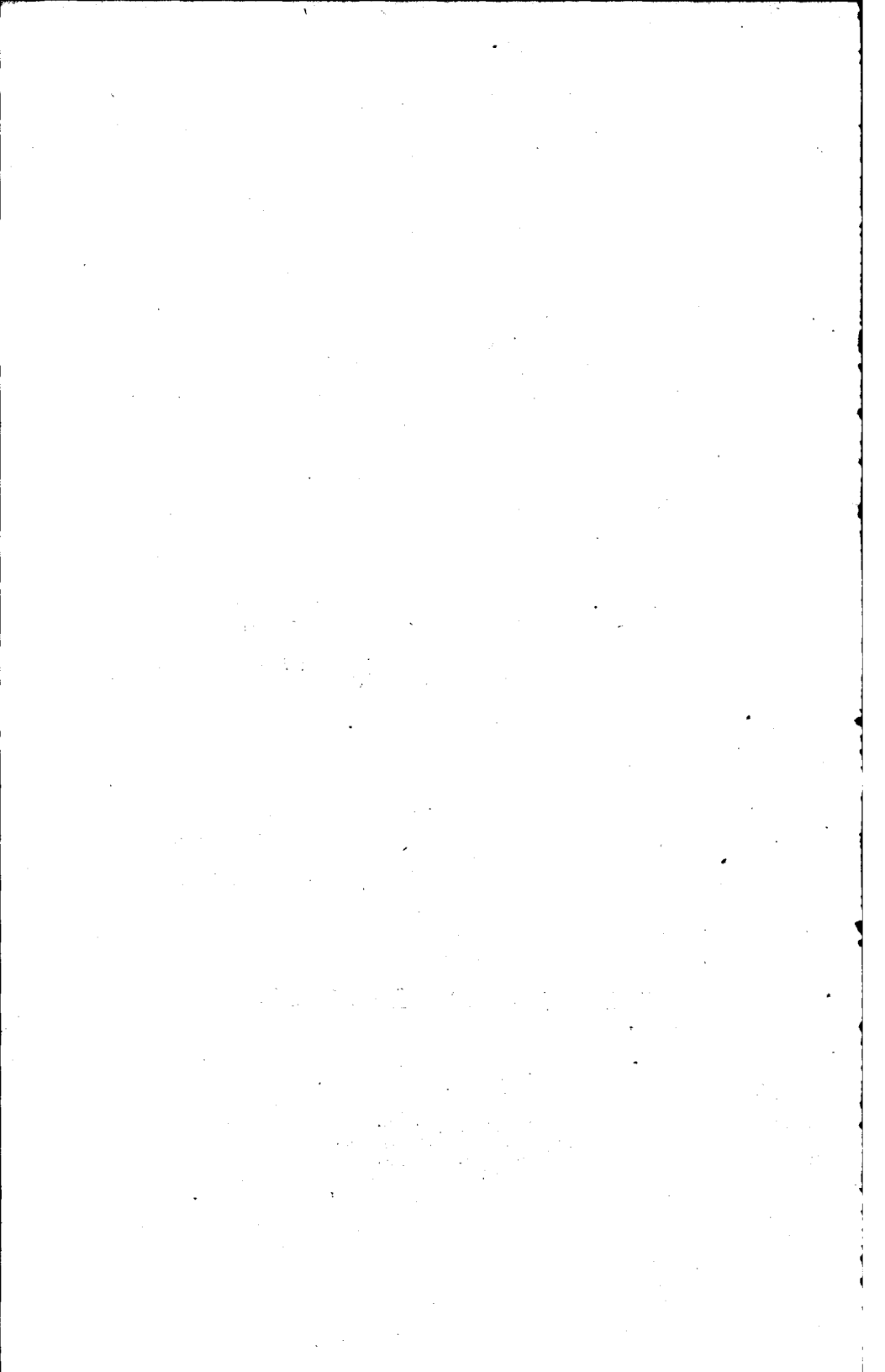
*R. W. Thatcher, Dean and Director of the Department of Agriculture,
University Farm.*

A. V. Storm, Director of Short Courses, University Farm, Conductor.

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Vol. XX No. 58, March 1, 1918

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TEACHERS' TRAINING SCHOOLS, SUMMER OF 1918

Sessions of six weeks each will be held at the State Normal Schools in:

Winona
Mankato
St. Cloud
Moorhead
Duluth

and in the Agricultural Schools of the University of Minnesota at:

University Farm, St. Paul
Crookston
Morris.

These two groups will be distinguished by designating the five normal schools as "The Normal Group," and the schools at University Farm, Crookston, and Morris, as "The University Group."

Time of beginning: Monday, June 17.

Time of closing: Friday, July 26.

Sessions will be held six days each week, excepting that July Fourth will be a holiday, and that the sessions of the last week will close on Friday. There will be no afternoon sessions on Saturdays.

The summer terms at University Farm, Crookston and Morris are organized and maintained by the Department of Education and are under the immediate direction of the conductor of each school. The Summer terms at the Normal Schools are organized and maintained by these institutions and are under the direction of the President of each school. Bulletins of information concerning summer courses at the Normal Schools may be obtained from the Presidents.

The courses at each of the schools are open to teachers in rural and elementary schools of Minnesota, free of charge. Other persons, who are not Minnesota teachers, may enroll upon payment of the tuition fee indicated under the head "Tuition and Fees" elsewhere in this bulletin.

THE PURPOSE.

First, to afford academic instruction in the subjects required for common school certificates, first and second class.

Second, to offer professional training in the common school subjects and to provide the means by which teachers who seek to earn a first-class certificate may meet the professional standards in those subjects which are now required by law.

Third, to offer instruction and professional training in such special subjects as will entitle teachers to receive a first-class certificate or one of higher rank.

Fourth, to give instruction in Agriculture, Manual Training and Home Training, as now required of teachers of these subjects in consolidated schools.

NOTE: After 1918, all professional training required for the completion, renewal or extension of first class certificates will be provided only in the State Normal Schools, and in classes and courses designed to train teachers for rural school service.

For the summer term 1918, professional courses will be offered (a) in the Normal Schools; (b) in the three Institution Schools of the University, but in the latter three to such teachers only as have earned not less than four (4) professional credits and who seek to complete the remaining four (4) credits for the renewal, extension or issuance of first class certificates or those of higher rank.

No teacher will be enrolled in professional courses in the three University Schools for the summer of 1918 who has not completed at least four (4) professional credits.

PROFESSIONAL TRAINING.

The act which became effective in August, 1915, requires that all public school teachers who at that time had taught less than eighteen months and who apply for a first-class certificate must show a given amount of professional training for teaching to entitle them to receive a first-class certificate, or one of higher rank. Such professional courses are provided in the summer schools this year as stated. (See note above.)

ACADEMIC AND PROFESSIONAL CREDIT.

Credits in connection with the issuance of first-class certificates may be earned under two general divisions: academic credit through definite and systematic academic work, as provided for in Group I, page 4; professional credit through method courses in subjects listed under Groups II and III, page 4. (See note Page 2.)

Credits in connection with the issuance of second-class certificates may also be earned under two general divisions: academic credits as stated in the paragraph above; professional credits as stated in the paragraph above for those entitled to register and receive such credits. See note page 4.)

Subjects starred under Groups II and III, page 4, Reading and Literature, Primary Methods, Rural School Methods and Administration, are required for the completion of a full professional course.

WHO MAY REGISTER AND RECEIVE CREDIT.

a. Academic.

Those who (1) enter on the first day of the session and are in regular attendance throughout the entire term; (2) pursue a subject by double recitation periods each day throughout the term, as indicated in the schedule under Group I; and (3) complete the subject to the satisfaction of the instructor and the conductor.

NOTE 1: Students will not be registered for credit in any course after Tuesday, June 18. No person will be permitted to register for any purpose after Friday, June 21.

NOTE 2: Students in elementary and secondary schools desirous of removing conditions in subjects in such schools or of obtaining advanced credits in subjects in such schools are not entitled to admission. Conductors will see that this rule is rigidly enforced.

b. Professional.

After 1918, all professional training required for the completion, renewal or extension of first-class certificates will be provided only in the State Normal Schools, and in classes and courses designed to train teachers for rural school service.

For the summer term 1918, professional courses will be offered (a) in the Normal Schools; (b) in the three Institution Schools of the University, but in the latter three to such teachers only as have earned not less than four (4) professional credits and who seek to complete the remaining four (4) credits for the renewal, or extension of first-class certificates or those of higher rank.

No teacher will be enrolled in professional courses in the three University Schools for the summer of 1918 who has not completed at least four (4) professional credits.

NOTE: Persons seeking to earn a second-class certificate must limit the choice of subjects to those under Group I, page 4. An exception is made in the case of Playground Methods.

SUBJECTS AND COURSES.

Certificate Requirements.

Group I.

Academic.

Required for Second-class certificate:

American History
Arithmetic
Geography
English Grammar
Reading
Penmanship
Physiology-Hygiene
Spelling
Civics
English Composition

Required for First-class certificate:

American History
Arithmetic
Geography
English Grammar
Reading
Penmanship
Physiology-Hygiene
Spelling
Civics
English Composition
Elementary Algebra
Plane Geometry
Physics
Physical Geography or
Agriculture

Group II

Professional.

No professional training required.

History Methods
Arithmetic Methods
Geography Methods
Grammar Methods
Composition and Language
Methods
*Reading Methods
*Primary Methods

Group III

Professional.

No professional training required.

Music Methods
Drawing Methods and
Primary Handwork
Playground Methods
Foods and Cookery
Garment Making
Rural School Methods
and Administration
Hygiene and Sanitation Methods

NOTE: The following industrial and special subjects in Group III, requiring no outside preparation, will be given in double daily class periods:

Foods and Cookery
Garment Making

Playground Methods
Drawing and Primary Handwork

*Required

PROFESSIONAL COURSES.

Professional credits in any one of the three University Schools may be earned in 1918 by teachers who already have four or more professional credits. Selection of subjects will be from Groups II and III. Time: One single period a day for the entire six weeks. (See note under Group III. Page 4.)

A full course in professional training earned in 1918 in any one of the three University Schools will require the completion of eight (8) credits, five (5), including Reading and Primary Methods, chosen from Group II; and three (3), including School Management, to be chosen from Group III. (See page 4.)

The renewal of any first-class certificate will require the completion of three (3) additional professional credits in a Normal School.

Beginning with the summer sessions of 1919, all professional courses for common school certificates will be offered only in the State Normal Schools, as stated elsewhere in this bulletin. In 1918 only those teachers may register at any of the three University Schools for professional work who now have not less than four (4) professional credits. All having less than four professional credits are not only advised but directed to enroll in the Normal School summer sessions this year for further professional study. Even those teachers, who desire to complete their professional record this summer, are advised to attend the Normal Schools and register for professional work, since professional credits earned at the Normal Schools, this, and following summers, will count toward completion of the Normal course. The earning of three professional credits in the Normal Schools is the equivalent of four professional credits earned in the University Schools.

A full professional course in the Normal Schools will consist of six (6) credits, four of which will be applied by the Normal School toward the completion of the advanced course. Three of these credits may be earned in a Normal School during one summer session.

In 1918 a teacher who completes three professional credits in a Normal School may receive a first class certificate valid for one year. The renewal or extension of such first class certificate will require the completion of an additional three professional credits.

This is an extension of the rule announced in 1917 of issuing a one-year certificate, to meet the anticipated shortage of first class certificate holders.

The renewal of any first class certificate to be issued during this year, 1918, will require the applicant to have completed the full professional course, either of eight credits, as required by the standards in the University Schools, or by earning the second half of the professional credits, three in number, on the Normal School basis.

ACADEMIC COURSES.

An academic credit may be earned by pursuing any subject under Group I, one double recitation period daily for six or twelve weeks as follows:

1. A High School Graduate who presents a final credit in a subject under Group I may earn an academic credit in that subject by pursuing it for six weeks. (See page 6 Credentials.)

2. A High School Graduate not presenting a final credit in a subject under Group I may earn an academic credit in such subject by pursuing it for twelve weeks.

3. An Undergraduate may earn an academic credit in any subject under Group I by pursuing it for twelve weeks.

Exception: An academic credit in the subject of Physiology-Hygiene may be earned by either high school graduates or undergraduates by pursuing the subject in one double daily recitation period for six weeks.

An academic credit in the subject of Penmanship may be earned by either a high school graduate or an undergraduate by pursuing the subject the equivalent of one double daily recitation period for six weeks.

GROUP I—Academic.

Subjects:	Course I, Open to High School Graduates.	Course II, Open to Under- graduates.
American History	6 weeks	12 weeks
Arithmetic	6 weeks	12 weeks
Geography	6 weeks	12 weeks
Grammar	6 weeks	12 weeks
Reading	6 weeks	12 weeks
Penmanship	6 weeks	6 weeks
Physiology-Hygiene	6 weeks	6 weeks
Spelling	6 weeks	12 weeks
Civics	6 weeks	12 weeks
Composition	6 weeks	12 weeks
Algebra	6 weeks	12 weeks
Plane Geometry	6 weeks	12 weeks
Physics	6 weeks	12 weeks
Agriculture or Physical Geography	6 weeks	12 weeks

Course I in any academic subject under Group I is open to undergraduates or to high school graduates who do not present a final credit in such subject.

Course II in any academic subject under Group I is open to high school graduates who present a final credit in the subject and to undergraduates who present a credit in Course I of the subject, or to other persons who present acceptable credits as given under **Credentials**, page 6.

LIMIT OF SUBJECTS.

A person seeking to earn academic credit is limited to two (2) double period subjects and either Spelling or Penmanship, selected under Group I.

A person seeking to earn professional credits is limited to the equivalent of four (4) single period subjects.

ATTENDANCE.

All students enrolled will be expected to report for class work and assembly periods promptly each day or present satisfactory excuses for absence.

No attendance statements or certificates will be issued. Credits in the subjects pursued will indicate satisfactory attendance.

CREDENTIALS.

Persons who expect to enroll in the teachers' training school for 1918 must bring and submit standings entitling them to such enrollment. This applies to persons expecting to earn academic or professional credits to apply on first class certificates and to high school graduates who expect to enroll in the six weeks academic courses. The following credits will be accepted:

- a. State teachers' certificate of second class.
- b. Credits from uncompleted examinations in all but two subjects for a state teachers' certificate.
- c. State high school diploma and final subject standings.
- d. State high school board certificates with standings of pass plus.
- e. High School training department certificates.
- f. Final marks of 75 from Minnesota state normal schools.
- g. Credits of 75 earned at the summer sessions of the normal schools, the state agricultural schools, and the 1916 and 1917 sessions of the summer school at Bemidji.
- h. Marks of 75 from Kansas, Nebraska, South Dakota, Colorado, Utah, and Missouri on first-class teachers' certificates.
- i. Marks of 80 from Iowa, Oregon, and Washington on first-class teachers' certificates.

COURSES FOR PRINCIPALS OF CONSOLIDATED SCHOOLS.

These courses are designed for those who must secure special certificates in order to qualify as principals of consolidated schools. The kind and amount of work required will depend upon the student's previous academic and industrial training. Arrangements are being made whereby students with the required training may take all credit courses and earn a consolidated school principal's endorsement at the same time. Those working for an endorsement must have their courses approved before attending classes. Emphasis will be placed upon Manual Training, Agriculture and Supervision.

A more detailed statement will be sent to those interested.

A SHORT COURSE FOR TEACHERS OF HOME TRAINING IN CLASS "B" CONSOLIDATED SCHOOLS.

This course is designed for those who must secure the special certification in order to qualify as teachers in home training in Class "B" consolidated schools.

The work required makes a full program for the student during two summer sessions.

INDUSTRIAL SUBJECTS.

The special industrial work offered includes elementary courses in Carpentry, Blacksmithing, Sewing, Cooking and Drawing and Primary Handwork. The matter and the presentation will be especially helpful to rural school teachers and to those who wish to teach the subjects in elementary schools. Superintendents and principals will find this work an aid in outlining courses of instruction and in supervising such courses intelligently.

EXAMINATIONS.

On Monday, Tuesday, and Wednesday, July 29, 30 and 31, examinations for state teachers' common school certificates will be held at the school under the direction of the Superintendent of Education.

TEXT-BOOKS.

Efforts will be made to keep the expense of purchasing text-books at the minimum. Necessary books may be purchased at the Students' Book Store in the Main Building.

REGISTRATION.

Those who wish to earn credits must register Saturday, June 15, or Monday, June 17, and be in attendance throughout the six weeks.

Students will not be registered for credit in any course after Tuesday, June 18. No person will be permitted to register for any purpose after Friday, June 21.

LOCATION.

The school is located at the University Farm, midway between Minneapolis and St. Paul.

From St. Paul or Minneapolis, take a Como-Harriet car to Doswell Avenue. A short walk to the northeast brings you to the Administration Building, where you register. If you wish to ride the entire distance, change at Eustis Avenue from the Como cars to the Inter-campus cars, which take you, for an additional fare, into the University Farm grounds. Inter-campus cars are not run after 6 p. m. or on Sundays or holidays. Walk west to the Administration Building, the third on your left.

TUITION AND FEES.

To all Minnesota teachers, the instruction is free. The following are classed as Minnesota teachers:

- a. Actual residents of Minnesota teaching either within or outside of the state.
- b. Non-residents engaged in teaching in the state.
- c. Students who have completed their school course and who are taking the training school work for the distinct purpose of preparing to teach in Minnesota.

A registration fee of five dollars (\$5) will be charged applicants who are not teachers as defined above. At the time of registration each student will deposit five dollars (\$5) with the cashier as a guarantee for the safe return of apparatus and books, which deposit will be returned to depositor at the close of the school, unless reduction must be made to cover damage or loss.

ACCOMMODATIONS.

Those taking regular work at the Summer School may obtain rooms in the dormitories. Rooms will be assigned at the time of registration. The dormitories contain a very few single rooms; other rooms are intended to accommodate two or three persons. The rooms are furnished with the necessary bedding. A change of linen is made twice a week, and of towels every day. Persons residing in the Twin Cities will not be given dormitory rooms. Those who do not expect to remain at the school for the entire six weeks should obtain rooms outside the dormitories. Good board and room may be had within a short distance from the school for \$6 a week and upward.

Dormitories will be opened Saturday, June 15.

EXPENSES IN DORMITORIES.

Room rent, use of bedding, and laundry of same.....	\$6.00	<i>7.50</i>
Post-office box .....	.10	
Total expense	\$6.10	<i>7.60</i>
Deposit	5.00	

Entire amount to be paid in advance..... \$11.10 *12.60*

NOTE: If you are required to pay a registration fee of \$5.00 (see page 8), the total to pay cashier at the time of registration will be \$16.10 *17.60*

In order to facilitate registration and to avoid any delay and inconvenience to yourself, come prepared to pay your fees in cash or by bank draft, postal money order or certified check drawn for the exact amount you are to pay. One issued for a larger amount will not be accepted for payment of fees. Travelers checks are recommended. They will be accepted as cash.

A cafeteria with reasonable charges is maintained on the campus. Meals may be obtained during the day and until 9:00 p. m.

BAGGAGE.

Baggage will be carried between either city and University Farm by the service section for a uniform charge of 50 cents for each piece. Delivery will be made as promptly as the limited facilities of the section will permit. Those wishing special attention or quick delivery are advised to arrange with a city express or transfer company for delivery of baggage and for the charges for the same. Students wishing to have their baggage handled by the service section should hand the checks in at the general service office near the post-office, promptly after arrival, in order to avoid charges for storage.

MAIL.

Mail for students may be sent to University Farm, St. Paul. Post-office boxes are assigned to all students and a charge of ten cents is made therefor.

As soon as your post-office box has been assigned, notify your correspondents to put the number on your mail. This will facilitate distribution and enable you to obtain your mail more promptly.

LIBRARY.

Good library facilities, including books, bulletins, reports and papers on Agriculture and Home Economics, will be available to all students in the library, Administration Building.

THE ASSEMBLY HOUR.

An assembly "hour" has been arranged for each day, from 9:35 to 10:15 a. m. At this time subjects of special interest will be discussed.

Short opening exercises will be followed by lectures and talks by educators and other specialists.

Through the State Department of Education and the administrative officers of the training school, opportunity is given to hear a large number of people of state and national reputation.

All students must be in attendance at assembly during this period.

PROGRAM.

Morning.

Breakfast, 7:00
First-hour classes, 8:00 to 8:40
Second-hour classes, 8:50 to 9:30
Assembly hour, 9:35 to 10:15

Third-hour classes, 10:20 to 11:00
Fourth-hour classes 11:10 to 11:50
Fifth-hour classes 12:00 to 12:40
Dinner, 12:45

Afternoon.

Study and library work, 2:15 to 4:00
Recreation, 4:00 to 6:00
Supper, 6:00

Study, 8:00 to 10:00
Conferences and consultation with instructors as arranged.

PERIODICAL AND TEACHERS' HELPS ROOM.

A room will be maintained at University Farm during the session of the training school where all may examine the various teachers' journals, books, appliances, and supplies, and where purchases of the same may be made if desired.

PHYSICAL EXERCISES, PLAYS, AND GAMES.

Experienced instructors will be in charge of the gymnasium, athletic field, and playgrounds, to teach and supervise the various activities in these directions. Classes and teams will be organized to suit the convenience of the members wishing to participate in gymnasium drill, tennis, baseball, volleyball, and many other sports and games.

ENTERTAINMENT.

From time to time throughout the term, evening entertainments for the special benefit of the members of the summer school will be given in the auditorium.

CONFERENCES.

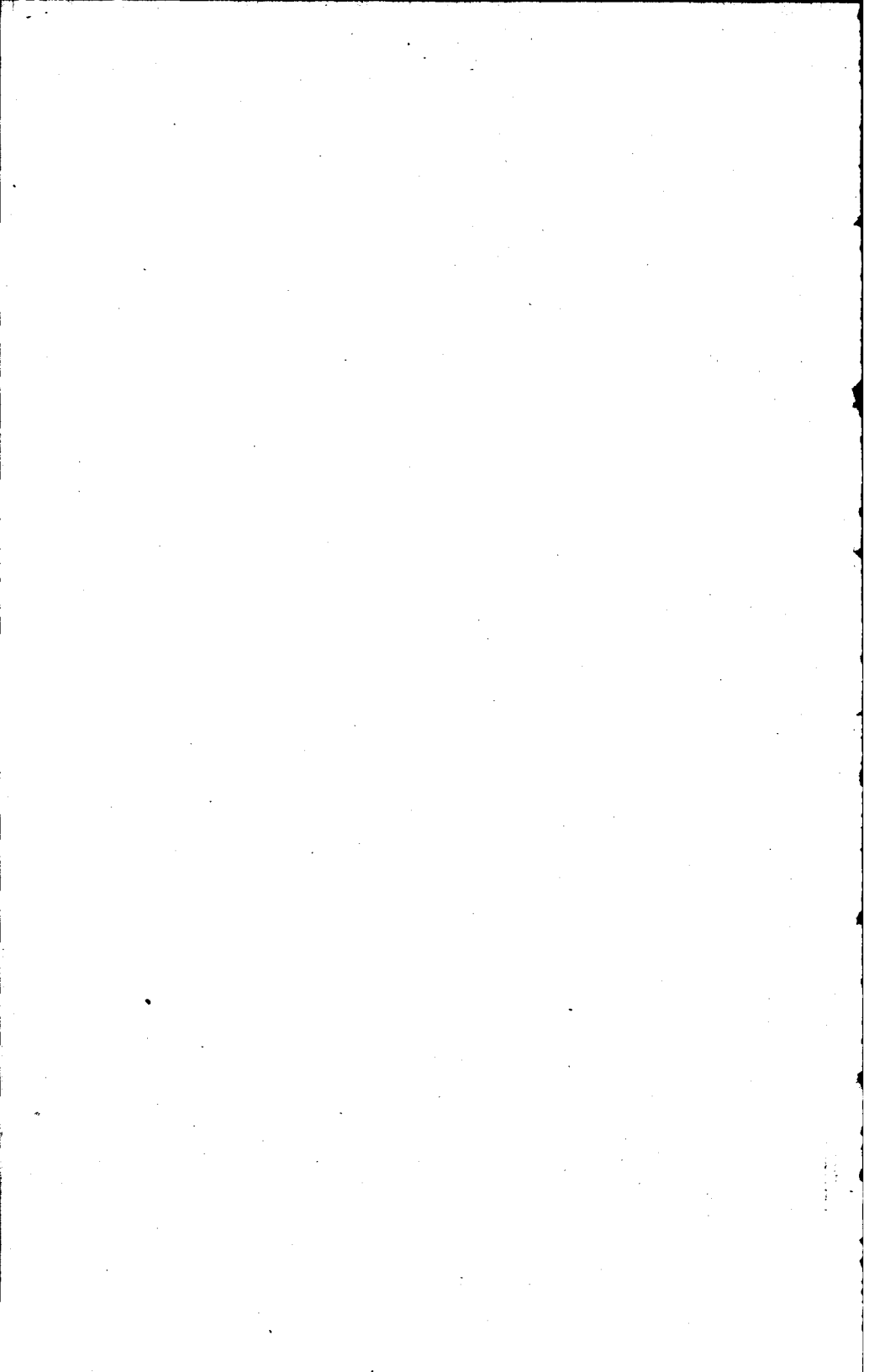
A great many conferences are held during the summer school by those interested in special phases of teaching and rural life. Many counties organize those present from the counties into county clubs. Conferences of consolidated school principals and others interested in rural leadership will be held from time to time. Opportunity is thus given for those interested in a special subject to exchange experiences and views and also to make plans for the future.

ADVANCED COURSES AT THE STATE UNIVERSITY.

The University of Minnesota offers advanced courses in the College of Science, Literature, and Arts, the College of Education, and also courses in the College of Medicine and the College of Dentistry during the summer season. Those interested may obtain information from the Registrar, University of Minnesota, Minneapolis.

ADVANCED COURSES IN THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS.

The University of Minnesota also offers advanced courses in Agriculture, Forestry, and Home Economics for college credit at University Farm, St. Paul, during the entire time of the Training School. Those desiring a bulletin concerning these courses should apply to the Secretary, University Farm, St. Paul.



The Bulletin of the University of Minnesota

Teachers' Training School

*Department of Agriculture and
State Department of Education*

School of Agriculture, Morris

June 18 to July 27, 1917

C. G. Schulz, Superintendent of Education, St. Paul,

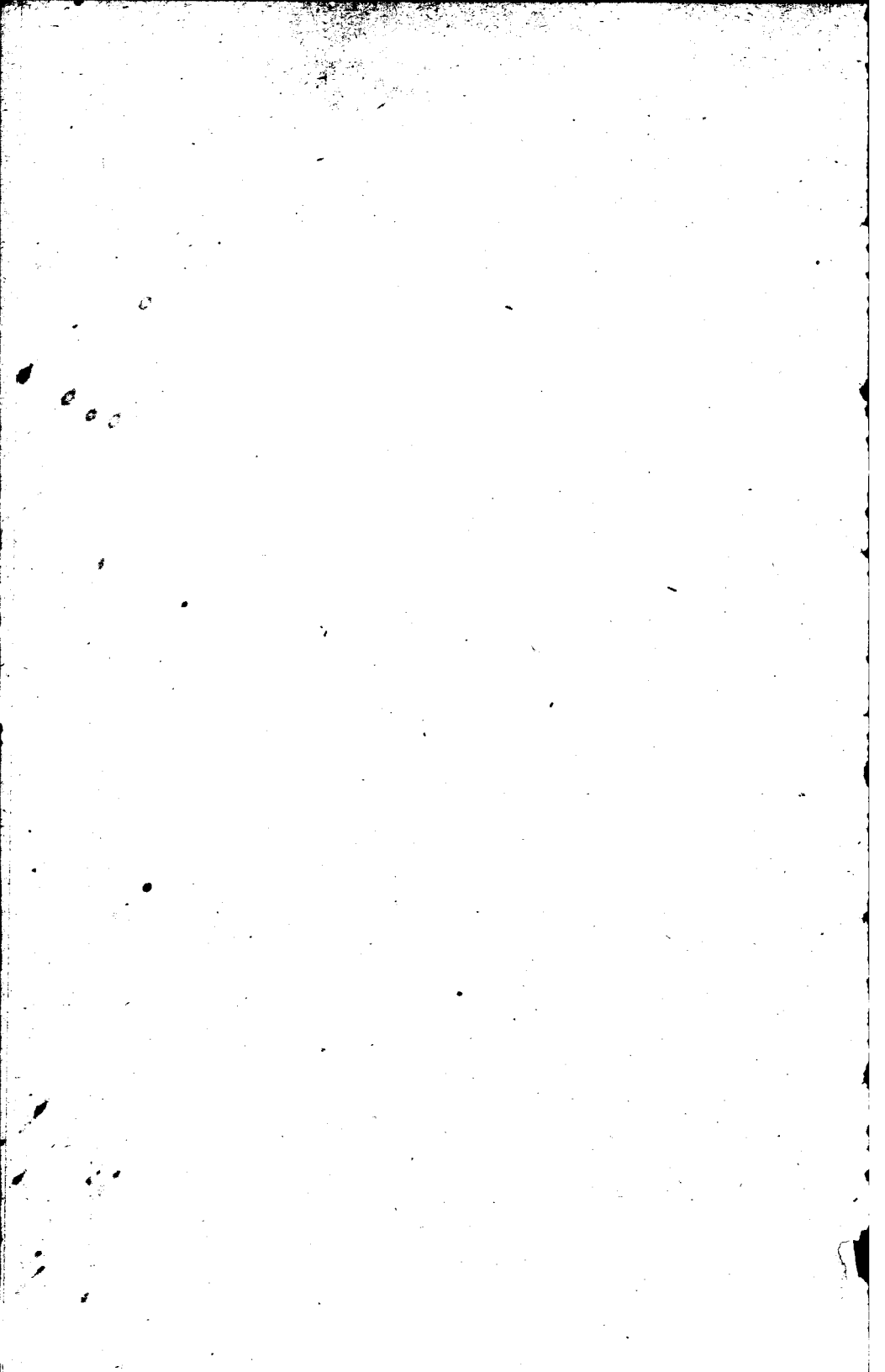
Supt. J. G. Norby, Fergus Falls, Conductor

LISTED AS 26a.

General Series No. 51

Vol. XX No. 16 May 17 1917

*Entered at the post-office
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TEACHERS' TRAINING SCHOOLS, SUMMER OF 1917

Sessions to be held at the State Normal Schools at Winona, St. Cloud, Mankato, Moorhead, and Duluth; the three Agricultural schools of the University at University Farm, St. Paul, Crookston, and Morris.

Length of terms: six weeks.

Time of beginning: Monday, June 18.

Time of closing: Friday, July 27.

The summer terms at University Farm, Crookston, and Morris are organized and maintained by the Department of Education, and are under the immediate direction of the conductor of each school. The summer terms at the normal schools are organized and maintained by these institutions and are under the immediate direction of the president of each school. The courses at each of the eight institution schools are open to teachers in rural and elementary schools of Minnesota, free of charge. Other persons, who are not Minnesota teachers, may enroll upon payment of the tuition fee indicated under the head "Tuition and Fees" elsewhere in this bulletin.

THE PURPOSE

First, to afford academic instruction in the subjects required for common school certificates, first and second class.

Second, to offer professional training in the fundamental common school subjects and to provide the means by which teachers who seek to earn a first-class certificate may meet the professional standards in those subjects which are now required by law.

Third, to offer instruction and professional training in such special subjects as will entitle teachers to receive a first-class certificate or one of higher class.

Fourth, to give instruction in Agriculture, Manual Training and Home Training, as now required of teachers of these subjects in consolidated schools.

PROFESSIONAL TRAINING

The act which became effective in August, 1915, requires that all public school teachers who at that time had taught less than eighteen months and who apply for a first-class certificate must show a given amount of professional training for teaching to entitle them to receive a first-class certificate, or one of higher class. Such professional courses are provided in the institution summer schools this year.

ACADEMIC AND PROFESSIONAL CREDIT

Credits in connection with the issuance of first-class certificates may be earned under two general divisions: academic credit through definite and systematic academic work, as provided for in Group I, page 4; professional credit through method courses in subjects listed under Groups II and III, page 4.

Credits in connection with the issuance of second-class certificates may also be earned under two general divisions: Academic credits as stated in the paragraph above; professional credits as stated in the paragraph above for those entitled to register and receive such credits. (See page 5, section 5, paragraphs 2 and 3.)

Note that the subjects starred under Groups II and III, Reading and Literature, Primary Methods, School Management and Administration, are required for the completion of a full professional course.

WHO MAY REGISTER AND RECEIVE CREDIT

a. Academic

Those who (1) enter on the first day of the session and are in regular attendance throughout the entire term; (2) pursue a subject by double recitation periods each day throughout the term, as indicated in the schedule under Group I; and (3) complete the subject to the satisfaction of the instructor and the conductor.

Note: Students in elementary and secondary schools desirous of removing conditions in subjects in such schools or of obtaining advanced credits in subjects in such schools are not entitled to admission. Conductors will see that this rule is rigidly enforced.

b. Professional

1. Persons who hold a complete second-class certificate or one of higher rank.

2. High school graduates who lack permanent credits in not to exceed two subjects for the completion of a second-class certificate.

3. Teachers of eight months' teaching experience who lack permanent credits in not to exceed two subjects for the completion of a second-class certificate.

4. Other persons having permanent credits (75 per cent or pass plus) on teachers' certificates or in the form of other accepted credits toward a teacher's certificate and who lack permanent credits in not to exceed two subjects for the completion of a second-class certificate.

Note: Persons seeking to earn a second-class certificate must limit the choice of subjects to those under Group I, page 4. An exception is made in the case of Playground Activities.

SUBJECTS AND COURSES

Certificate Requirements

Group I Academic

Required for Second-class Certificate

American History
Arithmetic
Geography
English Grammar
Reading
Penmanship
Physiology-Hygiene
Spelling
Civics
English Composition

Required for First-class Certificate

American History
Arithmetic
Geography
English Grammar
Reading
Penmanship
Physiology-Hygiene
Spelling
Civics
English Composition
Elementary Algebra
Plane Geometry
Physics
Physical Geography or Agriculture

Group II Professional

No professional training required

History Methods
Arithmetic Methods
Geography Methods
Grammar Methods
Composition and Language Methods
Health and Hygiene Methods
Rural School Methods
*Reading Methods
*Primary Methods

Group III Professional

No professional training required

Music Methods
Drawing Methods (Elementary or
Advanced)
Agricultural Methods
Playground Methods
Foods and Cookery
Garment Making
Primary Handwork
*School Management and Administration

Note: The following industrial and special subjects, requiring no outside preparation, will be given in double daily class periods:

Foods and Cookery
Garment Making
Primary Handwork

Drawing
Playground Methods

*Required.

Professional Courses

A professional credit may be earned by pursuing any subject under Groups II and III one period a day for six weeks. (Exception—"Note" under Group III.)

A full course in professional training will require the completion of eight credits, five, including Reading and Primary Methods, chosen from Group II; and three, including School Management, chosen from Group III.

For the summer term, 1917, a person who completes four credits of professional work may receive a first-class certificate valid for one year. The **Renewal** or **Extension** of such first-class certificate will require the completion of the additional four professional credits.

After 1917, the completion of a full professional course will be required for the issuing of a first-class certificate.

Academic Courses

An academic credit may be earned by pursuing any subject under Group I one double recitation period daily for six or twelve weeks as follows:

1. A **High School Graduate** who presents a final credit in a subject under Group I may earn an academic credit in that subject by pursuing it for six weeks.

2. A **High School Graduate** not presenting a final credit in a subject under Group I may earn an academic credit in such subject by pursuing it for twelve weeks.

3. An **Undergraduate** may earn an academic credit in any subject under Group I by pursuing it for twelve weeks.

Exception: An academic credit in the subject of physiology-hygiene may be earned by either high school graduates or undergraduates by pursuing the subject in one double daily recitation period for six weeks.

An academic credit in the subject of penmanship may be earned by either a high school graduate or an undergraduate by pursuing the subject the equivalent of one double daily recitation period for six weeks.

All persons found deficient in spelling will be required to pursue such subject in single daily recitation periods until they can pass a satisfactory test.

GROUP I—ACADEMIC

<i>Subjects</i>	<i>High School Graduates</i>	<i>Under- graduates</i>
American History.....	6 weeks	12 weeks
Arithmetic.....	6 weeks	12 weeks
Geography.....	6 weeks	12 weeks
Grammar.....	6 weeks	12 weeks
Reading.....	6 weeks	12 weeks

<i>Subjects</i>	<i>High School Graduates</i>	<i>Under- graduates</i>
Penmanship	6 weeks	6 weeks
Physiology-Hygiene	6 weeks	6 weeks
Spelling	6 weeks	12 weeks
Civics	6 weeks	12 weeks
Composition	6 weeks	12 weeks
Algebra	6 weeks	12 weeks
Plane Geometry.....	6 weeks	12 weeks
Physics	6 weeks	12 weeks
Agriculture or Physical Geography.....	6 weeks	12 weeks

LIMIT OF SUBJECTS

A person seeking to earn academic credit is limited to two double-period subjects and either Spelling or Penmanship selected under Group I. All students, either for academic or for professional credits, are limited to five daily class periods. An exception is made in case of Playground Activities.

REGISTRATION

Those who wish to earn credits must register Saturday, June 16, or Monday, June 18, and be in attendance throughout the six weeks.

Variation from the above regulation will not be allowed for students who wish to earn credits.

Those who are to attend should send in their registration before the opening of the term and avoid much inconvenience to themselves.

All inquiries should be sent to the Superintendent, University Farm School, Morris, of whom blanks can be secured, and who will take care of all matters regarding the training school.

ATTENDANCE

Certificates of perfect attendance will be issued to all students who are neither tardy nor absent from class or assembly periods for the full term of six weeks.

All students enrolled will be expected to report for class work and assembly periods promptly each day or present satisfactory excuses for absence.

CREDENTIALS

Persons expecting to earn academic or professional credits to apply on a first-class certificate, or high school graduates who expect to enroll in the six weeks' academic courses, must submit standings entitling them to such enrollment. The following credits will be accepted:

- a. State teacher's certificate of second class.
- b. Credits from uncompleted examinations in all but two subjects for a state teacher's certificate.
- c. State high school diploma and final subject standings.
- d. State high school board certificates with standings of pass plus.
- e. High school training department certificates.
- f. Final marks of 75 from Minnesota state normal schools.
- g. Credits of 75 earned at the summer sessions of the normal schools, the state agricultural schools, and the 1916 summer school at Bemidji.
- h. Marks of 75 from Kansas, Nebraska, North Dakota, South Dakota, Colorado, Utah, and Missouri on first-class teachers' certificates.
- i. Marks of 80 from Iowa, Oregon, and Washington on first-class teachers' certificates.

TUITION AND FEES

To all Minnesota teachers, the instruction is free. The following are classed as Minnesota teachers:

- a. Actual residents of Minnesota teaching either within or outside of the state.
- b. Non-residents engaged in teaching in the state.
- c. Students who have completed their school course and who are taking the training school work for the distinct purpose of preparing to teach in Minnesota.

A registration fee of five dollars (\$5) will be charged for admission to applicants who are not teachers as defined above. At the time of registration each student will deposit five dollars (\$5) with the cashier, etc. This money will be deposited with the cashier as a guarantee for the safe return of apparatus and books, and will be returned intact to depositor at the close of the school unless reduction must be made to cover damage or loss.

LOCATION

The School is located just outside the city of Morris on a rise of ground overlooking the Pomme de Terre Valley. It is about ten minutes walk from either depot. Morris is located on the main line of the Great Northern Railroad and at its junction with the Browns Valley branch. This branch has excellent connections with the Milwaukee road at Graceville. The city also has good service from the Northern Pacific line, which crosses the Soo at Glenwood. Perhaps no other place in West Central Minnesota has such excellent rail connections and service.

TEXT-BOOKS

Every effort will be made to keep the expense of purchase of text-books at the minimum. The lessons in nearly all subjects will be given in outlines, and any standard text may be used. No student will be required to buy a book, yet the faculty feels that in certain subjects it will pay the students to provide themselves with uniform texts. To this end, books necessary to be purchased may be obtained at the school.

ACCOMMODATIONS

Those taking regular work in the summer school may be assigned places in the dormitories in the order of their application. Assigned places not claimed by 7:30 p. m. of the first day of school will be given to others. Each dormitory room is fitted with two single beds. Students should bring a quilt or blanket, towels and all personal toilet articles needed. Linen, except towels, is furnished. Friends desiring to room together should indicate their desire as early as possible. The dormitories will be subject to the same general regulations as they are during the regular term.

