THE PRESIDENT'S REPORT FOR THE YEAR 1923-24

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THE PRESIDENT'S REPORT

To the Board of Regents of the University of Minnesota:

To the Board of Regents: I have the honor to submit to you my report for the year 1923-24. This report includes the statistical data of the University for the year and in addition a discussion of many important problems by the deans and the other administrative officers. I have ventured in my part of the report to call attention to a number of educational principles, educational movements, and administrative practices and adjustments that relate more especially to the University as a whole.

There, perhaps, is nothing more significant than that higher education in recent years has not been static; it has changed. While the change has not been so great as in the schools below, there is a reason for this difference. Institutions of higher learning have been less sensitive to public opinion than have the elementary and secondary schools. They have stood more aloof and have been more instrumental in determining their own policies and programs than have the lower schools. They have maintained, and frequently with some show of vigor, that they know better what society needs and wants in the way of higher education than society itself knows. But no institution is entirely self-sufficient; no institution can disassociate itself from the developing and expanding life of the times. Universities, dimly and uncertainly at first, but recently more consciously, have felt the stirrings of new life, and of new tendencies. Some of the proponents of traditional conceptions of the purposes for which universities have been established and maintained—those who have regarded themselves as the custodians of scholarship—with the first appearance of these new tendencies, fearful that change meant lowered scholarship, buckled on their armor anew for the fight to preserve their cherished programs without change. Their activity has not been without its value, but it has not possessed sufficient power and strength to prevent some progress or shall I say change from being made.

What is responsible for changes in the field of higher education to which I allude? Several things. One is the insinuation

of the scientific spirit into all fields of learning. Another is the new emphasis placed by psychology upon a knowledge of individual differences. Another is the discovery that society is still differentiating into new occupations and professions, and that the pressure for instruction in these fields is growing more impelling. A fourth reason is the growth in registration in colleges and universities. With the impact of these forces and sanctions following the war, university authorities began to take an inventory of aims, programs of instruction, standards of work, and administrative practices.

The discussion which has not yet ended, and perhaps never will, soon developed two opposing points of view: one the academic point of view, which insists upon a limitation of registration in the interest of the gifted, and the other the public point of view which insists that the humblest person who meets the entrance requirements of the higher institutions of learning as they now exist, is entitled to his chance at higher education. One, in other words, would admit only the mentally elect; while the other, influenced no doubt by the American conception of equality of opportunity, maintains that those with the requisite preparation are entitled to their chance. The lines of demarcation between those two points of view are perfectly clear.

Never before has there been any serious discord among those in higher education with reference to the number of students that should be admitted. It has only been a few years since they went out in the highways and byways to persuade students to come to college. The most lurid advertisements were used and the most preposterous claims of the value of a college education were made. Now all this is changed. A few presidents and individual members of many faculties, have sounded a new slogan —it is that too many students are going to college. No evidence is deduced that a college education is any more inimical to public welfare now than it ever was. It is claimed that many of those now entering college are mentally incapable of doing satisfactory college work and that it is better to educate a few gifted persons than to attempt to provide a college education for great masses of mediocre young men and young women. It is without doubt true that we have more mentally incapable students in college

now than ever before, but there does not seem to be any conclusive evidence to show, at least thus far I have been unable to find it, that the percentage of mentally incapable students in college today is any greater than it ever was.

Whether or not the time has come when those who do not possess superior gifts may not be privileged to go to college is a question of great social significance. That they have always gone is generally admitted. There are thousands of college graduates in this country who know that they were not endowed with unusual talent or superior ability. They had good ability and they succeeded because they were willing to work. A distinguished member of a distinguished private eastern university is reported to have said recently in conversation with one of his colleagues, "With the rules for entrance as high as they are, it is a good thing that we are on the faculty rather than applying for entrance, for we could not get in." "I might have gotten in," he continued, "but I could never have gotten out."

It is conceivable, of course, that the academic world is undervaluing and overlooking the possibilities of the so-called mediocre person. The average citizen, whether he be right or wrong, still thinks so. He believes that intellectual progress and moral development are within the compass of higher education and possible for his own children.

Which of these points of view shall prevail still seems to be a matter of opinion. The opinion still prevails, indeed it inheres in the American conception of the constitution of democratic society, that every child is entitled to a fair opportunity from the kindergarten to the university. The debate as to the functions of universities and particularly of state universities in providing educational facilities for the average man, may grow more serious, but the popular conception of the functions of the state university that it is a part of the public school system and therefore has a definite public obligation to perform, will not be easily put aside. For years now the staffs of state institutions have encouraged the youth of the state to believe that attendance at the university was their great opportunity and the youth have accepted these statements at their face value. They have come in response to an urgent appeal, and I dare say that the public will insist upon the obligation implied in this appeal being fulfilled.

With reference to the question of competency of the college students of today, President Thompson, of Ohio State University, in his Founders' Day address at Cornell in 1923, said:

> Is it true that too many of our youth are attempting higher education? Is it true that a considerable percentage of these young people are incompetent? The universities appear to think so, but let me assure you that the parents do not agree with us on that issue. They respond by directing our attention to the fact that many teachers in our universities are less experienced than the high school teachers. They insist that inferior teaching may account for results as definitely as stupid students. They tell us that not all the responsibility is upon the student and cannot be charged to heredity. They ask that we test our processes of education as carefully as we read our examination papers. We are told that many teachers are little more than advanced students not yet parents. The fathers and mothers are inquiring why these undeveloped teachers are so infallible in their judgments as to the fitness of students to win degrees or escape the follies of the freshman year. Public sentiment proposes to make clear the responsibility of the teacher. It is obvious that we cannot escape by way of the Binet test unless it is applied all around. * * * * * We cannot correct the evils due to excessive enrollment by protesting that our students are inferior. Some other method awaits our discovery.

Various schemes have already been tried to limit registration for the protection of society. One method tried by the professional schools has been to lengthen their courses. It has seldom been admitted that this is a reason for the lengthening of professional courses, but it is nevertheless true. There is nothing to show that the lengthening of the courses has in the long run reduced the number of students or that society has been any better protected from the quack, the shyster, or the faker than before.

> There is no way by which society may be protected against the evils of sophistry and of the appeal to passion except by the influence of thoughtful, educated men. There is no institution that so prepares men and women for this service as does the college and university. The social responsibility, therefore, of the college or the university must not be overlooked in our zeal in the pursuit of academic ideals.

The lengthening of the various professional programs of education may be both necessary and desirable for other reasons than that of eliminating students. If the reasons are based upon sound educational theory, if the service which society has a right to expect of the professionally trained person requires additional preparation, and if the economic rewards are such as to justify

it, then there is no reason why more training should not be required of those expecting to enter the professions. In other words, the lengthening or the shortening of curricula should not be determined by the growth in registration or by a desire to attain increased academic respectability but rather because of more fundamental considerations.

Other internal administrative changes in the field of higher education quite as significant and as far reaching are under consideration and have actually been initiated. For example, laboratories once built to accommodate a few students are now constructed to accommodate hundreds of students at one time. Lecture courses with quiz sections now provide for large numbers of students at much less expense than formerly. Whether these changes which apparently have been forced by necessity have resulted in decreased educational efficiency, is still an open question. The optimum size of class for college students is a problem deserving careful study. The opinion has prevailed for many years that classes of fifteen or twenty, certainly not more than thirty, give the best results, but there is no concrete scientific evidence to support this opinion. Studies of the influence of the size of class upon attainment in the public schools have apparently revealed the very interesting fact that the size of class furnishes no index of the probable achievement of students. One critical student of educational administration in discussing this matter recently said that instead of spending so much time in attempting to determine the optimum sized class we should spend more in looking for large class teachers.

One of the most significant movements in the field of higher education is a movement looking to the reorganization of the materials of instruction. The general tendency in the past has been to differentiate the materials of instruction and to introduce new courses based upon attenuated segments of knowledge. This splitting of the materials of education into a multiplicity of subjects results, among other things, in an overemphasis upon certain rather highly specialized materials in a given field.

It has also been attended by another evil or danger quite as unfortunate. Accompanying the separation of fragments of knowledge into compartments comparatively isolated there has grown up or been evolved by ingenious faculties, a vast array of

regulations, rules, and devices for the improvement and recording of the scholastic standing of students. Students not fully realizing or appreciating the subtle connection between artificial systems of grading and the acquisition of an education, but recognizing fully that graduation depends upon conformity to the rules, have become seekers after credits and thinkers in terms of hours', semesters', and years' work, with the result that thoroness of scholarship is in danger of being neglected.

Two things are happening, however, which should be wholesome correctives for this situation insofar as it applies to freshmen. One is a reorganization of materials of instruction for freshmen. Columbia has really been the leader in this movement. Its course in contemporary civilization has served as a stimulus and a model for other universities. Here and there orientation courses and courses in "learning to think" are being introduced for freshmen. These general courses are intended to give an overview of human knowledge, to orient the students to the world of nature, and to organized society, to give them an intelligent point of view with regard to the present day problems of society, and to furnish them with the tools and the methods for solving the question of their work in life and of their relationships and responsibilities to the present day social and industrial organizations.

In this connection attention should also be called to the movement which really began in the secondary schools for the reorganization of the materials of the various subjects of study. I have reference to the introduction of courses in general science and general mathematics, and to new courses based upon a reorganization of subject-matter in the foreign languages and social sciences. These courses are not short courses, such as were in existence a generation ago, nor are they survey courses, such as are now in existence in many colleges and universities. They represent a thoro reorganization and co-ordination of the materials in these fields.

A second movement calculated to insure a more systematic education is the movement to organize definite programs in terms of definite objectives. This situation has been forced by two sets of factors: increasing pressure from the outside for training along specific lines for definite forms of service, and the insistent demand on the part of an increasing number of students that

there be definite programs of study with definite objectives available for them. The vast majority of students entering college today know what they want training for. They are not willing to drift about aimlessly in a sea of liberal subjects. The traditional appeal that one should go to college to acquire culture is far less potent than it once was. The assumption that one is liberalized only by studying the so-called liberal subjects is being seriously questioned. Culture, it is maintained, is something that cannot be acquired by aiming at it directly; it is, on the contrary, the most important by-product of any program of education, depending not merely upon the aims and materials contained in the program but upon the way in which the materials are presented. If one be trained, adequately in law, medicine, nursing, teaching, or any other profession and as a result of his training is imbued with the ethics and spirit of his craft so that he dedicates his life primarily to service and citizenship rather than to personal gain and to the accumulation of a fortune, he has, it is maintained, all of the benefits of any liberal program of education. If this aim appear somewhat ethereal, I ask, "Is it more visionary than the aim of culture based upon a knowledge of a number of fragmentary 'liberal subjects.'"