EXPENSES IN DORMITORIES

Board at \$3.00 per week.....	six weeks, \$18.00
Room at \$1.25 per week.....	per term, 7.50
Fee for Mothers' Week, including board and room	4.00

The fees and two weeks of board are payable strictly in advance; thereafter board is payable each two weeks in advance. Students leaving school before the term closes will receive the pro rata amount of the charges for board and room and special music lessons. No rebate will be made for occasional absences.

BAGGAGE

Incoming students will give their trunk checks to the bus drivers at the depot, together with 25c for drayage. The school does not haul baggage from the depots to the institution, but does return all baggage to the stations on the closing day of school.

FIELD EXCURSIONS

Excursions and outdoor laboratory work will be arranged as often as practicable. The agricultural instructors will have the station and stock for demonstration work. The station is doing special work in farm crops, plant breeding, soils and animal husbandry that will be valuable for actual observation.

EXAMINATIONS

On Monday and Tuesday July 30 and 31 and Wednesday, August 1, examinations for state teachers' common school certificates will be held at the High School building in the city of Morris under direction of the County Superintendent.

LIBRARY

Good library facilities, including books, bulletins, reports, and papers on Agriculture and Home Economics, will be available to all students in the library of the School of Agriculture.

THE ASSEMBLY HOUR

An assembly "hour" has been arranged for each day from 10:20 to 11:00 a. m. At this time subjects of special interest to teachers will be considered. There will be short opening exercises followed by chorus work, songs suitable to rural schools and a discussion of everyday problems in teaching.

All students must be in attendance at Chapel during this period.

PROGRAM

Morning

Breakfast	7:00	Assembly Hour.....	10:20
First Hour Classes.....	7:40	Recess	11:00
Second Hour Classes....	8:20	Fifth Hour Classes....	11:10
Third Hour Classes....	9:00	Sixth Hour Classes....	11:50
Fourth Hour Classes...	9:40	Dinner	12:30

Afternoon

Seventh Hour Classes..	1:40	Recreation.....	4:00 to 6:00
Eighth Hour Classes...	2:20	Supper	6:00
Consultation, Library and Gymnasium	3:00	Study.....	8:00 to 10:00

INDUSTRIAL SUBJECTS

The special industrial work offered includes elementary courses in Sewing, Cooking, and Primary Handwork. The matter and presentation will be especially helpful to rural school teachers and to such as wish to teach the subjects in elementary schools. Superintendents and principals will find this work an aid in outlining courses of instruction and in supervising such courses intelligently.

PHYSICAL EXERCISES, PLAYS, AND GAMES

Experienced instructors will be in charge of the gymnasium, athletic field, and playgrounds to teach and supervise the various activities in these directions. Classes and teams will be organized

to suit the convenience of the members wishing to participate in gymnasium drill, tennis, baseball, volleyball, and many other sports and games.

CHAUTAUQUA

During the Summer Session there will be a week's Chautauqua under direction of the Morris Commercial Club. This will provide a splendid series of entertainments and lectures for the students and teachers enrolled. Each person should plan if possible to set aside \$1.50 for a course ticket.

A number of other lectures and entertainments are also being arranged which will be distributed throughout the entire six weeks.

CONFERENCES

A number of county superintendents will be present for one week each during the session and, besides giving courses in rural school methods, will hold special conferences with the teachers registered from their respective counties.

LAUNDRY

Flat laundry work only will be done by the institution. For personal laundry the girls may use the equipment in the dormitory.

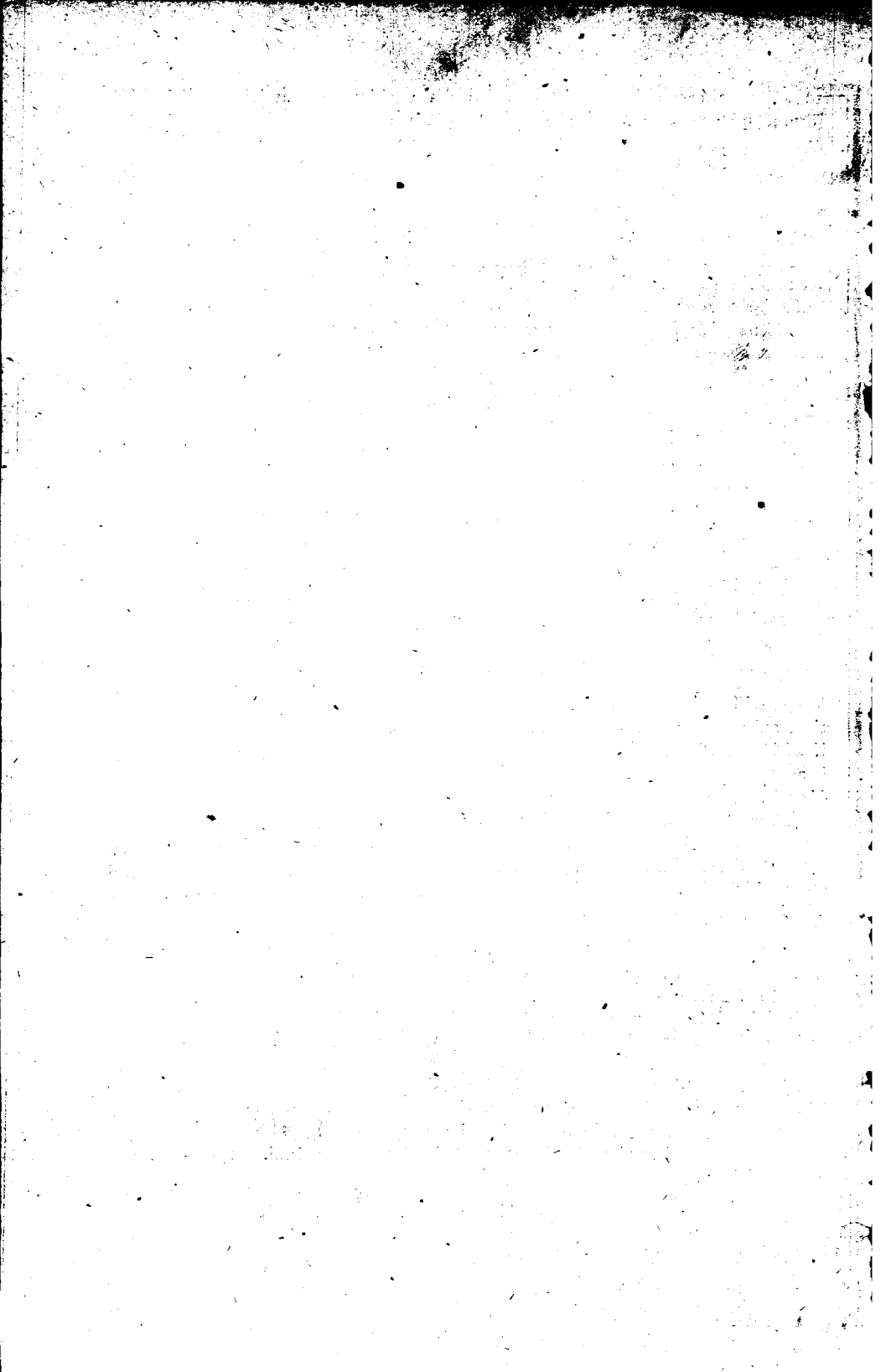
ADVANCE REGISTRATION

It will be of great help to the Registrar and save the student much time and trouble, and enable the student to be sure of accommodation if each one who expects to attend will fill out an application and mail it as early as possible to the Superintendent, University Farm School, Morris.

There is no charge for this advance registration. Blanks will be numbered and dated as they come to the office, and rooms requested through these blanks will be held until 7:30 p. m., Monday, June 18, after which time other students on hand and ready to take the rooms will be given their chance.

MOTHERS' WEEK

The fourth annual short vacation for farm women will be held during the Chautauqua week, making it possible for the ladies enrolled to have the opportunity of attending the splendid lectures and entertainments offered during the Chautauqua season. Besides this, there will be the usual talks and periods for visiting. The training school will also be in session and faculty members will help make the time pleasant and profitable. The fee for the course will be \$4.00. This will pay for the board and all other local expenses, including Chautauqua tickets.



The Bulletin of the University of Minnesota

*Short Course in Grain Elevator
Accounting and Management
at University Farm
St. Paul*

July 27 to August 4, 1917



[27]

General Series No. 54

Vol. XX No. 27 July 17 1917

*Entered at the post-office
in Minneapolis as second-class matter
Minneapolis, Minnesota*

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Division of Research in Agricultural Economics

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FRANK ROBOTKA, Instructor in Accounting

SHORT COURSE IN GRAIN ELEVATOR ACCOUNTING AND MANAGEMENT

A short course in primary grain elevator bookkeeping and management will be given at University Farm, St. Paul, July 27 to August 4, 1917.

PURPOSE AND SCOPE

The primary object of offering this short course is to promote better bookkeeping methods and management in country grain elevators. The immediate purpose is to give present and prospective managers practice in practical elevator bookkeeping, especially to familiarize them with the system of bookkeeping devised by the Office of Markets and Rural Organization of the U. S. Department of Agriculture, for primary grain elevators, which system is being generally adopted in this and other states. There is a growing demand for managers having a knowledge of the Government grain system.

The present emergency presents problems of vital importance to the grain trade. Elevator managers should be familiar with the broader aspects of these problems and their relation to elevator management and the grain trade in general.

COURSE OPEN TO WHOM

The short course will be open to the officers and owners of country elevators, present and prospective elevator managers and their assistants, agricultural high-school teachers, county agents, and others who may be directly benefited or who may be called on to give assistance in elevator bookkeeping.

REGISTRATION

Registration day for this short course is July 27. Class work will begin 8:30 a.m., July 28. In order to facilitate registration and to make possible satisfactory arrangements regarding your work and the accommodations at the dormitory, it is desired that as many as possible register in advance. If you expect to come, will you kindly fill out the registration blank on the last page of the folder and mail to the office of the Secretary, University Farm, St. Paul. You do not need to send your registration fee as that can be paid on arrival. No obligation will be incurred by this advance registration.

FEEES

A fee of \$5, which includes the cost of all material to be used in the practice work in bookkeeping, will be required.

ACCOMMODATIONS

Accommodations will be available at the college dormitories at fifty cents a day per person. Meals can be had at the Dining Hall on the grounds, cafeteria service being maintained.

LOCATION

The short course will be given in the Administration Building. The bookkeeping work will be given in Room 321, on the third floor of this building.

To reach the campus from either city, take the Como-Harriet car, get off at Carter or Doswell Avenue and go east.

INFORMATION

Further information regarding any of the details of this short course can be obtained from the Director of Short Courses, Department of Agriculture, University Farm, St. Paul.

ADVANCE REGISTRATION BLANK

Name

Occupation

Post-office address.....

County..... State.....

Years experience as (Manager Helper) of elevator: line house.....
independent..... coöperative.....

Have you had business college, high school, or
other courses in bookkeeping?.....

Do you now keep books for an elevator company?.....

How long have you done so?.....

I { do }
{ do not } desire a room at the dormitory.....

PROGRAM

8:00 to 11:00 Daily

Laboratory and lecture work in elevator accounting. Mr. FRANK ROBOTKA, Instructor in Accounting, College of Agriculture, University of Minnesota, and Assistant in Market Business Practice, Office of Markets, U. S. Department of Agriculture.

11:00 to 12:00 Daily

Popular lectures as follows will be given at this hour. The particular lecture to be given each day will be announced during the laboratory period.

Tendencies in Minnesota Agriculture. Prof. ANDREW BOSS, Chief of Division of Agronomy and Farm Management, College of Agriculture, University of Minnesota.

Food Production and Population. Prof. E. DANA DURAND, Chief of Division of Research in Agricultural Economics, College of Agriculture, University of Minnesota.

Patriotic Address. Hon. FRED B. SNYDER, President of the Board of Regents, University of Minnesota, and President of Hennepin County Public Safety Association.

The University of Minnesota Agriculture. Prof. A. D. WILSON, Director of Agricultural Extension, College of Agriculture, University of Minnesota.

The World's Grain Trade.

War Food Problems, Including Government Regulation of the Grain Trade.

2:00 to 4:00 Three Afternoons

This period will be devoted to addresses relating specifically to elevator management. The particular address to be given each day will be announced during the course.

Intrinsic Value of Grain. Prof. C. H. BAILEY, Cereal Technologist, Division of Chemistry, College of Agriculture, University of Minnesota.

Organization and Management of Coöperative Elevators. Prof. E. DANA DURAND.

Dockage, Grain Cleaning, etc. G. H. TUNELL, Chief Inspector, Minnesota Grain Inspection Department.

Grain Prices, Speculation, etc. Prof. E. DANA DURAND.

Grain Grading.

Federation of Coöperative Organizations. Judge F. T. WILSON, Stillwater, Extension Lecturer on Marketing and Coöperation, University of Minnesota.

2:00 to 4:00 Three Afternoons

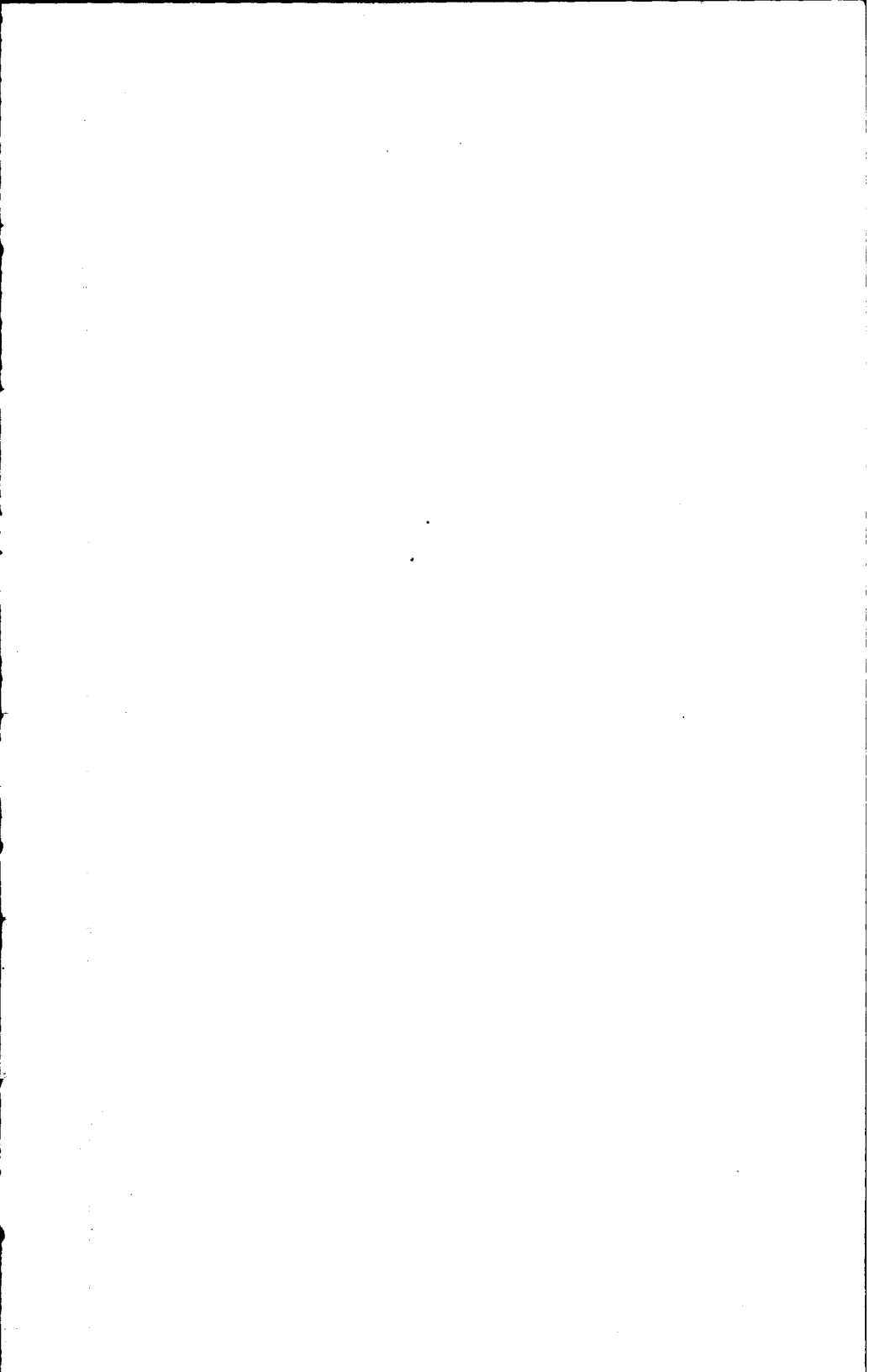
Excursions to points of interest in Twin Cities and vicinity. Suggested visits: Minneapolis Chamber of Commerce, State Grain Inspection Department, Equity Coöperative Exchange, Flour Mills, Stockyards, Picnic.

4:00 to 6:00 Daily

Special accounting laboratory, special excursions, or addresses arranged during the short course.

Evenings

No program.



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

Social and Civic Work
Announcement of Training Course for
1917-1918



[28]

General Series No. 56
Vol. XX No. 41 September 15 1917

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UNIVERSITY CALENDAR

1917-1918

1917			
September	26	Wednesday	Registration closes for all students
September	26	Week	Fees payable for all students
October	3	} Week	Examinations for removal of conditions and entrance examinations
October	2-9		
October	10	Wednesday	First semester begins
November	28	Wednesday	Thanksgiving recess begins 9:00 p.m.
December	3	Monday	Thanksgiving recess ends 8:00 a.m.
December	21	Friday	Christmas vacation begins 9:00 p.m.
1918			
January	2	Wednesday	Christmas vacation ends 8:00 a.m.
February	4	Monday	Second semester registration closes
February	11	Monday	Final examinations begin
February	11	Monday	Payment of fees for second semester closes
February	12	Tuesday	Lincoln's Birthday; a holiday
February	18	Monday	Second semester begins
February	22	Friday	Washington's Birthday; a holiday
March	28	Thursday	Easter recess begins 9:00 p.m.
April	1	Monday	Easter recess ends 8:00 a.m.
April	1-6	Week	Condition examinations in certain colleges
May	30	Thursday	Memorial Day; a holiday
June	8	Saturday	Final examinations begin 2:00 p.m.
June	15	Saturday	Second semester closes
June	16	Sunday	Baccalaureate service
June	17	Monday	Senior Class Day exercises
June	19	Wednesday	Alumni Day
June	20	Thursday	Forty-sixth Annual Commencement
June	21	Friday	Summer vacation begins
June	24	Monday	Summer Session begins

TRAINING COURSE FOR SOCIAL AND CIVIC WORK

ORGANIZATION

- MARION LEROY BURTON, President of the University
JOHN B. JOHNSTON, Dean of the College of Science, Literature, and the Arts
ARTHUR J. TODD, Director
- | | |
|------------------|-----------------------|
| LOTUS D. COFFMAN | } Executive Committee |
| CEPHAS D. ALLIN | |
| JAMES T. GEROULD | |
| FRANK J. BRUNO | |

FACULTY

- CAROL ARONOVICI, Ph.D., Director Wilder Foundation, St. Paul, Lecturer on Social Work
CAROLINE BEDFORD, B.A., Assistant Secretary, Minneapolis Associated Charities, Supervisor of Case Work
LOUIS L. BERNARD, Ph.D., Associate Professor of Sociology
JOSEPHINE T. BERRY, M.A., Professor of Home Economics, representing that Department
FRANK J. BRUNO, B.A., B.D., Secretary Minneapolis Associated Charities, Lecturer on Social Work
HENRY F. BURT, B.A., B.D., Head Resident Unity House, Supervisor of Settlement Practice Work
LOTUS D. COFFMAN, Ph.D., Professor of Education, representing that Department
LLOYD M. CROSCRAVE, M.A., Instructor in Economics
OTTO W. DAVIS, B.A., Assistant Secretary Minneapolis Civic and Commerce Association, Lecturer on Social Work
ALBERT E. JENKS, Ph.D., Professor of Anthropology
J. ANNA NORRIS, M.D., Assistant Professor of Physical Education for Women, representing that Department
HENRY T. MOORE, Ph.D., Assistant Professor of Psychology
WILLIAM A. SCHAPER, Ph.D., Professor of Political Science
CHARLES C. STILLMAN, B.A., Secretary St. Paul United Charities, Lecturer on Charitable Administration
ARTHUR H. TAYLOR, M.A., Secretary Children's Protective Society, Lecturer on Child Welfare
ARTHUR J. TODD, Ph.D., Professor of Sociology, Director of the Training Course
MARION E. TEBBETTS, B.A., Supervisor of Hospital Social Service Work in the University Hospital

EDWARD F. WAITE, B.A., LL.M., Judge of the Hennepin County Juvenile
Court, Lecturer on Juvenile Courts

HERBERT WOODROW, Ph.D., Associate Professor of Psychology

ELIZABETH YERXA, B.A., Supervisor of Hospital Social Service in the
Minneapolis City Hospital

JEREMIAH YOUNG, Ph.D., Professor of Political Science, representing that
Department

GENERAL STATEMENT

Because of the growing complexity of modern social and civic problems and the conviction that only increased training and technical skill can handle them effectively, American universities are pressed to offer specialized professional instruction to meet the new demands. While it may be true that social and civic work is not yet a definite profession in the strict sense that medicine, law, and teaching are professions, it is equally true that the first step toward making it truly professional is to base it upon adequate scientific training. In spite of the bewildering variety of problems which confront social workers, there is still underneath them all a certain stratum of common features for which professional training and professional technique can be communicated. It is the conviction that experience has demonstrated this fact which prompts the University of Minnesota to announce the following training course for social and civic work. The war demand for various types of skilled civilian relief work adds a certain timeliness to the announcement. The necessity for maintaining hard-won standards of social work during the war and the enormous work of reconstruction at its close make such a course all the more imperative.

For various reasons this training course has been organized and retained within the College of Science, Literature, and the Arts. Within the regulations of this College, its faculty and administrative officers exercise primary jurisdiction over the content and methods of the training course. It covers both undergraduate and graduate work. The requirements for both entrance and graduation conform to those of the Arts College. Satisfactory completion of the four years' course leads to the degree of Bachelor of Arts.

A fifth year's work is designed to lead primarily to a special certificate of proficiency in social and civic work. But students whose programs satisfy requirements of the training course and the Graduate School may receive both the special certificate and the degree of Master of Arts at the close of the fifth year.

The organization of the course of study aims to give the undergraduate the fundamentals of a broad modern education with considerable emphasis upon history, economics, political science, psychology, and language. To this end, all intensive specialization is reserved for the fourth and later years of study.

The fourth year includes comparatively few required courses, but a long list of advised electives, for which other electives may be substituted according to the individual student's needs. While the four years' course as arranged should confer upon the student a certain degree of familiarity with the problems of social and civic work, really adequate professional preparation demands at least one year of graduate study. With this professional instruction in view, during the fifth and later

years of study only an irreducible minimum of specified courses is required; the emphasis is laid upon providing individual programs to meet the student's special inclination, aptitudes, or need.

To ensure a first hand or clinical acquaintance with social problems and technique, a very considerable part of the student's time in his graduate study is devoted to supervised field work with selected social agencies and institutions in and around the Twin Cities. Moreover, every opportunity is taken to bring to the students specialists and experts from the various fields of social work, in order to build up the professional attitude and to establish professional contacts.

This is a distinctly vocational course. Only those students therefore who display evidences of real capacity and the professional spirit will be encouraged to go on with graduate study. This does not mean that qualified students having a special interest in certain courses are debarred; to the contrary they will be welcomed and every effort will be made to meet their specific needs. Nor does it mean that students who do not plan to earn their living by professional social work are to be denied entrance. As a matter of fact, it is to be devoutly hoped that many students will elect the course as a training for effective citizenship and volunteer social work, or as an adjunct to other vocations.

The course, from this standpoint, is of particular concern to the school superintendent and principal, the nurse, the public health worker, the minister, the factory welfare worker, the librarian, and the Y. M. C. A. leader.

Applicants for admission to the Training Course must receive the permission of the Director. His decision will be based upon the student's apparent fitness to pursue the work, upon his vocational prospects, and upon the facilities for giving the particular training the student seeks.

Tuition fees are the same as for any Arts course, but the student should count on certain expenditures for car-fare in doing his field practice work and for traveling expenses in visiting out-of-town institutions.

FACILITIES FOR STUDY, FIELD WORK, AND RESEARCH

The University Library is well provided with current literature in the social sciences, including periodicals and government publications, American and foreign. The Minneapolis Public Library and the library of the State Board of Control supplement these resources. A special seminar room is reserved in the library for advanced work in Sociology.

The cities of St. Paul and Minneapolis offer excellent opportunities for supervised field work and research in connection with several types of social agencies: charity organization and family relief, probation, child welfare, compulsory education, housing, hospital social service, recreation, and neighborhood work. The seventeen state institutions under the Board of Control offer an unmatched opportunity to study the various problems of institutional administration. Altogether, Minnesota offers an unusually diversified and attractive range of opportunities for what might

be called clinical observation in social work to supplement the more theoretical and academic phase of training.

Ordinarily the student will devote the first half of his required field work to standard case methods in one of the organized relief agencies; the remainder may be done in such other fields as his prospective line of work would lead him to elect. By a special arrangement with the Board of Control, the following institutions each offer a Training Fellowship of \$500 per year to properly qualified students who wish to do their practice work in some phase of institutional administration: Fergus Falls State Hospital for the Insane; Home School for Girls, Sauk Center.

The following outline curriculum will give an idea of the content of the course and of the general sequence of studies. The list of electives may be supplemented by others according to the needs or capacities of the student. Each student's program will be worked out in conference with the Director.

COURSE OF STUDY

FIRST YEAR STUDIES

Required

Rhetoric, Modern Language, Science and History to meet requirements of the Arts College
Attendance (without credit) at a series of lectures on graphic methods

Elective

Courses open to Freshmen in Languages, History, Science, or Mathematics

SECOND YEAR STUDIES

Required

Modern Language or English, and a year of Science to meet requirements of the Arts College
Introduction to Sociology and Anthropology
General Psychology or Elements of Psychology
General Economics
American Government

Elective

Cultural Anthropology
Modern Social Reform Movements
Logic or Ethics
Courses in History

THIRD YEAR STUDIES

Required

Treatment of Defectives and Dependents
Treatment of Delinquents
Child Welfare
Housing
Labor Problems
American Municipal Administration
(European Municipal Administration should be elected if possible)

Elective

Courses in English, Modern Language, or History
Social Aspects of Education
History of Education
Rural Sociology
Social Psychology
State Care of Dependents, Defectives, and Delinquents
Physical Anthropology
The Negro
Socialism
Wages
Trade Unions
State and Local Government
Business Law
General Bacteriology
Courses on Public Health

FOURTH YEAR AND GRADUATE STUDIES

Required

Social Psychology (if not already elected)
 Social and Industrial Legislation
 Social Statistics and Social Surveys
 The Family
 Social Progress
 Methods of Community Organization and Social Work in Small Towns and Country

(SPECIAL NOTE)

For a fifth year's work consisting of 9 hours class work and 12 hours of supervised field work per week for two semesters the student will receive a special certificate. He will be eligible for the Master's degree if his program is approved by the Graduate School and if he prepares a satisfactory thesis in addition to the work required for the special certificate.

Elective

The American People
 Field Work in Hospital Social Service
 Charitable Administration, Finance, and Publicity
 Technique of Family Treatment
 Juvenile Courts and Probation
 Settlement and Social Center Work
 The Immigrant
 Seminars in Sociology and Anthropology
 Courses on Recreation and Playground Work
 Courses on Public Health
 Principles of Accounting
 Public Finance
 Statistics
 Constitutional Law
 Legislative Power and Methods
 Police Power
 Eugenics
 Abnormal Psychology
 Mental Retardation
 Child Development
 Courses on Education if not already elected
 Hygiene of the Family
 Courses in Home Economics (especially Dietetics and Household Administration)
 Sanitary Engineering

COURSE SCHEDULE

No.	Credits	Title	Offered to	Prerequisite courses
51	3	Treatment of Dependents and Defectives 8 TThS	Jr., sr. 9F	Soc. and An. 1 or 6 Bruno
*52	3	Child Welfare 8 TThS	Jr., sr. 9F	Social Work 51 Taylor
*53	3	Treatment of Delinquents... 9 MWF	Jr., sr., grad. 9F	Soc. & An. 1 or 6, and Psychology 1-2 Todd
*55	2	Housing Problems 8 MW	Jr., sr. 9F	Soc. and An. 1 and 6 Davis
*104	2	State Care of Dependents, Defectives, and Delinquents 3, 4 F	Jr., sr., grad. 9F	Social Work 51 & 52 or 53 Todd and Supts.
*122	2	Social Statistics and Social Surveys 4, 5 W	Sr., grad. 9F	Two courses in this dept. Aronovici
*162	3	Social and Industrial Legislation 11 MWF	Sr., grad. 209MA	Two courses in this dept. and 6 cr. in Economics Crosgrave
*124	2	Methods of Community Organization and Social Work in Small Towns and Country 4, 5 Th	Sr., grad. 9F	Two courses in this dept. Todd and Bernard

*125-126	4	Settlement and Social Center Work	4, 5	W and by appointment	Sr., grad. Two courses in this dept. 5F Aronovici, Burt
*128	1	Charitable Administration, Finance, and Publicity....	8	F	Sr., grad. Two courses in this dept. 9F Davis, Stillman
*130	2	Technique of Family Treatment	4, 5	T	Sr., grad. Social Work 51 and 52 9F Bruno
*132	2	Juvenile Courts and Probation	8	MW and by appointment	Sr., grad. Social Work 51 or 52, 53 9F Todd, Waite
113-114	2	Field Work in Hospital Social Service		By appointment	Sr., grad. Consent of the director 9F. Tebbetts, Yerxa

COURSES OF INSTRUCTION

The following list of courses in no way pretends to do more than indicate certain professional and semi-professional subjects which social workers have found it practicable to cover. Descriptive details omitted in this outline will be found in departmental course announcements in the general bulletin of this college. Numbers in parenthesis indicate identical courses in department lists.

FIRST AND SECOND YEAR COURSES

Consult list in this bulletin, page 7, and department announcements.

THIRD YEAR COURSES

SOCIAL WORK

51. TREATMENT OF DEPENDENTS AND DEFECTIVES. The extent and nature of poverty and mental defectiveness; efforts made for their amelioration and prevention. Mr. BRUNO. (Soc. 9.)
52. CHILD WELFARE. Study of social obligations to the child; development of the child-saving movement in the United States; infant and child mortality, recreation, education; courts, institutions, societies, and other public efforts for the child. Mr. TAYLOR. (Soc. 10.)
53. TREATMENT OF DELINQUENTS. The causes of crime; nature of the criminal; criminal procedure; methods of treatment (prisons, reformatories, parole, probation); the juvenile offender; juvenile courts; preventive methods. Professor TODD. (Soc. 106a.)
55. HOUSING PROBLEMS. An examination of housing evils and their causes; the various movements for the prevention or improvement of bad housing; town planning; garden cities. Lectures, readings, field work, and essay. Mr. DAVIS. (Soc. 11.)
104. STATE CARE OF DEPENDENTS, DEFECTIVES, AND DELINQUENTS IN MINNESOTA. Organization, machinery, and function of such institutions as the State Hospitals, Asylums, Training Schools, Prison, Schools for the Feeble-Minded, the Blind, and the Deaf. Lectures and readings. Professor TODD and Experts from the Institutions.

SOCIOLOGY AND ANTHROPOLOGY

14. THE RURAL COMMUNITY. Associate Professor BERNARD.
110. PHYSICAL ANTHROPOLOGY. Professor JENKS.
112. THE AMERICAN NEGRO. Professor JENKS.
117. SOCIAL PSYCHOLOGY. Assistant Professor MOORE.

ECONOMICS

- 161. LABOR PROBLEMS. Dr. CROSGRAVE.
- 165. HISTORY AND THEORY OF SOCIALISM. Dr. CROSGRAVE.
- 168. WAGES. Dr. CROSGRAVE.

POLITICAL SCIENCE

- 5. EUROPEAN MUNICIPAL ADMINISTRATION. Professor SCHAPER.
- 6. AMERICAN MUNICIPAL ADMINISTRATION. Professor SCHAPER.
- 7a,b. STATE AND LOCAL GOVERNMENT. Dr.
- 51-52. BUSINESS LAW. Professor YOUNG.

EDUCATION

- 1a,b. BRIEF COURSE IN THE HISTORY OF EDUCATION. Professor
- 3a,b. SOCIAL ASPECTS OF EDUCATION. Professor

FOURTH YEAR AND GRADUATE COURSES

SOCIAL WORK

- 122. SOCIAL STATISTICS AND SOCIAL SURVEYS. Methods of gathering and presenting community facts. Lectures, problems, and field work. Dr. ARONOVICI.
- 162. SOCIAL AND INDUSTRIAL LEGISLATION. Fundamental principles, legal and economic, of social welfare legislation, their application to current problems, and the agencies formulating or promoting them. Dr. CROSGRAVE. (Ec. 162.)
- 124. METHODS OF COMMUNITY ORGANIZATION AND SOCIAL WORK IN SMALL TOWNS AND COUNTRY. Professor TODD, Associate Professor BERNARD.
- 125-126. SETTLEMENT AND SOCIAL CENTER WORK. The history and function of leisure. Neighborhood organization, private and public, for meeting neighborhood recreational needs. Lectures and practice work in local settlements. Dr. ARONOVICI, Mr. BURT.
- 128. CHARITABLE ADMINISTRATION, FINANCE, AND PUBLICITY. A technical study of methods of organizing charitable agencies, of financing them, and of making the public aware of their work. Lectures and practice work. Mr. DAVIS, Mr. STILLMAN.
- 130. TECHNIQUE OF FAMILY TREATMENT. An intensive study of case work as the basis of practical dealing with problems of dependency and delinquency. Lectures and conferences. Mr. BRUNO.

132. JUVENILE COURTS AND PROBATION. Primarily a course in probation practice work, but prefaced by lectures on the social and legal aspects of the juvenile court. Professor TODD, Judge WAITE.
- 113-114. FIELD WORK IN HOSPITAL SOCIAL SERVICE. A course open only to students who are properly grounded in case work and who wish to specialize in this field. Miss TEBBETS, Miss YERXA.
- 201-202. GRADUATE FIELD TRAINING. Twelve hours per week, each semester. Open to fifth year students only. Miss BEDFORD.

SOCIOLOGY AND ANTHROPOLOGY

- 113-114. THE AMERICAN PEOPLE. Professor JENKS.
119. THE FAMILY. Professor TODD.
120. SOCIAL PROGRESS. Professor TODD.

ECONOMICS

- 35-36. PRINCIPLES OF ACCOUNTING. Dr. HARPER.
101. STATISTICS. Professor DURAND.
191. PUBLIC FINANCE. Assistant Professor BLAKEY.

POLITICAL SCIENCE

101. CONSTITUTIONAL LAW. Professor SCHAPER.
106. LEGISLATIVE POWER AND METHODS.
108. THE POLICE POWER. Professor YOUNG.

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

A Proposed Investigation
in the Teaching of
English Composition
1917-1918



297
General Series No. 57

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A PROPOSED INVESTIGATION IN THE TEACH- ING OF ENGLISH COMPOSITION

To Minnesota Teachers of English:

For some time there has been a growing feeling among the English teachers of the state of Minnesota that they could and ought to contribute more than they have to the solution of some of the many problems in English teaching. This feeling has shown itself at the conferences of the English section at the State Association meetings in the fall, and more recently at the University each spring. Consequently, when the University of Minnesota, through the College of Education, offers to cooperate with the English teachers of the state in the investigation of certain concrete problems in English, it seems as tho the English teachers of the state should eagerly grasp the opportunity.

Of the many problems in English pressing for solution, two have been selected for this initial cooperative study. The first is that of Minimal Requirements in English Composition. How much should be demanded of a pupil in English in any one year in high school? What are the actual products of composition teaching in the high schools of our state? What attainments should be expected?

The second problem is that of progress, growth in power. How rapidly should an English student improve in his composition work in the freshman year? Should he improve faster in his senior year? To what degree does practice in composition result in improvement? What amount of progress in a given period of time ought a teacher to expect? Surely the English teachers of Minnesota will take pride in aiding in the solution of such pertinent questions as these.

To get material for the study of these problems, it is necessary that the regular classroom work of a large number of English teachers be gathered, and that this material be rated according to some uniform standard.

To gather this material without adding to the teacher's burden, and without interfering with the previously outlined English work for the term, is not an easy task. The following

method, however, will enable most teachers to carry out any plans that they may have made, and yet to do their bit to aid in this coöperative study.

GENERAL PLAN

1. A series of twelve topics in each of the three forms of discourse, Narration, Description, and Exposition, are proposed. The teacher may choose whichever set most nearly meets her plans, and then will give the topics in that set, one at a time and in regular order, to her classes for their regular weekly composition work, merely conforming to certain methods which must be uniform for all if the material is to be of value. For those who prefer not to follow one type of discourse through the entire twelve weeks, a fourth series of topics is offered.

2. Each week as the compositions on the topics are written, the teacher will grade the compositions on a uniform scale (the Harvard-Newton composition scale will be used) and record the grades on a record sheet. This record sheet *with the compositions* will then be sent to the University where the results will be compiled and reported to those who engage in the investigation.

This, in brief, is the entire plan. It is one which is feasible if the English teachers of Minnesota will coöperate. Every teacher or any teacher, whether he has ever used scales or measurements in English composition or not, can do his part in this movement if he will.

The time is soon coming when knowledge of educational scales and tests will be a part of the qualifications of every English teacher. Here is an opportunity to learn about one scale. The Harvard-Newton scale has been chosen for this work, not because it is the only scale in existence but because it seems to lend itself most easily to our use. The division of the scale into types of discourse is a feature of this scale which commends it to this investigation.

In reporting the results of this investigation, the name of no school or teacher will be given without permission. Any school or teacher who desires to keep his name secret can rest assured that the persons in charge of this work will not violate his confidence.

Directions for carrying on this investigation accompany this letter. These directions have been written in the endeavor to

make the work simple and easy. To make it more easy, however, it has been divided into several parts. Any teacher who feels that he can not undertake the entire program, and yet who would like to contribute to this state-wide movement may feel at liberty to undertake any part or parts. If one can do only Part I, let him do that; if another can do Parts I and II, let him do that; if another can undertake three parts, let him do that. By each doing what he can, this plan will become a success. Let no one feel afraid to attempt this, or that his part is too small to be of value.

By close coöperation in this movement the teachers of English in Minnesota can make a substantial contribution to the literature of English teaching.

This program has been approved by the officers of the Minnesota Association of Teachers of English and by the Committee appointed at the University conference of English teachers in April, 1917.

CHARLES BOARDMAN,
President, Minnesota Association of Teachers of English
EDITH M. PENNY,
Chairman, University English Conference Committee

PLAN AND DIRECTIONS FOR AN INVESTIGATION IN ENGLISH COMPOSITION IN MINNESOTA HIGH SCHOOLS

PURPOSE OF INVESTIGATION

This investigation is made in order to ascertain the following facts concerning English composition in the high schools of the state of Minnesota:

1. Minimal requirements. What degree of attainment can reasonably be expected in each of the four years of high-school composition work?
2. Progress in attainment. What is the amount of progress in English composition which ought to be expected in each of the four years of high school through twelve weeks of practice in composition writing?

PLAN OF INVESTIGATION

The investigation will be conducted in this manner. A list of twelve topics for each of the three forms of discourse, Narration, Description, Exposition, is proposed. A fourth list of

twelve topics is offered, involving the three types of discourse. The selection of these topics is the result of securing the judgments of a number of English teachers on a much longer list of topics suitable for high-school classes.

The teacher who wishes to cooperate in this investigation will choose one of these sets of topics and give them to her classes for their regular weekly composition work, using the topics in the order in which they are listed. Each week, as the themes are written, he will mark them by the Harvard-Newton Composition Scale. At the end of the period of the investigation, he will mail the papers and class record sheets to the College of Education of the University of Minnesota.

At the University of Minnesota, a further study of these themes and class records will be made, and in due time a report on the investigation will be made to all those who cooperate in the work.

The investigation is divided into three parts. It is not obligatory that teachers desiring to cooperate should do all. If you can not do more than Part I, do that; if you can also do Part II, do that; if you can do all three parts and thus complete the investigation it will be still better.

Neither is it necessary to carry on the investigation with all the classes which one is teaching. To do so will be advantageous if one can find the time, but it is better to use one class than not to engage in this cooperative work.

DIRECTIONS FOR INVESTIGATION

A. GENERAL DIRECTIONS

Follow all directions carefully. To be valuable, work of this nature must be done in a manner as nearly uniform as possible. Failure of individual teachers to follow directions will render their work of no value, and should their results be used in composite studies, would negative the work of others.

B. DIRECTIONS FOR WRITING THEMES

I. Choose one of the four sets of topics which appear below as the topics for the themes of your classes during the twelve weeks. Different sets may be used for different classes, or the same set for all classes.

NARRATION

1. When mother was away.
2. The second-hand Ford.
3. The most exciting ride I ever had.
4. It did n't pay.
5. A rainy day in camp.
6. It was my first party.
7. A day of misfortunes.
8. We saw sparks coming from the chimney.
9. The pennies that never got to Sunday School.
10. A schoolroom episode.
11. The last five minutes of the game I hardly breathed.
12. I had looked forward to this particular day for weeks.

DESCRIPTION

1. It was a sight worth seeing when the boys marched past.
2. I watched the crowds at the station as the soldiers boarded the train.
3. One of my teachers.
4. The one I know best of all.
5. My neighbor's dog.
6. Mrs. Tyler boards the train with four children—one in arms—and many pieces of hand luggage. Describe her departure.
7. The lunch room as seen by a mouse.
8. A room I should like to have.
9. It was unmistakably a boy's room.
10. He looked like a picture of woe.
11. The oddest person I know.
12. A bureau drawer.

EXPOSITION

1. How I earned some money.
2. What I should like to do or be.
3. Why Monday is blue.
4. The sort of teacher I like.
5. What I would do with one hundred dollars.
6. Red Cross work.
7. Why we must win this war.
8. Why I want a live pet.
9. Every day patriotism.
10. The kind of movies I like best.
11. How to care for a garden.
12. My one extravagance.

COMPOSITE

1. When mother was away.
2. It was a sight worth seeing when the boys marched past.
3. How I earned some money.
4. The second-hand Ford.

5. I watched the crowds at the station as the soldiers boarded the train.
6. What I should like to do or be.
7. The most exciting ride I ever had.
8. One of my teachers.
9. Why Monday is blue.
10. It did n't pay.
11. The one I know best of all.
12. The sort of teacher I like.

2. Do all the work through the regular weekly composition work of the classes if possible.

3. Each week, beginning with the school week of November 5, 1917, on the regular weekly composition day, ask the class to write on one of these topics, *using them in the order in which they are listed. Do not assign the topics in advance of the recitation hour in which the writing is to be done, nor allow the students to know what the topic is to be.*

4. Have all themes written in the classroom during a regular recitation period.

5. Before assigning the topic see that each student has clean ruled paper and well sharpened pencils or pen and ink. Use ruled paper that is 8x10 inches in size. Then proceed as follows:

a. Instruct each student to write his name and sex on the first line of the sheet; on the second line, his age in years and months, and his classification in school, freshman, sophomore, junior, senior. In the case of schools with mid-year promotions, the semester should be indicated as freshmen I, freshman II, etc.

b. Say to the class, "I am going to ask you to write a theme. I shall give you a topic and you will have 35 minutes in which to write. The subject is—(here name the subject for this day). Write the subject on the third line of your paper as a title."

c. After the subject is written, say to the class, "Write on only one side of the paper. Remember to leave a margin of one inch at the left of your sheet. Think what you are going to say before you begin to write. Try to arrange your ideas in the best order you can. Then use the best words and sentences you possibly can to express your ideas. Look over your theme after it is written remembering that spelling, capitalization, and punctuation are important. Write the best composition you can. You have time enough to write a good theme. Use the full time."

d. Repeat the directions before the work begins. (The exact words need not be used each week, but all the ideas should be expressed each time. There is no objection to writing the essential parts of these directions on the board.) Note the time and at the end of thirty-five minutes collect all papers.

e. No other instructions than the above should be given. All work should be done in the classroom. No topics should be assigned in advance. All materials should be provided before the work begins. No interruption or distraction of any kind, such as visitors, should be permitted. Give the students a fair opportunity.

6. There is no objection to the student knowing about this attempt at composition measurement. Where several classes in one school are writing at various periods of the day on the same topic, caution them against telling each other the subject. In such cases, present the plan as an inter-class contest. They will not pass the subject on to others if they realize that in so doing they are giving the other class an advantage.

7. Having collected the themes, the next step is to use a scale for scoring them.

C. SCALES AND HOW TO USE THEM

1. *Why a scale is needed.*—A scale is needed in the measurement of composition for just the same reason that a foot rule is needed in measuring length, a pitch pipe in measuring the pitch of the voice, or an ammeter in measuring an electric current, in order to give clearness to thought and definiteness to behavior. A composition is an extremely complex product of human thinking and acting, and upon examination is analyzable into a large number of significant qualities.

In the case of any particular theme, these qualities are present *more or less* and in *varying combinations* so that it is difficult to assign to it any exact mark like *A, B, C, or D*. Nothing is easier to demonstrate than that a group of teachers of English will vary in their judgments of the quality of a theme and of the mark it merits, or that an individual teacher will vary in his judgments of the same theme at different times. Just because of this and in the interest of clear thinking about the problems of composition teaching, there is needed some means of stabilizing the judgments upon which marks are based. To serve this end of stabilizing and standardizing the teachers' marks and of rendering them objective, the composition scale has been evolved.

2. *What a scale is.*—A composition scale is a number of compositions arranged in a serial order of merit. Most composition scales have been arranged on the basis of the composite result of the scores assigned to a given set of compositions by a group of teachers of English and other equally qualified persons. In

such arrangement first place is given to the theme which the larger number of such judges scored the highest. Other themes are similarly located in the scale, the one judged poorest being placed lowest. The several themes thus arranged in the order of their merit, as determined by the composite scores of capable judges, form an objective standard with which other themes may be compared so as to determine the value of the latter.

3. *Can teachers of English use scales?*—The answer to this is that most of them do. The marks *A, B, C, D, E*, constitute a five-point scale expressing relative merit. Such a scale has no objective content and hence its meaning is equivocal to any one except the user. Most theme markers give such a scale more or less content and are able to describe what each mark means or to illustrate it by an actual composition. When such a scale is thus described or illustrated, it becomes objective and is tangible to others besides the user.

A scale thus rendered objective is certainly an improvement over the simple arrangement of letters. Even so, it remains largely an individual scale, the expression of one person's opinion. The standard composition scale is superior to such individual scales, just because it represents a large number of competent judges and hence represents more generally acceptable ideals. Any English teacher who is willing to think about his problems in impersonal terms and to profit by the judgment of his professional comrades can learn to use a composition scale with profit to his work.

It should not be assumed that the composition scales now available are finally satisfactory instruments. Admittedly they are better than no scale, and serve a function that individual opinion fails to meet.

THE HARVARD-NEWTON SCALE: A DESCRIPTION AND VALUATION

1. In scoring or marking papers in this investigation, the Harvard-Newton Scales will be used. There are three scales, one for each of the three forms of discourse, Narration, Description, Exposition. Each scale is complete in itself; i.e., contains samples of compositions ranging from the poorest to the best in that form of discourse. Each composition in each scale has a numerical value. There is also a statement of the merits of the

composition, a statement of its defects, and a comparison with other compositions in that division of the scale.

2. A careful study of these compositions with their merits and defects shows that the makers of these scales had in mind some such grouping of qualities as is shown in the following outline.

- I. Power of Thought, as shown in
 - A. Fertility of Ideas
 - B. Power of Organization
 - C. Orderly Procedure
- II. Sincere Feeling
- III. Power of Expression, as shown in
 - A. Diction
 - B. Sentence Structure
 - C. Paragraph Structure
 - D. Theme Structure
- IV. Correctness of Expression, as shown in
 - A. Spelling
 - B. Grammar
 - C. Punctuation

To illustrate: in reference to I, Power of Thought, in the outline above, we find that the themes designated No. 1 are noted as having "natural sequence," "logical order," "argument clearly in mind."

In reference to II, Sincere Feeling, we find the themes designated No. 1 are criticized as follows: "sensation of dreariness and chill is conveyed," "author expresses himself convincingly."

In reference to III, Power of Expression, comment is made in the themes designated No. 1 upon "color images," "mature use of connective words," "careful choice of words," "maturity of style in sentence structure," "marked variety of sentence structure," "paragraphing good," "easy transition between paragraphs," "arrangement has helped writer to keep safely to his main points."

The themes designated No. 2 on the scale lack this Power of Expression, characteristic of the themes designated No. 1.

In the themes designated Nos. 3, 4, and 5, on the other hand, remarks such as the following frequently appear in the criticisms:

In regard to points I and II, "plan of reasoning undeveloped," "argument not clear," "incoherent"; in regard to III, "vocabulary meager," "sentences short and disconnected," "paragraphs without system," "faulty in unity and coherence," in regard to IV "frequency of mechanical errors," "inferior in mechanics of expression."

In no themes designated No. 1 are there more than four mechanical errors—and none of these, gross errors; mechanical errors are increasingly numerous in the descending scale of theme values. In the themes designated No. 6 the mechanical errors are gross ones, numbering from fourteen up to “too many to count” in the theme that has *one* correct sentence.

3. *Method of using the scale.*—The method of using the scale is that of comparison, and in order to use the scale efficiently, a person must become thoroly familiar with it. He must know the several parts of the scale, and see clearly that the successive compositions from the lower end of the scale to the upper are of increasing merit, and why they are so. Study of the scale and the comments on each composition, together with the study as suggested in 2 above will give one this knowledge. A person who does not understand the scales will not be able to do efficient work with them.

Before undertaking to score the themes written in this investigation, the teacher should have considerable preliminary practice. To gain skill through practice, proceed as follows:

Read the theme to be scored. Compare it with the poorest specimen in the scale. If it is better than the poorest in the scale, compare it with the next higher, and so on, until a specimen in the scale is found which corresponds in quality to the theme being scored. The value of this scale specimen is the value of the theme being scored. Check your judgment by comparing the theme with the specimens next above and below the one which seems to correspond to the theme.

Do not be misled by the expression “correspond to.” To be of the “same quality” does not mean that a theme is on the same subject, that it has the same number of words, the same number of errors or necessarily the same type of diction. “Quality” is here used as a single term to represent all the qualities detailed in the outline on page 11. The judgment of quality is thus a composite judgment, and because of this fact a difficult judgment to make and one subject to many variations. “To correspond to” means that, considering all the factors that enter into the quality of a theme, this theme is of the same merit as the one in the scale.

If no specimen exactly corresponds, find the one which most nearly corresponds to the theme. Check your judgment by a

final comparison with the specimens next above and below this specimen.

It is well for teachers beginning the use of the scale to practice with others and to compare judgments. In scoring the papers in this investigation each scorer should work independently.

SCORING THE RESULTS

PART I

SCORING THE THEMES

After a teacher has become familiar with the scale and has had preliminary practice in using it, he is ready to score themes. Proceed as follows:

1. Arrange the themes of the class as collected in alphabetical order. Copy the names of the class on the class record sheet in alphabetical order, surnames first.

2. Mark on the class record sheet, in the space provided at the bottom of the sheet, the scale used in scoring the themes to be recorded in the column, i.e., the scale for Narration, Exposition, or Description. This, of course, corresponds to the set of topics chosen for the themes of this class. (See point 1 "Directions for Writing Themes.")

3. Take the first theme and compare it with the specimens of the scale. If you judge the theme to be equal to one on the scale, give it the same numerical value. Mark this value on the theme and also on the class record sheet opposite the student's name.

If the theme is better than a specimen on the scale, but not so good as the one next higher, give it a score exactly half-way between these two specimens. If it is not so good as a specimen on the scale, but better than the one below, give it a score exactly half-way between the two. These intermediate scores are printed on the scale sheet. The intermediate scoring as asked for in this paragraph is optional with the teacher. If a teacher does not wish to give intermediate grades, then score all themes with the value of the specimen that is judged to correspond most nearly to the theme. Write the score on the theme and also on the class record sheet opposite the name of the pupil.

In order to get the best results in scoring, try the theme up and down the scale in comparison with several specimens.

Themes may be corrected by the teacher and returned to students for revision. This investigation is concerned with im-

provement in English composition, and improvement may come through correction of error. But the *original themes* as scored by the teacher are to be re-collected and mailed to the above address. Revised or rewritten themes have no value in this investigation, and such themes are not to be scored or sent to the University.

PART II

COMPUTING MEDIANS OF CLASS AND INDIVIDUAL SCORES

A. WHAT A MEDIAN IS

A median is a measure showing the central tendency of a group of individuals or of the several marks of one individual. In this respect it is like the arithmetical average, but is regarded as a more satisfactory and more convenient measure to use, especially with small groups. It is the mid-point of the scores of any class or individual when these scores are arranged in the order of their magnitude. For example, if a student wrote three compositions which would be graded one, two, and three, then the median is the composition graded *two*. In this case the average would be two also.

The median is a more satisfactory measure than the average, first, because it always represents a particular achievement while the average may not, and second, because it is not affected by wide variations in a pupil's achievements. To illustrate: suppose a pupil wrote three themes, graded one, two, and ten. The median of the pupil's work would be two, the average would be four and one third. The median represents a particular achievement and is not affected by the wide variation in the composition marked ten. The average represents no achievement of the pupil at all, and has been greatly affected by the wide variation of a single theme.

B. COMPUTING MEDIANS

1. *Class medians*.—When all the themes have been scored and recorded on the class record sheet: a. Rearrange these scores for each set of compositions on a separate sheet in the order of magnitude, placing the highest scores at the top and ranging down to the lowest. There will be as many scores as there are individuals in the class.

b. Count down the column of scores until the median score is reached: i.e., that score which is exactly half-way down the column so that there are as many scores above it as below it.

c. If the class happens to have an even number in it so that no median score appears, compute the median score as follows: Find the two scores which are exactly at the center of the group so that there are as many above them as below. Compute the value which is exactly half-way between these two scores. This will be the median score of the class.

d. Place the median score in the space at the bottom of the class record sheet marked "median class scores" being sure that the score at the bottom of each column is the proper one for the set of compositions recorded in the column.

The median score represents the central tendency of the class. The progress, or lack of progress, of the class can be ascertained by noting whether the weekly median scores of the class rise, fall, or maintain an even level on the scale.

2. *Median scores for individuals.*—When all the scores for all the sets of compositions have been recorded, the median score for each pupil may be computed. The procedure is the same as in computing class medians, the twelve scores for each individual being the numbers for which the median is to be found.

Place the pupil's median score thus computed in the column marked "median individual scores" and opposite the pupil's name.

PART III

GRAPHS

1. *What a graph is.*—A graph, as the word is here used, is a diagrammatic representation of the scores made by a student or a class. It shows in a visual way by means of lines or "curves" the changes in achievement from week to week. It may be made as follows:

a. Use a sheet of graphing paper or rule an ordinary sheet of paper into small squares. Mark the ordinate or the line at the side of the paper with the values of the composition in the scale. In doing this consider the lowest point on the ordinate as 0 and the highest point as 100. Indicate the several compositions at points proportional to their values above the zero mark. Insert any values intermediate between the values of the scale which have been used in scoring. Mark the lines along the abscissa, or

the bottom of the paper, with the numbers of the set of compositions, placing the number 1 at the left and running across to number 12 at the right.

b. On the class record sheet find the score for the first composition written by pupil whose graph is to be made. Place on the first ordinate, the perpendicular line at the left of the graph sheet, a dot at the place where the score in question would fall.

c. On the second ordinate, the one corresponding to the second theme, place a dot indicating the score of the second composition. Continue in this way until points are placed for each of the twelve compositions.

d. Connect each dot with the succeeding dot by a straight line. The resulting line is the "curve" for that individual.

e. Class curves can be secured by using the class medians in place of the individual's scores, and proceeding as above.

With a little instruction pupils will learn to make these graphs for themselves. If they begin at the beginning of the experiment they can see their curves grow from week to week. Such objectification of achievement often serves as an effective stimulus to increased effort.

By means of such visual representation as is indicated in the graph a teacher can see the standing and the progress of a pupil or class.

When a teacher has completed his work upon this investigation, it is desired that he send his materials to the Bureau of Co-operative Research, College of Education, University of Minnesota. The following materials are needed:

1. The original themes written by the students.
2. The class record sheets properly filled out.
3. Graphs of individual and class scores when available.

At the University, representatives of the English teachers will examine the material and prepare a report to be issued later.

Any person who desires to engage in this coöperative investigation and who desires copies of the scales, class record sheet, and graphs, should fill in the following letter and mail. One copy of each item for each class to be reported will be sent free.

*Bureau of Coöperative Research,
College of Education,
University of Minnesota,
Minneapolis, Minnesota.*

DEAR SIRs:

I desire to coöperate with other high-school teachers of English in the investigation described in University of Minnesota Bulletin No. 57. I shall conduct the experiment withclasses and shall have approximately..... students. I should be glad to receive materials as follows:

	Number
1. Harvard-Newton Composition Scales, especially arranged
2. Class record sheets
3. Graph sheets

Very truly yours,

.....
.....

City or Town

The Bulletin
of the University of
Minnesota

The Psycho-Educational Clinic
1917-1918



General Series No. 58
Vol. XX No. 49 November 24 1917

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Minneapolis, Minnesota

THE PSYCHO-EDUCATIONAL CLINIC

INTRODUCTION

In November, 1916, the College of Education of the University of Minnesota, in conjunction with the Medical School, opened a clinic for the mental and educational examination of school children. The motive in initiating this movement was twofold. First, to render a service to the children of the community by determining as exactly as possible their mental status and educational possibilities; second, to train properly qualified students in the methods of clinical work. During the first year from December to May the clinic was attended by ten students and instructors and examinations were made of approximately 200 individuals. These individuals reached the clinic through various avenues, such as the public schools, children's homes, charitable organizations, courts, private schools, the Medical School Dispensary, reference by private physicians, parents, and upon personal initiative.

In age the cases ranged from 3 to 26 years, and in intelligence quotients from 39 to 140. Interestingly enough, the records show a considerable number of supernormal cases, more than the number of normal cases and approximately as many as of the subnormal group. A number of such supernormal children have been saved, as a result of the examinations, a half-year or more of school work through special promotions and individual instruction. Other children through the discovery of their special difficulties and through readjustment to their school tasks were saved from failure in their school work. In other cases, the examination showed the children were mentally incapable of doing the work they were assigned, and a new school regime was recommended. Again there were children whose low mental development indicated the need of continued protective care in institutions. There were also children suspected by parents or teachers of being mentally defective who were shown to have normal intelligence but were in need of medical treatment.

It was an interesting procession of human nature that passed through the clinic in the few months of its existence. Many of the cases were definitely helped and several students became competent examiners. The measure of success which attended the tentative establishment of the clinic justifies its continuance. Accordingly it opens for the current year, and since it seeks to cooperate with the public this bulletin of information is issued for the benefit of those who desire to make use of its facilities.

CHILDREN ENTITLED TO MENTAL EXAMINATION

The mental examination of children has been connected in the minds of many persons with the problems of mental deficiency and with delinquency. There are certain historic reasons for this, inasmuch as the

Binet tests originated in an effort to detect the presence of such individuals in the school population and had their earliest elaboration in connection with the problems of feeble-mindedness. It is a mistake, however, to suppose that the use of mental tests is so narrowly limited, or that other children can not profitably be measured. It is altogether probable that from the standpoint of school instruction the feeble-minded are the least important group to be studied. Greater increase of school efficiency is forthcoming from the proper diagnosis of other children. It may aid clear thinking about this matter if certain groups are indicated.

Group One. Over-age children and those making slow progress.—

There are many reasons for retardation, one or more of which may be operative in the case of any particular child. The question of mental status in all such cases is so important that any child who is in danger of being retarded is entitled to an adequate mental examination.

Group Two. Children defective in particular skills or knowledge.—

There are children who are capable in some or most forms of school work, but who lack skills in a particular subject like arithmetic, handwriting, or reading. Intelligent assistance to such pupils requires exact knowledge of the nature and extent of the defect, and equally exact knowledge of the general intelligence of the pupil. Both ability and achievement tests are serviceable in obtaining this information.

*Group Three. Children of superior intelligence.—*Evidence shows that there are as many supernormal children in the school population as there are subnormal ones. However, the facts of age distribution in the schools show that there are fewer accelerates in all our schools than there are retardates, and the difference in the number of children in these two groups indicates that we are doing less for superior children than we should do. One reason for this is the difficulty of detecting the really superior children through the ordinary school procedure. The personal judgment of teachers and parents should be supplemented by mental measurement in order that the existence and amount of such superiority may be adequately determined.

*Group Four. Neuropathic children.—*There are a number of children in the school who are suffering from various neuropathic conditions. Some are choreic; others are morose. The neuropathic conditions are often complicated by abnormal conditions of intelligence. In such cases it is important to have both the medical examination and the psychological examination.

*Group Five. Delinquent children.—*Not every child who violates the laws of the State or the school is of defective mentality. Some, however, are, and the possibility of such deficiency is so great that every child who is a truant, or who is incorrigible in school, or who for any offense falls into the hands of the court, should be mentally examined. Defective children should not be made responsible for their conduct to the same degree as normal individuals. Neither should persons of ordinary intelligence be shown leniency on the ground that they are mentally deficient.

Group Six. Peculiar children.—There are children whom teachers and parents describe as peculiar. They may be indifferent to the things which interest most children; they may be unsocial, or subject to unusual interests and may appeal to their fellows as queer. Some children who get credit for being peculiar are really gifted individuals; others are subnormal, and others are merely eccentric. All are entitled to an adequate mental diagnosis.

Group Seven. Subnormal children.—The number of subnormal persons in the population at large and the number of such children in the schools is much greater than was formerly thought. They constitute a serious menace to society and give teachers no end of difficult problems. The line which separates them from normal persons is not clear cut. They are of varying degrees of deficiency from idiocy up to high-grade morons. Accurate tests are scarcely needed to demonstrate idiocy. They are essential in the detection of the higher grades of the feeble-minded and it is the latter who constitute the most menacing problem, both for society in general and for the schools.

Group Eight. Children with special aptitudes.—Just as there are children who are suffering in their growth and educational advancement because of specific defects, there are others with special aptitudes which should be singled out and emphasized. We are very far as yet from any adequate program of mental examination for vocational guidance, but some direction can be given upon the information gained from a study of the general intelligence of an individual, from a study of his fundamental interests, an investigation of his academic record, ratings by his fellows, diagnosis as to special skills like muscular control, vision, hearing, rate of reactions, etc.

Group Nine. Children held for placement in private homes.—Charitable agencies seeking homes for children, and intelligent men and women seeking children for adoption are careful that the physical condition of a child be clearly understood by all the parties concerned. If a child is physically unsound it is only fair to all that that fact be known. It is equally the part of wisdom that the mental status of such children be equally well understood. No person should be led to accept for normal a mentally deficient child. The interests of the child as well as the interests of others demand that the actual facts should be made as clear as possible.

Group Ten. Normal children.—The possibilities of mental variation are so numerous, and important deviations are frequently so subtle, that it would seem wise for normal children living under normal conditions to be given any assistance which a mental examination will afford. A general mental examination should be given such children just as they are given a regular physical examination, as a protection against the presence of unrecognized but important conditions. The time may come when teachers will be equipped to make simple mental diagnosis of all their children. Until such time special agencies must be invoked to this end.

LIMITATIONS OF DIAGNOSIS

The present advancement of psychological knowledge does not permit adequate diagnosis of all children included in the groups enumerated above. Some service may be rendered to all, however, inasmuch as an understanding of any case involves the degree of mental development which an individual has attained. This can fairly well be determined. In many cases more specific help may be given.

PRESCRIPTIVE TREATMENT

The clinic is interested not merely in testing and diagnosis but also in remedial measures, particularly of an educational nature. Such measures will be recommended wherever possible and within certain limits assistance will be given in carrying such measures through.

PROVISION FOR PHYSICAL AND MEDICAL EXAMINATION

The psycho-educational clinic is conducted in conjunction with the clinical departments of the University of Minnesota Medical School. A committee consisting of Dr. J. P. Sedgwick, Professor of Pediatrics, and Dr. A. W. Morrison, Assistant Professor of Nervous and Mental Diseases, both of the Medical School, and Professor M. E. Haggerty, Professor of Educational Psychology in the College of Education govern this affiliation, subject to the regulations of their respective colleges. Mutual privileges of clinical reference and report are enjoyed so that it is possible to secure for any person coming to the psycho-educational clinic a complete physical examination. Approximately one half of all persons coming to the clinic in the year 1916-17 were examined in one or more of the medical clinics.

APPOINTMENTS

The clinic is open during the regular college year on Monday, Wednesday, and Friday from 12:30 to 2:30 p.m. New cases are not accepted after 2:00 p.m. on any day. It is desirable that previous appointments be made when possible. Such appointments may be made by telephone through the office of Professor Haggerty at the University between 8:30 and 9:00 a.m. on any week-day. The clinic is held in rooms 126-128 Millard Hall, University Campus, corner Washington Avenue and Union Street, and may be reached by interurban cars running between Minneapolis and St. Paul.

FEES

No fees are required in the psycho-educational clinic. Individuals who are examined in the medical clinics will pay a fee of ten cents for each visit.

*The Bulletin
of the University of
Minnesota*

Department of Agriculture

DAIRY COURSES

Creamery Butter-Makers Short Course Dec. 4-14, 1917

Cheese-Makers Short Course Dec. 4-21, 1917

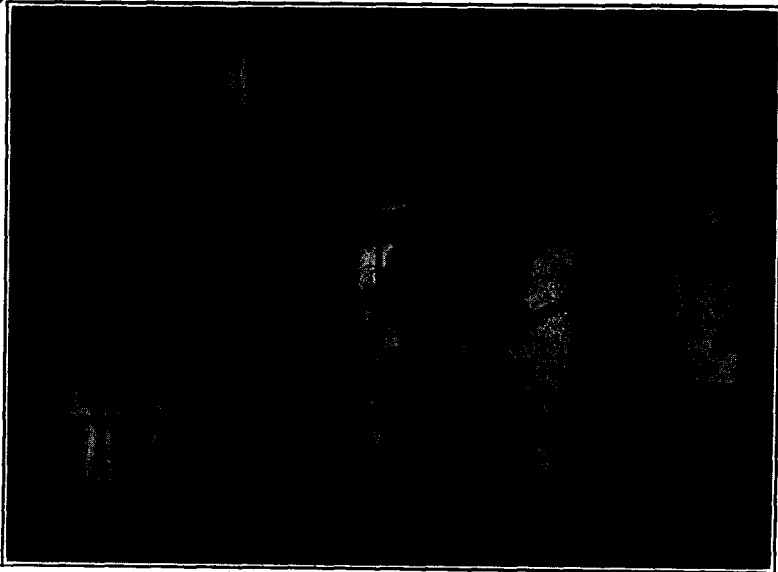
Ice Cream Makers Short Course Dec. 17-21, 1917

Dairy Short Course Jan. 8-March 29, 1918

Creamery Managers Conference Jan. 3-4, 1918

AT

University Farm, St. Paul, Minn.



Ammonia Refrigeration Machine

[36]

*Short Course Series No. 1 Vol. XX. No. 47
OCTOBER 31, 1917*

*Entered at the post-office
in Minneapolis as second-class matter
Minneapolis, Minnesota*

FACULTY DAIRY SCHOOL COURSES

1917-8

MARION LEROY BURTON, Ph.D., D.D., LL.D.	President of the University
ROSCOE W. THATCHER, M.A.	Dean, Department of Agriculture
A. V. STORM, M.A.	Director Short Courses, Department of Agriculture
H. H. KILDEE, M.S.A.	Chairman and Professor of Dairy Husbandry
R. M. WASHBURN, M.S.A.	Professor of Dairy Husbandry, in Charge of Dairy School; Dairy Technology, Ice Cream Making
R. M. WEST, B.S.	Secretary
JAMES SORENSON	Chief Instructor; Creamery Management
E. O. HANSON	Testing Dairy Products
S. G. GUSTAFSON	Butter-Making
J. L. MOWRY	Engineering
E. J. HOLMERS	Starters
ALEX JOHNSON	Assistant in Starters
EMIL G. OMAN	Assistant in Butter-Making
JOHN J. ROCH	Cheese-Making
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DAVID C. BERG	Creamery Machinery
SAMUEL JENKINS	Ice Cream Making
C. P. FITCH, B.S., D.V.M.	Dairy Bacteriology
L. V. WILSON, B.S.A.	Assistant in Dairy Bacteriology
H. R. SEARLES, B.S. in Agr.	Breeds of Dairy Cattle
G. E. WEAVER, M.S.A.	Feeding the Dairy Cow
W. L. BOYD, D.M.V.	Diseases of Dairy Cows
C. P. BULL, B.Agr.	Forage Crops, Pastures
A. M. BULL	Farm Structures
K. L. MATTISON	Creamery Bookkeeping
P. L. JOHNSRUD	Dairy Arithmetic

SPECIAL LECTURES

H. M. BRACKEN, M.D.	State Sanitary Laws
A. J. CHESLEY, M.D.	Preventing Diseases
S. H. WARD, V.M.D.	Livestock Quarantine
DON D. LESCOHIER, Ph.D.	Workman's Compensation Law
H. A. WHITTAKER, B.S.	Rural Sanitation, Water Supply
A. D. WILSON, B.S. in Agr.	Food Administration
M. P. MORTENSON	Insulated Ice Houses
W. A. MCKERROW	Dairy Test Association
N. E. CHAPMAN, B.A.	Marketing Eggs Through the Creamery

THE DAIRY COURSES

Purpose.—The purpose of the courses is to offer an opportunity to young men to become more thoroly trained in the science and the art of breeding, feeding, and managing dairy herds, conducting cow-testing associations and making the largest quantity of butter and cheese of the highest possible quality and to encourage them to greater community usefulness.

Demand.—The demand for men well trained in dairy herd management and in creamery operation is greater than the supply. Several farms and factories in the state have had difficulty during the last year in securing good men, even at liberal salaries. Dairy herd handling, creamery butter-making, and factory cheese-making offer good openings to young men who apply themselves faithfully.

Location.—The Dairy Courses are taught at University Farm, between St. Paul and Minneapolis. The School is reached by taking the Como-Harriet street car in either city, and getting off at Doswell Avenue. The school is about a ten-minute walk east from the car line. It is in the country, yet within half an hour's car ride of either city.

A List of Places furnishing room and board is supplied the students when they arrive.

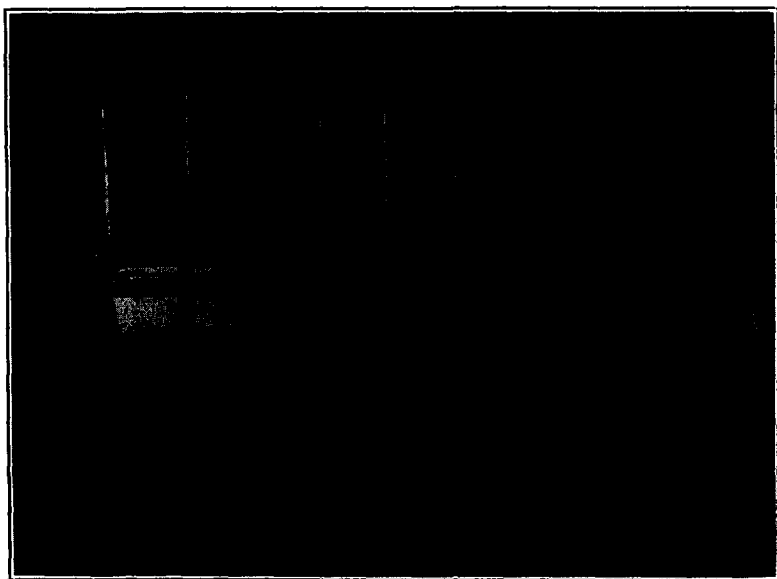
Lockers for clothing and books are free, but students are expected to provide their own padlocks.

The Instructors

All lecturers and instructors are practical men, chosen because of their special fitness to give accurate and sound advice in the particular work which they teach. Most of the instructors are veteran creamery men and come fresh from their labor in the factory to the work of teaching. For more than twenty years, the Minnesota Dairy School has led in practical teaching, and the success which the school has attained is largely due to the fact that the instructors have been workers in dairying, and not merely students of it. No pains will be spared to continue to secure men of successful experience.

Refrigeration

Ice is still considered the most economical cooling agent in most of the northern creameries, but there are many places in this state where natural ice is expensive because of the absence of a near-by lake or river. In such places the best business management is to install some kind of refrigeration plant. To familiarize butter-makers with the ammonia expansion type of machines, that they may successfully meet the changing condition, a refrigeration outfit, in the main workroom, will be



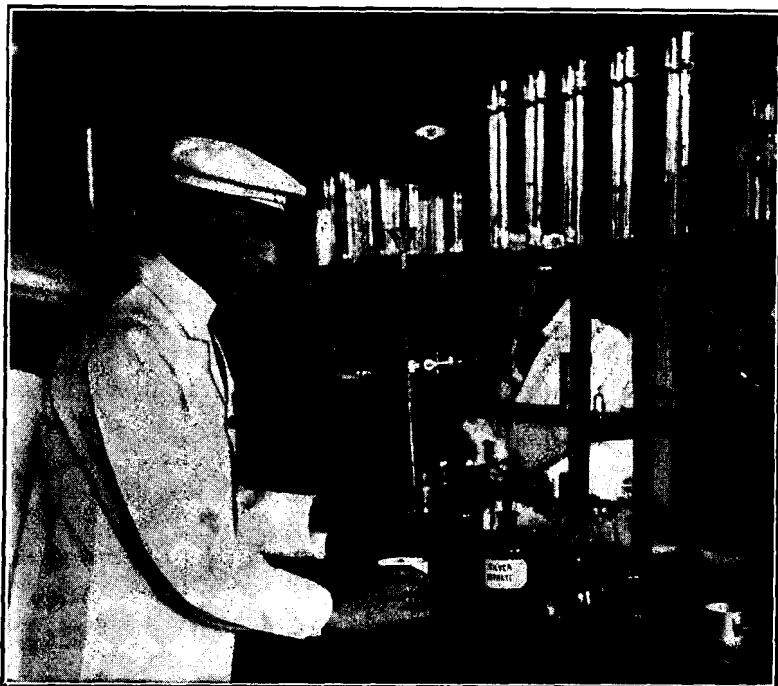
PASTEURIZING AND RIPENING CREAM

used daily. The students will also have instruction in the working of the "Gravity Brine" natural-ice system of refrigeration, and an opportunity to observe such a plant in continuous operation at University Farm. The insulated house is also fully explained.

Testing

Testing milk and dairy products is one of the few things that can be taught in a school better than in a factory.

Milk, as well as cream, is now purchased on the fat basis, and it is imperative that factory operators not only know how to make the tests but also be able to figure correctly the results obtained. The test room is provided with lactometers for the detection of adulteration, and with both steam and hand testers, the latest salt test, and the moisture test. The ability to test for salt and moisture in the butter, as well as for fat and acid



ADVANCED STUDENT TESTING BUTTER FOR SALT

in the cream, is now demanded of most butter-makers, and opportunity is here given to learn how.

The Courses

The Dairy School of the past served well its purposes and was helpful to more than 2,200 young men, many of whom have since achieved national distinction in various fields of dairy work; but the demands made upon the creamery men of today

are more exacting than those of even ten years ago, and these demands can be met only by men of fuller knowledge and more exact training. To continue to be of the greatest service, the school has been enlarged and divided into two courses, the Dairy Short Course for beginners, and the Creamery Butter-Makers Short Course for experienced men.

CREAMERY BUTTER-MAKERS SHORT COURSE

Beginning December 4, 1917, and continuing ten days, intensive, specialized instruction will be offered in handling ice machines and gas engines, testing dairy products, pasteurization, starters, controlling composition, creamery bookkeeping, and creamery management. The instruction will be given through lectures and practice work.

This course is planned to meet the needs of the experienced butter-makers who desire to brush up in particular lines, and is open only to those men who have had at least two years' all-around creamery experience.

This course will be much the same as the **Advanced Creamery Course** of the past.

Expense

Necessary expenses outside of railroad fare for the two weeks will be about as follows:

Registration fee.....	\$10
Room and board.....	15
White suits.....	5
Books.....	5
Laundry, etc.....	5
Total.....	<hr/> \$40

CHEESE-MAKERS SHORT COURSE

Beginning December 4, and continuing three weeks, the cheese-makers of the state will be offered a chance to learn starters and milk testing, and better and easier methods of making cheese. Lectures will be given on milk chemistry and bacteriology, answering clearly the question, "Why does milk spoil." While at work over the vat the best methods of handling poor milk and bad curd will be explained.



STUDENTS MAKING CHEESE

Cheese-making, tho less important in this state than butter-making, is worthy of study and should be encouraged in many localities. The work in the cheese-room is carried on as in any well-conducted factory.

The milk is received, carefully tested for acid and fat, and made into American cheese. Every step in the process is explained by the skilled cheese-maker in charge. Quality of product and efficient production of ample yield, are carefully studied.

This course is open to any young man over seventeen years of age, who has had at least six months experience at cheese-making.

Expenses

The necessary expenses outside of railroad fare for the three weeks will be about as follows:

Registration fee.....	\$10
Room and board.....	22
White suits.....	5
Laundry, etc.....	5
Total.....	<u>\$42</u>

ICE CREAM MAKERS SHORT COURSE

For five days, beginning December 17, the principles and practice of ice cream making will be taught by lectures and by practice with various freezers and in the cutting room.

The ice cream course will continue for a week, following the creamery butter-makers short course. It will be taught by butter-makers and ice cream makers, and from the standpoint of the local creamery rather than from that of the city enterprise.

Both bulk and brick ice creams are made, hardened, wrapped, packed, and in every respect prepared for shipping as in regular commercial plants. Our ice cream is sold to a discriminating trade, and has competed successfully with that put out by nearby commercial firms.

Any man who already knows milk and machinery, as creamery men must know them, can in a week acquire sufficient skill in ice cream making to enable him to handle a small ice cream sideline in a creamery.

To prepare young men to meet all reasonable future requirements, an ice cream department was established five years ago and equipped with machinery, freezers, ice-crushers, holding-tanks, mixing-vats, and all other essentials.

The course has proven a success. Freezers of four different types have been installed. These will furnish a chance for more practice work on the part of the students, and for familiarizing them with a larger variety of freezing machines.

Making ice cream is a new enterprise for many Minnesota butter-makers, but one offering, in many places, a bright future to the careful and diligent. At present about seventy-five creameries in the state are making ice cream and others are considering doing so.

Requirements for Admission

The course is open to any man or woman who has had a little experience in handling milk and making butter. The



STUDENTS MAKING COMMERCIAL ICE CREAM

regular creamery short course students are especially desirable as ice cream students, and should seriously consider staying for the third week of the work.

A tuition fee of \$5 is charged.

DAIRY SHORT COURSE

Beginning January 8, 1918, and continuing twelve weeks, creamery helpers and farm boys who wish more exact and fuller knowledge of dairying in general, will be offered a course in butter-, cheese-, and ice cream making, engineering, milk- and cream-testing, and record keeping. In addition, instruction will be given in dairy breeds, dairy stock judging, feeding, and management. This course will be of value to cow testing association workers and to dairy herdsmen, as well as to creamery helpers.



STUDENTS JUDGING DAIRY COWS

In the Dairy Breeds work the student will be given an opportunity to study the Ayrshire, Guernsey, Holstein, Jersey, and other breeds of cattle used for dairy purposes. Special attention will be devoted to the history, chief characteristics, adaptability, and production of these breeds. Those in which fairly distinct blood lines exist will be considered in greater detail with reference to the relative merits and popularity.

Dairy Stock Feeding will involve a brief study of the digestive organs of the cow and her feed requirements. The comparative value and economy of roughages and concentrates will be discussed with instruction in the economical selection of a ration for cows in different localities.

Practice work in comparative judging of dairy cattle of different breeds and ages will be given in Dairy Stock Judging. The relation of type to production will be considered, and groups of cows and young animals of the different breeds will be placed and reasons given.

Certificates

The Regents of the University will grant certificates to students who have taken the Butter-makers or Cheese-makers short course and passed satisfactory examinations and in addition have demonstrated that they have acquired special skill in the art of butter- or cheese-making, and are thoroly qualified to take charge of a creamery or cheese factory.

From two to five years of successful experience is usually required after the Dairy School course has been taken before a Regents' certificate is granted, and then only after a man's work has been under observation for months and can be fully approved.

On the average, about one in five of those who take the Dairy School course is granted a certificate, therefore the certificate stands for more than mere school attendance and academic learning.