One of the facts that has been slowly borne in upon those in administrative positions in higher institutions of learning is that among the numerous factors that are responsible for the failure of many students in college are the following: (1) a sheer lack of intellectual ability; (2) the absence of certain necessary moral and character qualities; (3) the failure to understand what it means to work and how to work; (4) the lack of a definite objective when they enter college.

A knowledge of these factors, and particularly of the fourth, has contributed to another movement equally significant in the field of higher education and that is the movement to give more individual attention to entering students and to offer them intelligent vocational advice. This movement has not had easy sailing in all institutions, nor has there been anything like unanimous approval of it on the part of university men. There are those still on college faculties who quite sincerely believe that it is no part of the institution's business to look after the intellectual welfare of its students outside of class. They are willing that some

attention be given to the social and moral welfare and to providing proper living accommodations for students, but that so far as studentship is concerned the student should be placed upon his "own" at once. Those faculty representatives look carefully after the preservation of the traditions and the integrity of the institution. But to them the student is entitled to little time or consideration outside of class hours. Fortunately, this point of view is passing. An attitude of self-complacency and of medievalism so far as instruction is concerned will no longer be accepted. Those who tolerate their students and who regard them as a necessary evil are gradually being displaced by those who have a more human point of view. Yale has her all-university freshman year; Princeton, her tutorial system; Harvard, her upperclassmen's advisory system; Northwestern, her personnel officer; and many other institutions, their advisory officers for the giving of vocational advice, and the selection and placement of students.

There are at least two other matters deserving of attention that would improve the situation in higher education. One of these is the giving of more consideration to the improvement of teaching. Not enough attention has been paid to this matter in the past. Instructors have been selected on the basis of their scholastic qualifications and their ability to carry on research. Promotion has depended upon ability in these respects, and it still does and should to a large extent. Contributions in the way of research have gained early recognition for the young scholar while the skillful teacher has usually had to wait until late in life to receive the recognition he deserves. Since the emphasis has not been upon teaching technique, classroom procedure and improved methods of teaching have not received the consideration or made the progress they should. Furthermore, many college instructors in the past have not welcomed, to say the least, supervision of their instruction. There is much superior teaching in college circles, but no one familiar with the situation would for a moment admit that further improvement is impossible. Nothing could have a healthier reactionary effect upon instruction than attention on the part of the instructor to an improvement of the teaching act itself. In the future, more consideration, rather than less, will be paid to it.

The other type of readjustment deserving consideration is the introduction of courses less than four years in length. One of the fetishes in college life has been the four-year course. It has been presumed to be the *sine qua non* for a college education. And yet many students of higher education have long known that many courses should be less than four years in length. College authorities have hesitated to introduce them for several reasons. One is that it is not done; it is not good form; it violates tradition. But society is growing more complex and the demands for the training of groups not hitherto served by colleges are more insistent. The discoveries of modern psychology have shown that all students should not be encouraged, because of differences in ability or choice, to attempt the longer courses.

Two forces, one social and the other psychological, are forcing a consideration of the problem. The growth of the freshman and sophomore registration has hastened the matter. Some valiant advocates of the traditional conception of higher education maintain, as I have already indicated, that all the incompetent should be eliminated. With this view I most heartily agree. Where to draw the line of incompetency is the question. What ability constitutes the threshold of college work, remains undecided. But wherever it is drawn, those who pass beyond should, after having received the best advice available, be permitted to choose a curriculum corresponding to their abilities and desires. Some of these curricula will be less than four years in length. Indeed, a few such curricula have already been introduced in practically all universities. The development of junior colleges has stimulated the consideration of this matter. Many believe that the junior college should be not merely a preparatory, but also a finishing, school. Where junior colleges exist as a part of the university system and plant it is conceivable that a number of departments may co-operate in providing a definite program, less than four years in length.

The danger which inheres in programs less than four years in length is that the college or university will become essentially a trade school. This is a real danger and should be carefully guarded against. On the other hand, no university can escape the obligation of providing vocational and professional training. Indeed, every university provides such training now.

Should greater flexibility in the matter of curricula be introduced, the newer and shorter curricula as well as the older and longer curricula should, after proper advice has been given to the student, be equally open to all. The choice of election should always be determined by the objectives of the students.

If programs of study were mapped out in terms of well-defined objectives and students received intelligent guidance in choosing their programs, and if they were permitted to move forward at their several rates according to their abilities, the mastery of one unit serving as the necessary basis for attempting the next, it would be found that there would be more enthusiasm in studentship, more intelligent discussion in class, and less artificiality in grading. Perhaps this is nothing but the idle dream of a schoolmaster. That it is heresy, I admit. That it will come true, I believe. The fact that all students do not move forward at the same rate of speed is not necessarily a sign of incompetency. Some will proceed along given lines or accomplish a given program of education more rapidly than others.

The efficiency of our higher institutions of learning in the future will not be determined by the number they eliminate, important and necessary as that matter may be, but by the extent to which they guide students wisely, train them in proper habits of thinking, become interested in their individual abilities and welfare, reorganize the materials of instruction, improve their methods of teaching, introduce programs of work adapted to modern society and to the needs of students, and remain close to the people. The coming of large numbers of students to colleges and universities is not a thing to be deplored; it is a most fortunate sign.

EDUCATION AND PROPAGANDA

One of the difficult problems which every educational institution faces is that of keeping itself distinctly educational in character. This problem is far more difficult for a state institution than it is for a private institution because the state institution receives its support from taxes assessed upon all the property of all the people within the state. It is not always easy to distinguish between education and propaganda. Agencies, societies, organizations, and even individuals having some special project which they desire to promote are oftimes not unwilling to use

the public schools or the university for the promotion of their projects. They maintain that the project itself is educational in character and that the public needs to be informed about it. There may be much truth in what they have to say. It should be remembered, however, that the school system is not the only agency society has for the education of its people. Clubs and many other organizations are educational agencies. The pulpit and the press are powerful educational agencies.

A university is established and maintained primarily to serve the state by providing instruction for those who attend it and by the discovery of new truth. It is not a part of its business to go out into the field to help put some program over. Whenever it does this particular type of thing it opens the way for every worthy society and organization within the state to insist upon receiving similar support for its program. What individual members of the faculty may do as individuals is one thing, but what the institution does is quite another.

Not only must an educational institution keep itself free from engaging in propaganda, because this would mean that less time would be given to teaching and to research, but also because of psychological reasons. Practical reasons are enough to make the officers of a university scrutinize every request to assist some outside organizations with great care, but the psychological reasons sometimes are quite as influential in determining the opinion and the judgment which should govern the university's decision with reference to such projects. It should be remembered that propaganda is frequently keyed to the emotions. It is not concerned, certainly not always, with the logical and orderly consideration and presentation of facts, but frequently with an appeal to passion and prejudice. University education is keyed to the mind. It is adjusted to the individual, not to the crowd. It considers facts, weighs and compares evidence, sifts testimony. It is concerned with the exercise of the reflective judgment that qualifies the opinions of others. These are the attitudes of mind which make and keep a university what it desires to be. The promotion of movements is not concerned with the logical consideration of facts and evidence. Movements that are unwilling to have every side and every phase of every question relating to public welfare

presented as a basis for the forming of intelligent judgment, operate to defeat the purpose of a true university.

Even tho these facts are clearly understood and usually readily agreed to, it is amazing how frequently persons who pay taxes and who represent groups, the members of which pay taxes, insist upon the university assisting them with their program because they are taxpayers when their program (altho worthy in many respects and sometimes apparently in every respect) really means the arraying of one group against another, the arousing of suspicion between groups, and the cultivation of animosities which may exist for years.

It is the university's business not merely to instruct but to discover new truths. Whenever it discovers any fact whether it pertains to the health of individuals, the cure of some human disease, the growing of certain crops, the feeding of animals, economies in administration, or what not, it is part of the university's business to see that that information is conveyed as rapidly as possible to the people of the state. But it is no part of the university's business to engage in a campaign to induce farmers to buy this or that particular kind of livestock, to plant this or that particular kind of grain, or to enter into a campaign which has for its primary purpose the determination of prices upon commodities. There should be facts available, however, for farmers who wish to buy livestock and facts available for farmers who have bought livestock concerning the care and treatment of the stock. There should be facts available concerning the kinds of crops that can be planted in certain kinds of soil, and so on so that no one need engage in any of these or of any other activities ignorantly.

What has been said about agriculture applies with equal force to religion, politics, government, and social reforms. The university, it should be remembered, is the place where people come to be taught what the facts are, what the tested opinions are. It is a place where men and women should be gathered together for the discovery of new truths. It must be kept free, so far as is humanly possible, from the effects of all propaganda regardless of the seeming merit of the propaganda.

THE UNIVERSITY'S NEEDS AND PROBLEMS

There are two general criticisms of universities which appear more frequently than all the rest. One is that they are too large and consequently unwieldy, and the other is that their machinery has become too complex and intricate. These two criticisms should be examined with great thoroness and without bias or prejudice. The purpose for which universities are maintained should never be lost sight of in the interest of mere numbers or in the interest of smooth running machinery. If there is a limit as to size beyond which universities cannot be efficient, then that limit should not be exceeded. If the administrative organization becomes unnecessarily intricate, involved, and impersonal, then it should be modified.

One of the most patent facts about universities in recent years has been their growth. Until recently the registration figures were pointed to with pride by citizens and faculties generally. Now in certain quarters, when growth in registration is referred to, much concern is expressed. Some urge that there must be a definite limitation placed upon the number that go to college. They also point to the fact that between growth and increase in administrative machinery there is a high correlation. If these assumptions are correct, if too many are going to college for the welfare of democratic society, or if the organization of our universities is unfortunate from the standpoint of the welfare of those attending, then a change is imperative. It is also claimed that, due to the presence of these two factors, there has been an enormous loss in personal relationships. This is a serious matter in education, for everyone recognizes that personal relationships is one of the most potent factors in the development of mind and character. A complete discussion of these matters cannot be given in this statement but some reference will be made to them.

THE LARGE VERSUS THE SMALL COLLEGE

Frequently those who maintain that losses in personal relationships are due to growth and the development of administrative machinery, point to the traditional small college as the type of institution that should be encouraged and fostered. Usually when graduates of these smaller colleges of a generation ago are

asked to name the instructors whose dynamic and forceful personalities influenced their thought and determined their ideas, they are able to name only two or three or four or five. The rest have dropped from memory. I believe that a similar situation will prevail a generation from now. Those now in college will be able to name a few of the striking personalities on the teaching staff of their college days. The rest will fade from memory. It will be strange if this is not true. Human nature is no different now from what it was a generation ago. There are always a few outstanding, forceful individuals at the upper extreme of the curve of personality, who set currents of imitation and influence flowing in their direction, and there are just as many anemic and colorless individuals at the other extreme. Between these two there are all sorts and grades that shade more or less imperceptibly into each other. It seems reasonable to assume that the forceful types will be found in greater numbers in the educational institutions than they will among human beings in general.

ESTABLISHMENT OF PROFESSIONAL SCHOOLS: AN AID

It should also be remembered that, since the founding of the earliest universities, there has been another movement, which has been important in establishing proper relationships between students and instructors. I have reference to the movement for the establishment of professional schools. These schools have been created in each instance in response to a definite need and to a definite demand.

Professional schools have been established because society has demanded a higher quality of service in the professions and because students and faculty representatives of like purpose have insisted upon associating together. I doubt if there is any faculty anywhere that knows its students better than the law faculty or the mines faculty, or the pharmacy faculty, or the dental faculty at Minnesota knows its students. A similar statement can be made for the faculties of the other professional schools and for the upper years of the Arts College.

The solution of the problem where large numbers of students are involved is to segregate them into groups each of which is dominated by a common purpose and a common craft spirit. The number of professional schools has not yet reached its upper

limit. New schools even now are in the process of being born. With their establishment there will be a differentiation of work and a curriculum will be organized to correspond with the desires and needs of the students and the type of service they expect to render. As long as society increases in complexity and the demand of expert professional service remains this process will continue.

This plan makes possible the handling of large numbers of students in one institution. The gains which accrue to the student as well as to the faculty from the development of such a plan are twofold; (1) the gain of associating with those whose primary purpose is the advancement of a common profession; and (2) the gain which comes from contact with men and women who are preparing for the practice of other professions. It is worth something to a student in law to have friends among the students in medicine, in agriculture, in dentistry. It is worth something to the professor in history to have contacts with the men of science. The catholicity of a university—its spirit of liberalism—is due largely to the multiplicity and intimacy of the human contacts it affords.

OUR FRESHMAN PROBLEM

But, it may be said, the development of professional schools does not dispose of the freshman problem. And that is right. If not the most, it is one of the most serious problems in university circles today. I treated this problem at considerable length in my last annual report to the Board of Regents. In this report, I wish merely to call attention briefly to five different agencies that are at work at Minnesota upon this problem.

The first of these is an enlarged and improved advisory system for freshmen. Our experience in selecting members of the staff in a more or less random manner to advise entering students proved unsatisfactory. We soon learned that not all instructors are good advisers. Rare scholarship, ability to discover new truth, and skill in classroom performance do not constitute the sole qualifications for serving as an adviser to students. Something else is necessary. A good adviser must have great patience, abundant sympathy, a personal interest in young people, and a desire to learn everything, if possible, about them. He must know college life and college work. He must know something of the temptations which beset a young person thrust upon his

"own" for the first time. Recognizing these facts, Minnesota decided to change her advisory system. She selected three members of the staff, who possess these qualities, and asked them to devote a considerable share of their time to advising freshmen. The plan seems to be working admirably. Its chief weakness is that three persons are not enough to do all the work required of them. Still, more freshmen than ever before are receiving sympathetic consideration and assistance in dealing with their problems.

A second agency at work at Minnesota in the interest of the freshmen is the introduction of the experimental orientation course for freshmen. This course teaches them how to study and it gives them an overview of human knowledge and orients them in the university and in the life they are to lead later on. A group of instructors especially fitted for the teaching of this course is in charge of it. They have outlined the course with great care, hold frequent meetings, and are making an unusually conscientious effort to stimulate and to start the students right.

A third agency which seems destined to be of equal importance with the two preceding is the organization of the upperclassmen advisory system. This is a senior class movement. We hope and expect that it will develop along the lines of Harvard's upperclass system which provides for the assignment of a given number of freshmen to each senior and also for a council of seven which keeps a check on the faithfulness of the various senior advisers. All advisers at Harvard hold regular meetings to review their experience and to consider the questions arising. This general plan has been outlined and is being introduced at Minnesota.

A fourth evidence of unusual interest in the welfare of the freshmen is found in the fact that the Interfraternity Council recently voted that no freshmen would be pledged or initiated during the fall quarter. This is a long step in advance and, if given a fair trial, will result in great good. Under this plan no freshman can receive consideration for a fraternity until he has made good in his studies. I look upon this movement as one of the most wholesome things that has happened at Minnesota recently.

The fifth agency that has helped the freshman situation has been the reorganization of the Department of Physical Education and Athletics and the increased emphasis that intramural sports

are receiving. There is no better disciplinary agency for a university than athletic sports. Participation in them should be required of all. The participants must avoid excesses of all kinds if they are to be worthy representatives. The members of the Department of Physical Education continually emphasize the necessity of students keeping up in their studies, not primarily for the sake of participating in athletics but more particularly because intellectual growth and development is the chief reason for their presence at the University. The advice and the interest the staff of this department displays in these matters is one of the most potent factors in improving scholarship and in seeing that students are properly established in the University.

The impact of these five agencies upon the freshmen has helped enormously in solving the freshman problem at Minnesota. We do not for a moment maintain that there is nothing more that we can do. There has been a shift of emphasis from the consideration of numbers to the consideration of needs of individuals. This is the most significant thing that has happened in the field of higher education in the last decade.

ADMINISTRATIVE MEASURES

EDUCATIONAL GUIDANCE

During the college year of 1922-23 I appointed a committee to consider the problem of educational guidance for college students. The report of the committee which was published in August, 1923, provided for a general educational guidance conference to be attended by members of the University, superintendents of schools, high school principals, representatives of other professions and vocations who are not connected with educational institutions, and a variety of specialists in social and related problems. It was decided that the initial meeting could be attended only by members of the University faculty, superintendents of schools, and high school principals.

It has long been recognized that one of the primary functions of institutions of higher learning has been the selection and training of young people of talent and ability for the pursuit of the various professions. There has not, however, been developed a well-recognized system for the intelligent selection and classification of students, nor has there been evolved an adequate system

of vocational advice. Many professional misfits have been graduated. However, the number of professional misfits cannot be attributed entirely to the failure of colleges and universities to have evolved adequate methods of discovery and detection of talent. No matter what systems may be introduced, there will always be a certain number of misfits in every profession. Vocational preferences seldom remain permanent. The right to change is one of the rights inherent in American society. All sorts of conditions influence and determine these changes. There will always be some persons trained for engineering who will shift to business, others trained in dentistry who will become bankers, some trained in law who will become farmers. Some social, and no doubt an occasional economic, loss results from these shifts. On the other hand the total gain to society must be great. We have no sympathy with any theory designed to fasten a system of occupational stratification upon American society. The freedom permitted individuals in this country to experiment with many vocations makes it all the more necessary and imperative that educational authorities give attention to the problem of vocational advice. By the adoption of a wise plan the number of useless shifts may be reduced and thousands of young people helped with the choice of their vocations.

It is obvious that two groups of problems must be considered in mapping out a plan. First, the professions for which students may be trained must be studied and analyzed. The character and quality of the training necessary for reasonable success in the practice of the various professions and types of service practitioners are expected to render must be made the object of careful study. After there has been a job analysis of the various professions, the curriculum in each instance must be critically examined and reorganized in the light of this analysis.

The other type of problem, however, is one which relates to the choices, interests, and character qualities of the students themselves. It is a well-established fact that scholarship is directly related to interest. The opinion of the University Committee with reference to the matter is admirably stated in the following language:

The *desire* of a person to pursue a certain line of activity is probably in the long run quite as potent a factor in his success as any other special

ability that he may possess. Educational guidance, therefore, must be directed toward creating an *attitude* on the part of young people to pursue those lines of endeavor for which their other special abilities indicate fitness. The existence of this dominating desire is so precious an aspect of vocational success, that, in the judgment of the Committee, it should be given a major place in any program of vocational guidance.

It is assumed by many that most students who come to college in these days do not know what they want to do. This is a false assumption. The vast majority of students entering college know whether they want to prepare themselves for the practice of medicine, dentistry, pharmacy, engineering, law, mines, nursing, journalism, social service, teaching, or the practice of some other profession. If their ability is such as to enable them to do college work, it will be found that generally speaking they will always do better work in those lines of study that they choose than in those lines of study that are forced upon them. Interest alone, of course, is not a sufficient guarantee that a student will do satisfactory work. There must be back of it sufficient native ability and in addition certain fundamental character qualities. A large share of the failures at the university can be attributed to weakness in character qualities. Students, no matter what their ability or interest may be, who refuse to keep their obligations, to live up to their promises, to establish regular habits, to stand for proper social ideals, who offer excuses, rather than reasons, for failures, who attempt to secure college grades by deceptions, and who refuse to work, fail in large numbers.

Since the report of the Committee on Educational Guidance was issued another report, dealing with the mortality of college students at the University of Minnesota has been published. This report shows that more students drop out of the University because of illness and for financial reasons than because of all other reasons combined. Some leave because they are needed at home, some because the family is leaving the city or the state, a few because they have an opportunity to travel, some transfer to other institutions, some find that they have program difficulties at the University, a few are dissatisfied with the institution, some lack interest or are discouraged, but illness and lack of finances are, according to this report, the two most difficult hurdles our students have to surmount. The report shows that those who drop

out for these various reasons do not have enough honor points to make them candidates for graduation.

There has recently appeared a most interesting and valuable report on intelligence ratings and scholarship records at the University of Washington, by Dr. Alexander Crippin Roberts. This report describes the factors which determine the relative standing of students entering the University of Washington. It analyses the scholarship records of these students, and outlines certain proposals for more adequate schemes for the admission of students to tax-supported state institutions. The University of Washington has introduced what is known as the two-thirds rule. This rule provides that only those students will be admitted to the University without examination two thirds of whose high school credits are 80 per cent or above. It was presumed that the introduction of this standard would reduce the registration within the university and insure a higher quality of student, but the registration of the freshman class is now as large as it was before the two-thirds rule was introduced. This increase in the freshman class can be attributed perhaps partly to the growth in the high school registration. Of course, it would be ungenerous, and it might be regarded as highly improper for one to suggest that the two-thirds rule had any influence upon the grading systems in the high school. On the other hand, there is evidence to support the statement that where exemption systems from final examinations have been introduced the grades are skewed to the high end of the curve more at the end of the term than they were before the exemption system was introduced.