CREAMERY MANAGERS' CONFERENCE

JANUARY 3 AND 4, 1918

The 625 coöperative creameries owned and operated by the producers, are the cornerstone of profitable dairying in Minnesota. They bring to the producer all there is in the business and provide healthy competition. If the time ever comes



DAIRY STUDENTS LEARNING TO CHECK LOSS

when the coöperative creamery ceases to exist in the Northwest, the producers of butterfat and of pure-bred dairy stock will suffer.

Of all the problems confronting the small creameries of Minnesota, the matter of efficient management is now the most pressing. Our veteran successful managers of coöperative creameries will be glad to pass on to the younger managers what they have learned.

To assist the farmer-managers to solve the many vexing problems, both old and new, a conference was established in

1915 and repeated in 1916, and 1917 when all sorts of questions were threshed out.

It will be repeated and enlarged this winter. Coming, as it does, during Farmers' Week when there are so many other helpful meetings, a good attendance is expected.

The Creamery Associations represented could well pay a part of the expenses of their secretary or manager to attend.

Special announcement will be issued later.

DAIRY SCHOOL STUDENTS

1916

- Abeln, Henry W., Richmond, Minn.
Albers, Frank, Richmond, Minn.
Alley, A. W., St. Paul, Minn.
Anderson, Newell, Moose Lake, Minn.
Bates, Benneville, W., Emmons, Minn.
Bethke, E. J., Waseca, Minn.
Bjerva, Nels J. D., Dennison, Minn.
Beyer, J., Easton, Minn.
Bleecker, Warren, Robbinsdale, Minn.
Brandt, Clarence H., Carlos, Minn.
Bullman, F. S., Blooming Prairie, Minn.
Bygd, Helmer, Boyceville, Wis.
Chatalle, Arthur L., Aitkin, Minn.
Dummer, Theodore, New Germany, Minn.
Emeott, Edward, St. Paul, Minn.
Flesh, Reinhold, Alexandria, Minn.
Folie, Harvey L., Albert Lea, Minn.
Fonfara, Albert, Delano, Minn.
Fredrickson, E., Finn, Minn.
Gaulke, Frank, St. Michaels, Minn.
Gay, G. E., Westboro, Wis.
Green, George Harry, Clear Lake, Wis.
Grindy, Bennie, Westport, Minn.
Grutsch, Carl V., Avon, Minn.
Gregerson, Geo., Prairie Farm, Wis.
Gudvangen, Andrew, Hanlontown, Ia.
Hanan, Lawrence L., Mondovi, Wis.
Hansen, Harry, Luck, Wis.
Hanson, Geoffrey, Bowlus, Minn.
Hauge, Selmer, L., St. Hilaire, Minn.
Hegge, Clarence, Grantsburg, Wis.
Hill, Arthur E., Floodwood, Minn.
Hinz, John, Osceola, Wis.
Hongslo, Peder, Minneapolis, Minn.
Holtberg, Willie W., Belgrade, Minn.
Jaus, Martin A., Gibbon, Minn.
Jensen, Geo. C., Underwood, Minn.
Johnson, Bernhard, Cokato, Minn.
Johnson, John, Biscay, Minn.
Klund, James, Cameron, Wis.
Klave, Oliver, Emmons, Minn.
Larsen, T. J., Wilmont, Minn.
Larsen, Otto C., Benson, Minn.
Leffler, John, North Branch, Minn.
Lehne, Kuno E., Springfield, Minn.
Lilly, Fred L., Princeton, Minn.
Lindstrom, E. W., Grandy, Minn.
Lund, Harry, Atwater, Minn.
Madsen, Louis L., Buffalo, Minn.
Menzhuber, Wenzel, Mahnomen, Minn.
Mikkalson, Mike, Keister, Minn.
Neilsen, Peder, Des Moines, Ia.
Nelson, Carl A., Cokato, Minn.
Olson, M. C., Little Falls, Minn.
Olson, Reuben F., Northfield, Minn.
Orner, Edwin M., Deronda, Wis.
Riedell, Gustave, Barron, Wis.
Rogers, L. V., Mora, Minn.
Roppe, A., Crookston, Minn.
Rouse, Chester, W., Ceylon, Minn.
Sandahl, Arthur, Burtrum, Minn.
Sandberg, Arthur W., Lindstrom, Minn.
Schons, Peter M., Mankato, Minn.
Selstad, Einar, Thief River Falls, Minn.
Seyforth, Lyman H., Mondovi, Wis.
Sorenson, Hans Erick, Little Falls, Minn.
Stucky, Jno. Henry, Pine Island, Minn.
Vakoc, Jerry E., Verdigre, Nebr., Verdigre,
Venske, Theodore, New Germany, Minn.
Voss, John, Pratt, Minn.
Wagner, Fred J., Lemmon, S. D.
Welch, Darrell Volney, Chatfield, Minn.
Wensman, Herman, Freeport, Minn.
Wilde, Arthur A., Chisago City, Minn.
Will, E., Barnum, Minn.
Worm, Frank P., Chaska, Minn.
Wright, E. J., Watertown, Minn.
Yennie, Henry, West Concord, Minn.

ICE CREAM STUDENTS

1916

Althouse, Victor P., St. Paul, Minn.	Larsen, Otto C., Benson, Minn.
Anderson, C. O., Minneapolis, Minn.	Lehne, Kuno E., Springfield, Minn.
Dugan, Joe C., Rock Creek, Minn.	Olson, Michael, Minneapolis, Minn.
Dummer, Theo., New Germany, Minn.	Peterson, G. C., Minneapolis, Minn.
Eiter, Raymond, St. Paul, Minn.	Rogers, L. Verne, Mora, Minn.
Gutzler, J. A., St. Paul, Minn.	Rouse, C. W., Ceylon, Minn.
Hanson, Geoffrey, Bowlus, Minn.	Sandahl, Arthur, Burtrum, Minn.
Hanson, Harry, Luck, Wis.	Selstad, Einar, Thief River Falls, Minn.
Hill, Arthur E., Floodwood, Minn.	Sorenson, H. E., Little Falls, Minn.
Hongslo, Peder, Minneapolis, Minn.	Vakoc, J. E., Verdigie, Neb.
Johnson, John, Biscay, Minn.	Vos, John, Pratt, Minn.
Klund, James, Cameron, Wis.	Welch, Darrell, St. Paul, Minn.
Worm, Frank P., Chaska, Minn.	

DAIRY SCHOOL CERTIFICATES GRANTED

1916-1917

Ashley, Newman C., Stanley, Wis.	Larson, Gilbert, Grandy, Minn.
Berkquist, Carl, Watertown, Minn.	Linander, Harry, Spearfish, S. Dak.
Bohlig, Chas., Melrose, Minn.	Lindahl, H. A., Walnut Grove, Minn.
Christianson, Theodore, Prior Lake, Minn.	Lindberg, Fritz, Hills, Minn.
Cliffgard, Arnie, Ivanhoe, Minn.	Moe, E. A., Kathryn, N. Dak.
Elseth, H. E., Halstad, Minn.	Nilson, N. C., Grove City, Pa.
Faust, Nick M., Elk River, Minn.	Olson, Carl P., Litchfield, Minn.
Flanigan, James, Winona, Minn.	Olson, John, Round Prairie, Minn.
Hanson, Hjalmer P., Hartland, Minn.	Pearson, C. O., Hasty, Minn.
Hedlund, N. J., Annandale, Minn.	Peterson, C. G., Northome, Minn.
Johnson, Ernest, Freeborn, Minn.	Reese, Thomas, Chatfield, Minn.
Kelzenberg, Wm., Bluffton, Minn.	Thoen, C. C., Westport, Minn.
Larson, E. T., Elgin, Minn.	Thore, A. C., North Branch, Minn.

The Bulletin
of the University of
Minnesota

Sanford Hall

1917-1918



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Vol. XX No. 55 January 22 1918

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SANFORD HALL

The residence for women students at the University of Minnesota is situated at the corner of Eleventh Avenue and University Avenue S. E., three blocks from the main entrance to the campus. It is divided into two parts which are known respectively as Sanford Hall East and Sanford Hall West. Each of these parts or wings has its own chaperone, its own dining room, living room, and reception room, and, altogether, a distinct family life. Sanford East includes 17 single rooms and 12 double rooms, accommodating, in all, 41 students. Sanford West has 20 single rooms and 13 double and will therefore accommodate 46 students. The building is heated by steam and lighted by electricity, and each room is provided with hot and cold water. Each single room contains a good-sized closet; and each double room has two closets. The wall coloring of the single rooms is a soft green, while that of the double rooms is buff. The furniture includes dressers, study tables, rugs, chairs, beds, and bedding. Articles in the following list must be supplied by the students:

Required

Toothbrush glass
Towels
Napkin ring
Bureau scarf (bureau top, 21 x 41 inches)
Couch cover (colored material, 4 to 6 feet in width and 9 feet in length)

Advised

Window curtains (windows, 5 feet 3 inches by 33 inches)
Drop light (electric)
Book case
Waste basket
Double blanket

APPLICATION FOR ADMISSION

Applications for rooms will be considered in the order in which they are received, but under the following conditions: In Sanford East, 12 places will be reserved for first-year students, 12 for sophomores, 10 for juniors, and 7 for seniors. In Sanford West the reservations will be the same, except that there will be five extra places for freshmen. In the assignment of rooms, the higher classes will have the preference. No assignment will be considered permanent until the registration requirements have been met.

Application for a room should be made on the card which accompanies this bulletin. No application will be registered which is not accompanied by a deposit of \$10. This \$10 fee is retained by the University as long as the student remains in residence. In case of new students and undergraduates, the fee will be refunded if an application is cancelled *before* September 1 of the ensuing college year. In the case of seniors, the \$10 fee will be deducted from the second semester residence fee.

The University reserves all rights in connection with the assignment of rooms and the termination of their occupancy. No student may give up a room without the written permission of parent or guardian. No change in the assignment of rooms may be allowed during the first three

weeks of the college year. All undergraduates are requested to leave the dormitory as soon as possible after examinations in June are over, in order that alumnae and senior guests may be accommodated.

Applications for rooms should be addressed to House Director of Sanford Hall, University of Minnesota. The deposit should be sent in the form of a draft or money order, payable to the University of Minnesota.

A limited number of rooms in Sanford Hall will be open for occupancy several days before the opening of the University in the fall. Such rooms will be available for the temporary use of women students who need to come to the city early in order to register and to secure living accommodations for the year. All arrangements for such temporary accommodations must be made in advance. No meals will be served.

HOUSE RULES AND REGULATIONS

Women members of the Faculty live in Sanford Hall to act as chaperones and advisers for the resident students. A general scheme of student self-government is in force.

A trained nurse resides in Sanford whose duty it is to supervise the health of the students and care for them in all cases of illness, except where complete isolation or constant care for a long period of time are required. It is expected that the students will cheerfully comply with the wishes of the nurse in all matters pertaining to the health of the household. This applies particularly to the prompt reporting of sore throats, eruptions, etc. A neglect of such ailments might lead to a serious epidemic.

It is suggested to parents that the nurse be advised at the beginning of the college year concerning the physician to be called in case of illness. If no such advice is received, the matter is left to the discretion of the nurse.

HOUSE RULES

I

Quiet for study shall be observed from eight p.m. throughout the entire evening, with the exception of Saturday evening.

II

Social engagements, including the entertaining of callers, shall be limited to three evenings a week, for all students except seniors. Permission may be obtained from the House Chaperone for two additional evenings during each month. Seniors shall be allowed more than three evenings a week, provided they obtain permission from the House Chaperone. All evening engagements lasting later than nine o'clock shall be considered social engagements.

III

Students leaving the house to be gone during any part of the evening shall make out proper cards, stating address at which they can be reached and time they expect to return. Upon their return they shall stop at the office and have the time of return recorded on their cards. No student is allowed to leave the house after 9:30 p.m.

Students are expected to return promptly from evening engagements. It is especially desired that girls do not go to restaurants, cafés, or other places of refreshment after evening engagements.

Sunday theater-going is not allowed.

REGULATIONS

Matters pertaining to the care of the building are in the hands of the House Director and some of the more important regulations posted in each room and enforced by her are given below.

Students will be held liable for injury to college property occurring through their agency. The occupants of rooms will be held responsible for all damage within the rooms.

No articles shall be tacked or fastened in any way to the walls, furniture, or electric light fixtures. Pictures and other ornaments must be suspended from the picture moulding only.

Lamp shades of combustible materials are prohibited.

None but "safety" matches shall be used or kept in the building.

Alcohol lamps and chafing dishes are forbidden. A kitchenette is provided.

Any use of kerosene, gasoline, naphtha, benzine, or any similar inflammable fluid is strictly prohibited.

Trunks are not allowed in rooms.

All damages, defects, and leakages should be reported immediately to the House Director; otherwise a fine will be imposed.

No laundry work will be allowed in rooms or bathrooms. The house laundry will be open to students five mornings and four afternoons a week.

If permission is obtained from the House Director, male relatives may be taken to students' rooms under proper conditions.

RATES

Each student occupying a place in Sanford Hall, whether in a single or a double room, is charged \$225 for board and room for the college year. The year is considered as beginning on the day before the University opens for regular work, as ending the day after examinations are over, and as not including the Christmas and spring vacations. There is a specified price for the entertainment of guests at meals. No guests are to be entertained over night except at week ends, when there is a vacancy. At such times a charge of 35 cents is made.

PAYMENTS

Payment for board and room must be made in advance in two installments, three fifths being due when registration fees are paid in September, two fifths being due when registration fees are paid for the second semester. Failure to make the payments at the specified times will lead to suspension of registration until the fees are paid. These payments are not subject to return or deduction. A fee of three dollars is required of each student to cover free telephone service, use of laundry, newspapers, and magazines. This fee is due with the first residence fee. A student vacating before the end of the college year will be charged for board and room until the vacancy has been filled. Drafts, checks, or money orders should be made payable to the University of Minnesota.

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

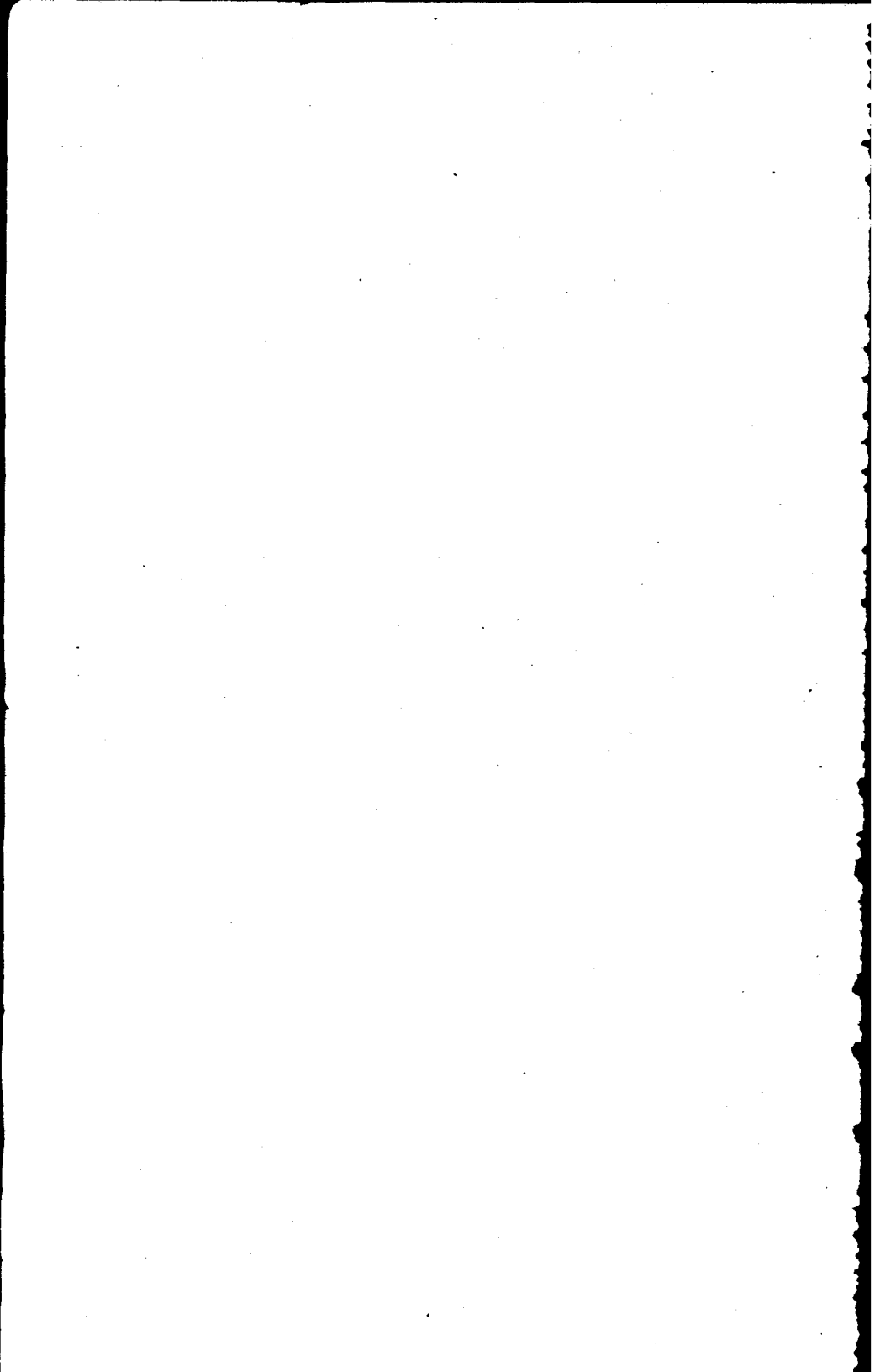
College of Engineering and Architecture
Directions for Registration and
Classification for Second Semester
1917-1918



[32 a]

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DIRECTIONS FOR
REGISTRATION AND CLASSIFICATION
SECOND SEMESTER 1917-1918

1. **Payment of fees.**—Each student will receive from the Registrar a bill of fees for the second semester. The student who does not receive such bill before February 4 should call at the Registrar's office, Window No. 3, for a statement.

Late payment of fees.—The student who pays fees later than February 11 will pay a penalty fee of \$1.00 to February 18 and 25 cents a day for each additional day of delay.

Present this statement to the Cashier's window, pay your fees, and receive a receipt. **This should be done before the first day of the semester**, which is the day reserved for classification and enrollment. Each student must present the Treasurer's receipt to his Classifier before he will be assigned to classes.

2. **Classification.**—On the first day of the semester, February 18, each student shall present himself for classification to one of the following Classifiers as indicated.

CLASSIFIERS

		ENGINEERING BUILDINGS
Freshman	Assistant Professor HOLMAN in charge	Main 136
	Assistant Professor NEWKIRK	Main 136
	Assistant Professor McMILLAN	Main 136
	Assistant Professor DALAKER	Main 136
	Assistant Professor FRENCH	Main 136
	Associate Professor MEYER	Main 136
	Mr. LIEBENBERG	Main 136
Sophomore		
	Civil	Assistant Professor CUTLER Main 202
	Mechanical	Assistant Professor MARTENIS Mech. 200
	Electrical	Assistant Professor RYAN and Mr. MARTIN Elect. 102
	General	Professor KIRCHNER Main 208
Architecture	Assistant Professor FORSYTHE Main 315	
Junior		
	Civil	Associate Professor PARCEL Main 228
	Mechanical	Professor FLATHER Mech. 105
	Electrical	Professor SPRINGER Elect. 104
	General	Assistant Professor SHOOP Exper. 107
Architecture	Professor MANN Main 315	
Senior and Post-Senior		
	Civil	Professor BASS Main 123
	Mechanical	Professor FLATHER Mech. 105
	Electrical	Professor SHEPARDSON Elect. 200
	General	Assistant Professor SHOOP Exper. 107
	Architecture	Professor MANN Main 315

Students in doubt as to who their Classifier is, report to Professor Brooke.

Before presenting himself to his Classifier, each student shall make out his **tentative schedule** by filling out the form on page 5 as required.

In filling out this form each regular student **must enter one of the regular sections 1, 2, 3, 4, etc., or C.E., M.E., etc.,** as shown on pages 7 to 12. A student who can not enter any of these groups must arrange his work so as to **follow one of them as closely as possible.**

There must be no conflict in program.

Prerequisites for each course must be satisfied.

Back work must be made up before going on with advanced studies.

Each student shall present his **tentative schedule** and **Cashier's receipt** to his Classifier as indicated above, and obtain his approval of and signature to a **permanent schedule.**

3. **Enrollment.**—Each student should take his **permanent schedule** to Room 201, Main Engineering Building, and enroll in each class for which he is scheduled.

See that each Enroller signs your permanent schedule.

Should the section for which you are scheduled be already filled, you must return to your Classifier for modification of your permanent schedule.

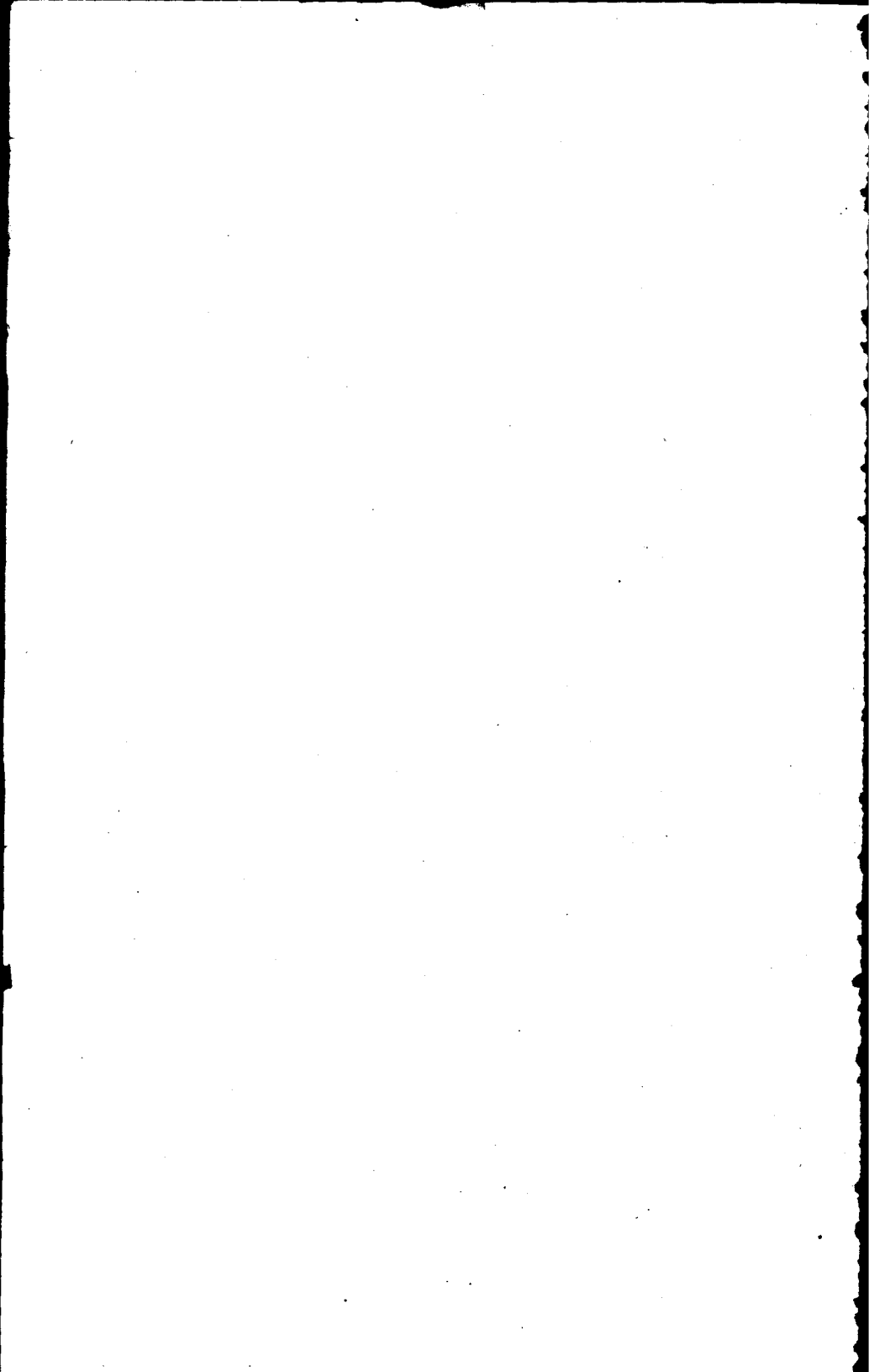
4. **Commencement of work.**—Classes in the College of Engineering and Architecture will begin on February 19 at 8:00 a.m., and each student must attend classes as indicated on his permanent schedule.

5. **Change of classification.**—A student desiring to change his schedule after February 18 should apply at the Dean's office for a special blank. This blank must be taken to your Classifier for his approval and signature, then signed by each instructor whose class the student leaves or enters and then returned to the Dean's office within **three days.**

No change of classification will be permitted after February 23.

6. **Late classification.**—A student classifying after February 18 should report to the Dean's office and obtain his classification blanks. These must be taken to his Classifier from whom he will receive his **permanent schedule.**

This schedule must be signed by all the instructors concerned and returned to the Dean's office.



CLASS AND GROUP PROGRAM

SECOND SEMESTER 1917-18

FRESHMAN ENGINEERS

MONDAY

	1	2	3	4	5	6	7	8
8	Math.	Math.	Math.	.....	Draw. 2	.....	Math.	.....
9	Shop	Shop	Shop	Dr. Lect.	Draw. 2	Dr. Lect.	Shop	Dr. Lect.
10	Shop	Shop	Shop	Rhet.	Rhet.	Rhet.	Shop	Rhet.
11	Shop	Shop	Shop	Math.	Math.	Math.	Shop	Math.
12	.....						
1	Chem.	Chem.	Chem.	Draw. 2	Draw. 4	Draw. 4	Chem.	Draw. 4
2	Chem.	Chem.	Chem.	Draw. 2	Draw. 4	Draw. 4	Chem.	Draw. 4
3	-----Chemistry Lecture-----							
4	.....	Rhet.	Rhet.	.....	.....	.....	.....Rhet.	.....
5	.....						

TUESDAY

8	Math.	Math.	Math.	Shop	Shop	Shop	Math.	Shop
9	Rhet.	Rhet.	Chem.	Shop	Shop	Shop	Rh.-Chem.	Shop
10	Draw. 2	Draw. 4	Draw. 2	Shop	Shop	Shop	Draw. 4	Shop
11	Draw. 2	Draw. 4	Draw. 2	Math.	Math.	Math.	Draw. 4	Math.
12	.....						
1	-----Technology Lecture-----							
2	(Shop)	(Shop)	(Shop)	Draw. 4	Dr. Lect.	(Shop)	Dr. Lect.	Draw. 2
3	(Shop)	(Shop)	(Shop)	Draw. 4	.....	(Shop)	.....	Draw. 2
4	(Shop)	(Shop)	(Shop)	.....	.....	(Shop)	.....	.....
5	.....						

WEDNESDAY

8	Math.	Math.	Math.	Chem.	Draw. 2	Draw. 2	Math.	Chem.-...
9	Rhet.	Dr. Lect.	Rhet.	Dr. Lect.	Draw. 2	Draw. 2	Rh.-Dr. Lect.	(Dr. Lect.)
10	Draw. 4	Draw. 2	Draw. 4	Rhet.	Rhet.	Rhet.	Draw. 2	Rhet.
11	Draw. 4	Draw. 2	Draw. 4	Math.	Math.	Math.	Draw. 2	Math.
12	.....						
1	Chem.	Chem.	Chem.	Draw. 2	Draw. 4	Draw. 4	Chem.	Draw. 4
2	Chem.	Chem.	Chem.	Draw. 2	Draw. 4	Draw. 4	Chem.	Draw. 4
3	Chem.	.....	.....	Chem.	Chem.	Chem.	Chem.-...	Chem.
4	.....	.....	.....	Chem.	Chem.	Chem.	.....	Chem.
5	.....						

THURSDAY

8	Math.	Math.	Math.	Shop	Shop	Shop	Math.	Shop
9	Dr. Lect.	Rhet.	Dr. Lect.	Shop	Shop	Shop	Rh.-Dr. Lect.	Shop
10	Draw. 2	Draw. 4	Draw. 2	Shop	Shop	Shop	Draw 4	Shop
11	Draw. 2	Draw. 4	Draw. 2	Math.	Math.	Math.	Draw. 4	Math.
12	.....						
1	.....	.....	.....	.....	.....	.....	.....	.....
2	(Shop)	(Shop)	(Shop)	.....	.....	(Shop)	.....	.....
3	(Shop)	(Shop)	(Shop)	.....	.....	(Shop)	.....	.....
4	(Shop)	(Shop)	(Shop)	.....	.....	(Shop)	.....	.....
5	.....						

FRIDAY

8	Math.	Math.	Math.	Chem.	Chem.	Chem.	Math.	Chem.
9	Rhet.	Chem.	Rhet.	Chem.	Chem.	Chem.	Rh.-Chem.	Chem.
10	Draw. 4	Draw. 2	Draw. 4	Rhet.	Rhet.	Rhet.	Draw. 2	Rhet.
11	Draw. 4	Draw. 2	Draw. 4	Math.	Math.	Math.	Draw. 2	Math.
12	.....						
1	Shop	Shop	Shop	Draw. 4	Chem.	Draw. 2	Shop	Draw. 2
2	Shop	Shop	Shop	Draw. 4	.....	Draw. 2	Shop	Draw. 2
3	Shop	Shop	Shop	.....	.....	Chem.	Shop	.....Chem.
4	.....	.....	.....	.....	.....	.....	.....	.....
5	.....						

SATURDAY

8	.....						
9	-----Drill-----							
10	-----Drill-----							
11	-----Drill-----							

MONDAY					
	C.E.	M.E.	E.E. 1	E.E. 2	
8	.....	.....	.....	Physics	Math. 73
9	Physics	Physics	.....	Mathematics	Phys. 7
10	Mathematics	Mathematics	Mathematics	Drawing	Math. 73
11	.....	Chemistry 38	Physics	Drawing	
12	.....			
1	Surveying	Chem. 38-Shop	Shop	Phy. Lab. A.E. 1	
2	Surveying	Chem. 38-Shop	Shop	Phy. Lab. A.E. 1	
3	Surveying	Chem. 38-Shop	Shop	.....
4	Surveying	Chem. 38-Shop	Shop	.....
5	.....	Chem. 38-.....	.....	.....
TUESDAY					
8	Drawing	Drawing	Drawing	A. E. 2	Math. 73
9	Drawing	Drawing	Drawing	A. E. 2	
10	Mathematics	Mathematics	Mathematics	Mathematics	Math. 73
11	Elec. (Geol.)	Chemistry 38	Appl. El.	Appl. El.	
12	.....			
1	.....			
2	.....			
3	.....			
4	.....			
5	.....			
WEDNESDAY					
8	.....	.....	.....	Physics	Math. 73
9	Physics	Physics	Appl. El.	Mathematics	Phys. 7
10	Mathematics	Mathematics	Mathematics	Drawing	Math. 73
11	.....	Auto. Eng.	Physics	Drawing	
12	.....			
1	Surveying	Chem. 38-Shop	Shop	Phys. Lab.	
2	Surveying	Chem. 38-Shop	Shop	Phys. Lab.	
3	Surveying	Chem. 38-Shop	Shop	.....
4	Surveying	Chem. 38-Shop	Shop	.....
5	.....	Chem. 38-.....	.....	.....
THURSDAY					
8	Drawing	Drawing	Drawing	A. E. 3	Math. 73
9	Drawing	Drawing	Drawing	A. E. 3	
10	Mathematics	Mathematics	Mathematics	Mathematics	Math. 73
11	Elec. (Geol.)	.....	.....	Appl. El.	
12	.....			
1	.....			
2	.....			
3	.....	Auto. Eng.	A. E. 1	Shop	Phys. Lect. 7
4	.....	Auto. Eng.	A. E. 1	Shop	
5	.....	Auto. Eng.	.....	Shop	
6	.....	Auto. Eng.	.....	Shop	
FRIDAY					
8	Phys. Lab.	.....	A. E. 2	Physics	Math. 73
9	Phys. Lab.	Physics	A. E. 2	Mathematics	Phys. 7
10	Physics	Shop Lecture	.....	Drawing	
11	.....	Auto. Eng.	Physics	Drawing	
12	.....			
1	.....			
2	Surv. Lecture	Phys. Lab.	Phys. Lab.	.....
3	.....	Phys. Lab.	Phys. Lab.	.....
4	.....	(Phys. Lab.)	(Phys. Lab.)	.....
5	.....	(Phys. Lab.)	(Phys. Lab.)	.....
SATURDAY					
8	Drawing	Drawing	Drawing	Shop	
9	Drawing	Drawing	Drawing	Shop	
10	Mathematics	Mathematics	Mathematics	Shop	Math. 73
11	Elec. (Geol.)	.....	.....	Shop	

		MONDAY		ELECTRICAL	
		CIVIL	MECHANICAL		
8	.....		.....	Elective	
9	Mechanics		Mechanics	Hydraulics	
10	Surveying		.....	El. Machinery	
11	.....		.....	Elective	
12	.....		.....
1	Experimental Lab.		.....	
2	Experimental Lab.		.....	
3	Experimental Lab.		.....	
4	Experimental Lab.		.....	
5	.....		.....
		TUESDAY			
8	Elective	Economics	.....	Elective	
9	Hydraulics	Hydraulics	.....	Mechanics	
10	Municipal Eng.	Machine Design	.....	
11	Elective	.....	.....	Elective	
12	.....		.....
1	Surveying	Automotive Eng.	.....	Experimental Lab.	
2	Surveying	Automotive Eng.	.....	Experimental Lab.	
3	Surveying	Automotive Eng.	.....	Experimental Lab.	
4	.....	Automotive Eng.	.....	Experimental Lab.	
5	.....		.....
		WEDNESDAY			
8	.....		.....	Elective	
9	Mechanics	Mechanics	.....	Hydraulics	
10	Municipal Eng.	.....	.....	El. Machinery	
11	.....	Automotive Eng.	.....	Elective	
12	.....		.....
1	Structural Design	Machine Design	.....	Electrical Lab. 1	
2	Structural Design	Machine Design	.....	Electrical Lab. 1	
3	Structural Design	Machine Design	.....	Electrical Lab. 1	
4	.....	Machine Design	.....	Electrical Lab. 1	
5	.....		.....
		THURSDAY			
8	Elective	Economics	.....	Elective	
9	Hydraulics	Hydraulics	.....	Mechanics	
10	Municipal Eng.	Machine Design	.....	
11	Elective	.....	.....	Elective	
12	.....		.....
1	Structural Design	Experimental Lab.	.....	Mech. and Kin.	
2	Structural Design	Experimental Lab.	.....	Mech. and Kin.	
3	Structural Design	Experimental Lab.	.....	Mech. and Kin.	
4	.....	Experimental Lab.	.....	
5	.....		.....
		FRIDAY			
8	.....		.....	Elective	
9	Mechanics	Mechanics	.....	Hydraulics	
10	Surveying	.....	.....	El. Machinery	
11	.....	Automotive Eng.	.....	Elective	
12	.....		.....
1	.....	Machine Design	.....	Exp. Lab. 2	El. Lab. 2
2	.....	Machine Design	.....	Exp. Lab. 2	El. Lab. 2
3	.....	Machine Design	.....	Exp. Lab. 2	El. Lab. 2
4	.....	Machine Design	.....	Exp. Lab. 2	El. Lab. 2
5	.....		.....
		SATURDAY			
8	Elective	Economics	.....	Elective	
9	Hydraulics	Hydraulics	.....	Mechanics	
10	.....	.....	.....	Mech. and Kin.	
11	Elective	.....	.....	Elective	

		MONDAY	ELECTRICAL
	CIVIL	MECHANICAL	
8	*Railway Eng.	.....	Electrical Design
9	*Railway Eng.	.....	Electrical Design
10	*Rein. Concrete	Electric Power	.....
11	*Rein. Concrete	Electric Power	Alternating Currents
12	.....	.....	.....
1	Bridge Design	Metallurgy	Machine Design
2	Bridge Design	Metallurgy	Machine Design
3	Bridge Design	Metallurgy	Machine Design
4	Bridge Design	Metallurgy	Machine Design
5	.....	.....	.....
TUESDAY			
8	.....	.....	Econ. or Elective
9	Electric Power	Marine Turbines	.....
10	Heat Engines	Int. Comb. Eng.	Machine Design
11	Bridge Design	Metallurgy	Elective or Econ.
12	.....	.....	.....
1	Sanitary Engineering	.....	Electrical Lab. 1
2	Sanitary Engineering	Meas. of Power	Electrical Lab. 1
3	Sanitary Engineering	Meas. of Power	Electrical Lab. 1
4	.....	Meas. of Power	Electrical Lab. 1
5	.....	.....	.....
WEDNESDAY			
8	*Railway Eng.	.....	.....
9	*Railway Eng.	Electric Power	.....
10	Water Power	Heat. and Vent.	.....
11	Bridge Design	Meas. of Power	Alternating Currents
12	.....	.....	.....
1	Sanitary Engineering	Experimental Lab.	Electrical Design
2	Sanitary Engineering	Experimental Lab.	Electrical Design
3	Sanitary Engineering	Experimental Lab.	Electrical Design
4	.....	Experimental Lab.	Electrical Design
5	.....	.....	.....
THURSDAY			
8	Sanitary Eng.	.....	Econ. or Elective
9	Electric Power	Marine Turbines	.....
10	Heat Engines	Int. Comb. Eng.	Machine Design
11	.....	Metallurgy	Elective or Econ.
12	.....	.....	.....
1	*Reinforced Concrete	.....	Electrical Lab. 2
2	*Reinforced Concrete	.....	Electrical Lab. 2
3	*Reinforced Concrete	.....	Electrical Lab. 2
4	*Reinforced Concrete	.....	Electrical Lab. 2
5	.....	.....	.....
FRIDAY			
8	*Railway Engineering	.....	.....
9	*Railway Engineering	Electric Power	.....
10	Electric Power	Heat. and Vent.	.....
11	Electric Power	Meas. of Power	Alternating Currents
12	.....	.....	.....
1	Water Power	.....	Machine Design
2	Water Power	.....	Machine Design
3	Water Power	.....	Machine Design
4	Water Power	.....	Machine Design
5	.....	.....	.....
SATURDAY			
8	*Reinforced Concrete	.....	Econ. or Elective
9	Water Power	.....	.....
10	Heat Engines	Int. Comb. Eng.	.....
11	Heat Engines	.....	Elective or Econ.
	* Electives	.....	.....

MONDAY

	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
8	Rhetoric	Spec. & W. D.	Elective	Design
9	Elements	Spec. & W. D.	Freeh. & W. C.	Design
10	Elements	Spec. & W. D.	Freeh. & W. C.	Design
11	Mathematics	Mathematics	Freeh. & W. C.	Design
12	.....		
1	French	Physics Lect.	Design	Life Drawing
2	Freehand	Design	Design	Life Drawing
3	Freehand	Design	Design	Life Drawing
4	.....	Design	.....	.....
5	.....		

TUESDAY

8	.....	Physics	Rein. Concrete	Design
9	Elements	Freehand	Rein. Concrete	Design
10	Graphics	Freehand	Rein. Concrete	Design
11	Mathematics	Freehand	Arch. History	Dec. Composition
12	.....		
1	Elements	.....	Design	.....
2	Elements	Drill	Design	Design
3	.....	Drill	Design	Design
4	.....	Drill	.....	Design
5	.....		

WEDNESDAY

8	Rhetoric	Spec. & W. D.	Elective	Design
9	Elements	Spec. & W. D.	Freeh. & W. C.	Design
10	Elements	Spec. & W. D.	Freeh. & W. C.	Heat. and Vent.
11	Mathematics	Mathematics	Freeh. & W. C.	Arch. History
12	.....		
1	French	Design	Design	Design
2	Freehand	Design	Design	Design
3	Freehand	Design	Design	Design
4	.....	.....	.....	.....
5	.....		

THURSDAY

8	.....	Physics	Rein. Concrete	Design
9	.....	Freehand	Rein. Concrete	Design
10	Graphics	Freehand	Th. of Arch.	Design
11	Mathematics	Freehand	Arch. History	Dec. Composition
12	.....		
1	.....	.....	Design	Life Drawing
2	.....	.....	Design	Life Drawing
3	.....	Phys. Lab.	Design	Life Drawing
4	.....	Phys. Lab.	.....	.....
5	.....		