Dr. Roberts states that in the office of the registrar of the university the credentials of incoming students are checked with the utmost care to see that they meet in every respect the admission requirements of the university. At the close of each quarter, however, lists are prepared of those whose marks are so low that they must be eliminated from the university. He states that the two-thirds rule has reduced this wastage at the source as much as possible. In his investigation he attempts among other things to answer the following questions:

1. Is the secondary record as now submitted from accredited institutions trustworthy and adequate?

2. Will any scheme of admission based solely upon high school credits, even tho eliminating those with too great a proportion of low marks, be adequate and just?

Among other things he made a careful study of 581 D and E students who entered the university before the two-thirds rule was adopted. The lists of D and E students were compiled from the intelligence records of the Department of Psychology. The E list comprised the lowest five per cent and the D list comprised the next lowest ten per cent of those whose intelligence scores have been computed by the department. These groups were chosen for study rather than an unselected group of equal numbers involving all levels of intelligence, since it may be assumed that here is a very large proportion of the mentally incompetent, the nervously unstable, the slow but sure type, and other groups likely to be difficult or impossible to adjust.

The complete record card for each student contained the name of the student, his intelligence rating of D or E, the name of his secondary school, the name of the school or college which he entered at the university, the distribution of his high school marks, his credential sheet, a record of the subjects and number of semesters of failure in the high school, and a distribution of all university marks with the number of quarters in which the university record was earned.

"Now," Dr. Roberts asks, "what would have been the effect upon these students had the two-thirds rule been in force when they entered the University?" In answering this question the record cards were checked into four groups to determine:

1. The number who met the present requirements and made satisfactory records at the University. They would also have met the two-thirds rule.

2. The number who met the present requirements who failed, however, in their university work, and would have been refused admission had the two-thirds rule been in force.

3. The number who met the present requirements who would have been admitted had the two-thirds rule been in force, but who failed in their university work.

4. The number who would have been barred by the two-thirds rule, but who made good in their university work.

The first group is a good group, with high school work satisfactory and university records acceptable. They are able to do

sufficiently good work so that the two-thirds rule would not have barred them at entrance and the scholarship standards would not have eliminated them later on.

The second group is not a good group, for these students had high school records of so poor a quality that they would have been barred by the university two-thirds rule. Likewise, they did not make good records at the university. This is the group which the two-thirds rule is intended to bar, the group which should never have been allowed to matriculate, upon whom public funds for higher education should not have been expended.

The third group is also a poor group, moreover a very difficult group to deal with for their high school records were sufficiently good so that they would have been admitted even though the two-thirds rule were rigorously enforced. However, many members of this group made a failing record in the university and by that measure ought not have been allowed to enter. It is but just to say that for this group the two-thirds rule would have been inadequate.

The fourth group is like the first group, a good group. It is very difficult to adjust, however, for the high school records were so poor that the students would have been refused admission under the two-thirds rule. A real problem arises with them from the fact that they made acceptable records at the university. By no university measure of entrance would they have been barred.

Of the 581 students, 190, or 32.7 per cent, could have met the present entrance requirements and made satisfactory college records; 158, or 27.2 per cent, failed in their university work and would have been barred by the two-thirds rule; 132, or 22.7 per cent, failed in the university and would not have been barred by the two-thirds rule; 101, or 17.4 per cent, passed in their university work but would have been barred by the two-thirds rule. In other words, the two-thirds rule would have barred 27.2 per cent of the cases that should have been barred. It would have proved inadequate in the cases of 22.7 per cent who failed in their university work, and it would have been unjust in the case of 17.4 per cent who would have been barred but who made good in their university work. From these facts it is clear that there is only one conclusion, that is, that other means of diagnosis must be sought. Apparently we cannot as yet rely upon intelligence

ratings and the rankings which students have received in secondary schools as a basis for admitting them or rejecting them at the door of the university.

The Washington study clearly showed:

1. That there is no measure of student ability adequate for the prognosis of academic success at the university. The high school scholarship record is the best single measure, but studies by correlations and by percentages indicate that the high school record is far from accurate as a safe basis of prediction.

2. Intelligence varies by schools. Where very large numbers of the graduates of large high schools enter the higher institutions their intelligence ratings tend to approach a normal distribution curve with considerable numbers of poorer and inferior students, but where small groups enter from distant high schools, they tend to be highly selected and superior groups.

3. Maturity, involving wider experience, stronger motives, and a greater purpose, exerts a powerful influence upon scholarship records at the university. Where retardation in grades and high schools indicates great probability of failure, delayed registration owing to the necessity for work and earning money with which to go on to school appears to have precisely the opposite effect in the university. Graduates of nearby high schools who have street car communications with the campus are much younger than those from distant high schools and appear to suffer a distinct disadvantage in scholarship for that reason.

4. Involved in the problem of lack of maturity appears the problem of lack of serious purpose on the part of many students.

5. Any adequate system of admission must attempt to secure a real measure or reliable estimation of character traits. This study presents plain inferences that highly desirable character traits carry many mediocre students to scholastic success, and undesirable character traits wreck the accomplishments of brilliant students.

Another important study dealing with this same problem has recently been made by Stanford University. Stanford for some time has been making a decided effort to select its students, and yet the intelligence ratings of freshmen at Stanford show that they do not compare favorably with the intelligence ratings of the candidates for admission at Columbia College or Brown University and that there is little or no difference between their intelligence ratings and those of the freshmen at the University of California. The report reveals some other rather interesting facts. It shows that the students who enter the winter, spring, and summer quarters have a much lower average score than students who enter in the fall quarter, that students who transfer from

other institutions to Stanford have a somewhat higher averag score than students entering from high schools, but not higher than students in the latter group who survive one year, that students entering from large high schools make a higher average score than those entering from smaller high schools, that there is a marked negative correlation between entrance age and the psychological score, that is, in general the younger the student the higher the score. A similar negative correlation was found between entering age and scholarship marks. In general the younger the student the higher the scholarship record.

The Stanford report contained the following statement:

> The predictive value of the psychological score would doubtless be much greater but for such factors as
>
> a. Variable application, outside work, ill health and the like
>
> b. The unreliability of college marks.

So long as these facts are present it is unlikely that any measure of intellectual ability can be found that will correlate with scholarship marks to an extent much greater than 65 to 70. The psychological score tells what the student might be expected to do under reasonably favorable circumstances rather than what he actually will do.

In the March issue of the *School Review* there appeared an article on "A Study of High School and First Year University Grades," by Douglas E. Skates, of the University of Chicago. Mr. Skates attempted to answer the following questions:

> 1. To what extent does good work in the high schools predict good work in the first year of college?
>
> 2. What would be the effect of raising the high schools scholarship average required for admission by the University of Chicago?
>
> 3. How can first year college grades be made of particular interest and value to the high school principal?
>
> 4. Which first year students should be given special study by the university?

Mr. Skates' study showed that high quality of work in the high school is normally followed by high quality of work in the first year at the University of Chicago. He found the correlation to be 61. It is Mr. Skates' opinion that this correlation might be higher were it not for a number of facts. He says that the first year course in college English is a selective agency widely known for its low grades. This statement seems to be true of

the University of Minnesota. Last fall there were fifty-six sections of freshman English in the College of Science, Literature, and the Arts, after some 250 students had been placed in the subfreshman English course in the Extension Division. The average number of students in these 56 sections at the close of the quarter was 25. In 38 of these sections there was not a single A grade given. Out of nearly 1650 students less than 25 received an A grade. In addition to these classes in freshman English in the College of Science, Literature, and the Arts, there were 21 sections of English in the sophomore class in the College of Engineering. In 18 of these there was not a single A student. In other words, there were 56 sections out of 77 sections in which no A grades were given. English, it should be said, is the only subject required of all freshmen at Minnesota. It is the frank and candid opinion of the members of this department that the ability of freshmen to use English correctly and with reasonable facility is so appallingly poor that a high percentage of elimination and failure is inevitable.

The University of Chicago for some time has made a deliberate effort to admit only students of excellent ability. Its requirement is that applicants for admission from high school must have an average grade in academic subjects above the passing mark of the school by 25 per cent of the difference between the passing mark and 100 per cent. Assuming that the passing mark from a high school is 75, the average required for entrance to the university then is 81.25. Since the toll at the University of Chicago has been high, the question has been raised as to what the effect would be in case the admission point were raised to 33⅓ or 40 per cent, which would bring it to 83.33 or 85, respectively, on the high school scale. It would seem that if the admission point were raised from 81.25 to 83.33 that a higher quality of students would be selected, and if the admission point were raised to a still higher point of 85 that a still higher quality of students would be selected. Mr. Skates' study shows that if the admission point were raised from 81.25 to 83.33 for every four students doing unsatisfactory work excluded by the new standard there would also be dropped approximately three students doing satisfactory work. If the admission point were raised to 85 the number of students doing satisfactory college work who would be dropped

would be much greater than the number of students doing unsatisfactory work who would be dropped. Furthermore, his study of the graduates of the University of Chicago shows that of the group which appeared to be doing unsatisfactory work the first year 10 per cent of them later graduate. In view of these facts, he maintains that any attempt to introduce highly artificial systems for the elimination of students, based upon current information as to causes of failure may be to a certain extent unwise, as the causes of failure may be the fault of the institution itself.

> No conclusion can be called valid [he says] which assumes in the face of such well-defined limitations that the instruction in the university is faultless. It may be that the university could find in its own practices a source of failure as fruitful as low average high school requirements. At the present time all that can be said is that to raise the high school average required by the University of Chicago for admission from the present typical average of 81.25 would probably exclude 27 per cent of the normal admissions of which nearly one-half are satisfactory workers of the first year, and a very considerable percentage of the other half may do satisfactory work after the first year.

Facts similar to those contained in these studies revealed the necessity of a conference on the whole subject of educational guidance. The problem, relatively speaking, may not be more acute than it ever was, but to a great many persons it appears to be. For those who take an unsympathetic attitude toward students and who insist that no obligation rests upon themselves to take an interest in the personal welfare of their students, I have little time and little patience. Those who boast of the number they have failed and sent home, in whatever college they may teach, have little or none of the spirit of the true teacher. To be sure students who will not work or who cannot do college work should be sent home. The state is not maintaining a college club for them. It is a fact familiar to every student of higher education that in the past students have been forced to adjust themselves almost entirely to the requirements of the institution. It has only been comparatively recently that new influences have demanded that colleges give more attention to adjusting themselves to the needs of individuals and of homogeneous intellectual groups.

We invited representatives of the public schools into conference on this subject because they are the ones who have been

in closest contact with the students during the four years of their high school career. In many instances they and their staff know these students better than the parents know them. They are familiar with their ability as students, their social habits, their financial conditions, and their habits of industry. They know better than anyone else what success they should have in college. They know whether some students are being graduated from the public high schools who should never be permitted to enter college. We realize that many of these students are taught by persons who are graduates of the University of Minnesota, and that this institution is partly responsible for the standards of scholarship maintained by the teaching profession of the state. We also appreciate the fact that this University while it is working as diligently and intelligently as it knows how at the solution of this and other important problems cannot solve some of them, surely not this one, without the co-operation and support of the public school people of the state.

For this reason we proposed at the time of this conference that there be created a committee to be known as the Committee of Seven, the committee to consist of representatives of public schools, two of whom shall be named by the superintendents' association in the spring, two appointed by the State Department of Public Education, and three by the University of Minnesota, this Committee of Seven to be invited to the University in the fall of 1924 at the University's expense to remain at the University as long as it seems necessary for a careful study of this whole question, with a view, if possible, of establishing a program of closer working relations between the public schools and the University with reference to the character of the educational and vocational advice that should be given to the high school graduates. The University undertakes to secure such information as the committee may desire. It will co-operate in every possible way in securing information concerning entering freshmen. It will arrange for conferences with the various representatives of the University staff and in every other way possible contribute to the success of the committee.

I am very happy to report that the conference approved this recommendation and that a committee consisting of the following persons was created:

Mr. C. W. Boardman, University High School, chairman; Miss E. Clark, St. Cloud; Miss Marie Lang, Mankato; Mr. J. E. Marshall, St. Paul; Mr. E. M. Phillips, St. Paul; Mr. J. C. West, Bemidji; Mr. J. P. Vaughan, Chisholm.

ACTIONS OF THE BOARD OF REGENTS

A co-operative agreement was entered into between the University of Minnesota and the forester of the United States Department of Agriculture, Forest Service, as follows:

CO-OPERATIVE AGREEMENT BETWEEN THE UNIVERSITY OF MINNESOTA AND THE FORESTER OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE

THIS AGREEMENT, this 21st day of September, 1923, by and between the Board of Regents of the University of Minnesota, a corporation organized and existing under the laws of the State of Minnesota, party of the first part; and the Forester of the United States Department of Agriculture, Forest Service, party of the second part, witnesseth:

WHEREAS, it is proposed that the parties hereto shall co-operate in the maintenance of a forest experiment station, to be known as the "Lake States Forest Experiment Station," for the purpose of investigating various problems bearing on the growth, management, and protection of forests and forest lands in the Lake States; also in the maintenance of the Cloquet Forest Experiment Station for the purpose of investigating various problems bearing on the growth, management, and protection of forests and forest lands in the State of Minnesota;

NOW, THEREFORE, in consideration of the premises and of the mutual advantages hereinafter provided for and of the respective services to be rendered and expenses to be borne in connection therewith, the parties hereto do mutually agree as follows:

That the party of the first part shall:

1. Provide, without cost to the Forest Service and place wholly at the disposal of the Forest Service, adequate and suitable office and laboratory space for quartering the employees of the United States Department of Agriculture assigned to said station, the amount and location of such space to be definitely agreed upon as occasion demands by the parties hereto;

2. Keep the said office and laboratory quarters in good repair and pay for any improvement of a permanent character that may be mutually agreed upon;

3. Furnish without cost to the Forest Service, heat, light, water, gas, power, and janitor service required for the satisfactory operation of the Station;

4. Make the Cloquet Forest Experiment Station available for experimental and demonstrational use by the Lake States Forest Experiment

Station under conditions mutually agreed upon as hereinafter provided, and whenever practicable, assist in the establishment and maintenance of investigations and demonstrations thereon that are undertaken by the Lake States Forest Experiment Station. Also furnish a suitable site on the Cloquet Forest Station area for use as a forest nursery if needed.

The party of the second part shall:

1. Supply technical and office equipment and supplies, except such as it may be convenient for the party of the first part to furnish;

2. Be responsible for securing all material used for experimental purposes;

3. Present from time to time such lectures and instruction on forestry as the party of the first part may request, provided such lectures will not interfere unduly with the work of the Station.

It is mutually agreed:

1. That the Lake States Forest Experiment Station's laboratory apparatus may be used by students and the University faculty for investigative work of an advanced character, provided that such use of the apparatus does not interfere with the routine work of the Lake States Forest Experiment Station:

2. That all policies and plans of each party to this agreement, in so far as these policies and plans do not interfere with the policies and plans of the other party, will be exclusively under the control of such party except that the investigations, demonstrations and direction of the Cloquet Forest Experiment Station shall be in accordance with the following section of the agreement. The party of the first part shall be represented on a committee which will advise the Forester on matters of policy and the character of the work as a whole carried on by the Lake States Forest Experiment Station. So far as practicable, both parties will work in close co-operation in planning and executing investigations independently undertaken involving actual or possible use of land for forest growth;

3. That the Forest Service will select, with the concurrence of the University of Minnesota, a man who shall function both as Director of the Lake States Forest Experiment Station of the Federal Government and the Cloquet Forest Experiment Station of the University of Minnesota. The Director so chosen will be definitely placed in charge of all forest research conducted by the Federal Government and of all forest research conducted by the University at the Cloquet Forest Experiment Station, which is included in the program of forest investigations mutually approved by the University and the Forest Service. All investigation and demonstration projects conducted by either the regular State or Federal investigative staff at the Cloquet Forest Experiment Station shall be mutually agreed upon by both parties annually in advance. This does not apply to other work which students and members of the University may desire to do at Cloquet from time to time which is not a part of the investigative program for the Stations, but it is agreed by the University that no work will be carried

on at Cloquet outside the program which would interfere unduly with the program projects;

4. That all members of the Lake States Forest Experiment Station organization, while on the property of the University, will be subject to the same regulations that apply to the members of the faculty, in so far as such regulations are not in conflict with those of the United States Department of Agriculture;

5. (a) That each party to this agreement shall have the sole right to the first publication of results of investigations, experiments, demonstrations, and research under its exclusive control, provided that exception to this may be permitted upon the consent of both parties concerned.

(b) That the first publication of the results of co-operative experiments, research, investigations, and demonstrations shall be arranged in each instance by mutual consent of both parties:

6. That all equipment, materials, office furniture, and supplies, provided at any time by either of the parties hereto, shall remain the property of and be subject to disposal by the respective parties furnishing the same.

This agreement shall continue in force until cancelled by mutual consent, or until the expiration of one year from the date when notice of desire to cancel the agreement shall have been given by either party to the other.

AGREEMENT BETWEEN THE W. S. TYLER COMPANY AND THE UNIVERSITY OF MINNESOTA

PREAMBLE

The W. S. Tyler Company and the University of Minnesota desire to make investigations and disseminate information with the view to prevent undue waste of resources, increasing efficiency in the utilization of mineral substances and otherwise contributing to the advance of industry, hereby agree with each other as follows:

FACILITIES AND MONEY FURNISHED BY THE W. S. TYLER COMPANY

(1) The W. S. Tyler Company will furnish to the Mines Experiment Station of the University of Minnesota the sum of Eighteen Hundred Dollars ($1800) for the purpose of providing The W. S. Tyler Company technical investigators for a period of one year. This money is to be paid to the University of Minnesota on or before the 1st day of October, 1923, and is to be used only for these purposes during the above mentioned period, unless otherwise agreed. The selection of the men to receive these appointments is to rest entirely in the hands of the Director of the Mines Experiment Station, subject to the approval of the President and the Board of Regents, but The W. S. Tyler Company may recommend individuals for the positions who will be given consideration with other applicants by the Director.

(2) In addition to furnishing money for the above technical investigators, The W. S. Tyler Company agrees to set aside the sum of Thirty-five Hundred Dollars ($3500) to be expended for material, labor, supplies, etc., which money is to be expended through the regular channels of the Mines Experiment Station. At the end of each month the University will render a statement to The W. S. Tyler Company showing the money spent during the preceding month for the general items of labor, material, supplies, and equipment and The W. S. Tyler Company agrees to immediately reimburse the University for the amount of these bills up to the sum above specified.

(3) In addition to this, The W. S. Tyler Company agrees to co-operate in every way possible in furnishing advice, suggestions, criticisms, and data on definite problems which they may have available or can obtain. It is understood that both parties must be in agreement as to the problems they undertake.

The W. S. Tyler Company further agrees not to use the name of the University of Minnesota or the Mines Experiment Station in any advertising matter except as authorized by the Board of Regents of the University of Minnesota. While this is understood, the object of this undertaking is to educate the public who would be interested in these matters; therefore, if certain discoveries are made, means will be found to give them to the public, it being understood that both parties agree as to the character of information to be made public.

FACILITIES AND MONEY FURNISHED BY THE UNIVERSITY OF MINNESOTA

(4) The University of Minnesota will maintain on its campus a Mines Experiment Station suitably equipped and devoted to experimental work. It will maintain a staff of employees suitable to superintend and direct such work, and will, through its regular channels, make all expenditures for salaries, equipment and material that it deems advisable. It will furnish free of charge, heat, light, a reasonable amount of power, suitable office and laboratory space, and the equipment which it has available in order to suitably conduct technical investigations. It will, through its regular staff of the Mines Experiment Station, lay out and supervise the work of the technical investigators and will do everything possible to see that their time is efficiently spent.

(5) From time to time reports will be prepared by these technical investigators covering the work which they have completed. Copies of these reports will be made available to The W. S. Tyler Company or their duly authorized representative who may make use of the information which they contain, but will not publish these reports as such. These reports shall be the property of the School of Mines Experiment Station of the University of Minnesota. The technical information secured may be published by the School of Mines Experiment Station of the University of Minnesota at its discretion. If it seems desirable, the publications will contain no reference to the particular organization for which the work was done, to the

source of the ore or other raw materials. The manuscript will be submitted to The W. S. Tyler Company for approval before publication. Copies of these reports may be used by the technical investigators for the purpose of presenting them to educational institutions for academic recognition.

(6) The University of Minnesota further agrees to carry on investigations, through its Mines Experiment Station staff, and with the assistance of the technical investigators along the line requested by The W. S. Tyler Company. It is understood, however, that absolute control and direction of the work shall rest with the Director of the Mines Experiment Station or his duly authorized agent.

(7) This agreement shall be in effect on and after the 1st day of October, 1923, and shall expire the 1st day of October, 1924. This agreement may be renewed upon mutual consent of both interested parties.

AGREEMENT WITH U. S. BUREAU OF PUBLIC ROADS

A co-operative agreement was entered into between the Bureau of Public Roads, United States Department of Agriculture, the University of Minnesota, and the State Department of Drainage and Water for conducting investigations to determine the effect of soil alkalies upon drain tile in Minnesota.