FRIDAY

8	Rhetoric	Spec. & W. D.	Elective	.....
9	Elements	Spec. & W. D.	Freeh. & W. C.	.....
10	Elements	Spec. & W. D.	Freeh. & W. C.	Heat. and Vent.
11	Mathematics	Mathematics	Freeh. & W. C.	Arch. History
12	.....		
1	French	Design	Design	Design
2	Freehand	Design	Design	Design
3	Freehand	Design	Design	Design
4	.....	.....	.....	.....
5	.....		

SATURDAY

8	.....	Mathematics	.....	.....
9	Drill	Design	Design	Design
10	Drill	Design	Design	Design
11	Drill	Design	Design	Design

PROGRAM OF STUDIES

ARCHITECTURE

No.	Credits	Title	Offered to	Prereq. courses
16	2	Architectural History	Jr. Arch.	31, 32
		11	205ME	Forsythe
		TTh		
18	2	Architectural History	Sr. Arch.	16
		11	217ME	Mann
		WF		
22	2	Elem. Freehand Drawing	Fr. Arch.	21
		2, 3	302ME	Burton
		MWF		
24	2	Freehand Drawing	Soph. Arch.	23
		9-12	302ME	Liebenberg
		TTh		
26	3	Freehand Drawing	Jr. Arch.	25
		9-12	229ME	Burton
		MWF		
28	2	Life Drawing	Sr. Arch.	27
		1-4	229ME	Burton
		MTh		
32	3	Elements of Architecture	Fr. Arch.	31
		9	205ME	Forsythe
		T		
		9, 10	309ME	Liebenberg
		MWF		
34	4	Elementary Arch. Design	Soph. Arch.	33
		2-5	316ME	Hamilton
		MWF		
		9-12		
		S		
36	6	Intermediate Arch. Design	Jr. Arch.	35
		1-4	320ME	Forsythe
		MTWThF		
		9-12		
		S		
38	8	Advanced Arch. Design	Sr. Arch.	37
		8-12	319ME	Mann
		M		
		8-11	319ME	Forsythe
		TTh		
		2-5		
		TF		
		8, 9		
		W		
		9-12		
		S		
44	3	Spec. and Working Drawings...	Soph. Arch.	43
		8-11	316-17ME	Cederberg
		MWF		
58	2	Decorative Composition	Sr. Arch.	26, 36
		11, 12	319ME	Mann
		T		
		11		
		Th		
66	1	Theory of Architecture	Jr. Arch.	65
		10	217ME	Forsythe
		Th		

CHEMISTRY

No.	Credits	Title	Offered to	Prereq. courses
30	3	Chemistry for Engineers	Fr.	29
		Lecture 3	100C	Bliss
		Lab. 1, 2	210C	Bliss
		3, 4		
		W		
		8, 9		
		F		
		Rec. Sec. 1	3	215C
		W		Cade
		Sec. 2	9	215C
		F		Cade
		Sec. 3	9	215C
		T		Bliss
		Sec. 4	8	215C
		W		Wolff
		Sec. 5	1	215C
		F		Bliss
		Sec. 6	3	225C
		F		Wolff
38	3	Power Plant Chemistry	Soph. M.E.	30
		Lect. Rec. 11	215C	Harding
		MT		
		Lab. Sec. 1	1-6	217C
		M		Harding
		Sec. 2	1-6	217C
		W		Harding

CIVIL ENGINEERING

No. Credits	Title	Offered to	Prereq. courses
2 3	Surveying	Soph. C.E.	1
	Lect. 2 F	21ME	Cutler
	Dr. R. and Field		
	1-4 M	225ME	Zelner
	1-5 W		
4 2	Surveying	Jr. C.E.	3
	Rec. Lect.		
	10 M	21ME	Cutler
	10 F	21ME	Cutler
	or D.R. or Field		
	1-4 T	22ME	Cutler
42 3	Reinforced Concrete	Jr. Arch.	41
	8-11 T	217ME	Parcel
	8-10 Th		
52 2	Elem. Str. Design	Jr. C.E.	51
	Rec. and D.R.		
	1-4 WTh	21-22ME	Parcel
92 3	Municipal Engineering	Jr. C.E.	2
	10 TWTh	21ME	Bass
104 3	Sanitary Engineering	Sr. C.E.	92
	1-4 TW	227ME	Bass
	8 Th		
112 3	Railway Engineering	Sr. C.E. Elect.	111
	8, 9 MWF	227ME	Cutler
122 3	Water Power	Sr. C.E.	121, M 152
	10 W	227ME	Meyer
	1-5 F		
	9 S		
152 3	Bridge Design	Sr. C.E.	151
	1-5 M	227ME	Parcel
	11 TW		
158 3	Reinforced Concrete Design....	Sr. C.E. Elect.	157
	10, 11 M	227ME	McMillan
	1-5 Th		
	8 S		

DRAWING AND DESCRIPTIVE GEOMETRY

No. Credits	Title	Offered to	Prereq. courses
2 & 4 3	Lecture (1 hour per week)....	Fr.	1, 3
	Secs. 1-8		
	9 MWTh	205ME	Kirchner
	2 T	205ME	Kirchner
	(2) Engineering Drawing	Fr.	1, 3
	Sec. 1 10, 11 TTh	1ME	.....
	Sec. 2 10, 11 WF	101ME	McMillan
	Sec. 3 10, 11 TTh	225ME	French
	Sec. 4 1, 2 MW	1ME	McMillan
	Sec. 5 8, 9 MW	201ME	.....
	Sec. 6 8, 9 W	101ME	McMillan
	1, 2 F		
	Sec. 7 10, 11 WF	13ME	Zelner
	Sec. 8 2, 3 T	13ME	French
	1, 2 F		
	(4) Descriptive Geometry	Fr.	1, 3; Math. 71
	Sec. 1 10, 11 WF	1ME	Kvitrud
	Sec. 2 10, 11 TTh	101ME	Kvitrud
	Sec. 3 10, 11 WF	225ME	.....

No.	Credits	Title		Offered to	Prereq. courses	
		Sec. 4	2, 3	T	1ME	.....
			1, 2	F		
		Sec. 5	1, 2	MW	201ME	Bentley
		Sec. 6	1, 2	MW	101ME	.....
		Sec. 7	10, 11	TTh	13ME	Bentley
		Sec. 8	1, 2	MW	13ME	Kvitrud
6	2	Graphics	.....	Soph. C.E.	5	
			8, 9	TThS	225ME	French
8	2	Graphics	.....	Soph. E.E., M.E.	7	
		Sec. 1	8, 9	TThS	101ME	Bentley
		Sec. 2	8, 9	TThS	201ME	Rowley
		Sec. 3	10, 11	MWF	201ME	French
10	2	Graphics	.....	Fr. Arch.	9	
			10	TTh	205ME	Kirchner

ECONOMICS

No.	Credits	Title		Offered to	Prereq. courses	
12	3	Modern Economic Problems.....	9	TThS	Jr., sr. 136ME	11 Crosgrave

ELECTRICAL ENGINEERING

No.	Credits	Title		Offered to	Prereq. courses	
52	3	Applied Electricity	.....	Soph. E.E.	51	
		Lecture	11	T	215ME	Shepardson
		Rec.	11	Th	201EE	Martin
			9	W	201EE	Martin
		Sec. 1	1, 2	M	100EE	Martin
		Sec. 2	8, 9	T	100EE	Martin
		Sec. 3	8, 9	Th	100EE	Springer
		Sec. 4	2, 3	Th	100EE	Ryan
		Sec. 5	8, 9	F	100EE	Martin
102	3	Electrical Machinery	.....	Jr. E.E.	Physics 8	
			10	MWF	201EE	Springer
104	2	Elect. Mach. Laboratory	.....	Jr. E.E.	Physics 8	
		Sec. 1	1-5	W	100EE	Martin
		Sec. 2	1-5	F	100EE	Martin
106	3	Alternating Currents	.....	Sr. E.E.	101, 104	
			11	MWF	201EE	Shepardson
108	2	A. C. Laboratory	.....	Sr. E.E.	101, 107	
		Sec. 1	1-4	T	100EE	Springer
		Sec. 2	1-4	Th	100EE	Springer
118	2	Electrical Design	.....	Sr. E.E.	105, 106	
			8, 9	M	204EE	Ryan
			1-5	W		
156	3	Electric Power	.....	Sr. C.E.	Physics 8	
			9	TTh	201EE	Ryan
			10, 11	F	100EE	Ryan
158	3	Electric Power	.....	Sr. M.E.	Physics 8	
			9	WF	204-201EE	Ryan
			10, 11	M	100EE	Ryan
120	8	*Radio Communication	.....	Sr. E.E., M.E.,	Elective	
			8	MTWThFS	201EE	Turner, Ryan
				Lab. as arranged		
42	2	Military Signalling	.....	Elective		
		Lecture	12	MF	201EE	Turner

* As authorized and outlined by United States Government.

No. Credits	Title	Offered to	Prereq. courses
206	2 Electrical Transmission	P.-sr. EE.	106 or 158
	11 TTh	204EE	Ryan
214	2 Transient Electric Phenomena..	P.-sr. E.E.	105-106
	9 TS	204EE	Turner
230	2 Laboratory Spec. Problems.....	P.-sr. E.E.	108
	Lab. to be arranged	204EE	Springer, Turner

EXPERIMENTAL ENGINEERING

No. Credits	Title	Offered to	Prereq. courses
102	2 Hydraulic and Steam Lab.....	Jr. Engrs.	Math 152
	Sec. 1 1-5 M	14ExE	Meyer
	Sec. 2 1-5 T	14ExE	Rowley
	Sec. 3 1-5 Th	14ExE	Rowley
	Sec. 4 1-5 F	14ExE	Rowley
104	2 Power and Gas. Eng. Lab.....	Sr. M.E.	103
	1-4 W	14ExE	Shoop
124	3 Advanced Exp. Laboratory.....	P.-sr. M.E.	123
	10, 11 F	105ExE	Shoop
	1-5 F		

FRENCH

No. Credits	Title	Offered to	Prereq. courses
2	3 Beginning French	Fr. Arch.	1
	1 MWF	227F	Elliot

MATHEMATICS AND MECHANICS

No. Credits	Title	Offered to	Prereq. courses
70	5 Algebra and Trigonometry.....	Fr.	
	Sec. 1 8 MTWThF	106ME	Brooke
	Sec. 2 11 MTWThF	104ME	Frear
	Sec. 3 11 MTWThF	206ME	Meyer
72	5 Analytic Geometry	Fr.	70
	Sec. 1 8 MTWThF	107ME	Newkirk
	Sec. 2 11 MTWThF	107ME	Newkirk
	Sec. 3 8 MTWThF	104ME	Frear
	Sec. 4 11 MTWThF	106ME	Bass
	Sec. 5 8 MTWThF	203ME	Dalaker
	Sec. 6 11 MTWThF	203ME	Cutler
73b	5 Differential Calculus	Soph.	72
	Sec. 1 8 MTWThF	205ME	Priester
	Sec. 2 10 MTWThF	215ME	Holman
74	5 Integral Calculus	Soph.	73
	Sec. 1 10 MTWThS	203ME	Dalaker
	Sec. 2 10 MTWThS	104ME	Frear
	Sec. 3 9 MWF	106ME	Priester
	10 TTh		
76	3 Technical Mechanics	Jr.	75
	Sec. 1 9 TThS	203ME	Dalaker
	Sec. 2 9 MWF	104ME	Newkirk
92	4 Strength of Materials.....	Soph. Arch.	91
	11 MWF	215ME	Priester
	8 S		
152	3 Hydraulics	Jr.	151
	Sec. 1 MWF	206ME	Brooke
	Sec. 9 TThS	215ME	Holman

MECHANICAL ENGINEERING

No.	Credits	Title	Offered to	Prereq. courses
2	2	Elementary Shop Practice.....	Fr. Rooms 106, 110, 112, 206	MechE Hobart, Quigley, Richards, Smith
		Sec. 1 9-12 M 1-4 F		Hobart, Quigley, Richards, Smith
		Sec. 2 8-11 TTh		Hobart, Quigley, Richards, Smith
		Sec. 3 2-5 TTh		Hobart, Smith
3b	3	Pattern Making and Foundry..	Soph. E.E.	1, 2
		Sec. 1 1-5 M	112MechE	Smith
		1-5 W	206MechE	Richards
		Sec. 2 1-5 Th	206MechE	Richards
		8-12 S	112MechE	Smith
6	2	Machine Shop Practice.....	Soph. M.E.	3
		Lecture 10 F	102MechE	Hobart
		Sec. 1 1-5 M	106MechE	Hobart
		Sec. 2 1-5 W	106MechE	Hobart
16	2	Mechanism and Kinematics....	Jr. E.E.	Math. 74
		10 S	102MechE	Martenis
		1-4 Th	204MechE	Martenis
116	4	Machine Design	Jr. M.E., Sr. E.E.	Math 76
		Lecture 10 TTh	102MechE	Flather, Martenis
		Sec. 1 1-5 WF Jr. Sr.	204MechE	Martenis
		Sec. 2 1-5 MF Jr.	204MechE	Martenis
	3	Automotive Engines	Jr., Soph. M.E.	
		Rec. 11 WF	111ExE	Moyer
		Sec. 1 1-5 T	14ExE	Moyer
		Sec. 2 2-6 Th	14ExE	Moyer
124	3	Internal Combustion Engines...	Sr. M.E.	Ch. 38
		10 TThS	201ExE	Moyer
132	2	Measurement of Power.....	Sr. M.E.	M. 152
		11 WF	104MechE	Flather
		2-5 T	205MechE	Flather
134	2	Heat and Ventilating.....	Sr. M.E., Arch.	Phys. 2 or 8
		Lecture 10 WF	205MechE	Allen, Martenis
138	1	Contracts and Specifications...	P.-sr. M.E.	
		104MechE		Flather
	2	Marine Turbines	Sr. M.E.	129 St. E.
		9 TTh	110ExE	Shoop
	3	Heat Engines	Sr. C.E.	Physics 8
		10 TTh 10, 11 S	110ExE	Allen, Shoop
		Power Engineering	P.-sr. M.E.	
		2-5 TTh	205MechE	Flather

METALLURGY

No.	Credits	Title	Offered to	Prereq. courses
158	3	Advanced Metallography	Sr. M.E.	157
		11 TTh	305M	Hoyt
		1-5 M	307M	Hoyt
154	3	Advanced Metallography	P.-sr. M.E.	153
		To be arranged	305M	Hoyt

MILITARY SCIENCE AND TACTICS

No.	Credits	Title	Offered to	Prereq. courses
1		Military Drill	Fr.	
		9-12 S	Armory	Britt
		Military Drill	Soph.	
		2-5 T	Armory	Britt

PHYSICS

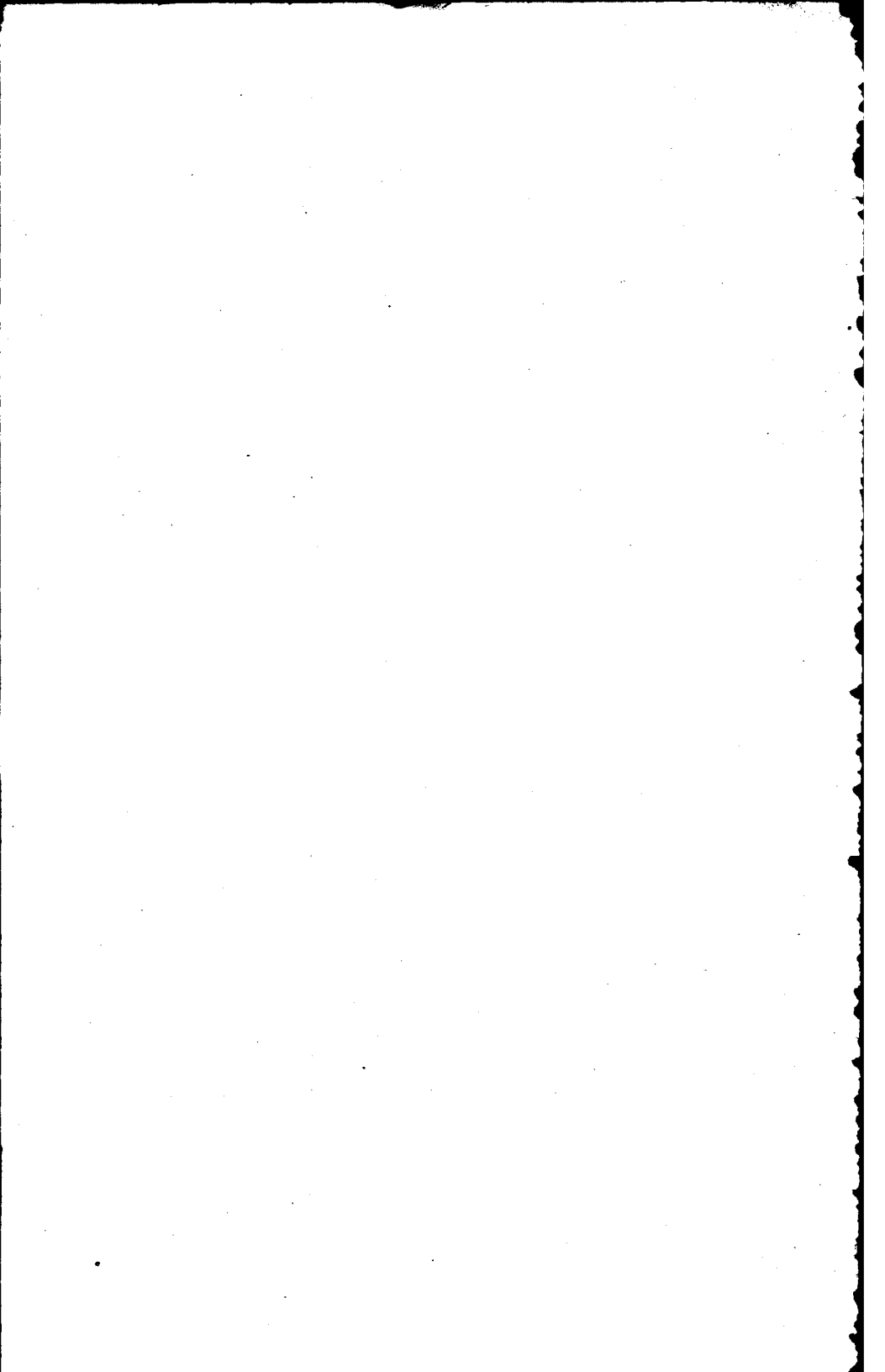
No. Credits	Title	Offered to	Prereq. courses
2, 4	4: General Physics	Soph., Arch.	1, 3
	Lecture 1 M	30Ph	Zeleny
	Rec. 8 TTh	17Ph	Zeleny
	Lab. 3, 4 F	23Ph	.....
7b, 9b	5 General Physics	Soph. Engrs.	Math 72
	Lecture 1 Th	30Ph	.....
	Rec. 9 MWF		
	Lab. to be arranged		
8, 10	5 General Physics	Soph. Engrs.	7, 9
	Lecture 1 F	30Ph	Erickson
	Rec. Sec. 1 8 MWF	215ME	Holman
	Sec. 2 9 MWF	17Ph	Erickson
	Sec. 3 9 MWF	215ME	Holman
	Sec. 4 11 MWF	17Ph	Erickson
	Lab. Sec. 1 1, 2 M	23Ph	
	Sec. 2 1, 2 W	23Ph	
	Sec. 3 8, 9 F	23Ph	
	Sec. 4 2, 3 F	23Ph	
	Sec. 5 4, 5 F	23Ph	

RHETORIC AND PUBLIC SPEAKING

No. Credits	Title	Offered to	Prereq. courses
4	3 Rhetoric and Composition	Fr.	3
	Sec. 1 9 TWF	206ME	Nichols
	Sec. 2 4 M	136ME	Jordan
	9 TTh		
	Sec. 3 4 M	107ME	Viets
	9 WF		
	Sec. 4 10 MWF	206ME	Nichols
	Sec. 5 10 MWF	107ME	Viets
	Sec. 6 10 MWF	136ME	Jordan

TECHNOLOGY

No. Credits	Title	Offered to	Prereq. courses
2	2 Technology	Fr.	
	2 T	305ME	Allen, Viets



The Bulletin
of the University of
Minnesota

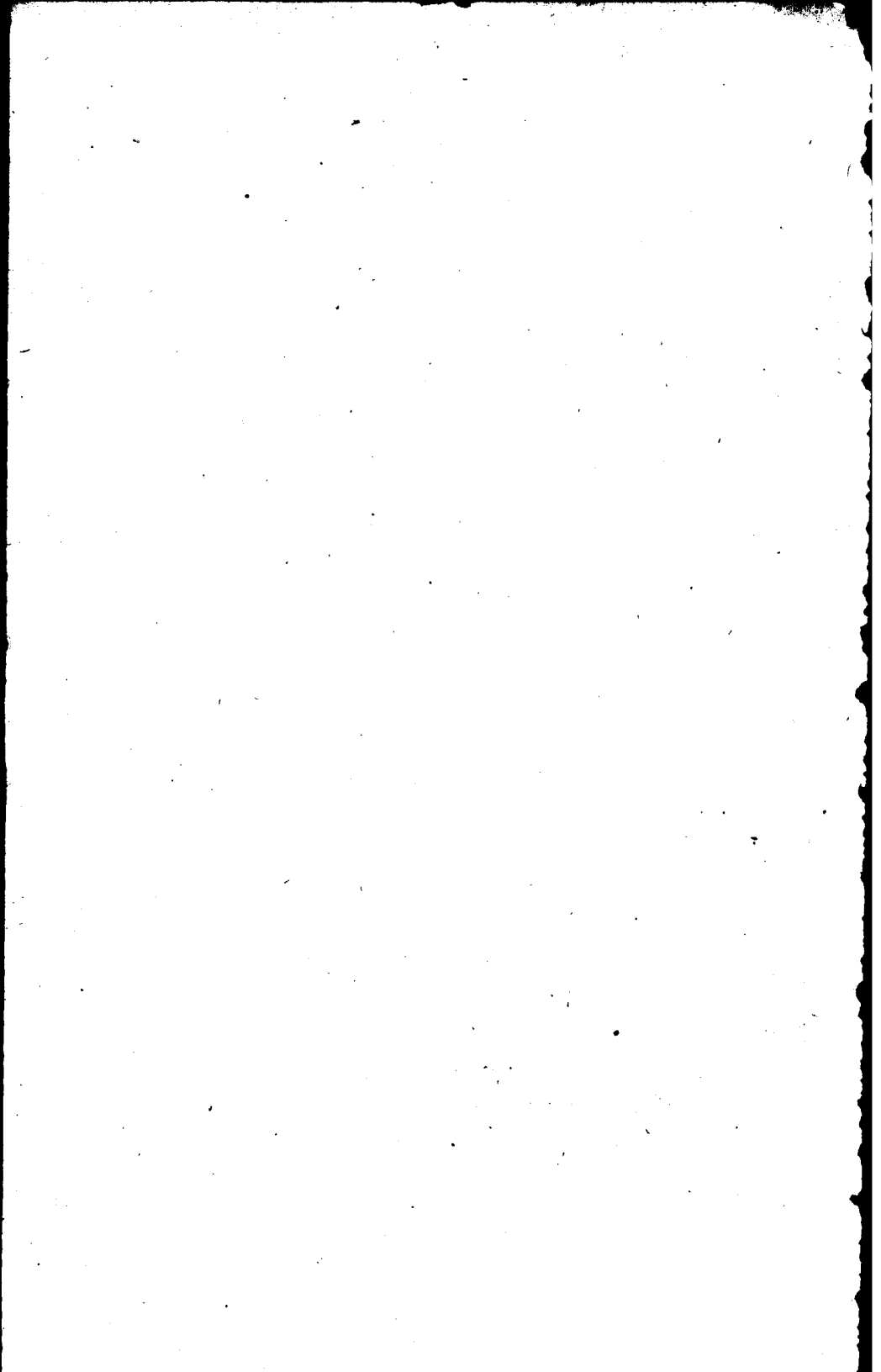
Graduates of the School of Mines
1917-1918



[53]

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ITEMS

The following telegram was sent to President Wilson in the interest of governmental war service: "The faculty of the Minnesota School of Mines and the officers of the Mines Experiment Station offer the services of the School and the Station to the Government of the United States with a view of assisting it in mobilizing the natural and industrial resources of the state by a survey of useful minerals, particularly iron and manganiferous ores, by research in mining, metallurgy, metallography, and such other lines as may come within the scope of mining and metallurgical technology." An acknowledgment of our telegram was received from President Wilson, April 9, in which he expressed his deepest appreciation of our pledge of coöperation and patriotic support. All members of the 1917 class and many former graduates have offered their services to our country.

All information received in regard to change of address to May, 1917, has been duly recorded.

On May 1 the junior class will leave for Colorado Springs and Pueblo, Colorado, Clifton and Morenci, Arizona, and Tyrone, New Mexico, to visit the mines, smelters, and metallurgical plants.

The sophomore class will begin field work in surveying at Virginia, Minnesota, May 1. Mine surveying will be given at the Minnewas Mine. Two weeks' geological field work will be given at Tower on the Vermilion Range.

Notice of errors, general suggestions, or information concerning list of members who have furnished no professional records, appearing on page 56, will be gladly received by Miss Nellie L. Finnegan, Secretary pro tem for the School of Mines Society.

OBITUARY

The School of Mines alumni has suffered the loss of two of its prominent members:

Harry C. Cutler, '94, died April 6, 1917, at Reno, Nevada.

Malcolm W. Clark, '15, killed in an automobile accident, January 18, 1917, at Osage, Oklahoma.

SCHOOL OF MINES SOCIETY OFFICERS

1916-1917

President.....Thomas E. Cassilly, '17
Vice-President.....A. Irving Levorsen, '17
Secretary-Treasurer.....Harold K. Armstrong, '18
Editor.....Raymond W. Allard, '18
Assistant Editor.....Joseph O. Hosted, '19

1917-1918

President.....Harold K. Armstrong, '18
Vice-President.....Raymond W. Allard, '18
Secretary-Treasurer.....Joseph O. Hosted, '19
Editor.....James A. Stark, '19
Assistant Editor.....C. Henry Chadbourn, '20

SCHOOL OF MINES SOCIETY MEMBERS

Seniors, 1917

Edwin H. Anderson	Edward J. Fearing
Thomas E. Cassilly	W. Earl Hubbard
Lewis S. Coryell	Yih Kum Kwong
Richard C. Dennis	A. Irving Levorsen
J. Lawrence Dopp	Paul A. Peterson
William H. Elson	Edwin A. Sweetman
Omer F. Ernster	Carleton S. Wallace
	John J. Woodruff

Juniors, 1918

Raymond W. Allard	Roger W. Gannett
Harold K. Armstrong	Chung Hsieh
A. Kittredge Bailey	Walther L. Jerrard
Fred E. Clark	Laing Lee
William A. Copeland	Donald B. McGilvra
Percy G. Cowin	John A. Moga
Lyndon L. Foley	Clifford R. Nichols
Harry Frank	Harry W. Strand

Sophomores, 1919

Jake Abramson	Bert Goldberg
J. Carroll Barr	Samuel B. Goldberg
Robert Calhoun	Joseph O. Hosted
Frank Flom	Walter R. Mellem
Elden Frank	E. Clarence Sponberg
Sidney A. Frellsen	James A. Stark
Bennie W. Grandrud	Lawrence H. Wadsworth

Freshmen, 1920

Lewis E. Arnold	Erwin Kernster
Axel Bergsten	William P. Mars
Charles H. Chadborn	Clarence D. B. Peterson
Herman F. Davies	Sheldon M. Powers
Trygve Johnson	Clifford R. Raiter
Israel C. Mark	Thomas E. Ringwood
	James D. Wheeler

First-Year Freshmen, 1921

J. Frank Plut

SOCIAL AND TECHNICAL MEETINGS

The following lectures were given before the society:

- Possibilities in the Mining Profession.....Dr. William H. Emmons
Placer Mining of the Frozen Gravel of the Arctic..Dr. Henry Mace Payne
Surface Prospecting.....Hugh M. Roberts
Development of Modern Steam Locomotives.....Edwin M. Lambert
Recent Mining Development in South America.....Edwin C. Harder

Our School of Mines Society is now in a most prosperous condition. It has succeeded in bringing the students into closer contact with one another. It has encouraged and promoted interest in, and a spirit of loyalty to our school. Technical and popular lectures have been well attended, and thoroly enjoyed.

A reception to the freshmen was held at the Acacia House, October 15, 1916.

A farewell banquet to the seniors was given at the West Hotel, April 13, 1917.

The annual election of officers was held April 20, 1917.

THE ALUMNI DIRECTORY

List I—A list of all graduates by classes

List II—An alphabetical list of graduates with individual records

List III—An alphabetical list of former members who are following mining and metallurgical work

List IV—Graduates and former members listed according to geographical location

LIST I

GRADUATES BY CLASSES

1894

Peter Christianson

*Harry C. Cutler

1895

Charles D. Wilkinson

1896

Thomas M. Hughes

Albert E. May
Wallace N. Tanner

1897

George Becker

Eugene C. Mills
Roland T. Wales

1898

Cyril Brackenbury
Peter Christianson
Joseph B. McIntosh

Albert E. May
George A. Pratt
Clinton L. Walker

1899

William C. Bass

Andrew Peterson
Frank M. Warren

1900

William L. Campbell
Eugene D. Chandler
Oliver J. Egleston
Walter E. Hunt

Edward P. McCarty
Rutherford B. Sumner
Harold W. Teague
Rensselaer H. Toll

*Deceased.

1901

Thomas O. Burgess
W. Howard Clapp
Arthur L. Gholz

Henry S. Sanderson
Elmo V. Smith
Hoval A. Smith
John Taresh

1902

Henry H. Holden

*Charles C. Hoyt
Charles S. Morris

1903

Samuel W. Cohen
Edward M. Field
John G. Flynn
Harold J. Hoard
*Ralph I. Johnson

Donald M. Rait
Franklin W. Smith
Lawrence K. Sowle
William H. Truesdell
Eugene E. Whiteley
Arno Winther

1904

*Samuel T. Bass
Frank A. Bowman
Harold I. Brosius
Francis C. Devereux
William H. Hale
Lewis K. Houlton

Merton S. Kingston
Amor F. Kuehn
Andrew L. McCarty
Lucien Merritt
Sydney L. Shonts
*Dewey C. Squyer

1905

Harry H. Angst
Robert R. Boyd
W. Chauncey Cadwell
Allan B. Calhoun
Duncan E. Curry
Thorold F. Field
Hervey Gulick

Orrin M. Keller
Henry E. Loye
Walter W. Lytzen
Henry S. McKay
Robert S. Merriam
Emil G. Minder
Erick J. Schrader
Ralph A. Ziesemer

1906

John Brandt
Lester L. Clement
Guy P. Harrington
Frank T. Howes
Paul S. Kurtzman
William F. Moenke

Charles Morgan
Berthold R. Neustadt
Edward S. O'Conner
Horace C. Rawson
William A. Rose
George W. Wallace
Walter H. Wheeler

*Deceased.

1907

Robert H. Bassett
 James Cowin
 Silas L. Gillan
 Charles F. Jackson
 Arthur S. McCreery
 Randolph J. McRea
 *George E. Malcolmson
 Bartley F. Noehl
 Anton C. Oberg

Henning E. Olund
 Walter H. Parker
 Elmer A. Probst
 Olaf Roed
 Edgar W. Smith
 Charles W. Steele
 Karl P. Swensen
 Michael A. Wiest
 Harry M. Zeisemer

1908

Patrick J. Boyle
 James A. Cullyford
 *Christen F. Dahl
 William A. Deichen
 Frank R. Edwards
 William R. Goodwin
 John A. Grimes

Ole G. Hoass
 John J. Kennedy
 Arthur K. Knickerbocker
 Alfred M. Locke
 John S. Olmstead
 Joseph S. Peterson
 John L. Strong

1909

Willard A. Cole
 Jay Crowley
 Lawrence T. Gavin
 Roy C. Grant
 George B. Hoganson

Samuel L. Hoyt
 Lynn Rood
 Julius H. Santo
 Harold G. Taylor
 Homer A. Williams

1910

*Eugene L. Bills
 Harry R. Bischoff
 Charles R. Conkey
 Lawrence Devereux
 Kenneth J. Duncan
 Henry E. Farnam
 Ernest A. Fritzberg
 George M. Giltinan
 Norman P. Goodrich
 Benjamin G. Harmon
 Clarence L. Heath
 Charles S. Heidel
 William E. Herring

Fred W. Holler
 *Harry Jacobsen
 Algot F. Johnson
 Philo E. Jones
 Clarence L. Larson
 Forest M. Leonard
 James R. McKenzie
 Revillo G. Moody
 John R. Newell
 Peter M. Ostrand
 G. Gordon Stewart
 Archie J. Strane
 Axel H. Swanson

*Deceased.

1911

Theodore S. Abbott
 Joseph Anderson
 Walter C. Anderson
 Paul T. Bailey
 Emory P. Baker
 Charles S. Beck
 Anshelm C. Borgeson
 Robert J. Burgess
 Charles S. Crouse
 George M. Drake
 Victor E. Ekloff
 Jay R. Elliot
 Victor L. Fixen

Arthur W. Fosness
 Arthur S. Hill
 John J. Hurley
 William F. Jahn
 Neil S. Kingsley
 Milton S. Lindholm
 Ervin W. McCullough
 Harold Rahilly
 *Sam G. Swartz
 John R. Tetlie
 E. Harold Walker
 Charles W. Walter
 Arthur J. Wehr

Lloyd R. Whitson

1912

Guy N. Bjorge
 Edward D. Coventry
 Robert Dickson
 Leonard J. Hagstrom
 George L. Harrington
 Ezra A. Hewitt
 La Fayette Knox
 Edward G. Kremer
 John Lea
 John W. Lewis
 Howard R. McAdams

Lynn Martin
 J. Charles O'Brien
 Walter S. Olson
 Joe B. Perry
 Roswell W. Prouty
 Max F. Quinn
 Howard Stevens
 William L. Taylor
 Albin F. Victor
 Arthur Wallinder
 Rollie B. Walter

Clark N. Woodis

1913

Leo J. Coady
 Robert H. Ely
 Arthur H. Hammond
 J. Bernard Hanson
 Olaf Hondrum

Greeley Ladd
 Roy G. Michie
 Arvid Nissen
 Norman Ofsthun
 Charles A Walker

1914

Arthur P. Anderson
 Alfred C. Bierman
 Howard N. Eidemiller
 Ernest L. Larson

Orrin W. Potter
 Howard Quinlan
 Louis Ravicz
 John H. Robertson

Harold J. Wasson

*Deceased.

1915

William V. Butler
Alfred Christianson
*Malcolm W. Clark
Walter A. Coller
Leon T. Collins
Sidney Harmon
Albert C. Haugan

Louis S. Heilig
Fred C. Johnson
Charles D. Kerr
Herman Neerland
Richard M. Sanchez
George K. Urquhart
Henry H. Wade

Paul S. Williams

1916

Hjalmar Abrahamson
Sam Aronson
John J. Craig
Fred A. Davies
Adolph Dovre

*Rex Field
Alvin T. Krogh
Oscar Lee
Archie J. McDermid
Roy H. McHardy

1917

Edwin H. Anderson
Thomas E. Cassilly
Lewis S. Coryell
Richard C. Dennis
J. Lawrence Dopp
William H. Elson
Omer F. Ernster

Edward J. Fearing
W. Earle Hubbard
Yih Kum Kwong
A. Irving Levorsen
Paul A. Peterson
Edwin A. Sweetman
Carleton S. Wallace

John J. Woodruff

*Deceased.

LIST II

ALPHABETICAL LIST OF GRADUATES WITH INDIVIDUAL RECORDS

ABBOTT, THEODORE S., E.M.....1911
 (Permanent address) 425 Dayton Avenue, St. Paul, Minn.

With the Calumet and Arizona Mining Co., June, 1911 to January, 1912. With Miami Copper Co., Miami, Ariz., February to September, 1912. Assistant engineer, Liberty Bell Gold Mining Co., Telluride, Colo., September, 1912 to November, 1913. Chief engineer for same company November, 1913 to April, 1917.

ANDERSON, ARTHUR P., E. M.....1914
 Miami, Ariz.

Powderman for E. G. Evensta Co., Minneapolis, June to October, 1914. Rodman, Inspiration Consolidated Copper Co., Miami, Ariz., March to July, 1915. Stope engineer, July 1915 to April, 1916. Shift boss, April, 1916 to date.

ANDERSON, EDWIN H., E.M.....1917
 (Permanent address) Oakes, N. D.

ANDERSON, JOSEPH H., E.M.....1911
 Care of Bailey-Marsh Co., 725 Met. Life Bldg., Minneapolis, Minn.

Construction foreman and engineer, Bailey-Marsh Co., June, 1911 to January, 1914. In charge of Gateway construction, Nicollet and Washington Avenues, January, 1914 to January, 1915. In charge of construction of high school at Marinette, Wis., January to November, 1915. General superintendent of construction, Bailey-Marsh Co., November, 1915 to date.

ANDERSON, WALTER C., E.M.....1911
 Hibbing, Minn.

Instructor in Mechanical Drawing, State Agricultural College, St. Anthony Park, St. Paul, Minn., June, 1911 to June, 1912. With the Homestake Mining Co., June to September, 1912. With Barnett & Record Co., Minneapolis, Minn., September to December, 1912. With the Toltz Engineering Co., St. Paul, Minn., December, 1912 to February, 1913. With the Great Northern Iron Ore Properties, February, 1913 to January, 1916. Engineer, Webb Mine, Shenango Furnace Co., January, 1916 to date.

ANGST, HARRY H., E.M.....1905
Chisholm, Minn.

Engineer, Hull-Rust Mines, Oliver Mining Co. Foreman, Hull-Rust Pit, 1905 to 1908. Foreman, Monroe Mine, Chisholm, Minn. Mine inspector, Chisholm District, 1914 to date.

ARONSON, SAMUEL, E.M.....1916
Care of Tacoma Smelting Co., Tacoma, Wash.

Rodman, Perseverance Mine, Alaska Gastineau Mining Co., Juneau, Alaska, May to July, 1916. Engineer, same company, July, 1916 to January, 1917. Mill operator, same company at Thane, Alaska, January to March, 1917. Assayer, Tacoma Smelting Co., Tacoma, Wash., March, 1917 to date.

BAKER, EMORY P., E.M.....1911
1141 Marquette Road, Chicago, Ill.

Steel foreman, Leonard Construction Co., of Chicago, May to August, 1911. Masonry inspector, Illinois Central R. R. Co., August, 1911 to July, 1913. Draftsman, Bridge Department, Illinois Central R. R. Co., July, 1913 to 1916. Assistant engineer, Bridge Department, 1916 to date.

BASS, WILLIAM C., E.M.....1899
Los Angeles, Cal. Care of Smith, Emery & Co.

Assayer, American Developing & Mining Co., at Gibbonsville, Idaho, 1899-1901. Mining engineer, Chandler Iron Mine, Ely, Minn., 1901-1902. Superintendent, Maxwell Mine, Chloride, Ore., 1902 to 1904. Manager, Black Eagle Mine, 1904-1907. Manager, Mining Department, for Smith, Emery & Co., San Francisco and Los Angeles, 1908 to date.

BASSETT, ROBERT, H., E.M.....1907
Chisholm, Minn.

Draftsman and estimator, Andrews Heating Co., Minneapolis, Minn., 1908-1909. Assistant engineer, Great Northern Iron Ore Properties, Hibbing, Minn., from 1909 to 1912. Assistant engineer, Arthur Iron Mining Co., Duluth, Minn., 1912 to 1915. Chief engineer, Eastern District, Arthur Iron Mining Co., Chisholm, Minn., 1915 to date.

BECK, CHARLES S., E.M.....1911
Box 504, Morenci, Ariz.

Mill operator, Miami Copper Co., January to July, 1912. Engineer, Morenci Water Co., July, 1912 to November, 1913. Engineer, Detroit Copper Co., November, 1913 to August, 1916. Superintendent, Morenci Water Co., August, 1916 to date.

BIERMAN, ALFRED C., E.M.....1914
Box 75, Houston, Texas.

Assistant geologist in the employ of Mr. Ralph Arnold, Los Angeles, Cal., June to August, 1914. With the Oliver Iron Mining Co., September, 1914 to January, 1915. Instructor in the Hibbing Public Schools, January to April, 1915. Engineer, Oliver Mining Co., April to December, 1915. Assistant geologist, Producers Oil Co., Tampico, Tamps, Mexico, December, 1915 to July, 1916. Geologist, same company, Costa Rica, C. A., July to November, 1916. Division geologist, same company, Colombia, S. A., November, 1916 to date.

BISCHOFF, HARRY R., E.M.....1910
Cobalt, Ontario.

Miner, mine sampler, for Crown Reserve Mining Co., Ltd., Cobalt, Ontario, from July, 1910 to January, 1911. Mine surveyor, for same company, January, 1911 to February, 1915. On mine examinations, Central America, for the Crown Reserve Mining Co., Ltd. On mine examinations, Idaho and British Columbia for the same company to May, 1916. Manager, Molybdenite Claims Co., Harricana, Quebec, May to September, 1916. Superintendent, Dominion Mine, Cobalt, Ontario, September, 1916 to date.

BJORGE, GUY N., E.M.....1912
(Permanent address), Duluth, Minn.

Engineer, Pickands, Mather & Co., McKinley, Minn., May to November, 1912. Geologist in reconnaissance work near Maracaibo, Venezuela, S. A., for the Barber Asphalt Paving Co., of New York, November, 1912 to April, 1913. Assistant chief engineer, Pickands, Mather & Co., May to November, 1913. Chief geologist, Old Dominion Copper Mining & Smelting Co., Globe, Ariz., December, 1913 to May, 1917.

BORGESON, ANSHELM C., E.M.....1911
Chisholm, Minn.

Resident engineer at the Webb Mine, Hibbing, Minn. Mine inspector, Shenango Furnace Co., Chisholm, Minn.

BOWMAN, FRANK A., E.M.....1904
Box 81, Gilbert, Minn.

Engineering staff, Fayal Mine, Oliver Iron Mining Co., 1905-1906. Engineer, Clifford Mines, Clifford, Nev., February to March, 1906. Engineer and assayer for Panamint Exploration Co., Nev., March to November, 1906. Assistant engineer, Gilbert Mine, Sparta, Minn., May, 1907 to June, 1909. With Republic Iron & Steel Co., as engineer, Franklin, Union, and Kenney Mines from November, 1913 to July, 1915; also village engineer and independent engineer, 1908 to date. Superintendent, Sewers, Gilbert, Road Machinery Salesmen.

BOYD, ROBERT R., E.M......1905
 Box 968, Globe, Ariz.

Transitman, Franklin W. Smith Co., Bisbee, Ariz., 1905. Mining engineer and U. S. Mineral Surveyor, Globe, Ariz., 1905 to 1908. Mining engineer, Old Dominion Copper Mining & Smelting Co., 1908 to 1912. Superintendent, Arizona Commercial Mining Co., 1912 to date.

BOYLE, PATRICK J., E.M......1908
 Eveleth, Minn.

Engineer, Oliver Iron Mining Co., 1908-1909. Engineer and captain, Republic Iron & Steel Co., 1910-1913. Engineer and inspector, Mesabi Mt. Township, 1913. Assistant city engineer, Eveleth, Minn., January, 1914 to date.

BRACKENBURY, CYRIL, B.Sc., E.M......1898
 Westacres, Newcastle-on-Tyne, Eng.

Mining engineer, Genoa and Elba Mines of the Minnesota Iron Co., 1898 to 1899. Chief mining engineer, Quincy Copper Mine, Michigan, 1899 to 1902. Mining engineer, Tharsis Sulphur & Copper Co., examining mines in Russia, Bulgaria, Servia, and Italy, 1902 to 1903. General manager in Rhodesia for the Consolidated African Copper Trust, Ltd., 1903 to 1905. Mining engineer for the Siberian Syndicate, 1906. Manager, Tresavean Mines, Ltd., Lanner, Cornwall, 1907 to 1911. Consulting engineer, Tresavean Mines Co., Ltd., Cornwall, England, 1911-1912. Examining mines in Greece for the Mond Nickel Co., Ltd., 1912. In charge of exploration work in Canada for Mond Nickel Co.; also private practice reporting on gold mines in Ontario, 1913. Works manager, Devon & Courtenay Clay Co., Newton Abbot, to December, 1914. Joined Sportsman's Battalion, December, 1914. First lieutenant, 7th battalion, York & Lancaster, February, 1915. Served at the Front with Tunneling Company Royal Engineers. (Temporary commission for the war.) With a Pioneer Battalion, 1916. Wounded on the Somme, July 28, 1916. Instructor, Pioneer School of Instruction, January, 1917 to date.

BRANDT, JOHN, E.M......1906
 Tonopah, Nev.

Superintendent at refinery of Consolidated Mercer Gold Mining Co., May, 1906 to May, 1907. Solutionman, Goldfield Reduction Co., May to July, 1907. Mill assayer for same company, July to November, 1907. Foreman of Nevada Goldfield Reduction Works, November, 1907 to October, 1908. On construction of Goldfield Consolidated mill, October to December, 1908. Underground work, Goldfield Consolidated Mining Co., 1909 to 1912. Assistant sampler for same company, 1912 to 1913. Consulting engineer, 1913 to August, 1915. Leasing on Midway mines, Tonopah, Nevada, August, 1915 to date.

BROSIUS, HAROLD I., Met.E.....1904
Minas de Oro, Honduras, C. A.

Superintendent, Cyanide Plant at Birdseye, Mont. Superintendent, Stamp Mill at Helena, Mont. Engineer for the New Penn. Mining Co., at Argentine, Col. Assayer and chemist for Summit County Mining Exchange. Assayer, East Pacific Mine, Winston, Mont. Engineer and assayer for the Park New Era Mine, Mason, Mont. Assistant cyanide superintendent, Imperial Mining Co. Chemist and engineer for the Victoria Chief M. & S. Co., Engle, New Mex. Manager, Pacific Assay Co., Seattle, Wash. Superintendent, Dunton Mine & Mill, Hollis, Alaska. Examining mining properties in Honduras, Central America.

BURGESS, ROBERT J., E.M.....1911
1920 Post St., San Francisco, Cal.

Timekeeper, Roberts-Kingston Co., Virginia, Minn., June to August, 1911. Assayer, Guadalupe Consolidated Mining Co., Inde, Durango, Mexico, August, 1911 to March, 1912. Shift boss, Cyanide Mill, El Rayo Mine, Los Azules, Chihuahua, March to May, 1912. Shift boss, Huntington Mill Floor, Tecolotes Mill, A. S. & R., Santa Barbara, Chihuahua, May to July, 1912. Assayer and engineer, Montezuma Lead Co., Santa Barbara, Chihuahua, July to October, 1912. Assistant engineer, Cia Metalurgica Mexicana, San Luis Potosi, S. L. P., Mexico. Metallurgical chemist, same company at La Plantacarmen, San Luis Potosi to December, 1912. Member of firm, Kinney, Trujillo & Burgess, Proprietarios & Explotadores de Fundos Mineros, Charuas, S. L. P., Mexico, December, 1912 to May, 1914. With the Esperanza Mining Co., El Oro, Mexico, May, 1913 to July, 1915. Associated with the Canyon Mines Corporation of Boston and San Francisco, with mines in Placer County, Cal., December, 1915 to November, 1916. Examining properties, State of California, November, 1916 to date.

BURGESS, THOMAS O., E.M.....1901
Porteau, B. C.

Assistant foreman, Thistle Gold Co., Ltd., June to December, 1902. Assistant engineer, Oliver Iron Mining Co., Ely, Minn., December, 1902 to February, 1903. Vice-president and business manager of the Thistle Gold Co., Ltd., Barkerville, B. C. Superintendent, The Deeks Gravel & Rock Co., Porteau, B. C.

BUTLER, WILLIAM V., E.M.....1915
Yambuya, Congo, Belge, Africa.

Assistant state mining engineer, June, 1915 to May, 1916. Engineer and chemist, Patterson Construction Co., Wilcox Mine, Brainerd, Minn., May to August, 1916. Prospecting, Yambuya, Congo, Belge, Africa, August, 1916 to date.

CADWELL, W. CHAUNCEY, E.M.1905
Box 143, Anaconda, Mont.

Department of Civil Engineering, Anaconda Copper Mining Co.
Superintendent, Surface Department, Washoe Smelter, A. C. M. Co.,
Anaconda, Mont., to date.

CALHOUN, ALLAN B., E.M.1905
Burma, India.

Miner and timberman at the Gray Rock Mine, Butte, Mont.
Assayer, surveyor and shift boss, Cornucopia Mine, Oregon, 1907.
Acting superintendent, White Bear Mining Co., Ltd., Rosslund, B. C.
Engineer, Center Star Mine, Rosslund, 1908. Engineer, Consolidated
Mining & Smelting Co., Snowshoe Mine and Phoenix Amalgamated
Group, to June, 1911. Superintendent, Motherlode Sheep Creek Mining
Co., Sheep Creek, B. C., June, 1911 to January, 1913. Consulting engineer
in Spanish Honduras, C. A., January to June, 1913. Engineer, British
Columbia Copper Co., Princeton, B. C., June, 1913 to February, 1914.
Superintendent, Arabian Consolidated Mines, Frisco, Mohave Co., Ariz.,
February, 1914 to January, 1915. Superintendent, El Rayo Mining &
Development Co., Santa Barbara, Chihuahua, Mexico, April, 1915 to Feb-
ruary, 1916. Efficiency engineer, Old Dominion Mining & Smelting Co.,
Globe, Ariz., February, 1916 to May, 1917. Mine superintendent, Burma
Corporation, Ltd., Burma, India, May, 1917 to date.

CAMPBELL, WILLIAM L., E.M.1900
Davenport, Wash.

Mining engineer at Cripple Creek, 1900-1901. Railway engineer, C.
& W., 1901-1902. Lumber business at Elmira, Idaho, 1902. Secretary-
treasurer of Campbell Mer. Co., Connell, Wash. With Spokane Mer-
chants' Association. Owner and operator, Farmers' Store, Davenport,
Wash.

CASSILLY, THOMAS E., E.M.1917
710 Security Bank Bldg., Minneapolis, Minn.

With E. J. Longyear.

CHANDLER, EUGENE D., E.M.1900
Miami, Ariz.

Chemist, Mongolian Exploration Co., at Nome, Alaska, 1900. Drafts-
man, American Bridge Co., Minneapolis, 1901. U. S. G. S., Reno, Nev.
Assistant at Cyanide Plant, White Hills, Ariz. Superintendent, Cyanide
Plant, Basin, Ariz., 1903-1904. Assayer and chemist, Exposed Treasurer
Mining Co., Mojave, Cal. Assayer, Queen Esther Mining Co., Mojave,
Cal. Operator of Cyanide Plant at Casa Grande, Ariz. Assayer and
surveyor, Standby Mining Co., Rockford, S. D. Surveyor, Golden Re-

ward Consolidated Mining & Milling Co., at Terry, S. D. Foreman, Argenta Mine, Silver City, Utah, 1908. Mine sampler, Ray Consolidated Copper Co., Ray, Ariz., 1910-1911. Engineer at Camps 11 and 12, Los Angeles Aqueduct, 1912. Mine sampler, Inspiration Consolidated Copper Co., Miami, Ariz., 1912 to date.

CHRISTENSON, ALFRED, E.M. 1915
Hibbing, Minn.

Mining engineer, Leonard Mine, Great Northern Iron Ore Properties, May, 1915 to June, 1916. Mining engineer, Stevenson Iron Mining Co., June, 1916 to date.

CHRISTIANSON, PETER, B.S., E.M. 1894
217 Union St. S. E., Minneapolis, Minn.

Professor of Metallurgy, Minnesota School of Mines.

CLAPP, W. HOWARD, E.M. 1901
Pasadena, Cal.

Mill foreman, Checkmate M. & M. Co., Pearl, Idaho, 1901 to 1903. Mining engineer with F. W. Sherman, Park City, Utah. Consulting engineer—specialty: the wet concentration of ores and the design and equipment of milling plants. Superintendent, Sherman Engineering Co. Associate Professor, Machine Design, Throop College of Technology, Pasadena, Cal., 1912 to date.

CLEMENT, LESTER L., E.M. 1906
General Land Office, Washington, D. C.

Miner, Highland Boy Mine, July, 1906. Surveyor for same company, August to November, 1906. Draftsman and surveyor for U. S. Smelting, Refining & Mining Co., November, 1906 to November, 1907. Foreman of lead bullion plant, U. S. Smelter, November, 1907 to February, 1908. General engineer, Goldfield, Nev., February to June, 1908. Instrumentman, Indian Surveys, Mont., July to November, 1908. U. S. Surveyor, General Land Office, Washington, D. C., 1908 to date.

COADY, LEO J., E.M. 1913
Butte, Mont.

Assistant engineer, Shenango Furnace Co., Chisholm, Minn., May to December, 1913. Assayer, Granite Bi-Metallic Mining Co., Phillipsburg, Mont., December, 1913 to February, 1914. Sampler, North Butte Mining Co., Butte, Mont., February to March, 1914. Head sampler, North Butte Mining Co., Butte, Mont., November, 1915 to August, 1916. Engineer, North Butte Mining Co., August, 1916 to date.

COHEN, SAMUEL W., E.M.....1903
Cobalt, Ontario, Canada, or Dominion Express Bldg., Montreal.

Assayer and chemist, Consolidated Gold Mines & Development Co., Mancos, Colo., June to September, 1903. Draftsman for C. & G. W. Ry. to March, 1904. Assayer, Adler Mining Co., Virginia City, Mont., March to July, 1904. Miner, B. & M. Co., Butte, from July, 1904 to April, 1905. Superintendent, Gilt Edge Mining Co., Florence, Idaho, April to November, 1905. Mining engineer at Spokane, Wash., November, 1905 to May, 1906. Superintendent, Kerr Lake Mining Co., Cobalt, Ont., May, 1906 to August, 1907. General manager, Crown Reserve Mining Co., Ltd., Porcupine-Crown Mines, Ltd., and the Croesus Gold Mines, Ltd.; also consulting engineer.

COLE WILLARD A., E.M.....1909
710-722 Security Bldg., Minneapolis, Minn.

Exploring engineer for E. J. Longyear Company.

COLLER, WALTER A., E.M.....1915
1149 Ashland Ave., St. Paul, Minn.

Engineer, Toltz Engineering Co., St. Paul, Minn., June, 1915 to March, 1916. Engineer, P. E. Stevens, St. Paul, Minn., March to May, 1916. Engineer, E. P. Wolff, St. Paul, Minn., May, 1916 to date.

COLLINS, LEON T., E.M.....1915
1312 W. 55th St., Los Angeles, Cal.

Experimental work, June, 1915 to July, 1916. With Beck Electrical Construction Co., Minneapolis, July, 1916 to February, 1917. Experimental work, Los Angeles, February, 1917 to date.

CONKEY, CHARLES R., E.M.....1910
Ft. William, Ontario, Canada.

Engineer, Gilbert Mine. Assistant engineer, Genoa Mine. Engineer, Fayal Mine, Eveleth, Minn., March, 1911 to June, 1912. Engineer, Keewatin District, Meriden Iron Co., Hibbing, Minn., June, 1912 to March, 1913. Draftsman, Barnett & McQueen Co., Ft. William, Ontario, Canada, March, 1913 to March, 1915. Designing engineer, same company, March, 1915 to March, 1916. Chief draftsman; also part interest in the firm, Fegles-Bellows Engineering Co., Ltd., March, 1916 to date.

CORYELL, LOUIS S., E.M.....1917
(Permanent address) Osceola, Wis.

COVENTRY, EDWARD D., E.M.....1912
(Permanent address) 600 Fidelity Bldg., Duluth, Minn.

Timberman, Oliver Iron Mining Co., June to August, 1912. Time-keeper, Oliver Iron Mining Co., August to November, 1912. Efficiency engineer, Victoria Copper Mining Co., Victoria, Mich., November, 1912 to July, 1915. Engineer, Wilcox Mine, Canadian-Cuyuna Ore Co., Brainerd, Minn., July, 1915. Mine captain, same company, August, 1915 to December, 1916. Superintendent, Algoma Manganese Co., Ironton, Minn., December, 1916 to date.

COWIN, JAMES, E.M.....1907
321 Security Bldg., Minneapolis, Minn.

Outcrop engineer for the Utah Fuel Co. Construction engineer, Noble Electric Steel Co. Cyanide foreman, Loretto Mill, Pachuca Hidalgo. With Spurr & Cox, consulting engineers, Mexico City. Assistant engineer, C. A. P. Turner. President, Cowin & Fee Co., Ltd., Winnipeg, Manitoba. Cowin & Co., Minneapolis and Detroit, reinforced concrete.

CRAIG, JOHN J., E.M.....1916
Box 942, Jerome, Ariz.

Mining engineer, Northwestern Improvement Co., Brainerd, Minn. Churn drill clerk, Detroit Copper Mining Co., Morenci, Ariz. Assistant mining engineer, United Verde Copper Co.

CROUSE, CHARLES S., E.M.....1911
Box 351, Ray, Ariz.

Assistant State Mining Engineer, Hibbing, Minn., May, 1911 to February, 1914. Engineer, Cananea Consolidated Copper Co., Cananea, Sonora, Mexico, February to June, 1914. (Mines closed on account of revolutionary troubles.) With C. A. P. Turner, Consulting Engineer, Minneapolis, Minn., June, 1914 to August, 1915. Mining engineer, Ray Consolidated Copper Co., Ray, Ariz., August, 1915 to May, 1916. Engineer in charge of No. 1 mine, Ray Consolidated Copper Co., Ray, Ariz., May, 1916 to date.

CULLYFORD, JAMES A., E.M.....1908
Bingham Canyon, Utah.

Miner, Uncle Sam Mine, Lida, Nev., June, 1908 to September, 1910. Office engineer with B. & G. R. R. Co., from November, 1910 to November, 1911. Surface engineer, Boston Mine, Bingham Canyon, Utah, November, 1911 to date.

DAVIES, FREDERICK A.....1916
Box 1588, Great Falls, Mont.

Testing department, A. C. M. Co., Anaconda, Mont. Research department, Electrolytic Zinc Plant, A. C. M. Co., Great Falls, Mont.

DEICHEN, WILLIAM A., E.M.....1908
Box 27, Hibbing, Minn.

Assistant engineer, Gilbert Mine, 1909-1910. Chief engineer, Gilbert Mine. Chief state mining engineer, Department of State Auditor, April, 1910 to date.

DENNIS, RICHARD C., E.M.....1917
(Permanent address) Ashland, Wis.

DEVEREUX, FRANCIS C., E.M.....1904
Care of N. Y. & Honduras Rosario Mining Co., San Juancito, Honduras, C. A.

Assistant engineer, Cyanide Plant, Gold Leaf Reduction Co., Birds-eye, Mont., from June to October, 1904. Millman at Canyon Creek, Mont., also at Iron Siding, Mont. Mill superintendent, U. S. Copper Mining & Smelting Co., Alpha, Nev. Assayer and chemist for Franklin W. Smith & Co., Bisbee, Ariz., from April, 1905 to October, 1906. Mine superintendent, San Fernando Consolidated Copper Mining Co., Lower California, Mexico. Metallurgist for same company. General superintendent for same company. Assayer, Guadalupe Consolidated Mining Co., Inde, Durango, Mexico, from October, 1907 to January, 1910. Mill and cyanide superintendent for same company, January, 1910 to December, 1912. Mill shift boss, New York & Honduras Rosario Mining Co., San Juancito, Honduras, C. A., February, 1913 to March, 1915. Mill foreman, same company, March, 1915 to March, 1916. Mill and cyanide superintendent, same company, March, 1916 to date.

DICKSON, ROBERT H., E.M.....1912

Miner, Irish Mag Mine, Bisbee, Ariz. Mining engineer, Calumet & Arizona Mining Co., Bisbee, Ariz. Mining engineer, Pioneer District Explorations, Calumet & Arizona Mining Co., Superior, Ariz., September, 1913 to October, 1914. Mining engineer, Calumet & Arizona Mining Co., Bisbee, Ariz., October, 1914 to date.

DOPP, J. LAWRENCE, E.M.....1917
(Permanent address) Ashland, Wis.

DOVRE, ADOLPH, E.M.....1916
Box 158, Tulsa, Okla.

Geologist, Producers Oil Co., May, 1916 to date.

DRAKE, GEORGE M., E.M.1911
905 Plymouth Bldg., Minneapolis, Minn.

Engineer, Libby & Nelson, on University of Minnesota engineering buildings. Engineer, Pacific Coast Coal Co., Seattle, Wash., to May, 1914. In partnership with A. F. Johnson under the firm name of Johnson & Drake, engineers and builders, 905 Plymouth Bldg., Minneapolis, Minn., May, 1914 to date.

DUNCAN, KENNETH J., E.M.1910
Box 165, Hibbing, Minn.

Mining engineer, Pioneer Mine, Oliver Iron Mining Co., Ely, Minn., May, 1910 to March, 1912. Superintendent, Consolidated Vermilion & Extension Co., Tower, Minn., March to October, 1912. Representative of R. B. Whiteside of Duluth on Mesabi Range, October, 1912 to date.

EDWARD, FRANK R., E.M.1908
Gilbert, Minn.

Foreman, Bowdle Artificial Stone Co. Rodman, levelman, and instrumentman, "Soo" Line, Ladysmith and Superior, Wis., 1909. Mining engineer and underground superintendent, Rosiclare Lead and Fluorspar Mine, Rosiclare, Ill., September, 1910 to April, 1911. Engineer, Oliver Iron Mining Co., Eveleth, Minn., April to October, 1911. Engineer and assistant superintendent, Memphis Fluorspar Mines, Marion, Ky., October, 1911 to February, 1913. Mining engineer, Pickands, Mather & Co., Elba and Corsica Mines, Gilbert, Minn., February, 1913 to date.

EGLESTON, OLIVER J., E.M.1900
1135 East Sixth South St., Salt Lake City, Utah.

Draftsman, George K. Fischer, Salt Lake City, Utah, 1900 to 1902. Constructing engineer, United States Smelting, Refining & Mining Co., 1902 to 1913. Assistant consulting engineer, for same company, February, 1913 to February, 1916. Engineer, same company, February, 1916 to date.

EIDEMILLER, HOWARD N., E.M.1914
(Permanent address) 408 Traction Term Bldg., Indianapolis, Ind.

Geologist, Wisconsin Geological Survey, June, 1914 to date.

EKLOFF, VICTOR E., E.M.1911
Eureka, Utah.

With the Oliver Iron Mining Co., Hibbing, Minn. With the Centennial Eureka Mining Co., Eureka, Utah. Assayer and surveyor, Victoria Consolidated Mining Co., Eureka, Utah, April, 1912 to December, 1914. County surveyor and assessor of mining properties, Juab County, Utah; also shift boss, Chief Consolidated Mining Co., Eureka, Utah, December, 1914 to date.

ELLIOTT, JAY R., E.M.....1911
Care of Beaver Consolidated Mines, Ltd., Kirkland Lake, Ont.

Mine inspector, Beaver Consolidated Mines, Ltd., May, 1911 to September, 1912. Engineer for the same company, from September, 1912, also Temiskaming Mines Co., Ltd., October, 1914 to October, 1916. Superintendent, Kirkland Lake Branch, Beaver Consolidated Mines, Ltd., October, 1916 to date.

ELSON, WILLIAM H., E.M.....1917
(Permanent address) 776 Marshall Avenue, St. Paul, Minn.

ELY, ROBERT H., E.M.....1913
Virginia, Minn.

With the Oliver Iron Mining Co., Hibbing, Minn., June to October, 1913. Engineer, Higgins Estate, Virginia, Minn., October, 1913, to March, 1917. Assistant secretary-treasurer, Rutland Mining Co., Virginia, Minn., also engineer, Robinson-Flynn-Murphy-Dorr interests at Eveleth, Minn., March, 1917 to date.

ERNSTER, OMER F., E.M.....1917
(Permanent address) 317 North Seventh Street, Brainerd, Minn.

FARNAM, HENRY E., E.M.....1910
408 Columbia Bldg., Duluth, Minn.

Engineering Department, Oliver Iron Mining Co., Hibbing District, June, 1910 to November, 1912. Building construction, Edmonton, Alberta, Canada, November, 1912 to February, 1915. Building construction, February, 1915 to October, 1916. General contracting, Farnam Brothers Co., Duluth, Minn., October, 1916 to date.

FEARING, EDWARD J., E.M.....1917
(Permanent address) Little Falls, Minn.

FIELD, THOROLD F., E.M.....1905
Care of Mr. Chester A. Congdon, 807 Lonsdale Bldg., Duluth, Minn.

With Franklin W. Smith & Co., Bisbee, June to November, 1905. In the Geological Department of the Calumet & Arizona Mining Co., and Superior and Pittsburgh Copper Co., 1905-1909. In the employ of Mr. Chester A. Congdon, September, 1909 to November, 1916. In the employ of the Congdon estate, December, 1916 to date.

FIXEN, VICTOR L., E.M.....1911
627 First Avenue N., Minneapolis, Minn.

Engineering Department, Stone & Webster, June to September, 1911. Assistant field engineer, W. H. Fohrney, Chicago, Ill., September to

December, 1911. Electrical inspector, Twin City Rapid Transit Co.,
December, 1911 to October, 1912. Testing engineer for C. A. P.
Turner, Consulting engineer, October, 1912 to date.

FLYNN, JOHN G., E.M.....1900
Miami, Ariz.

Geologist with Amalgamated Copper Co., Butte, Mont. Engineer
Belle Mining Co., Butte, and B. & B. Mining Co., Butte. Superintendent,
Mohawk Mine. General superintendent of mines for the Goldfield Con-
solidated Mines Co. With the Miami Copper Co.

FOSNESS, ARTHUR W., E. M.....1911
1005 Lindsay Bldg., Winnipeg, Canada.

Draftsman and assistant engineer, C. A. P. Turner, Minneapolis, May,
1911 to March, 1913. Manager, Winnipeg Branch Office for C. A. P.
Turner, March, 1913 to date.

GAVIN, LAWRENCE T., E.M.....1909
Ironton, Minn.

Rodman, U. S. Reclamation Service, June to November, 1909. En-
gineering Department, Oliver Iron Mining Co., Fayal District, Eveleth,
Minn., November, 1909 to May, 1913. Assistant mine captain, Fayal
Mine, May, 1913 to July, 1914. Engineer, Leonard Mine, Arthur Iron
Mining Co., Chisholm, Minn., July, 1914 to September, 1915. Superin-
tendent, Cuyuna-Mille Lacs Iron Co., and Cuyuna-Duluth Iron Co., Iron-
ton, Minn., September, 1915 to date.

GHOLZ, ARTHUR L., E.M.....1901
Crystal Falls, Mich.

Millman at concentrating mill of Forest Hill Consolidated M. M.
Co., Colo. Rocky Mt. Smelting Co., Florence, Colo., 1901-1902. Surveyor
for E. J. Longyear, Hibbing, Minn., 1902-1903. Field superintendent of
exploration for E. J. Longyear to September, 1911. Representing E. J.
Longyear Co., Birmingham, Ala., September, 1911 to October, 1912. With
E. J. Longyear Co., Minneapolis, Minn., October, 1912 to January, 1914.
Superintendent for E. J. Longyear Co., in Wisconsin-Michigan District,
January, 1914 to date.

GILLEN, SILAS L., E.M.....1907
512 Custom House, San Francisco, Cal.

With Irrigated Lands Co., engineer in charge of Moapa project,
Moapa, Nev., August to December, 1907. Mineral land examiner for
U. S. Government, December, 1907 to date.

GILTINAN, GEORGE M., E.M.....1910
215 East Upsal Street, Germantown, Pa.

Sampler, Mountain View Mine, Butte, Mont., June, 1910 to May, 1911. Engineer, Western Land Securities Co., St. Paul, September, 1911 to January, 1912. Draftsman for C. A. P. Turner, consulting engineer, Minneapolis, January, 1912 to January, 1914. Representative for C. A. P. Turner in Kansas City, Mo., January, 1914 to October, 1915. Engineer on construction for Turner Concrete Steel Co., Philadelphia, October, 1915 to October, 1916. Superintendent on construction for same company, October, 1916 to date.

GOODRICH, NORMAN P., E.M.....1910
Smuggler, Colo.

Millman, smelter, and amalgamator, Liberty Bell Gold Mining Co., June, 1910 to December, 1911. Sampler and assistant surveyor, same company, December, 1911 to August, 1912. With Colorado Iron Works, Denver, Colorado, February, 1913 to September, 1914. Assistant superintendent, Cyanide Plant, Tomboy Gold Mines Co., Ltd., December, 1914 to January, 1917. Superintendent, Cyanide Plant, same company, January, 1917 to date.

GOODWIN, WILLIAM R., E.M.....1908
2110 Pleasant Avenue, Minneapolis, Minn.

Railroad work, 1908 to 1910. Engineer, Elba Mine, McKinley, Minn., September, 1910 to February, 1911. Engineer, A. C. Railway, February to December, 1911. Engineer, Brazeau Collieries, December, 1911 to November, 1912. Engineer, Seymour & Dawe, December, 1912 to June, 1913. With Minneapolis City Engineer, as inspector July, 1913 to November, 1915, as assistant engineer November, 1915 to date.

GRANT, ROY C., E.M.....1909
Tshikaysa, Kasai, Congo, Belge, Africa. Care of Forminière.

Chemist and assayer with the Pacific Assay Co., Seattle, Wash. Millman, Dunton Mine & Mill, Hollis, Alaska. Examining mining prospects in Honduras, C. A. Mill foreman, Mineral Hill Consolidated Mines Co., Mineral Hill, Nev. With New York Mining Co., on placer examinations in Colombia, S. A., and Honduras, C. A. Mining engineer with Société Internationale Minière du Congo, 1915-1916.

GRIMES, JOHN A., E.M.....1908
626 Hennessey Bldg., Butte, Mont.

Graduate work in Geology, Columbia University, 1908-1910. Geologist, A. C. M. Co., Butte, Mont., 1910 to date.

GULICK, HERVEY, E.M.....1905
Colombo, Ceylon, India.

Surveying at Dillon, 1905-1906. In testing department of A. C. M. Co. at Anaconda, Mont. In drafting department of same, 1906-1907. Solutionman with New Southern Cross Gold Mining Co., 1908. Mining engineer for Cia Minera de Gatico, Catico, Chili, till 1911. Assisting in the preliminary examination of Chuquicamata till 1912. Prospecting near Ferrobamba, Peru, till 1913. Resigned on account of ill health. Assistant editor of magazine to May, 1915. Member of the teaching staff, Ananda College, Colombo, Ceylon, India, May, 1915 to date.

HAGSTROM, LEONARD J., E.M.....1912
1514 Emerson Avenue N., Minneapolis, Minn.

With Chas. E. Hagstrom & Co., general contractors, Minneapolis, Minn., June, 1912 to date.

HALE, WILLIAM H., E.M.....1904
1042 McKnight Bldg., Minneapolis, Minn.

With the Atlin & Willow Creek Gold Mining Co., Atlin, B. C., 1904-1905. Surveyor and engineer, the Alaska Copper Co., Coppermount, Alaska, 1905-1906. Assayer and representative of the Federal M. & S. Co., Wallace, Idaho, 1907-1908. Engineer, Kettle River Quarries Co., Minneapolis, 1908-1911. Proprietor of Wm. H. Hale & Co., (engineering and building specialties), Minneapolis, Minn., 1911 to date.

HAMMOND, ARTHUR H., E.M.....1913
Bisbee, Ariz.

Draftsman, Great Northern Iron Ore Properties, Duluth. Engineer, Cananea Copper Co., November, 1913 to June, 1914. Miner, Copper Queen Consolidated Copper Co., Bisbee, Ariz., November, 1913 to March, 1915. Member, engineering staff, Shattuck-Arizona Copper Co., geological department, March, 1915 to January, 1917. Superintendent, Northwest Inspiration Copper Co., January, 1917 to date.

HARMON, BENJAMIN G., E.M.....1910
Kellogg, Idaho.

Foreman and engineer to Paragon Consolidated Mining Company from June, 1910 to August, 1911. Superintendent, Bear Top and Orofino Consolidated Mining Co., Murray, Idaho, from November, 1911 to June, 1912. With Federal Mining & Smelting Co., as assayer and chemist; also in charge of Wardner Plant for same company, from September, 1912 to July, 1914. Mine examinations, Colorado and Idaho, July to November, 1914. Installation of flotation plant, Ontario Mill, Kellogg, Idaho, November to December, 1914. Experimental and adjustment work on this flota-

tion plant, December, 1914 to February, 1915. Operating plant, February to April, 1915. General manager, Northern Light Mining & Milling Co., April, 1915 to date.

HARRINGTON, GEORGE L., E.M. 1912
U. S. Geological Survey, Washington, D. C.

With U. S. Geological Survey, May to September, 1912. Graduate work, University of Minnesota. Aid, U. S. Geological Survey, June to September, 1913. Scientist, U. S. Bureau of Soils, September, 1913 to June, 1914. Assistant geologist, U. S. Geological Survey, June, 1914, to date.

HARRINGTON, GUY P., E.M. 1906
Office of U. S. Surveyor General, Santa Fe, New Mexico.

Assistant engineer, Oliver Iron Mining Co. Instrumentman and draftsman, C. M. & St. Paul Ry. Co. Draftsman, Northern Pacific Ry. Co. Engineer on U. S. Indian Reservation Surveys. Surveyor for U. S. Land Office, Interior Department, from June, 1907. General surveying practice for the department, New Mexico, June, 1907 to date.

HAUGAN, ALBERT C., E.M. 1915
Buffalo, N. Y.

Draftsman, structural and bridge department, Minneapolis Steel & Machinery Co., June, 1915 to June, 1916. With the Anaconda Copper Mining Co., June to December, 1916. In the engineering department, Lackawanna Steel Co., Buffalo, New York, December, 1916 to date.

HEATH, CLARENCE L., E. M. 1910
South Porcupine, Ontario, Canada.

Assistant chemist and assayer, Canadian Exploration Co., Ltd., Naughton, Ontario. Municipal and township engineer for township of Tisdale. Manager, Porcupine Consolidated Gold Mines & Milling Co., South Porcupine, Ontario. Manager, Gold Bullion Mines, Ltd., South Porcupine, Ontario. Manager, Rypan Porcupine Mines, Ltd.

HEIDEL, C. SUMNER, E.M. 1910
Helena, Mont.

Hydrographer for Montana, State Engineer's Office, July, 1910 to date.

HEILIG, LOUIS S., E.M. 1915
Tshikapa, Congo, Belge, Africa, via Boma and Luebo.

Engineer's helper, Scranton and Crete Mining Companies, June, 1915 to April, 1916. Mining engineer, Société Internationale Forestière et Minière Du Congo, April, 1916 to date.

HEWITT, EZRA A., E.M.....1912
Butte, Mont.

Assistant engineer, Fayal Mine, Eveleth, Minn., May to August, 1912. Assistant engineer, Great Northern Iron Ore Properties, Hibbing, Minn., August, 1912 to February, 1913. Assistant engineer, North Butte Mining Co., February, 1913 to January, 1914. Geologist, North Butte Mining Co. and Rainbow Lode Development Co., January, 1914 to December, 1915. Chief engineer, North Butte Mining Co., December, 1915 to date.

HILL, A. STANLEY, E.M.....1911
28 Cottage Grove, Wallace, Idaho.

Engineer, Lake Superior Iron & Steel Co., Magpie Mine, Ontario, Canada, June, 1911 to April, 1912. Superintendent, diamond drill operations, same company, April to October, 1912. Assayer and chemist, Hecla Mining Co., Gem, Idaho, October, 1912 to June, 1916. Experimental work on flotation, Wallace, Idaho, June, 1916 to February, 1917. Metallurgist in charge of Hecla Mining Company's Zinc-Lead Plant, February, 1917 to date.

HOARD, HAROLD J., E.M.....1903
Holter, Mont.

Assayer at Whitehall, Mont. Assayer, Alder Mining Co., Virginia City, Mont. Mining engineer for the same company. Engineer with Loweth & Wolff, St. Paul, Minn. Engineer, Minneapolis General Electric Co., at Grantsburg, Wis. Construction engineer, Stone & Webster Engineering Co., Seattle, Wash. Resident engineer, Chas. T. Main of Boston, at Fulton, N. Y. Resident engineer, Chas. T. Main, at Thompson Falls, Mont., to January, 1916. Resident engineer with Chas. T. Main on construction of hydro-electric plant, Holter, Mont., January, 1916 to date.

HOLDEN, HENRY H., Met.E.....1902
Globe, Ariz.

With U. S. Steel Co., Hibbing, Minn. Foreman in Cyanide Mill for B. L. & B. M. Co., Alma, Colo. Engineer for C. & A., Bisbee, Ariz., to 1906. Construction engineer, C. & A. and S. & P. Copper Co., Bisbee, Ariz., 1906 to June, 1910. Engineer, C. & S., Cananea, Sonora, Mexico, June, 1910 to January, 1911. Engineering and mining at Bisbee, January to June, 1911. Engineer, Old Dominion Copper Mining & Smelting Co., Globe, Ariz., August, 1911 to June, 1913. Chief engineer, Superior & Boston Copper Co., June, 1913 to October, 1916. Superintendent, New Dominion Copper Co., Globe, Ariz., October, 1916 to date.

HOLLER, FRED W., E.M.....1910
Surf Inlet, B. C.

Engineer, Copper Queen Consolidated Mining Co., Bisbee, Ariz., Foreman, Crown Point Co., Cactus Springs, Nev. Engineer on mill construc-

tion, Tonopah, Belmont Development Co., Tonopah, Nev., July, 1911 to August, 1912. Field engineer, same company, August, 1912 to April, 1914. Superintendent, Surf Inlet Power Co., Ltd., and Belmont Canadian Mines, Ltd., Surf Inlet, B. C., April, 1914 to date.

HONDRUM, OLAF, E.M.....1913
 Cananea, Sonora, Mexico.

Draftsman, Oliver Iron Mining Co., Eveleth, Minn., June to November, 1913. Engineer, Cananea Copper Co., November, 1913 to April, 1914. Head transitman, Cananea Consolidated Copper Co., April to September, 1914. Cyanide engineer and assayer, Cerro de Plata Mining Co., Cerro de Plata, Sonora, Mexico, December, 1914 to May, 1915. Engineer, Cananea Consolidated, September, 1915 to March, 1916. Chief engineer, Cananea Consolidated Copper Co., March, 1916 to date.

HOULTON, LEWIS K., E.M.....1904
 Elk River, Minn.

Mining engineer with Calumet & Arizona Mining Co., Bisbee, Ariz. Member of firm, Houle & Houlton, Consulting & Mining Engineers, Douglas, Ariz. Superintendent, Anderson Apache Copper Co., Hachita, New Mexico, to June, 1909. Mining engineer, Santiago, Chile, Puente del Inca, Argentine, South America.

HOWES, FRANK T., E.M.....1906
 Belgrade, Mont.

Resident engineer, Spokane-Portland and Seattle Ry., Kahlotus, Wash., May, 1906 to February, 1908. Resident engineer, Northern Pacific Ry., Missoula, Mont., and Mandan, N. D., April, 1908 to July, 1909. Locating engineer, Great Northern Ry., Lewistown, Mont., May to September, 1910. Resident engineer and locating engineer, Alberta Central Ry., Red Deer, Alberta, March, 1911 to April, 1912. Division engineer and locating engineer, Canadian Northern Ry., in Saskatchewan, April, 1912 to October, 1913. Member engineering staff, Oliver Iron Mining Co., Hibbing, Minn., January to April, 1914. Locating engineer, Mesabi Ry. (electric), February, 1914. Assistant engineer, valuation department, D. S. S. & A. Ry., Michigan, May to September, 1914. Assistant engineer, Minnesota Highway Commission, Canby, Minn., September to December, 1914. Junior civil engineer, Interstate Commerce Commission, valuation division, Chicago, December, 1914 to March, 1916. Engineer on construction, Tennessee Copper Co., March to May, 1916. Pilot engineer, D. S. S. & A. Ry., May to November, 1916. Resident engineer, Northern Pacific Ry., Belgrade, Mont., November, 1916 to date.

HOYT, SAMUEL L., E.M., Ph.D.....1909
 416 8th Ave. S. E., Minneapolis, Minn.

Graduate work for Ph.D., Columbia University, 1909 to 1911. Graduate work, Technische Hochschule, Charlottenburg, 1911 to 1913. Ph.D.,

Columbia University, 1914. Assistant Professor of Metallography, Minnesota School of Mines, August, 1913 to date.

HUBBARD, WILLIAM E., E.M. 1917
(Permanent address) Hunters Park, Duluth, Minn.

HUNT, WALTER E., E.M. 1900
Hibbing, Minn.

Mining engineer, Cripple Creek, Colo., 1900. Mining engineer and exploration work for E. J. Longyear, Hibbing, Minn., 1901-1903. Field superintendent of exploration for E. J. Longyear, 1904-1910. Representative, E. J. Longyear Co., Mesabi and Vermilion Iron Ranges, 1911 to date.