AGREEMENT WITH U. S. DEPARTMENT OF ENTOMOLOGY

A co-operative agreement was entered into between the Bureau of Entomology, United States Department of Agriculture, the University of Minnesota, and the Lake States Forest Experiment Station for investigations in forest entomology.

REPORT OF THE ZONING COMMITTEE OF MINNEAPOLIS

The president of the board submitted the maps of the City Planning Commission showing the proposed "zoned use of abutting property" in the district adjacent to the University campus and the "present use of abutting property."

The Regents adopted the following resolution:

Resolved, that the Executive Committee of the Board of Regents of the University of Minnesota recommends that the "Tentative Zoning Ordinance" now before the City Council of the City of Minneapolis be amended so as to provide that all that part of the City of Minneapolis lying south of University Avenue and east of Oak Street except the westerly one-half of the blocks on the east side of Oak Street from Essex Street Southeast

to University Avenue Southeast, shall be designated as "A Residence District" and "A Multiple Dwelling District" in said "Tentative Zoning Ordinance" and that said district shall not be open hereafter to additional uses as either "A Commercial District," "A Light Industrial District" or "A Heavy Industrial District" save and excepting only as such uses now exist in said territory; and

Resolved, further, that said westerly one-half of the blocks on the east side of Oak Street between Essex Street Southeast and University Avenue Southeast shall be designated as "A Commercial District."

FEES

The Regents voted to approve the following Summer Session fees:

1. *General deposit fee.*—$5.00.

2. *Music fees.*—Students who pay as much as $36 per term for special music fees, may enroll for other courses in any department of the Summer Session for an additional fee of $14 per term, making a total of $50 for general and special fees.

3. *School of Nursing fees.*—For students in the School of Nursing, whose work in the Summer Session is entirely in the hospitals or in field service not involving instruction by members of the staff who are paid from the Summer Session budget, there will be no tuition fee. For students who take regular class work on the campus which is in charge of members of the staff who are paid from the Summer Session budget, a tuition fee at the rate of $1 per clock hour for the courses pursued will be charged.

4. *Public health nursing fees.*—For the second term of the Summer Session no fee will be charged students in the course in Public Health Nursing who do only field work, and who had been enrolled and had paid the regular fee for the first term of the Summer Session.

5. *Part time fee.*—Students enrolled in those departments for which the regular full time fee for either term of the Summer Session is $25 may register for courses totaling four credits or less for a fee of $15 per term.

6. *Dentistry fee.*—The fee for registering in the College of Dentistry shall be $40 per term for full time instruction, and $20 per term for half time instruction, instead of a fee of $30 for full time, and $15 for half time, instruction prevailing in the past summers.

Tuition fees for students in the College of Pharmacy were, by action of the board, increased as follows:

Resident students, from $30 to $35 per quarter.
Nonresident students, from $40 to $45 per quarter.
Resident students, clock hour fee, from $1.25 to $1.50 per clock hour.
Nonresident students, clock hour fee, from $1.75 to $2 per clock hour.

RULES OF INTERFRATERNITY COUNCIL

Voted to approve the following rules adopted by the Interfraternity Council for the regulation of fraternities:

Beginning with September, 1924, no student shall be rushed or pledged by any fraternity during his first quarter in residence at the University of Minnesota.

I. No Rushing Period

1. There shall be no rushing of any man before the opening day of school of the second quarter in which he is registered.

2. No first quarter student shall be allowed to enter any fraternity house or attend any fraternity function on campus or off campus.

(A fraternity function shall be taken to mean any function in which three or more fraternity men have gotten together at any one time with any man who will be or is likely to be, an eligible candidate.)

3. No girls shall in any way, secretly or otherwise, participate in any rushing.

4. No alumni shall do any rushing at any time prior to the regular rushing period.

II. Rushing Period and Pledging

1. Pledging shall be on the tenth day after six o'clock p.m. of the second quarter counting the first day of classes as day No. 1.

(This means the second quarter of the student's residence.)

2. No man shall be rushed in any capacity after eight-thirty o'clock p.m. except Friday and Saturday and days before holidays.

3. Rushing shall be confined to the campus excepting Friday and Saturday and days before holidays.

4. On week days there shall be two date periods: luncheon and dinner. On Fridays and Saturdays there shall be three date periods: luncheon, dinner, and evening.

5. No fraternity shall be permitted to have more than four dates with any one student during the first five days of rushing.

6. After the regular organized rushing season any fraternity may rush or pledge any eligible student.

III. Penalties

1. All violations of the word or spirit of these rules shall be investigated by a committee of six and the president of the council, and if they shall decide that the case merits punishment, they shall refer it to the Inter-Fraternity Council. Penalties for violations shall be inflicted by the council.

2. Penalties for infractions shall not exceed the following: four weeks deferred rushing and pledging at a time set by the council, or a fine of one hundred dollars ($100.00).

3. No fraternity shall be prohibited for more than one quarter from pledging any student involved in violation of these rules.

MISCELLANEOUS ACTIONS

Voted that the publication of the *Alumni Directory of the School of Mines* be discontinued after the year 1923-24.

Voted to refer the question of collegiate work in Pharmacy to the president, Regent Mayo, and Dean Kelly for investigation and report.

Voted to approve the establishment of a federal post-office station on the agricultural campus and on the main campus with the understanding that there be no increase in expense to the University and no change in salary of any University employee.

Voted to change the per diem charge, under the Minnesota General Hospital act, from $2.50 to $3, which is the actual cost per diem for the maintenance of the Minnesota General Hospital.

Voted to approve the recommendation of the College of Dentistry that dental supplies required of all dental students for instructional purposes, be purchased by the University and sold to students at a charge sufficient to cover all overhead expense.

Voted to adopt the following resolution:

1. That hereafter no separate unit of the University Library be established or maintained outside the general library except with the official approval of the President and the Board of Regents.

2. That the University librarian be directed to make provision under his general control and supervision for the various units of the University Library in harmony with the previous recommendation and that he shall report to the President and the Board of Regents any modification of this policy which may seem necessary.

3. That, in order to enable more accurate records of University Library activities to be kept, reports shall be made to the University librarian, by those in charge of any unit of the University Library, of such matters as it may be necessary or desirable to include in any general or special report of the University librarian.

CHANGES IN THE FACULTIES

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

Anne Dudley Blitz, dean of women

B.A., 1904, University of Minnesota; M.A., 1914, Columbia University; dean, Smith College, 1915-19; dean of women, University of Kansas, 1921-23; lecturer, Columbia University, 1919-21; lecturer, Columbia University Summer Session, 1914-23.

Frederick James Kelly, dean of administration and director of the Summer Session

B.A., 1902, University of Nebraska; Ph.D., 1914, Columbia University; public schools, 1902-8; State Normal School, Spearfish, South Dakota, 1908-12; State Normal School, Emporia, Kansas, 1914-15; dean of education, University of Kansas, 1915-20; dean of administration, University of Kansas, 1920-23.

Earl Hudelson, professor of education

B.A., 1911, Indiana University; M.A., 1912, Indiana University; Ph.D., 1923, Columbia University; instructor, Indiana University, 1911-12; instructor, Tome School, 1912-14; instructor, Indiana University, 1914-18; assistant instructor, Columbia University, 1918-19; professor, University of West Virginia, 1920-23.

R. Justin Miller, professor of law

B.A., 1911, Stanford University; LL.B., 1913, University of Montana; J.D., 1914, Stanford University; assistant instructor, University of Montana, 1912-13; instructor, Stanford University, 1913-14; lecturer, University of California, 1920, Summer Session; professor, University of Oregon, 1921-23.

Clemens Pirquet, professor of pediatrics and chief of the Department of Pediatrics

M.D., 1900, University of Gray; professor and director, Harriet Lane Home for Children, Johns Hopkins University, 1908-10; professor and director, University of Breslau, 1910-11; professor and director of the Kinderclinic, University of Vienna, 1911-23; Austrian General Commissioner, European Children's Fund (Hoover), 1919-22.

Henry W. Vaughan, professor of animal husbandry

B.Sc., 1908, Ohio State University; M.S., 1909, Ohio State University; instructor, 1909-10; assistant professor, 1910-12, Ohio State University; assistant professor, 1913-15; associate professor, 1915-18; professor, 1918-19, Iowa State College; professor, University of Minnesota, 1919-20.

Raphael Zon, director of the Cloquet Forest Experiment Station, with rank of professor

B.S., 1895, Imperial University of Kazan; B.A., 1896, Imperial University of Kazan; forest engineer, Cornell University, 1901.

Darrell Haug Davis, associate professor of geography

B.A., 1903, University of Michigan; Ph.D., 1923, University of Michigan; Detroit Junior College, 1918-20; instructor, University of Michigan, 1920-21; assistant professor, University of Michigan, 1921-23.

Otto G. Schaefer as associate professor of dairy husbandry

B.S., 1918, University of Missouri; M.S., 1920, University of Minnesota; assistant, University of Minnesota, 1919-20.

Henry Longstreet Taylor, associate professor in the Graduate School

B.A., 1878, Haverford College; M.A., 1885, Haverford College.

Roland Snow Vaile, associate professor of economics

B.A., 1910, Pomona College; associate professor, University of California, 1914-23.

Wilson Dallam Wallis, associate professor of anthropology

B.A., 1907, Dickinson College; M.A., 1910, Dickinson College; B.Sc., 1910, Oxford University; Ph.D., 1915, University of Pennsylvania; instructor, University of Pennsylvania, 1911-15; instructor, University of California, 1915-16; instructor, Fresno Junior College, 1916-21; director of immigrant education for California State Commission of Immigration and Housing, 1919-20; assistant professor, Redd College, 1921-23.

Gregory Breit, assistant professor of physics

B.A., 1918, Johns Hopkins University; M.A., 1920, Johns Hopkins University; Ph.D., 1921, Johns Hopkins University; Bureau of Standards, 1918-19, 1920-21; National Research Fellowship, 1921-23.

Edwin L. Clarke, assistant professor of sociology

B.A., 1909, Clark University; M.A., 1911, Clark University; Ph.D., 1916, Columbia University; assistant professor, Hamilton University, 1914-18; second lieutenant Sanitary Corps, U.S.A., 1918-19; instructor, 1919-21; assistant professor, Ohio State University, 1921-23.

Herbert E. Clefton, assistant professor of Romance languages

B.A., 1917, University of Minnesota; M.A., 1918, University of Minnesota; instructor, University of Minnesota, 1919-20; Rhodes Scholarship, Oxford University, 1920-23.