HURLEY, JOHN J., E.M. 1911
Ft. William, Ontario, Canada.

Graduate work, Cornell University, New York, 1911-1912. Assistant engineer, State Highway Commission, July to December, 1912. Draftsman, Bridge Department, Northern Pacific Ry., December, 1912 to March, 1913. Draftsman, C. A. P. Turner, March, 1913 to July, 1916. Draftsman, Fegles-Bellows Engineering Co., Ltd., July, 1916 to date.

JACKSON, CHARLES F., E.M. 1907
Globe, Ariz.

Millman, buyer, and surveyor in Coeur d'Alene Mining District, Idaho. Assayer and surveyor, Santa Rosa Mine, Sonora, Mexico. Sampler, Ray Consolidated Copper Co., Ray, Ariz. Engineer for fee interests at Hibbing, Minn. Mining engineer, Scranton Mine, Hibbing, Minn., April to November, 1910. Engineer, Alpena and Fay mines, Virginia, Minn., November, 1910 to May, 1912. General engineering, Minneapolis, Minn., May, 1912 to February, 1914. Engineer, Arthur Iron Mining Co., Hibbing, Minn., February, 1914 to April, 1915. Chief engineer, Central District, Arthur Iron Mining Co., Hibbing, Minn., April, 1915 to April, 1917. Engineer, Old Dominion Copper Co., Globe, Ariz.

JOHNSON, ALGOT F., E.M. 1910
2937 Oakland Ave., Minneapolis, Minn.

Draftsman with C. A. P. Turner Co. Engineer and foreman, Libby & Nelson Co. General foreman, Butler Bros. Junior member of the firm, James A. Burner & Co., architects and engineers, Minneapolis, Minn. Contracting under the name A. F. Johnson, engineer and builder, Minneapolis, Minn., June, 1913 to May, 1914. Senior member of the firm, Johnson & Drake, contractors and builders, Minneapolis, Minn., May, 1914 to date.

JONES, PHILO E., E.M. 1910
Box 561, Sidney, Mont.

Inspector of construction for H. M. Byfllesby & Co., Faribault, Minn., September, 1910 to January, 1911. With Cummings & Kiehl, engineers

and contractors on the Great Northern Dock, Vancouver, B. C. Member of the firm Bendon, Jones & Reed, general contractors, Sidney, Mont., to January, 1916. Contracting engineer, Sidney, Mont., January, 1916 to date.

KELLER, ORRIN M., E.M.1905
Rondout, Ill.

Miner at Gray Rock Mine, Butte, Mont., 1905. Assistant manager of the McVey Mine, Harrison, Mont., 1906. Engineer and draftsman, Western Portland Cement Co., Yankton, S. D. Member of Engineering Corps, Calumet & Arizona Mining Co., Bisbee, Ariz., 1907-1908. Cashier, International Sugar Feed Companies, Minneapolis, 1909. Comptroller, M. W. Savage interests, 1911-1912. Secretary, International Sugar Feed Co., 1913 to July, 1914. President, Arcady Farms Milling Co., Chicago, July, 1914 to date.

KENNEDY, JOHN J., E.M.1908
300 Colman Bldg., Seattle, Wash.

Mining engineer for the San Miguel Gold Mining Co., La Palma, via Pesqueira and Horcasitas, Sonora, Mexico. Chief engineer of mines for Tennessee Copper Co., to January, 1913. Superintendent of mines for Tucson Mines Development Co., Tucson, Ariz., January, 1913 to January, 1914. Sales engineer for Ingersoll-Rand Co., Boston, Mass., January, 1914. Manager, Northwestern branch, Ingersoll-Rand Co., Seattle, Wash.

KERR, CHARLES D., E.M.1915
Crosby, Minn.

Engineer, Sibley, Savoy, and Zenith mines, Oliver Iron Mining Co., June, 1915 to March, 1917. Engineer, Meacham and Kennedy mines, Rogers-Brown Ore Co., Crosby, Minn., March, 1917 to date.

KINGSLEY, NEIL S., E.M.1911
600 11th Ave. S. E., Minneapolis, Minn.

With Grant-Smith Construction Co., Tye, Wash., July to August, 1911. With Libby & Nelson Construction Co., Minneapolis, August, 1911 to October, 1912. Assisting in the investigation of the low grade iron ores of Minnesota, Minnesota School of Mines Experiment Station, October, 1912 to May, 1914. With Minneapolis Civic and Commerce Association, June, 1914 to June 1917.

KINGSTON, MERTON S., E.M.1904
Virginia, Minn.

Engineer at Fayal Mine. Foreman, Wallace Contracting Co. Assistant chief engineer of Fayal Mine. Superintendent of stripping. Chief engineer at Gilbert Mine. Chief engineer of Fayal District to February,

1910. Assistant Professor of Mining, Minnesota School of Mines, Minneapolis, February, 1910 to July, 1913. Superintendent and general agent, Higgins interests, Virginia, Minn., July, 1913 to May, 1916. Advisory engineer to C. A. H. Smith, New York, also interested in iron mining, May, 1916 to date.

KNICKERBOCKER, ARTHUR K., E.M.1908
Box 768, Hibbing, Minn.

With Calumet & Arizona Mining Co., June to August, 1908. Assayer, Edith Mine, Paris, Kern County, Cal., August to November, 1908. Engineer, Fayal District, Oliver Iron Mining Co., Eveleth, Minn., March to June, 1909. Engineer, Gilbert Mine, Gilbert, Minn., June to November, 1909. Assistant engineer, Shenango Furnace Co., Chisholm, Minn., November, 1909 to May, 1910. Assistant engineer, Great Northern Iron Ore Properties, Hibbing, Minn., May, 1910 to June, 1912. Engineer, Great Northern Iron Ore Properties, Hibbing, Minn., June, 1912 to January, 1914. Chief engineer, Hibbing District, Arthur Iron Mining Co., January, 1914 to April, 1915. Superintendent, Central District, Arthur Iron Mining Co., Hibbing, Minn., April, 1915 to date.

KNOX, LA FAYETTE, E.M.1912
Hayden, Ariz.

Engineer and assayer, Ross Mining & Milling Co., Silverton, Colo., May to September, 1912. On construction work with the Norton Griffith Steel Construction Co., Vancouver, B. C., October, 1912 to February, 1913. Estimator, the Lussier Construction Co., Ltd., Medicine Hat, Alberta, Canada, February, 1913 to February, 1915. Engineering department, Hayden Plant, Ray Consolidated Copper Co., February, 1915 to date.

KROGH, ALVIN T., E.M.1916
(Permanent address) 2448 23d Ave. S., Minneapolis, Minn.

Testing department, A. C. M. Co., Anaconda, Mont., May, 1916 to February, 1917. Flotation engineer, Research department, same company, February to June, 1917.

KUEHN, AMOR F., E.M.1904
New York City, N. Y.

Examining engineer, Turnagain Gold Mining Co. of Minneapolis. Mine superintendent for same company at Cableville, Ore. Assistant engineer, Killen, Warner, Stewart Co., of Sumpter, Ore. Construction engineer for Cerro de Pasco Mining Co., Peru. Superintendent of construction and acting superintendent of the Peruvian Smelting & Refining Co., Ria Blanco, Peru, to 1907. Examining engineer for F. Kleptko, Peru, S. A. With Allen H. Rogers & A. Chester Beatty, 71 Broadway, New York City. With A. C. Beatty & H. C. Hoover, N. Y. and London. Consulting engineer, No. 1 London Wall Bldg., London, E. C. Consulting

engineer, Consolidated Mines Selection, Ltd. On technical committee of board of directors, Messina (Transvaal) Development Corporation, Ltd., Burma Corporation, Ltd., Lake View and Oroya, Ltd., Manchi Mines, Ltd., Lake View and Star, Ltd., Yuanmi Gold Mines, Ltd., Babalonio Mines, Ltd., Central American Mines, Ltd. Consulting engineer, Anglo-Colonial Estates, Ltd., to H. C. Hoover; also private consulting engineer.

KURTZMAN, PAUL S., E.M.....1906
 Hibbing, Minn.

Assistant superintendent, Interurban Division, T. C. Rapid Transit Co., Minneapolis, Minn., May, 1906 to March, 1907. Assistant engineer for Colorado Fuel Iron Co., Sunrise, Wyo., April, 1907 to March, 1908. Assistant engineer at Fayal Mine, Eveleth, Minn., April, 1908 to April, 1909. First assistant engineer, Republic Iron & Steel Co., Gilbert, Minn., April, 1909 to February, 1910. Superintendent, Monica & Wills Mines, Republic Iron & Steel Co., McKinley, Minn., February, 1910 to March, 1916. Mine captain, Pickanks, Mather & Co., Utica Mine, Hibbing, Minn., March, 1916 to date.

KWONG, YIH KUM, E.M.....1917
 (Permanent address) 800 5th St. S. E., Minneapolis, Minn.

LADD, GREELEY, E.M.....1913
 1129 University Ave. S. E., Minneapolis, Minn.

Electrical foreman, University of Minnesota. Engineer for Superintendent of Buildings and Grounds, University of Minnesota, January, 1914 to January, 1915. Draftsman, Board of Education, Minneapolis, Minn., April, 1915. Cost accountant, Dayton Co., Minneapolis, January, 1917 to date.

LARSON, CLARENCE L., E.M.....1910
 Box 827, Kellogg, Idaho.

Studying mining methods in the West, May to September, 1910. With the Calumet & Arizona Mining Co., Bisbee, Ariz., September, 1910 to June, 1911. Instructor in the Mining Department of the Imperial Polytechnic College, Nanking, China, from August to November, 1911. College closed on account of revolutionary troubles, November, 1911. Mill foreman for the Chiksan Mining Co., Chiksan, Korea, January to June, 1912. Cost engineer of Sajunkohl and Tonkohl mines for same company, June to September, 1912. Superintendent, same company, October, 1912 to October, 1913. Instructor in Metallurgy, University of Idaho, Moscow, Idaho, February to July, 1914. U. S. Bureau of Mines Research Fellow at University of Utah, Salt Lake City, Utah, August, 1914 to July, 1915. Received degree of M. S. in Metallurgy, University of Utah, June, 1915. Experimental metallurgist in hydro-metallurgy, Bunker Hill & Sullivan Co., Kellogg, Idaho, July, 1915 to date.

LARSON, ERNEST L., E.M.....1914
124 River St., Wallace, Idaho.

Assistant, Minnesota School of Mines Experiment Station, May, 1914 to May, 1915. Foreman, washing plant, Thompson mine, Inland Steel Co., Crosby, Minn., May to November, 1915. Examining timber and mineral properties in Oregon and Idaho, April to August, 1916. With the Hecla Mining Co., mill and assay office; also mill testing for Hercules Mining Co., August, 1916 to date.

LEA, JOHN, E.M.....1912
5410 Normandie Ave., Los Angeles, Cal.

With Inspiration Consolidated Copper Co., May to August, 1912. Tubemillman for U. S. Smelting, Refining & Mining Co., Goldroad, Ariz., August to November, 1912. Sample and stopeman, Shattuck-Arizona Mining Co., November, 1912. With Sullivan-Lonn Mining Co., Millet, Nev., November, 1912 to September, 1913. With North Butte Mining Co., Butte, Mont., September to December, 1913. With Inspiration Consolidated Copper Co., to June, 1914. Experimental work, June, 1914 to date.

LEE, OSCAR, E.M.....1916
509 Elm St., Anaconda, Mont.

Testing department, Anaconda Copper Co., May, 1916 to date.

LEONARD, F. MORTON, E.M.....1910
Cerro de Pasco, Peru, S. A.

Assistant engineer, Pittsmtont Mine, Butte, Mont., July and August, 1910. Miner and timberman, Berkeley, Speculator, and Moonlight mines, Butte, Mont., August, 1910 to May, 1911. Engineer for Butte Electric & Power Co., May to December, 1911. With Jas. Graham Machinery Co., Butte, December, 1911 to February, 1912. Engineer, B. A. & P. Ry. Co., February to June, 1912. Resident engineer, Edgewood & Bradley Hills Subdivisions, June, 1912 to February, 1914. With the Cerro de Pasco Mining Co., February, 1914 to date.

LEVORSEN, A. IRVING, E.M.....1917
411 Massachusetts Bldg., Kansas City, Mo.

Geologist, Greenwood Co., of Minneapolis.

LEWIS, JOHN W., E.M.....1912
219 Lynch Bldg., Tulsa, Okla.

Hoistman, Michigan-Utah Mine. Hydrographer, Price River Irrigation Co., Ltd. With Mining Department, Smith-Emory Co. Field geologist, Caribbean Petroleum Co., Venezuela, S. A. In general engineering work in Los Angeles and vicinity. Assistant geologist, Producers Oil Co., Tulsa, Okla. Member of the firm Hager, Bates & Lewis, March, 1917 to date.

LINDHOLM, MILTON S., E.M.....1911
Bisbee, Ariz.

Millman and assayer, Miller Mining, Milling & Tunnel Co., from June to December, 1911. Assayer for Yak Mining Co., Leadville, Colo., December, 1911 to June, 1912. Mill foreman, Miller Mining, Milling & Tunnel Co., June to November, 1912. With the Copper Queen Consolidated Mining Co., November, 1912 to January, 1914. Engineer, Société Internationale Forestière et Minière Du Congo, Tshikapa, Kasai, Congo, January, 1914 to May, 1915. In charge of field work, Companhia de Pesquisas Minerias de Angola, Lunda District, Angola, North Africa, to May, 1916. With the Copper Queen, Bisbee, Ariz., May, 1916 to date.

LOCKE, ALFRED M., E.M.....1908
1042 McKnight Bldg., Minneapolis, Minn.

Assistant engineer, Oliver Iron Mining Co., 1908-1909. Salesman, United Iron Works, Spokane, Wash., 1909-1911. Salesman, Pacific Power & Light Co., Portland, Ore., during 1911. Rancher and irrigation engineer, Lemmon, S. D., during 1912. Salesman, Wm. H. Hale & Co., Minneapolis, Minn., 1913 to date.

LOYE, HENRY E., E.M.....1905
111 Lincoln Avenue, Eveleth, Minn.

Assistant engineer, Adams and Spruce mines, Eveleth, May to July, 1905. Assistant engineer, Hibbing District, July to December, 1905. Chief engineer, Adams and Spruce mines, December, 1905 to January, 1907. Chief engineer, Adams District, January, 1907 to date.

LYTZEN, WALTER W., E.M.....1905
Butte, Mont.

Levelman, Northern Pacific Ry., 1905. Trackman and chute builder, Cora Mine, Butte, Mont. Assistant chemist, Pittsburgh & Mont. Copper Co., Butte, 1906. Draftsman and testing engineer at Washoe Smelter, Anaconda, Mont., 1906. Assistant engineer, B. & B. C. Mg. Co., 1907. Engineer, A. C. M. Co., B. & B. Department, Butte, Mont., 1909 to date.

MCADAMS, HOWARD R., E.M.....1912
Eveleth, Minn.

Draftsman, Toltz Engineering Co., St. Paul, Minn., June to October, 1912. Draftsman, St. Paul Foundry Co., October to November, 1912. Assistant mining engineer, Oliver Iron Mining Co., Adams District, November, 1912 to date.

MCCARTY, ANDREW L., E.M.....1904
Pinos Altos, New Mexico.

With Snowstorm Mining Co., Mullan, Idaho. General superintendent, Comanche Mining & Smelting Co., Silver City, New Mex. Member

of McCarty-Crowdus Co., engineers. Vice-president and member of board of directors of the Dawson Mining Co., S. A., of Nacozari, Sonora, Mex. General manager, Ohio Mines Co., Chaparal, Ariz. President, Champion Gold Mining Co. Director, Champion Gold Mining Co. Director and manager, C. & O. Mining & Milling Co., Pinos Altos, New Mexico.

McCULLOUGH, ERVIN W., E.M., Met. E.....1911
934 E. Bayliss Ave., St. Paul, Minn.

Instructor in Metallurgy, Minnesota School of Mines.

McDERMID, ARCHIE J., E.M.....1916
(Permanent address) 4715 Cooke St., Duluth, Minn.

Geologist, J. Elmer Thomas, Tulsa, Okla., May, 1916 to January, 1917.
Geologist, Peoples Service Co., January to June, 1917.

McHARDY, ROY H., E.M.....1916
Globe, Ariz.

Stope engineer, Greene Cananea Co. Engineer, C. & A. Co., Bisbee, Ariz. Engineer and assayer, Iron Cap Copper Co., Globe, Ariz.

McINTOSH, JOSEPH B., E.M.....1898
633 3d Ave., Salt Lake City, Utah.

Assistant mining engineer, B. & M. Consolidated Copper & Silver Mining Co., Butte, Mont., June to December, 1898. Mining engineer, Winona Copper Co., Winona, Mich., December, 1898 to February, 1900. Constructing engineer, A. C. M. Co., at Reduction Works, Anaconda, Mont., March, 1900 to June, 1908. Constructing engineer, Boston & Montana Reduction Works, Great Falls, Mont., June to December, 1908. Constructing engineer, International Smelting & Refining Co., Tooele, Utah, December, 1908 to August, 1910. Superintendent, Construction and Maintenance, Garfield Smelting Co., Garfield, Utah, August, 1910 to November, 1911. Superintendent of construction, United Verde Copper Co., Jerome, Ariz., November, 1911 to February, 1913. Superintendent of construction, American Smelting & Refining Co., Murray Plant, Murray, Utah, April, 1913 to date.

McKAY, HENRY S., E.M.....1905
Box 28, Cananea, Sonora, Mexico. Care of Democrata Mining Co.

Engineer, Calumet & Arizona Mining Co., 1905 to 1907. Chief engineer, Democrata Mining Co., 1907 to 1908. Superintendent, Democrata Mining Co., 1908 to date.

McKENZIE, JAMES R., E.M.....1910
Adrian, Minn.

Field assistant, United States Government Survey, June to November, 1910. With S. J. McKenzie Lumber Co., Denham Springs, La., No-

vember, 1910 to May, 1916. Computer, C. & N. W. Ry., engineering department, May, 1916 to date.

MARTIN, LYNN, E.M.....1912
Glenwood, Minn.

Miner and sampler, Leonard Mine, Butte, Mont., May to December, 1912. Graduate work, University of Minnesota, 1912-1913. Assistant engineer, Minnesota Highway Commission, June to January, 1914. Engineer, Spring Valley, Fillmore and Houston counties, Minnesota Highway Commission, Caledonia, Minn., January to June, 1914. District engineer, Pope County, Glenwood, Minn., June, 1914 to June, 1915. County superintendent of construction of roads and bridges, Pope County, June, 1915 to date.

MERRIAM, ROBERT S., E.M.....1905
Wallace, Idaho.

Engineer and assayer, North American Mine, Barron, Wash. Mining engineer, Wallace, Idaho. U. S. Mineral Surveyor for Montana and Idaho.

MERRITT, LUCIEN, E.M.....1904
619-24 Providence Bldg., Duluth, Minn.

Vice-president Nikaniss Co. President, Northern Dredge & Dock Co.

MICHIE, ROY G., E.M.....1913
(Permanent address) Montevideo, Minn.

Assistant engineer and rodman, Great Northern Iron Ore Properties, Hibbing, Minn. Assistant assayer, Butte & Superior Mining Co. Mining for the Amalgamated Copper Mining Co. Construction engineer, Butte Water Co. Foreman at Helena, Mont., for the Washington Pipe & Foundry Co., of Tacoma, Wash. Foreman for the same company at Newell, S. D. With E. G. Evensta Construction Co., of Minneapolis. County engineer, Chippewa County, Minn., and engineer of Montevideo, Minn.

MILLS, EUGENE C., E.M.....1897
Willows, Cal.

Instructor in Mining, Minnesota School of Mines. Mining engineer, Fayal Iron Mine, Eveleth, Minn. Superintendent Commodore Mining Co., Virginia, Minn. Superintendent, New Era Coal Co., Minot, N. D. Superintendent, Buena Vista Mining Co., West Point, Cal. Director, Polytechnic College of Engineering, Oakland, Cal. Chief engineer, Sacramento Valley Irrigation Co., Willows, Cal. Superintendent and engineer, Sacramento Valley, West Side Canal Co.

MOENKE, WILLIAM F., E.M. 1906
Sunrise, Wyo.

Miner, Portland Mine, Victor, Colo., May to July, 1906. Second assistant engineer, Colorado Fuel & Iron Co., Sunrise, Wyo., July, 1906 to April, 1907. First assistant engineer with same company, April, 1907 to August, 1909. Chief engineer, C. F. & I. Co., August, 1909 to January, 1910. Assistant engineer, Pickands, Mather & Co., McKinley, Minn., January, 1910 to August, 1911. Chief engineer, C. F. & I. Co., Sunrise, Wyo., August, 1911 to date.

MOODY, REVILLO G., E.M. 1910
504 E. 24th St., Minneapolis, Minn.

Timekeeper, Boston Consolidated, June to October, 1910. Draftsman, Utah Copper Co., October, 1910 to February, 1911. Assistant underground engineer, February to July, 1911. Outside foreman, July, 1911 to September, 1912. Draftsman, C. A. P. Turner, Minneapolis, Minn., September, 1912 to October, 1915. Salesman, Washburn-Crosby Co., October, 1915 to May, 1916. Inspector, Minneapolis Park Board engineers, May, 1916 to date.

MORGAN, CHARLES, E.M. 1906
Woodstock, Ala.

Surveyor, Longyear Exploration Co., Hibbing, Minn. With Republic Iron & Steel Co. Engineer, Republic Iron & Steel Co., Virginia, Minn. Engineer, Brown Ore Mines Division, Republic Iron & Steel Co., Alabama. Superintendent, Woodward Iron Co., Brown Ore Mines, Woodstock, Ala., July, 1910 to date.

NEERLAND, HERMAN, E.M. 1915
Amery, Wis.

Assistant engineer for Inland Steel Co., Thompson and Armour mines, Crosby, Minn., May to June, 1915. Night foreman for the same company at Frosty Morning concentrating plant, June to September, 1915. State mining engineer, Woodbridge mine, Buhl, Minn., September, 1915 to September, 1916. Construction engineer, Butler Bros. Building Co., on Stock Yards Extension, South St. Paul, August to December, 1916. Agricultural engineer, Amery, Wis., December, 1916 to date.

NEUSTADT, BERTHOLDT R., E.M. 1906
Decatur, Ill.

Surveyor and assistant foreman, U. S. Gypsum Co., Gypsum, Ohio. Underground engineer for Tomboy Gold Mines Co., Ltd., Smuggler, Colo.

NEWELL, JOHN R., E.M. 1910
602 E. 62d St. N., Portland, Ore.

Transitman, Oregon Electric Ry., June to September, 1910. Timekeeper, Water Power Project, September to October, 1910. Transitman,

Oregon Electric Ry., January to May, 1911. Assistant engineer, same company, May to October, 1911. Resident engineer on construction, same company, October, 1911 to January, 1913. Resident engineer, Columbia & Nehalem River Ry., April, 1913 to April, 1914. District engineer, Oregon, State Highway Commission, April, 1914 to January, 1915. Superintendent, Jeffries & Bufton, general contractors, February to October, 1915. Engineer in charge of highway location and construction for Wahkiakum County, Wash., November, 1915 to date.

NISSEN, ARVID E., E.M M.S.....1913
 Gary, Ind.

With Chas. L. Pillsbury, consulting engineer, St. Paul, Minn., May, to October, 1913. Master of Science degree, University of Minnesota, 1914. Inspector for the Pittsburgh Testing Laboratory, July to November, 1914. Appraisal engineer, November, 1914 to April, 1915. Metallographer, Inland Steel Co., Indiana Harbor, Ind., April to July, 1915. Foreman, No. 1, Open-Hearth, Illinois Steel Co.'s Gary Works, July, 1915 to January, 1917. Foreman, No. 2 Open-Hearth Duplex Plant, January, 1917 to date.

NOEHL, BARTLEY F., E.M.....1907
 Kingman, Ariz.

Timberman, Green Cananea. Mechanic and engineer, Urique Development Co. Mine foreman and engineer, Esmeralda Mining Co. Mine foreman and engineer, Yoquivo Development Co. Superintendent for Joseph S. Qualey & Co., at Dios te Guie and Ocampo, Chihuahua, Mexico. Examining engineer for same company. Superintendent, Yoquivo Development Co. Assistant superintendent and engineer, Lake Superior & Nevada Development Co. Mining engineer with office at Los Angeles, Cal., to February, 1913. Geologist for Caribbean Petroleum Co., Venezuela, S. A., to August, 1914. Superintendent, Metal Mines Development Co., Hackberry, Ariz., August, 1914 to March, 1915. Mining engineer, Kingman, Ariz., March to November, 1915. Manager, Tyro Gold Mines Co., November, 1915 to date.

NORD, HARRY H., E.M.....1916
 Chisholm, Minn.

Mining engineer, Shenango Furnace Co., May, 1916 to date.

OBERG, ANTON C., E.M.....1907
 503 Manhattan Bldg., Duluth, Minn.

Assistant engineer, Colorado Fuel & Iron Co., Sunrise, Wyo., May to October, 1907. Assistant mining engineer, Great Northern Iron Ore Properties, October, 1907 to August, 1909. Mining engineer, Great Northern Iron Ore Properties, August, 1909 to June, 1912. Assistant chief engineer, Arthur Iron Mining Co., Hibbing, Minn., June, 1912 to August,

1913. Chief engineer, Arthur Iron Mining Co., August, 1913 to January,
 1914. Consulting engineer, Duluth, Minn., January, 1914 to date.

O'BRIEN, J. CHARLES, E.M.....1912
 Southern Cross, Mont.

Assistant engineer, A. C. M. Co. Mining engineer, A. C. M. Co.,
 Southern Cross Mine, Southern Cross, Mont.

O'CONNOR, EDWARD S., E.M.....1906
 Mayville, Wis.

Engineering Corps, Fayal Mine, Eveleth, Minn., May, 1906 to Jan-
 uary, 1909. First assistant engineer, Fayal District, January, 1909 to Feb-
 ruary, 1910. Chief engineer, Fayal District, February to August, 1910.
 Superintendent of mines, Northwestern Iron Co., August, 1910 to date.

OFSTHUN, NORMAN H., E.M.....1913
 Miami, Ariz.

Engineer, State Mineral Lands Department, June, 1913 to April, 1914.
 Mine sampler, I. C. C. Co., Miami, Ariz., April to September, 1914.
 Draftsman, Crown Mill Equipment Co., Milwaukee, Wis., September, 1914
 to August, 1916. President, Salt River Copper Co., August, 1916 to date.

OLMSTED, JOHN S., E.M.....1908
 Box 54, Ajo, Prima Co., Ariz.

Surveyor, Calumet & Arizona Mining Co., Bisbee, Ariz., September,
 1908 to August, 1909. Geological department, same company, August,
 1909 to July, 1912. Engineer, Courtland exploration, same company,
 Courtland, Ariz., July to November, 1912. Geological department, Calu-
 met & Arizona Mining Co., Bisbee, Ariz., November, 1912 to March,
 1914. Assistant engineer on experimental work, Calumet & Arizona Min-
 ing Co.'s smelter, Douglas, Ariz., March to August, 1914. Assistant engi-
 neer, experimental plant, New Cornelia Copper Co., Ajo, Ariz., August,
 1914 to February, 1916. Chief engineer, same company, February, 1916 to
 date.

OLUND, HENNING E., E.M.....1907
 Vidal, Cal.

Tableman, Cananea Ore Co., Mex. Mine sampler for C. C. C. Co.,
 American Mine, Cananea, Mex. Engineer for Rosario, M. & S. Co. En-
 gineer, Urique Development Co. and Pilton M. & M. Co., Urique, Chilhua-
 hua, Mex. General superintendent and mining engineer for Lake Superior
 & Nevada Development Co., of Duluth, Minn. Engineer, Republic Smelt-
 ing Corporation. Superintendent, same company, Galzóna, Cal., March,
 1913 to January, 1915. Leasing, Calzona Mines Co., Vidal, Cal., January,
 1915 to October, 1916. Superintendent, Calzona Mines Co., October, 1916
 to date.

OSTRAND, PETER M., E.M.1910
Hibbing, Minn.

Assistant engineer, Great Northern Iron Ore Properties, May, 1910 to June, 1911. Assistant engineer, Bureau of Public Works, Manila, P. I., July, 1911 to July, 1913. Resident engineer, on the location and construction of the American section of the Szechuen-Hankow Railway, July, 1913 to March, 1914. Division engineer for the same company, March, 1914 to October, 1915. Examining prospects in Gilpin and Clear Creek Counties, Colo., January and February, 1916. Engineer, State Mineral Lands Department, Hibbing, Minn., August, 1916 to date.

PARKER, WALTER H., E.M.1907
Helena, Mont.

Mining engineer for H. T. & F. Co., Berlin, Wash., from June to December, 1907. Mining engineer, International Coal Co. and Montana Coal & Iron Co., Bearcreek, Mont., from December, 1907 to August, 1911. Consulting engineer, with R. M. McKinley, Vancouver, B. C., to December, 1912. Provincial manager, Saskatchewan, for Canadian Investment Co., to April, 1914. Consulting engineer, April, 1914 to October, 1916. Structural engineer, American Beet Sugar Co., Rocky Ford, Colo., October, 1916 to April, 1917. Consulting engineer, Helena, Mont., April, 1917 to date.

PERRY, JOSEPH B., E.M.1912
Yerington, Nev. (Rockland Mine.)

Engineer, Pittsburg-Dolores Mining Co. In general engineering work. Assayer and engineer, McConnel Mines Co., Mason, Nev., and churn drill work, Miami Copper Co., during 1913 and 1914. Engineer, Pittsburg-Dolores Mining Co., Yerington, Nev., April, 1914 to March, 1915. Mine superintendent, Pittsburg-Dolores Mining Co., March, 1915 to date.

PETERSON, ANDREW Y., E.M.1899
Chisholm, Minn. Care of Myers Mine.

Assistant mining engineer, Lake Superior Consolidated Iron Mines, Duluth, May, 1899 to June, 1901. Engineer, Adams & Spruce Mines, Eveleth, to January, 1903. Assistant superintendent of exploration, Oliver Iron Mining Co., Duluth, to January, 1906. Superintendent, Hartley-Myers Mines, Chisholm, Minn., January, 1906 to January, 1911. Assistant general superintendent, Oliver Iron Mining Co., Chisholm District, January, 1911 to date.

PETERSON, JOSEPH S., E.M.1908
Smuggler, Colo.

Miner, Portland Mine, Cripple Creek, Colo., June to September, 1908. Inspector, Central Colorado Power Co., September to December, 1908.

Mine sampler, surveyor, assayer, millman, Liberty Bell G. M. Co., Telluride, Colo., January, 1909 to May, 1911. Cyanide foreman, S. A. D. Co., Guayaquil, Ecuador, S. A., May, 1911 to May, 1913. General superintendent, Ophir G. M. M. & P. Co., Ophir, Colo., August, 1913 to January, 1914. Cyanide superintendent, Tomboy G. M. Co., Telluride, Colo., January, 1914 to January, 1917. Assistant general manager, same company, January, 1917 to date.

PETERSON, PAUL A., E.M.....1917
(Permanent address) 450 Snelling Ave., St. Paul, Minn.

POTTER, ORRIN W., E.M.....1914
859 Aurora Ave., St. Paul, Minn.

Geologist, Wisconsin Geological Survey, May to November, 1914.
Sales manager and engineer, Gas Tracción Foundry Co., Minneapolis, Minn., November, 1914 to date.

PRATT, GEORGE A., E.M.....1898
130 1st Ave. N., Minneapolis, Minn.

Resident manager for Scandia Mining Co., Cotani, Peru, South America. Draftsman with G. K. Fisher, Salt Lake City, Utah. Mining engineer, Minneapolis, Minn. Secretary and treasurer of Pratts Express Co.

POBST, ELMER A., E.M.....1907
Colombia, S. A.

Draftsman, C. M. & St. P. Ry., June, 1907 to July, 1908. Division engineer, Grand Trunk Ry., July, 1908 to March, 1915. Manager, La Viborita Co., Amalfi, Colombia, S. A., April, 1915 to date.

PROUTY, ROSWELL W., E.M.....1912
Box 854, Morenci, Ariz.

Engineer, Pioneer Mine, Oliver Iron Mining Co., Ely, Minn., June, 1912 to August, 1914. Assistant geologist, Detroit Copper Mining Co., Morenci, Ariz., August, 1914 to October, 1915. Efficiency engineer, Old Dominion Copper Mining & Smelting Co., Globe, Ariz., October, 1915 to February, 1916. Assistant geologist, Detroit Copper Mining Co., Morenci, February, 1916 to date.

QUINLAN, HOWARD, E.M.....1914
St. Paul, Minn.

With Foley Bros. & Quinlan, June, 1914 to date.

QUINN, MAX F., E.M.....1912
Sunset, Idaho.

Assistant engineer to Stewart Campbell (Custom Work), Hailey, Idaho. Engineer, Idora Hill Mining Co. Assayer and engineer, Iron

Mountain Tunnel Co., Superior, Mont. Assayer, Pittsburg-Dolores Mining Co. of Rockland, Nev. Engineer and assistant superintendent, Rex Consolidated Mining Co., Sunset, Idaho.

RAHILLY, HAROLD J., E.M.....1911
Butte, Mont.

Engineer, Oliver Iron Mining Co., Coleraine, Minn., May to December, 1911. Engineer in office of Repath & McGregor, Douglas, Ariz., January, 1912 to February, 1913. Assistant chief engineer on construction, Calumet and Arizona Smelter, Douglas, Ariz., February to June, 1913. Superintendent of construction, Commonwealth Mining & Milling Co., Pearce, Ariz., June, 1913 to March, 1914. Superintendent, Minneapolis Copper Co., Cumpas, Sonora, Mexico, May, 1914 to May, 1915. Mining engineer, U. S. General Land Office, Knik, Alaska, May to November, 1915. Mining engineer, U. S. Bureau of Mines, Pittsburgh, Pa., November, 1915 to April, 1916. In charge of Bureau of Mines office, Billings, Mont., April, 1916 to April, 1917. Mining engineer, Anaconda Copper Co., Butte, Mont., April, 1917 to date.

RAIT, DONALD M., E.M.....1903
Box 744, Warren, Ariz.

Assistant engineer, Houghton St. Ry. Co., 1903-1904. Engineer, Calumet & Arizona Mining Co., Warren, Ariz.

RAVICZ, LOUIS G., E.M.....1914
(Permanent address) 854 McKnight Bldg., Minneapolis, Minn.

Graduate work, the University of Minnesota, 1914-1915. Graduate Work, Columbia, 1915-1916. Engineer, General Chemical Co., June to September, 1916. Assistant geologist, Cosden Oil & Gas Co., September, 1916 to date.

RAWSON, HORACE C., E.M.....1906
(Permanent address) 4641 Aldrich Ave. S., Minneapolis, Minn.

Engineer, B. & Q. Mining Co., Silverton, Wash., 1907. Assistant engineer, C. F. & I. Co., Trinidad, Colo., 1908. General engineering work, Denver, Colo., 1908. With Jones, Wheeler, Crammer Engineering Co., to June, 1909. With Minneapolis Steel & Machinery Co., Denver, Colo., to May, 1910. With J. J. Cooke, Contractor, Denver, Colo., from May, 1910 to January, 1911. Construction foreman for City Engineer of Minneapolis, from January to July, 1911. With C. A. Boehme, Architect, Minneapolis, Minn., July, 1911 to July, 1912. With Alberta Land Co., Ltd., Port Arthur, Ontario, Canada, July, 1912 to September, 1914. Building construction, Minneapolis, to March, 1916. With the Canadian Copper Co., Copper Cliff, Ontario, March, 1916 to date.

- REMSING, FRED C. (JOHNSON), E.M.....1915
 417 Cherry St., Anaconda, Mont.
 In testing department, A. C. M. Co., June, 1915 to date.
- ROBERTSON, JOHN H., E.M.....1914
 Miami, Ariz.
 Miner, millman, Old Dominion Copper Co., Globe, Ariz., June, 1914 to February, 1915. Assistant to chemist, Inspiration Consolidated Copper Co., Miami, Ariz., February to May, 1915. Millman on construction, same company, May to November, 1915. Mill operator on operation, same company, November, 1915 to July, 1916. Secretary, Salt River Copper Co., Miami, Ariz., July, 1916 to date.
- ROOD, LYNN, E.M.....1909
 Duluth, Minn.
 Assayer and surveyor, Queen of the West Mines Co., Cornucopia, Ore., June, 1909 to January, 1910. Assistant to A. H. Wheeler, Architect, St. Paul, Minn., February, 1910 to June, 1911. Structural engineer, National Iron Co., Duluth, Minn., June, 1911 to September, 1916. Salesman, Farnham Printing & Stationery Co., September, 1916 to date.
- ROSE, WILLIAM A., E.M.....1906
 Duluth, Minn.
 Engineer, O. I. M. Co., December, 1907 to January, 1911. Chief engineer, O. I. M. Co., Hibbing, Minn, January, 1911 to September, 1913. Chief engineer, Pickands, Mather & Co., Duluth, September, 1913 to date.
- SANCHEZ, RICHARD M., E.M.....1915
 Tshikapa, Congo, Belge, Africa, via Boma and Luebo.
 Assistant, Minnesota School of Mines Experimental Station, June to October, 1915. Engineer, Cuyuna-Mille Lacs Mining Co., Ironton, Minn., October, 1915 to March, 1916. Mining engineer, Société Internationale Forestière et Minière, Du Congo, March, 1916 to date.
- SANDERSON, HENRY S., Met.E.....1901
 326 Century Bldg., Denver, Colo.
 Consulting mining engineer and U. S. mineral surveyor, June, 1901 to date.
- SANTO, JULIUS H., E.M.....1909
 Eureka, Utah.
 Engineer, 'Oliver Iron Mining Co., Hibbing, Minn., June, 1909 to January, 1910. Surveyor and assayer, Guadalupe Mine, Inde, Durango, Mexico, January, 1910 to August, 1911. Instructor, Mechanics and Mathe-

matics, Minnesota School of Mines, August, 1911 to August, 1912. Assistant to A. E. May, Placerville Gold Mining Co., Placerville, Cal., August, 1912 to September, 1914. Operating Pacific Mine on lease, September, 1914 to September, 1915. With Walter Fitch, Jr., Inc., contractor for mine development and tunneling, Eureka, Utah.

SCHRADER, ERICH J., E.M.....1905
Rockland, Nev., via Yerington.

Engineer for the K. S. Mining Co., Chelan Co., Wash. Assayer and engineer, Bald Butte Mining Co., Marysville, Mont. Assayer and chemist, Minneapolis Copper Co., to August, 1907. Assistant manager, same company, to March, 1908. Manager, San Miguel Gold Mining Co., Horcasitas, Sonora, Mexico, to 1912. General manager, Pittsburg-Dolores Mining Co., Rockland, Nev., 1912 to date.

SHONTS, SYDNEY L., E.M.....1904
Wallace, Idaho.

With Federal Mining & Smelting Co., May, 1904 to January, 1905. In office of Bunker Hill & Sullivan Mine, to February, 1906. Representative of Bunker Hill & Sullivan Mining & Concentrating Co., at the coast smelters, 1906. Engineer, Pittsburg Lead Mining Co., 1907-1908. Manager, same company, to June, 1910. Consulting mining engineer and operator, Wallace, Idaho, June, 1910 to date.

SMITH, EDGAR W., E.M.....1907
Westville, Cal.

Prospector for the B. & M. S. Co., May, to September, 1907. Timberman, Quartette Mine, Searchlight, Nev., to May, 1909. Superintendent, Arizona Mascot Mine, Lake Superior & Nevada Development Co. Engineer and superintendent, Mammoth Mine, Goldfield, Ariz., January, 1911 to date. Also U. S. mineral surveyor. Engineer for Mr. Geo. U. Young, Phoenix, Ariz. Operating gravel mine, Canada Hill District, Westville, Cal.

SMITH, ELMO V., Met.E.....1901
1610 Walker Bank Bldg., Salt Lake City, Utah.

Assistant foreman, Erecting Department, American Bridge Co. of N. Y., 1901-1903. Engineer in charge of Salt Lake City office of American Bridge Co. Contracting agent, American Bridge Co. Contracting manager, American Bridge Co., 1908 to date.

SMITH, FRANKLIN W., E.M.....1903
Box 937, Bisbee, Ariz.

Draftsman and surveyor for Clerk's Engineering Office, Bisbee, Ariz., May to August, 1903. Assistant engineer, Copper Queen Consolidated Mining Co., August to December, 1903. Assistant engineer, Calumet

& Arizona Mining Co., February to May, 1904. Junior member of the firm of the Clarke Engineering Co., May, 1904 to January, 1905. Senior member of the firm of Franklin W. Smith & Co., Mining Engineers, January, 1905 to March 1907. Member of the firm of Smith & Laird, Mining Engineers, Bisbee, Ariz., March, 1907 to June, 1910. Member, firm of Smith & Ziesemer, June, 1910 to date.

SOWLE, LAWRENCE K., E.M.1903
1217-18 Guardian Bldg., Cleveland, Ohio.

Grain commission and mining at Cumpas, Sonora, Mexico. Manufacturing agent. Real estate.

STEVENS, HOWARD E., E.M.1912
423 Wash St., Hibbing, Minn.

Engineer, Oliver Iron Mining Co., May, 1912 to February, 1913. Engineer, Pickands, Mather & Co., Scranton Mine, Hibbing, Minn., February, 1913 to April, 1914. Highway engineer, the Town of Stuntz, Hibbing, Minn., April, 1914 to date.

STEWART, G. GORDON, E.M.1910
Roseburg, Ore.

Transitman with the Oliver Iron Mining Co., Eveleth, Minn., May to September, 1910. Assistant estimator and bookkeeper for James Leck. Manager for the Real Estate Address Bureau, December, 1911 to November, 1912. Engineer, Laurel Crest Ranch, Roseburg, Ore., November, 1912 to date.

STRANE, ARCHIE J., E.M.1910
7711 Kelly St., Pittsburgh, Pa.

Instrumentman, U. S. Indian Reservation Survey in Montana, Arizona and Nevada, June, 1910 to September, 1911. Junior mining engineer, U. S. Bureau of Mines, Pittsburgh Experimental Station, Pittsburgh, Pa., September, 1911 to November, 1914. Assistant explosive engineer, U. S. Bureau of Mines, November, 1914 to date.

STRONG, JOHN L., E.M.1908
608 Wolvin Bldg., Duluth, Minn.

Mining engineer, Oliver Iron Mining Co., June, 1908 to date.

SUMNER, RUTHERFORD B., E.M.1900
Tooele, Utah.

Draftsman in Denver. Construction engineer, U. S. Smelting Co., West Jordan, Utah, to 1909. Engineering department, International Smelting Co., 1909 to date.

SWENSEN, KARL P., B.S., E.M.....1907
No. 6, Takiyama-cho, Kyobashi-ku, Tokyo, Japan.

Draftsman, Steptoe Valley Mining & Smelting Co., McGill, Nev. Surveyor and draftsman on city work for L. M. Carl, Civil Engineer, El Paso, Texas. Draftsman and construction engineer, Cia Minera de Penoles Mapimi, Durango, Mexico. Construction engineer Big Stick Gold Mining Co., Haynes, Ariz. With E. A. Taggott, Consulting Mining Engineer, Los Angeles, Cal. Assistant engineer for C. A. P. Turner, Consulting Engineer, Minneapolis, Minn. Professor of Mining, Imperial Polytechnic College, Nanking, China. Engineer, F. W. Horne Co., Tokyo, Japan.

SWEETMAN, EDWIN A., E.M.....1917
(Permanent address) Aitkin, Minn.

TANNER, WALLACE N., E.M.....1896
Anaconda, Mont.

With Montana Ore Purchasing Co., at Butte. B. & M. Copper & Silver Mining Co., Great Falls, Mont. Draftsman, Anaconda Copper Mining Co. Chief draftsman, Allis-Chalmers Co., Chicago. Engineer in Mining Department of Allis-Chalmers Co. Consulting engineer. Member of firm of Armstrong & Tanner, Salt Lake City, Utah. Manager, B.-S.-T. Concrete Block Co., St. Paul, Minn. Superintendent, Anaconda Copper Mining Co., Foundry Department, Anaconda, Mont. Chief engineer, Anaconda Copper Mining Co. (reduction departments.)

TARESH, JOHN, E.M.....1901
Crescent Mills, Cal.

With the Butte & Plumas Railway, 1901-1902. Draftsman and surveyor for same company, 1903-1904. Engineer with Mountain Copper Co., Ltd. Chemist in laboratory of same company, 1905 to 1906. With the Western Pacific Railroad Co., as resident engineer and assistant engineer on construction, 1906-1910. On engineering staff of Natomas Consolidated Co. of California, Reclamation District No. 1001, 1910 to 1915. With Natomas Consolidated Mines Co., of California, to 1915. At present ranching in Plumas County, Cal., 1915 to date.

TAYLOR, HAROLD G., E.M.....1909
626 McKnight Bldg., Minneapolis, Minn.

With Hill Construction Co. Engineer on construction, yard master and field engineer for Inter-Ocean Steel Co. In the Steel Tire Department of Railway Steel Spring Co., Inter-Ocean Plant, Chicago Heights, Ill., June, 1909 to May, 1913. Engineer on construction, May, 1913 to June, 1914. With W. H. Hale & Co., Minneapolis, Minn., June, 1914 to September, 1915. Northwestern sales engineer, Permutit Co., Water Rectification, September, 1915 to date.

TAYLOR, WILLIAM L., E.M.1912
Brainerd, Minn.

Engineer, E. J. Longyear Co., Brainerd, Minn., May to November, 1912. Geologist, Reconnaissance Survey for Barber Asphalt Paving Co. of New York, Venezuela, S. A., November, 1912 to May, 1913. Engineer, Oliver Iron Mining Co., May, 1913 to September, 1916. Cuyuna Range representative, E. J. Longyear Co., Minneapolis, September, 1916 to date.

TEAGUE, HAROLD W., E.M.1900
Detroit, Minn.

Mining engineer at Castle Rock, Utah. With U. S. G. S., Butte, Mont. Superintendent, Bayonne Gold Mines, Ltd., British Columbia, 1902-1906. Superintendent, Furnace Creek Extension, Greenwater, Cal., 1906 to 1908. Sampling prospects, same company, Nevada and California, 1908 and 1909. Land surveying, city engineer, Detroit, Minn., 1910 to 1913. District engineer, State Highway Commission, Detroit, Minn., 1913 to date.

TETLIE, JOHN R., E.M.1911
Aurora, Nev.

Engineer on drainage in Northern Minnesota, June to December, 1911. With Utah Copper Co., Bingham Canyon, Utah, March to September, 1912. Filter Department, Belmont Mining & Development Co., Tonopah, Nev., October, 1912 to September, 1915. Solutionman, Aurora Consolidated Mines Co., Aurora, Nev., September, 1915 to June, 1916. Assayer, same company, June, 1916 to date.

TOLL, RENSSLAER, E.M.1900
1912 Napa Ave., Berkeley, Cal.

Assistant to T. A. Rickard, May to July, 1900. Cyanide foreman, Minera Esperanza, El Oro, Mexico, July, 1900 to March, 1901. Cyanide foreman, Congress Mine, Ariz., April to June, 1901. Superintendent, Mancos, G. M. & D. Co., Mancos, Colo., June, 1901 to August, 1905. Superintendent, Wishbone G. M. & D. Co, Cripple Creek, Colo, July, 1906 to January, 1908. Consulting mining engineer, Denver, Colo., January, 1908 to 1915. Consulting engineer, Berkeley, Cal.

URQUHART, GEORGE K., E.M.1915
Crosby, Minn.

Transitman, Inland Steel Co., June, 1915 to April, 1916. With S. T. Harrison, mining and municipal engineer, April, 1916 to date.

VICTOR, ALBIN F., E.M.1912
Ironton, Minn.

Vice-president and superintendent, Taylors Falls Rock Co., May, 1912 to August, 1913. Mining engineer, Northwestern Improvement Co., Au-

gust, 1913 to April, 1916. Mining engineer, Cuyuna-Mille Lacs Iron Co., and Cuyuna-Duluth Iron Co., April, 1916 to date.

WADE, HENRY H., E.M.....1915
Hopkins, Minn.

Assistant, Minnesota School of Mines Experimental Station, October, 1915 to date.

WALES, ROWLAND T., E.M.....1897
Perth Amboy, N. J.

Assayer and chemist at Canadian Smelting Works, Trail, B. C., 1898-1903. Chemist at refinery of same company, 1903-1904. Assayer and chemist at the United Zinc & Chemical Co., Argentine, Kans., 1905. Superintendent of Silver and Gold Department of the United States Metals Refining Co., of Chrome, N. J., to 1914. Installing special tanks (patent applied for), in copper department of same works to 1915. Exploiting patents, and at present installing patented tanks for trial at Raritan Copper Works, Perth Amboy, N. J.

WALKER, CLINTON L., E.M.....1898
650 Highland Ave., Piedmont, Oakland, Cal.

WALKER, E. HAROLD, E.M.....1911
Bingham Canyon, Utah.

With Stone & Webster Engineering Co., June to August, 1911. With Utah Copper Co., August, 1911 to date.

WALLACE, CARLETON S., E.M.....1917
(Permanent address) 2003 Queen Ave. S., Minneapolis, Minn.

WALLACE, GEORGE W., JR., E.M.....1906
(Permanent address) 3339 Columbus Ave. S., Minneapolis, Minn.

Assistant engineer, Colorado Fuel & Iron Co., to February, 1907. With G. W. Wallace, Sr., Cobalt, Ont., Canada, to April, 1907. Engineer, St. Paul Iron Mining Co., Hibbing, Minn., to December, 1907. With U. P. Coal Co., Superior, Wyo., to March, 1908. Superintendent, Oakwood Construction Co. Chief inspector, Detroit River Tunnel Co. Superintendent of construction, Wogan Construction Co., Denver, Colo., to January, 1912. Mining engineer, Moffat Coal Co. and Consolidated Fuel Co., January, 1912 to November, 1913. Outside forman, Utah Fuel Co., November to July, 1913. Mine foreman for the same company, July, 1913 to October, 1915. Chief engineer, Kemmerer Coal Co., Kemmerer, Wyo., October, 1915 to March, 1916. Experimental work, Duluth, March, 1916 to date.

WALLINDER, ARTHUR, E.M.....1912
Kamloops, B. C.

Representative, C. A. P. Turner, in Middle Northwestern Territory, May, 1912 to May, 1914. Superintendent and general manager, Iron Mask Mine, Kamloops, B. C., May, 1914 to November, 1915. Superintendent and general manager, Kamloops Copper Co., November, 1915 to date.

WALTER, ROLLIE B., E.M.....1912
Casapalea, Peru. Care of Backus & Johnston Co.

Engineer, East Butte Copper Mining Co., Pittsmont Mine, November, 1912 to March, 1913. Cell-man, Butte-Duluth Mining Co., March to July, 1913. Chemist, same company, July, 1913 to February, 1914. Foreman, cell-room, same company, February to September, 1914. Miner and sampler, North Butte Mining Co., July to January, 1915. Engineer, same company, January, 1915 to November, 1916. Sample inspector, Backus & Johnston Co., Casapalea, Peru, November, 1916 to date.

WALTERS, CHARLES W., E.M.....1911
Room 3538, 120 Broadway, New York City.

Superintendent, De Lone Gold Mining Co., to September, 1912. Contractor of mill construction, Medicine Hat, Canada, September, 1912 to April, 1914. Engineer, Anaconda Copper Mining Co., Great Falls, Mont., April to August, 1914. Engineer, Shoshone dam and tunnel, U. S. Reclamation Service, Shoshone Project, Cody and Powell, Wyo., September, 1914 to December, 1915. Assistant engineer, E. I. Du Pont de Nemours & Co., New Jersey, Virginia and Delaware, December, 1915 to March, 1916. In office of consulting mining engineer, Guggenheim Brothers and allied companies, 120 Broadway, New York, March, 1916 to date.

WARREN, FRANK M., E.M.....1899
3427 Humboldt Ave. S., Minneapolis, Minn.

Geological field examinations in Southwestern Oregon and in Idaho, 1900. Civil engineer for E. J. Longyear, 1901. Assistant engineer for J. J. Hill, 1902. Consulting engineer for Pine Land Co. and other companies in development and inspection of iron ore properties on the Mesabi and Vermilion Iron Ranges, 1903 to date.

WASSON, HAROLD J., E.M.....1914
Prescott, Ariz.

Miner, Rockland Mine, Yerington, Nev., June, 1914 to March, 1916. Mining engineer, same company, March, 1916 to April, 1917.

WEHR, ARTHUR J., E.M.....1911
Box 109, Morenci, Ariz.

Inspector, roads and bridges, Ramsey County, Minn., May to November, 1911. Assistant to J. C. Curnow, mine superintendent, Longfellow

Mine, Morenci, Ariz., January to March, 1912. Experimental sampler, A. C. Mill, Morenci, Ariz., March to December, 1912. Feed-floor foreman, Detroit Copper Co.'s smelter, Morenci, Ariz., December, 1912 to April, 1913. Engineer and draftsman, same company, Rocky Gulch Division, April, 1913 to May, 1914. Engineer, Ramsey County, June, 1914 to April, 1915. Chief engineer, Mutual Iron Mining Co., McComber, Minn., April, 1915 to July, 1916. Mining engineer, Detroit Copper Mining Co., Morenci, Ariz., July, 1916 to date.

WHEELER, WALTER H., E.M.1906
 1112 Metropolitan Life Bldg., Minneapolis, Minn.

Mining and constructing engineer for Colorado Fuel & Iron Co., June, 1906 to May, 1907. Constructing engineer and superintendent of construction, Dawson Fuel Co., May to December, 1907. Engineer and contractor, building, bridges, etc.; specialty reinforced concrete and structural steel construction, 1907 to date. Also of Chas. H. Wheeler & Son., real estate, building and investments, 1112 Metropolitan Life Bldg., Minneapolis, Minn., 1909 to date.

WHITELEY, EUGENE E., E.M.1903
 Box 751, Warren, Ariz.

General assistant and engineer for Dalton and Lark Mines, Bingham Canyon, Utah. Engineer in charge of contract land subdivision for same company. Draftsman and office assistant for U. S. deputy mineral surveyor in Salt Lake City. Assistant engineer, Calumet & Arizona Mining Co., Bisbee, Ariz. Chief engineer for C. & A. Mining Co., and Pittsburgh Copper Co. Assistant superintendent of mines, Calumet & Arizona Mining Co., and Superior & Pittsburgh Copper Co., August, 1914 to date.

WIEST, MICHAEL A., E.M.1907
 310 Phoenix Bldg., Minneapolis, Minn.

With Consolidated Mines Co. in mill and mechanical department. With the Nevada Goldfield Reduction Works, sampling department and cyanide plant. Churn drill sampling, Ray Consolidated Copper Co., Ray, Ariz. Engineer for same company from August, 1909 to August, 1911. District manager, the Mutual Life Insurance Co. of New York, 310 Phoenix Bldg., Minneapolis, Minn., September, 1911 to date.

WILKINSON, CHARLES D., E.M.1895
 Box 1426, Goldfield, Nev.

With Sand-Coulee Coal Co. Manager of Gold Hill Mine, Madison County, Mont. Superintendent, Tonopah Gold Mt. Mine, Tonopah, Nev. Field engineer, Nixon & Wingfield, Goldfield, Nev. Chief engineer, Goldfield Consolidated Mines Co. Assistant general manager, same company. General manager, Goldfield Daisy Mining Syndicate. General manager,

Goldfield Combination Fraction Mining Co., and consulting engineer for George Wingfield, December, 1909 to 1911. Consulting engineer, C. O. D. Consolidated, Goldfield-Manhattan Big Four Mining Co. and others, 1911 to March, 1916. At present consulting engineer in Nevada, March, 1916 to date.

WILLIAMS, HOMER A., E.M.....1909
4315 Upton Ave. S., Minneapolis, Minn.

With the Harrington Construction Co. Engineer, Brandon Construction Co. Building superintendent, Clayton Bros., contractors. Building superintendent, Cameron & Co., contractors, St. Paul, May, 1913 to January, 1915. Building contractor, 302 Plymouth Bldg., January, 1915 to date.

WILLIAMS, PAUL S., E.M.....1915
Box B, Tulsa, Okla.

Assistant geologist, Mexican Gulf Oil Co., Tampico, Tamps, Mex., June, 1915 to date.

WINTHER ARNO, E.M.....1903
Bingham, Utah, care Highland Boy Mine.

Engineer at Bingham and Tintic, Utah. Mining engineer for the Cero de Pasco Mining Co. Mining engineer for Goyllarisquizga Coal Mines, Cerro de Pasco. Chief engineer, Cerro de Pasco Mining Co. Superintendent, Utah Consolidated Mining Co.

WOODIS, CLARK N., E.M.....1912
Deertrail, Colo.

General manager, Crater Mt. G. M. & T. Co. Foreman and book-keeper, Rockfill Dam, Rio Grande, Colo., April to October 1913. In charge electric light plant installation Red Cliff and Minturn, Colo., October, 1913 to April, 1914. With Knowlton Construction Co., Grand Valley project of the United States Reclamation Service, August, 1914 to June, 1915. At present not in professional work.

ZIESEMER, HARRY M., E.M.....1907
P. O. Box 394, Bisbee, Ariz.

Engineer, Copper Queen Consolidated Mining Co., Bisbee, Ariz.

ZIESEMER, RALPH A., E.M.....1905
Box 394, Bisbee, Ariz.

In the office of Franklin W. Smith & Co., Bisbee, Ariz., May, 1905 to March, 1907. Mining engineer with Smith & Laird, Bisbee, March, 1907 to June, 1910. Member of firm of Smith & Ziesemer, Bisbee, Ariz., July, 1910 to date.

LIST III

AN ALPHABETICAL LIST OF FORMER MEMBERS WHO ARE FOLLOWING MINING AND METALLURGICAL WORK

BISSELL, ANGELO A......1902
Goldfield, Ariz.

Assayer, Tintic District, Utah, 1902. Manager, B. L. & B. M. & M. Co., 1903. General manager, Minnesota Mining & Milling Co., Alma, Colo. President and manager, London Fault Mining Co., Alma, Colo., 1907-1908. Superintendent, Baltimore Belle Mining Co., Goldfield, Nev., 1908-1909. Manager, Sunrise Placer Mining Co., Manhattan, Nev., 1909. Mining engineer, Manhattan, Nev., 1910 to 1913. Superintendent of Young Mines Co., Ltd., Goldfield, Ariz., 1913 to 1915. Operating placer mines, Canada Hill District, Westville, Cal., 1915 to date.

BROWN, WALTER M......1900
Searchlight, Nev.

Assistant engineer, Boston & Montana Consolidated C. & S. Mining Co., Butte, Mont. Engineer, Colorado Mining Co., Butte, Mont. Superintendent, Kennett Mining Co., Ennis, Mont. Superintendent, Minneapolis-Montana Mining Co., Sand Creek, Mont. Engineer and mine superintendent, Bismarck Nugget Gulch Consolidated Mining Co., Sheridan, Mont. Superintendent of the Grant Mines Co., Virginia City, Mont. Out of professional work, and in business, Long Beach, Cal., July, 1904 to July, 1905. Member Stone & Brown, Inc., mining engineers and U. S. deputy mineral surveyors, Searchlight, Nev. President and manager, the Brown-Tolman Engineering Co., successors to Stone & Brown. President and manager, the Walter M. Brown Engineering Co., successors to the Brown-Tolmon Engineering Co., Searchlight, Goodsprings, and Las Vegas, Nev.

CALLAWAY, FREDERICK W......1900
Kellogg, Idaho.

U. S. Mineral Surveying, Cripple Creek, Colo., 1900-1901, and Sumpster, Ore. Railroad engineer, North Dakota, Iowa, Colorado and Minnesota, 1901-1902. Colliery engineer and construction work, Williamson, W. Va., 1903-1906. U. S. Mineral surveying, mine surveying and engineering, Wallace, Idaho, 1906-1908. Engineer in charge of litigation, Bunker Hill & Sullivan Mining & Concentrating Co., Kellogg, Idaho, 1908 to 1914 and 1916. Engineer, Alaska-Juneau Gold Mining Co., Juneau, Alaska, 1914 and 1915. Mining engineer, private practice, 1916 to date.

COHEN, JULIUS M......1912
Matheson, Ontario, Canada.

Manager, Graphite, Ltd., November, 1912 to November, 1913. Assistant manager, Porcupine-Crown Mine, November, 1913 to January, 1916. Manager, Croesus Gold Mines, January, 1916 to date.

DAVENPORT, LEE B.....1900
P. O. Box 1770, Goldfield, Nev.

Chemist, Mongolian Exploration Co., Nome, Alaska, 1909. Foreman, Cyclopic Mine, White Hills, Ariz., 1902. Superintendent of Gold Basin Mill, Basin, Ariz., 1903. Surveyor and assayer for the Mother Lode Mining Co., Nashville, Cal., 1903-1905. Superintendent, Nevada Development Co., Silver Bow, Nev., 1906. Refinery foreman for the Goldfield Consolidated Mines Co., 1907 to date.

DAVY, JESSE J.....1908
Preston, Minn.

Resident and assistant engineer, N. P. Ry. Co., 1906 to 1909. Assistant engineer on construction and valuation, Union Pacific Ry. Co., 1909-1910. District engineer, Minnesota Highway Commission, 1911. President, Fillmore Sand Gravel Co.

DONOVAN, PERCY W., E.M.....1900
Brainerd, Minn.

Assayer and chemist for the National Gold Extraction Co., and Metallic Gold Extraction Co., Florence, Colo., 1900-1901. Superintendent of Refining Department, Union Plant, U. S. Reduction & Refining Co., Florence, Colo., 1902-1903. Columbia School of Mines, 1904-1905. Engineer for E. J. Longyear, 1905-1906. Superintendent for E. J. Longyear Exploration Co., Hibbing, Minn., 1906-1909. Superintendent of exploration on Cuyuna Range for E. J. Longyear Co., 1909 to September, 1916. General superintendent, contract drilling for E. J. Longyear Co., September, 1916 to date.

ECKSTROM, ALEX J.....1913
Hibbing, Minn.

Engineering, Meriden Iron Co., Hibbing, Minn.

FLETCHER, ROBERT H.....1907
Helena, Mont.

Mining engineer, Pickands, Mather Co., Mesabi Iron Range, 1906-1907. Engineer, Northern Division, U. S. Reclamation Service, Flathead and Milk River Projects; Montana, 1908 to 1911. Surveyor, U. S. General Land Office, Nevada and Montana, 1911 to 1914. Member of the firm, Fisk & Fletcher, Civil, Mining, and Hydraulic Engineers, Helena, Mont. 1914 to March, 1915. Consulting engineer, March, 1915 to date. Also county engineer, Lewis and Clark counties, January, 1917 to date.

JEWETT, FRANK G.....1900

1816 Fremont Avenue S., Minneapolis, Minn.
Vice-president, E. J. Longyear Co. Mining engineer.

JOHNSON, BERTRAM, M.D.....1901
Eureka, Kan.

Chemist, Stockham Manufacturing Co., Chicago, Ill., 1901-1902.
Chemist, Railroad Supply Co., Chicago, 1902-1903. Chemist, Illinois
Malleable Iron Co., Chicago, Ill., 1903-1909. Resident physician of the
Women's Homeopathic Hospital, Philadelphia, 1909-1910. Private prac-
tice, Avant, Okla., 1910 to July, 1915. Private practice, Eureka, Kan.,
July, 1916 to date.

KILPATRICK, R. L.....1908
Coppermount, Alaska.

Chief engineer, Inland Steel Co., Hibbing, 1909. Assistant superin-
tendent, same company, 1910. Local superintendent, same company,
Crosby, Minn., 1910 to 1911. Superintendent, Alaska Consolidated Mining
& Smelting Co., Coppermount, Alaska, 1912 to date.

LAWTON, JOHN E.....1911
22 Oak Grove W., Flat 3, Minneapolis, Minn.

Draftsman, Shadegg Boat & Engine Co., Minneapolis, Minn., June
to August, 1909. With Moore Boat Works and Campbell Motor Co.,
Wayzata, Minn., August, 1909 to February, 1910. Assistant engineer,
State Drainage Commission, and engineer in charge of judicial ditch No.
1, Dodge County, February, 1910 to March, 1913. Transitman, U. S.
War Department, March and April, 1913. Levelman, Engineering Depart-
ment, City of Minneapolis, April, 1913 to January, 1916. Junior engineer,
Sewer Department, City of Minneapolis, January to September, 1916.
Assistant engineer, sewer department, Minneapolis, September, 1916 to
date.

OBER, RAYMOND E.....1902
Butte, Mont.

Miner, foreman and engineer with Lake Superior Consolidated Co.,
Duluth, Minn. Superintendent, Beatrice Gold Mining Co., Calif. Engi-
neer for the Utica Mine, Angels, Calif. Testing Engineer, Washoe
Smelter, Anaconda, Mont. Field Engineer, Boston & Montana Mining
Co., Butte, Mont., 1906 to 1909. Private practice, Dillon, Mont., 1909 to
1914. Experimental work, Washoe Smelter, 1914 to 1915. General fore-
man, roasting and leaching department, Washoe Smelter, 1915 to date.

OVERMIRE, CHARLES C.....1902
606 Selling Bldg., Portland, Ore.

Estimator, American Bridge Co., Minneapolis. Contracting agent,
same company. Contracting manager, same company, Seattle, Wash.
Contracting manager, U. S. Steel Products Co., Portland, Ore.

SEARLES, JASPER E.....1899
Salt Lake City, Utah.

Field engineer, Garfield Chemical & Manufacturing Corporation.

SUNDNESS, ODEN A.....1910
Chisholm, Minn.

Engineer for Oliver Iron Mining Co., June, 1909 to May, 1911. Engineer, Shenango Furnace Co., Buhl, Minn., May to November, 1911. Engineer, Shenango Furnace Co., Chisholm, Minn., November, 1911 to July, 1912. Chief chemist, Shenango Furnace Co., July, 1912 to date.

VAN CLEVE, REGINALD H.....1916
Hibbing, Minn.

Shift boss, Leetonia Mine, Hibbing, Minn., June, 1915 to date.

WILLIAMS, JAMES H.....1911
Nashwauk, Minn.

Engineer, Dale Uno Mines for Oliver Iron Mining Co., Hibbing, Minn., 1911-1912. Engineer, Mississippi, Mace and Harold Mines for Oliver Iron Mining Co., 1913-1914. Chief engineer, Wisconsin Steel Co., Nashwauk, Minn., 1914 to date.

No Professional Records have been furnished by the following graduates and former members:

Bailey, Paul T.
Becker, George
Curry, Duncan E.
Devereaux, Lawrence V.
Fritzberg, Ernest A.
Hanson, J. Bernard
Herring, William E.
Hoass, Ole G.
Hoganson, George B.
Jahn, William F.
Kremer, Edward G.
McCreery, Arthur S.

McRae, Randolph T.
May, Albert E.
Minder, Emil G.
Mooney, Francis X.
Morris, Charles S.
Olson, Walter S.
Roed, Olaf
Steel, Charles W.
Swanson, Alex H.
Truesdale, William H.
Walker, Charles A.
Davis, Sam. E.

LIST IV

GRADUATES AND FORMER MEMBERS LISTED ACCORDING TO GEOGRAPHICAL LOCATION

Alabama

Woodstock—C. Morgan

Alaska

Coppermount—R. L. Kilpatrick

Arizona

Ajo—J. S. Olmstead

Bisbee—A. H. Hammond, M. S. Lindholm, F. M. Smith, H. M. Ziesemer,
R. A. Ziesemer

Globe—R. R. Boyd, H. H. Holden, C. Jackson, R. H. McHardy

Goldfield—A. A. Bissell

Hayden—L. Knox

Jerome—J. J. Craig

Kingman—B. F. Noehl

Miami—A. P. Peterson, E. D. Chandler, J. G. Flynn, N. H. Ofsthun,
J. H. Robertson

Morenci—C. S. Beck, R. W. Prouty, A. J. Wehr

Ray—C. S. Crouse

Warren—R. H. Dickson, D. M. Rait, E. E. Whitely

California

Berkeley—R. Toll

Crescent Mills—J. Taresh

Los Angeles—W. C. Bass, L. T. Collins, John Lea

Oakland—C. L. Walker

Pasadena—W. H. Clapp

San Francisco—R. J. Burgess

Vidal—H. E. Olund

Westville—E. W. Smith

Willows—E. C. Mills

Colorado

Deertrail—C. N. Woodis

Denver—H. S. Sanderson

Smuggler—N. P. Goodrich, J. S. Peterson

Idaho

Kellogg—F. W. Callaway, B. C. Harmon, C. L. Larson

Sunset—M. F. Quinn

Wallace—A. S. Hill, E. L. Larson, R. S. Merriam, S. L. Shonts

Illinois

Chicago—E. P. Baker

Decatur—B. R. Neustadt

Rondout—L. M. Keller

Indiana

Gary—A. E. Nissen

Indianapolis—H. N. Eidemiller

Kansas

Eureka—B. Johnson

Michigan

Crystal Falls—A. L. Gholz

Minnesota

Adrian—J. R. McKenzie

Brainerd—W. L. Taylor

Chisholm—H. H. Angst, R. H. Bassett, A. C. Borgeson, H. N. Nord,
A. Y. Peterson, O. A. Sundness

Crosby—C. D. Kerr, G. K. Urquhart

Detroit—H. W. Teague

Duluth—E. D. Coventry, H. E. Farnam, T. F. Field, L. Merritt, A. C.
Oberg, W. A. Rose, J. L. Strong, G. W. Wallace

Elk River—L. K. Houlton

Eveleth—P. J. Boyle, H. E. Loye, H. R. McAdams

Gilbert—F. A. Bowman, F. R. Edwards

Glenwood—Lynn Martin

Hibbing—W. C. Anderson, A. Christenson, W. A. Deichen, K. J. Duncan,
A. J. Eckstrom, W. E. Hunt, A. K. Knickerbocker, P. S. Kurtzman,
P. M. Ostrand, H. E. Stevens, R. H. Van Cleve

Hopkins—H. H. Wade

Ironton—L. T. Gavin, A. F. Victor

Minneapolis—J. H. Anderson, T. E. Cassilly, P. Christianson, W. A. Cole,
J. Cowin, L. V. Devereux, P. W. Donovan, G. M. Drake, V. L. Fixen,
W. R. Goodwin, L. J. Hagstrom, W. H. Hale, S. L. Hoyt, F. G. Jewett,
A. F. Johnson, N. S. Kingsley, G. Ladd, J. E. Lawton, A. M. Locke,
E. P. McCarty, E. W. McCullough, R. G. Moody, G. A. Pratt,
L. Rood, H. G. Taylor, F. M. Warren, W. H. Wheeler, M. A. Weist,
H. A. Williams

Montevideo—R. G. Michie

Nashwauk—J. H. Williams

Preston—J. J. Davis

St. Paul—T. S. Abbott, W. A. Coller, O. W. Potter, H. Quinlan

Virginia—R. H. Ely, M. S. Kingston

Missouri

Kansas City—A. I. Levorsen

Montana

Anaconda—W. C. Cadwell, F. C. Remsing, W. N. Tanner

Belgrade—F. T. Howes

Butte—L. J. Coady, J. A. Grimes, E. A. Hewitt, W. W. Lytzen, R. E.
Ober, H. J. Rahilly

Great Falls—F. A. Davies

Helena—C. S. Heidel, R. H. Fletcher, W. H. Parker

Holter—H. J. Hoard
Sidney—P. E. Jones
Southern Cross—J. C. O'Brien

Nevada

Aurora—J. R. Tetlie
Goldfield—L. B. Davenport, C. D. Wilkinson
Searchlight—W. M. Brown
Tonopah—J. Brandt
Yerington—J. B. Perry, E. J. Schrader

New Jersey

Perth Amboy—R. T. Wales

New Mexico

Santa Fe—G. P. Harrington
Pinbs Altos—A. L. McCarty

New York

Buffalo—A. C. Haugan
New York City—A. F. Kuehn, C. W. Walters

Ohio

Cleveland—L. K. Sowle

Oklahoma

Tulsa—A. Dovre, J. W. Lewis, P. S. Williams

Oregon

Portland—J. R. Newell, C. C. Overmire
Roseburg—G. G. Stewart

Pennsylvania

Philadelphia—G. M. Giltinan
Pittsburgh—A. J. Strane

Texas

Houstan—A. C. Bierman

Utah

Bingham Canyon—J. A. Cullyford, E. H. Walker, A. Winther
Eureka—V. E. Ekloff, J. H. Santo
Salt Lake City—O. J. Egleston, J. B. McIntosh, J. E. Searles, E. V.
Smith
Tooele—R. B. Sumner

Washington

Davenport—W. L. Campbell
Seattle—J. J. Kennedy
Spokane—M. F. Quinn
Tacoma—S. Aronson

Wisconsin

Amery—H. Neerland
Mayville—E. S. O'Connor

Wyoming

Sunrise—W. F. Moenke

District of Columbia

Washington—L. L. Clement, G. L. Harrington

Africa

Kinchosa, Congo, Belge—W. V. Butler, R. C. Grant, L. S. Heilig, R. M. Sanchez

Canada

Cobalt, Ontario—H. R. Bischoff, S. W. Cohen
Fort William, Ontario—C. R. Conkey, J. J. Hurley
Kamloops, B. C.—A. Wallinder
Kirkland Lake, Ontario—J. R. Elliot
Matheson, Ontario—J. M. Cohen
Porteau, B. C.—T. O. Burgess
South Porcupine, Ontario—C. L. Heath
Surf Inlet, B. C.—F. W. Holler
Winnipeg, Manitoba—A. Fosness

Central America

Honduras—H. I. Brosius, F. C. Devereux

England

Westacres—C. Brackenbury

India

Burma—A. B. Calhoun
Colombo, Ceylon—H. Gulick

Japan

Tokyo—K. P. Swenson

Mexico

Cananea, Sonora—E. C. Curry, O. Hundrum, H. S. McKay

South America

Colombia—E. A. Probst
Peru—F. M. Leonard, R. B. Walter

*The Bulletin
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Minnesota*

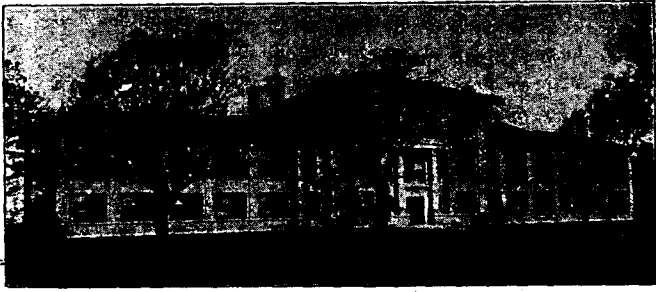
*The Medical School
The School of Embalming
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1918*



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Institute of Public Health and Pathology

The course of study will include the following subjects:

I. ANATOMY

CHARLES A. ERDMANN, M.D., Associate Professor of Applied Anatomy, and assistants.

54 hours. Lectures, recitations, and lantern demonstrations; laboratory work, in which each student will dissect the thoracic and abdominal viscera, will obtain experience in personally raising the different arteries, and will familiarize himself with the anatomy relating to practical embalming. Exercises held in The Institute of Anatomy. Subjects of study:

1. The cells, tissues, organs.
2. The framework of the body.
3. The musculature; topography of the viscera.
4. The alimentary canal.
5. The circulatory system.
6. The respiratory system.
7. The urinary system.
8. The reproductive system.

II. BACTERIOLOGY AND AUTOPSIES

W. P. LARSON, M.D., Associate Professor of Bacteriology.

40 hours. Lectures, recitations, demonstrations, and practical work for each student, in The Institute of Public Health and Pathology. Subjects of study:

1. Classification of bacteria. Morphological types.
2. Saprophytic bacteria in their relation to the natural processes of putrefaction, liquefaction, and oxidation of animal and vegetable tissues.
3. Parasitic or disease-producing bacteria.
4. Methods of differentiating bacteria.
5. Methods of cultivating bacteria.
6. Methods of estimating the numbers of bacteria in measured quantities of material.
7. Practical studies of disinfection and disinfectants.
8. Experiments with the various germicides in relation to color, preservation and effects upon animal tissues.

Textbook: *Morley's Fundamentals of Bacteriology*.

E. T. BELL, B.S., M.D., Associate Professor of Pathology

9 hours. Practical demonstration of autopsy technique, with instruction in the proper care of a body following post-mortem examination.

III. CHEMISTRY

I. W. GEIGER, Ph.D., Instructor.

54 hours. Lectures, demonstrations, and personal practical work for each student, in the laboratories of The School of Chemistry. Subjects of study:

1. Brief discussion of matter.
2. Chemical elements.
3. Chemical compounds.
4. Discussion of physical and chemical changes in matter.
5. Study of the following elements with those compounds which are of especial importance to embalmers: oxygen, hydrogen, chlorine, sulphur, nitrogen, carbon, and the common metals as sodium, potassium, calcium, and magnesium.
6. Effects of chemicals on organic matter.
7. Solutions in relation to embalming.
8. The chemistry of embalming fluids.

Textbooks: *First Course in Chemistry*, and *Exercises in Chemistry*, McPherson and Henderson.

IV. PUBLIC HEALTH

The officers of the State Board of Health will give lectures and demonstrations covering the various phases of public health laws. The lectures will include the following:

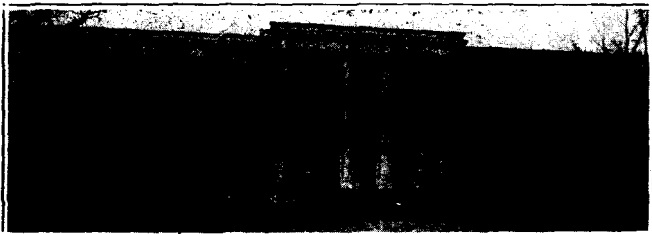
1. By DR. H. M. BRACKEN, Secretary and Executive Officer of the State Board of Health.
Five lectures upon public health and sanitary laws, rules and regulations, especially those affecting the profession of embalming.
2. By DR. ORIANNA MCDANIEL, Director of the Pasteur Institute.
One lecture upon rabies.
3. By DR. A. J. CHESLEY, Director of the Division of Epidemiology of the State Board of Health.
Twelve lectures on preventable diseases.
4. By MR. H. A. WHITTAKER, Director of the Division of Sanitary Engineering of the State Board of Health.
Four lectures on environmental sanitation and its relation to public health.

V. PROFESSIONAL EMBALMING AND FUNERAL MANAGEMENT

By PROFESSOR WILLIAM P. HOHENSCHUH of Iowa City, Iowa.

50 hours. Lectures, practical demonstrations, and recitations; conducted in The Institute of Anatomy. Subjects of study:

1. Embalming, its purpose.
2. Decomposition, putrefaction, and fermentation.
3. Arterial embalming.
4. Capillary and tissue injection; tissue gas.
5. Discolorations; causes and methods of prevention and removal.
6. Cavity preservation.
7. Treatment of post-mortem and mutilated cases.



Chemistry Building

8. Plastic surgery and cosmetics.
9. Dessication and mould.
10. Communicable diseases; treatment of cases.
11. Preparations for transportation.
12. Laying-out of bodies.
13. Dressing of body.
14. Costs and overhead expenses.
15. Show-rooms and salesmanship.
16. Advertising.
17. Funeral management.
18. Collections.

VI. BUSINESS ORGANIZATION AND MANAGEMENT

Under the direction of Mr. CHARLES H. PRESTON, Assistant Professor of Business Administration.

Eight lectures upon purchasing, credit, collections, correspondence, office organization problems, etc., given in Millard Hall.

VII. PRACTICAL WORK

Demonstrations in practical embalming and funeral management by leading members of the Minnesota Funeral Directors' Association, resident in the Twin Cities, will be given from time to time in their mortuaries, at hours to be announced later.



Institute of Anatomy

GENERAL INFORMATION

The fourth annual session of the School of Embalming begins January 2, 1918, and continues for eight weeks.

Announcement is hereby made that in the session of 1919 the course will be extended to three months.

Applicants are required to have not less than one year of high school study, or its equivalent.

They should register for the School of Embalming at Room 118, Millard Hall, not later than January 2, and will pay a fee of \$45 at the time of registration. Examinations will be held at the close of the course, and certificates will be issued to successful candidates. This certificate will be accepted by the Minnesota State Board of Health, and licenses will be granted when candidates have complied with the requirements. The fee of \$45 covers instruction, examination, and certificate.

Certificates of good moral character must be presented from a reputable physician in good standing, and also from a reliable business man or firm.

Board may be had near the University campus at about \$5 per week. Lodging will cost from \$3 to \$5 per week. The Minnesota Union maintains a dining hall, at which meals are furnished at very moderate cost.

The registration office, Room 118, Millard Hall, can be reached by the Minneapolis-St. Paul interurban street railway.

For further information, address School of Embalming, University of Minnesota, Minneapolis, Minn.

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