John M. Gaus, assistant professor of political science

B.A., 1915, Amherst College; M.A., 1917, Harvard University; Ph.D., 1920, Harvard University; lecturer, Boston School for Social Work, 1919-20; tutor, Harvard College, 1919-20; instructor, Amherst College, 1920-22; lecturer, Smith College, 1922, Summer Session; associate professor, Amherst College, 1922-23.

Haldor B. Gislason, assistant professor in the Department of English

B.S., 1900, University of Minnesota; LL.B., 1904, University of Minnesota.

Inez M. Hobart, nutrition specialist with rank of assistant professor, in Agricultural Extension

B.S., 1908, University of Minnesota; M.A., 1913, Columbia University.

Lily Anne Lenhart, clothing specialist, with rank of assistant professor

B.S., 1919, University of Minnesota.

Woodbridge Metcalf, assistant professor of forestry

B.A., 1911, University of Michigan; M.S.F., 1912, University of Michigan; field assistant and forester, 1911-12; assistant forester, Canadian Pacific Railway, 1912-13; assistant professor, 1914-21; associate professor, University of California, 1921-23.

Major Edward Montgomery, assistant professor of military science and tactics

Graduate, 1919, Field Artillery School; graduate, 1924, C.A.C. School, Fort Leavenworth.

Thomas M. Raysor, assistant professor in the Department of English

B.A., 1917, Harvard University; Ph.D., 1922, Harvard University; instructor, Allen Academy, 1914-15; instructor, Texas Agricultural and Mechanical College, 1917-18; traveling fellowships from Harvard to Columbia, Sorbonne, Oxford, 1922-23.

Rhodes Robertson, assistant professor of architecture

B.A., 1908, Harvard University; M.A., 1910, Harvard University; associate in architecture, University of Illinois, 1916-18.

John Gunderson Rockwell, assistant professor of educational psychology

B.A., 1918, Leland Stanford Jr. University.

Herbert W. Rogers, assistant professor in the Department of Psychology

B.S., 1915, Columbia University; M.A., 1916, Columbia University; Ph.D., 1921, Columbia University; psychologist, Charles William Stores, 1916-17; instructor, Yale University, 1920-23.

Hazelton Spencer, assistant professor of English

B.A., 1915, Boston University; M.B., 1920, Harvard University; Ph.D., 1923, Harvard University.

Wesley A. Sturges, assistant professor of law

Ph.B., 1915, University of Vermont; LL.B., 1919, University of Columbia.

John Hasbrouck Van Vleck, assistant professor of physics

B.A., 1902, University of Wisconsin; M.A. 1921, Harvard University; Ph.D., 1922, Harvard University; instructor, Harvard University, 1922-23.

Cortland Van Winkle, assistant professor in the Department of English

B.A., 1910, Princeton University; Ph.D., 1915, Princeton University; instructor, Princeton University, 1912-14; instructor, Yale University, 1916-17, 1918-23.

Captain Arthur R. Walk, assistant professor of military science and tactics

Ph.B., 1917, Lafayette College.

Willis E. Johnson, professorial lecturer and secretary of the Appointments Bureau in the College of Education

Ph.B., 1900, Illinois Wesleyan University; M.A., 1909, Illinois Wesleyan University; B.A. and M.A., 1918, Ph.D., 1919, University of Minnesota; LL.D., 1919, Dakota Wesleyan University.

Wesley E. Peik as professorial lecturer in the College of Education

B.A., 1911, University of Minnesota; M.A., 1923, Columbia University; superintendent of schools in Minnesota.

Changes in title.—Willis E. Johnson, from professorial lecturer and secretary of the Appointments Bureau to principal of the University High School; Frederic William Schlutz, from assistant professor of pediatrics to professor of pediatrics and chief of the department.

Promotions.—From associate professor to professor, D. C. Balfour, Mayo Foundation, Peter J. Brekhus, Oscar C. Burkhard, Royal N. Chapman, Hans H. Dalaker, R. M. Elliott, William S. Foster, Alvin H. Hansen, Oscar E. Harder, Samuel Kroesch, Archibald MacLaren, Bruce D. Mudgett, Donald G. Paterson, William T. Ryan, R. M. Wilder, Mayo Foundation; from assistant professor to professor, Major Bernard Lentz; from assistant professor to associate professor, Francis B. Barton, W. M. Boothby, Mayo Foundation, A. C. Broders, Mayo Foundation, J. L. Crenshaw, Mayo Foundation, George E. Fahr, Donald Ferguson, C. A. Hedblom, Mayo Foundation, Robert T. Jones, Roy C. Jones, H. W. Meyerding, Mayo Foundation, L. F. Miller, Angus W. Morrison, Horace Newhart, H. Bruce Price, Ernest T. F. Richards, Clayton O. Rost, J. Warren Stehman, John J. Willaman, Holbrook Working, Otto S. Zelner; from instructor to assistant professor, A. W. Adson, Mayo Foundation, Edla Anderson, Charles Bird, G. E. Brown, Mayo Foundation, Chester D. Dahle, William P. Dunn, Henry C. T. Eggers, Jay M. Freeburg, Victor Gauvreau, John W. Gruner, Thor Gullickson, B. E. Hemstead, Earl A. Hewitt, Fred Krantz, George F. Lussky, H. R. Lyons, Mayo Foundation, Ernest S. Mariette, Theodore W. Maves, George A. Montelius, Allen T. Newman, Walter R. Myers, Norville C. Pervier, L. W. Pollock, Mayo Foundation, A. D. Prangen, Mayo Foundation, John A. Pratt, G. M. Schwartz, L. J. Seymour, Milo E. Todd; from lecturer to assistant professor, Davis Edwards.

Leaves of absence granted during the year.—Guy S. Ford, dean of the graduate school, without pay for three months, beginning February 1, 1924; John Howard Allison, professor of forestry, sabbatical furlough for the year 1923-24, to be spent in Sweden studying the management of public and private forests in that country; John J. Flather, professor of mechanical engineering, sabbatical furlough for the year 1923-24, to be spent in California, in revising and finishing two of his books; C. M. Jackson, professor and director of the Department of Anatomy, for the year 1923-24, without pay, to accept position as resident chairman of the Division of Medical Sciences of the National Research Council in Washington; A. E. Jenks, professor in anthropology, for the year 1923-24, without pay, to accept the chairmanship of the Division of Anthropology of the National Research Council without prejudice to sabbatical leave; W. H. Kirchner, professor of drawing and descriptive geometry, sabbatical furlough for the year 1923-24, to be spent in Europe in study and research; Joseph B. Pike, professor of Latin, sabbatical furlough for the year 1923-24, to be spent abroad; E. C. Stakman, professor of plant pathology and botany, sabbatical leave from July 15 to November 15, 1923, to attend meetings of the Pan-Pacific Scientific Congress in Australia; Norman Wilde, professor of philosophy, for the spring quarter with pay on account of illness; Joseph Warren Beach, associate professor of English, sabbatical furlough for the year 1923-24, for study in England, France, and Italy; Ina Firkins, reference librarian, without pay, from February 25 to March 8, 1924; Cecil A. Moore, associate professor of English, sabbatical furlough for the year 1923-24, to be spent in England, to complete investigations; Ruth S. Phelps, associate professor of Romance languages, sabbatical furlough for the year 1923-24, to continue studies in Italian subjects at the University of Chicago; Victor Gauvreau, assistant professor, Department of Mechanical Engineering, for the year 1923-24, to settle an estate; May Kissock, assistant professor of physical education for women, from September 16 to October 31, 1923, with pay for the period; George A. Maney, assistant professor of civil engineering, for the year 1923-24, without prejudice to a sabbatical leave, to take charge of construction work in Texas; Ruth Raymond, assistant professor in art education, sabbatical furlough, from January 1, 1924,

to January 1, 1925, to be spent at the University of California working for a Master's degree; Marion L. Vannier, superintendent of nurses, University Hospital, from September 1 to October 31, 1923, without salary; Gustav van Roosbroeck, assistant professor of Romance languages, sabbatical furlough for the year 1923-24, to be spent in France in research work; Paul C. Gauger, lecturer, Department of Architecture, leave without pay, for the winter quarter of the year 1923-24.

Resignations.—During the year the following members of professorial rank resigned from the faculty: Max E. Ernst, professor of dentistry, J. R. Keithley, professor of dairy husbandry, T. N. Metcalf, professor of physical education and athletics, M. G. Neale, professor in the College of Education, Forrest H. Orton, professor of dentistry, Clemens F. Pirquet, professor of pediatrics and chief of the department, John H. Stokes, professor of dermatology, Mayo Foundation, Colonel Girard Sturtevant, professor of military science and tactics, Edla V. Anderson, assistant professor of home economics, Lucy Cordiner, assistant professor in Agricultural Extension, Sherman Dickinson, assistant professor of agricultural education, Irene R. English, assistant professor in the School of Nursing, Victor Gauvreau, assistant professor of mechanical engineering, Captain Vernon W. Hall, assistant professor of military science and tactics, Willis E. Johnson, principal, University High School, Lily Anne Lenhart, assistant professor of agricultural education, Theodore W. Maves, assistant professor of dentistry, Allen T. Newman, assistant professor of dentistry, Marjorie Nicolson, assistant professor of English, Allan B. Rayburn, assistant professor of dairy husbandry, W. D. Reeve, principal, University High School, Lenore Richards, assistant professor of home economics, Lieutenant Hal M. Rose, assistant professor of military science and tactics, E. H. Sirich, assistant professor of Romance languages, Captain Newton W. Speece, assistant professor of military science and tactics, W. T. Tapley, assistant professor of horticulture, Nola Treat, assistant professor of home economics, Captain James T. Watson, Jr., assistant professor of military science and tactics.

Deaths.—Warren A. Dennis, associate professor of surgery, November 9, 1923; John H. Rowen, associate professor of mechanical engineering, September 7, 1923; Percy Glidden, instructor

in physical education and athletics, November 5, 1923; Edward P. Quigley, instructor in forge, College of Engineering, August 7, 1923; David O. Spriestersbach, instructor in bacteriology, April 19, 1924.

STATISTICS OF REGISTRATION

Collegiate students.—Table I records the attendance of students of collegiate grade in courses leading to degrees. All students in this group with the exception of War Specials and those listed in the various schools and colleges as special or unclassed have been required to present for admission evidence of at least the completion of a four-year high school course or its equivalent. Students listed as War Specials are those who have been admitted in accordance with the University's agreement with the United States Veterans' Bureau without reference to entrance requirements. These students, however, together with those admitted as special and unclassed on the basis of maturity and experience are enrolled in regular collegiate classes. A comparison of the net grand totals for 1923-24 with those for 1922-23 shows for the first time since the war period an actual loss of 179 students, or 1.5 per cent.

It should be noted, however, that for the three quarters of the academic year there is an increase of 188 students, or 2 per cent, and that for the Summer Session, which is included in the total of collegiate students, there was an increase of 305, or 9.5 per cent. There has, therefore, been an increase rather than a decrease in the student load throughout the year. The loss which appears in the figures for the net grand total occurs through the fact that in the 1922 Summer Session 1254 of the 3218 were students who were regularly registered during the college year while in the Summer Session of 1923, out of a total of 3523, 1945 were regular college students. This increasing tendency for students registered for degree courses to avail themselves of the Summer Session opportunities, either to shorten their period of residence or diminish their load during the college year, appears again in the enrolment figures for the 1924 Summer Session just closed. These figures will appear in the 1924-25 annual report.

A comparison of the totals for the individual colleges shows the largest numerical gain in the College of Education, 168; in the College of Science, Literature, and the Arts, 154; and the College of Engineering and Architecture, 96. The most significant of these is the gain in the College of Education which represents an increase of 13.5 per cent. The School of Business again shows an increase, amounting to 14.1 per cent.

Losses occur in the following units: Agriculture, Forestry, and Home Economics, 9.8 per cent; Dental Nurses, 21.2 per cent; Mines, 24.3 per cent; Pharmacy, 1.4 per cent; and War Specials, 37.8 per cent. Of these the number of students registered in the course for Dental Nurses is too small to give the decrease much significance. The loss in the number of War Specials undoubtedly will continue. Very few new trainees have been approved for admission as War Specials by the Veterans' Bureau, and as fast as the students now registered complete their training program they will be discontinued. The losses in Mines and Agriculture reflect to some extent the commercial depression which has existed for several consecutive years in those fields for which these two groups of students are preparing. This, of course, does not wholly explain the loss in the College of Agriculture, Forestry, and Home Economics, as the figures show a loss in women as well as in men students.

The plan of presentation of the registration figures in the Medical School has been modified in order to give the total registration for the three divisions of work in Medicine, namely interneship, clinical period, and didactic period. This change of plan renders only the figures for interneship, unclassed students, special students, and net total in Medicine comparable for the two years shown in the table.

The summer enrolment in the Graduate School at the Mayo Foundation has been included as a separate item. This, however, does not materially affect the net total enrolment figures as all but 19 of these registrants were also registered during the academic year.

Collegiate enrolment by quarters.—Table II records the totals of Table I by quarters showing the peak load of attendance in the fall quarter. As in previous years, opportunities for newly entering students at the opening of the winter and spring quarters

are limited. The spread between the registration for fall and winter quarters increased from a total of 190 in 1922-23 to 440 in 1923-24. A considerable portion of this difference can be explained by the fact that prior to 1923-24 the largest group of newly entering freshmen at the opening of the winter quarter came to the University from the high schools of Minneapolis. The Minneapolis schools at that time were operating on the quarter system. In 1923-24 these schools returned to the semester plan materially affecting the number of new students who were ready for admission to the University at this time of the year.

To illustrate in somewhat more effective form the variation in enrolment during the college year Chart I has been constructed from the figures for the actual number of students registered at the close of each week throughout the year. For purposes of comparison the corresponding attendance curve for 1922-23 is also included on the chart.

Subcollegiate students.—Table III records the enrolment in departments which do not require high school graduation for admission. The most significant feature of this table is the large loss in enrolment in the Central School of Agriculture. This is largely accounted for by the fact that the United States Veterans' Bureau withdrew practically all of its trainees registered in the Central School for placement or project training. Only slight changes appear in the enrolment at the Northwest and West Central Schools of Agriculture.

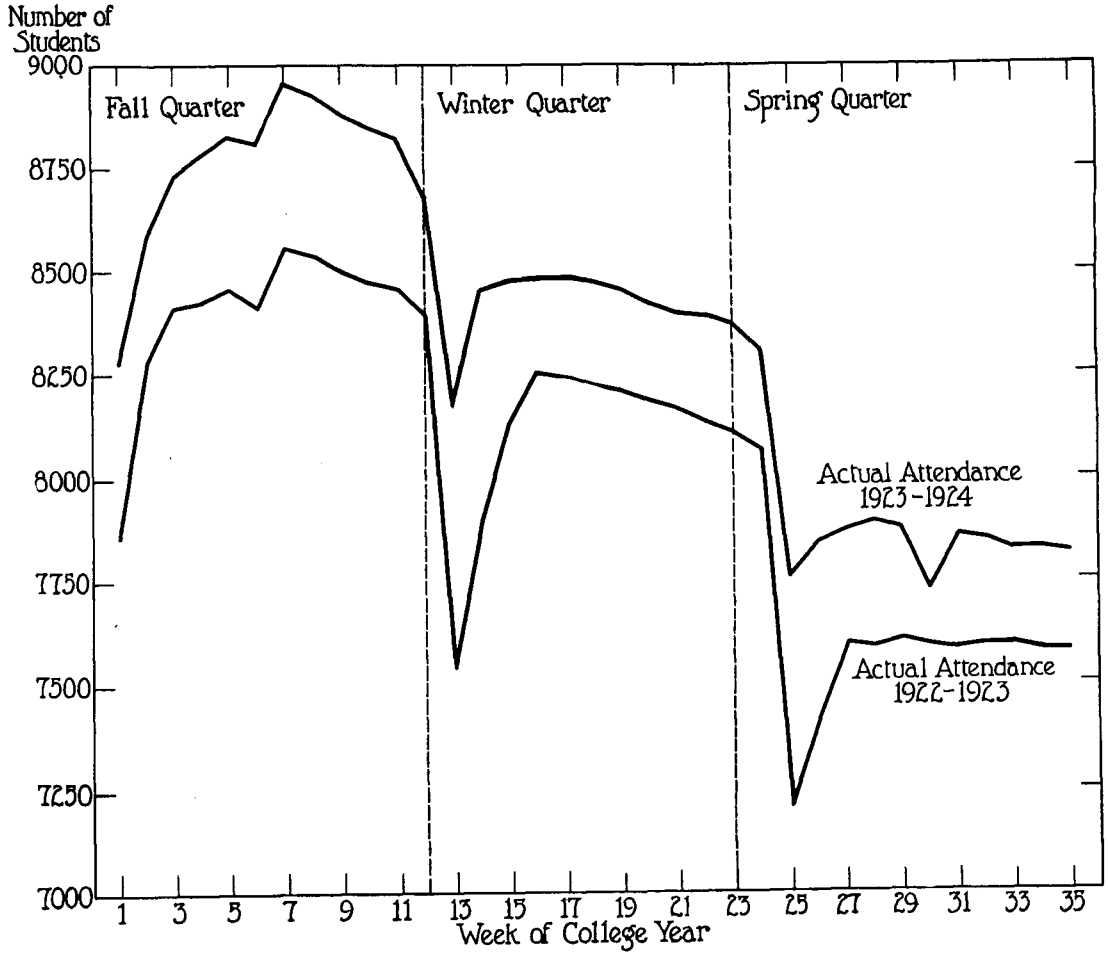
Of the short courses offered in 1923-24, the Home Nursing Short Course was again introduced with 129 registrants. This course was last offered in 1920-21 when 69 students were registered.

The net grand total for this group of subcollegiate students shows a loss of a little over 8 per cent.

Extension students.—Table IV shows two types of students: those who pursue courses in classrooms under the personal direction of instructors, and those whose work is conducted through the medium of written directions sent by mail. The first of these, General Extension, shows a loss of 4.9 per cent and the second, Correspondence Study, a gain of 9.1 per cent.

Summary.—Table V summarizes the totals of Tables I, III, and IV. The net grand total of 18,093 represents the number

CHART I


Number of Students
9000
8750
8500
8250
8000
7750
7500
7250
7000
Fall Quarter
Winter Quarter
Spring Quarter
Actual Attendance 1923-1924
Actual Attendance 1922-1923
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35
Week of College Year

of individuals, men and women, who during the past year received instruction at the hands of members of the University teaching staff. The loss of 1448 students as compared with 1922-23 to a considerable extent represents the increase in the number of duplicates between extension students and those registered in other departments of the University. It will be noted from the tables that these duplicates increased by 989 students. Just as in the case of the Summer Session discussed under the heading "Collegiate Students" it is apparent that opportunities in Extension are appealing more and more to those who are already registered in other units of the University.

Table VI summarizes the registration for the year by departments. Agriculture in this table includes the College of Agriculture, Forestry, and Home Economics, the three schools of agriculture, and the agricultural short courses, as well as the Summer Session work offered at the University Farm. Medicine includes courses for nurses and medical technicians in addition to the medical course. Dentistry includes the course for dental nurses, and Education includes the University High School. The term "resident student" as used in this table is meant to distinguish those who were in day classes in the University buildings from those who attended evening classes in the Extension Division or who took work by correspondence.

Degrees conferred.—Table VII compares the number of degrees granted during the year 1923-24 with the number granted in 1922-23. The total increase in the number of degrees for the year is 134, 8.8 per cent. The largest single increase appears in the College of Education. In 1923-24, 340 degrees were conferred and in 1922-23, 232. There is an increase of 12.2 per cent in the Bachelor degrees representing four years of undergraduate study, an increase of 1.3 per cent in the number of degrees conferred on graduates in law, medicine, and dentistry representing five or more years of study, while the number of graduate degrees conferred is the same as in 1922-23.

Geographical distribution.—Table VIII enumerates the preparatory schools from which freshman students came to the various colleges and schools during the year 1923-24, and shows the number from each school. The proportionate attendance from Minnesota schools increased slightly from 85.2 for 1922-23 to

85.7 per cent for 1923-24. The per cent that came from schools outside the Twin Cities was 49.2. Twenty-nine states, including the District of Columbia, are represented this year. Students numbering 291 came from states outside of Minnesota, including 12 from foreign countries.

Advanced standing.—Table IX shows the extent of the migration of students from other colleges and universities to the University of Minnesota. During the past year 813 students have come from 172 different institutions. In 1922-23 the total number of students admitted with advanced standing was 703 and in 1921-22 only 616. The University has no basis for estimating the number of students who have left Minnesota to attend institutions in other states.

Table X shows the geographical origin of the entire group of collegiate students exclusive of the Summer Session, by Minnesota counties, by states, and by foreign countries. This table includes the students counted in Table VIII. Every county of the state except one is represented, 55.8 per cent of the students come from Hennepin and Ramsey counties. Forty-eight states including the District of Columbia sent students to the University of Minnesota this year, the largest groups coming from Wisconsin, North Dakota, Iowa, South Dakota, and Montana in the order named. The number of students who came from the states outside of Minnesota was 1337, while those coming from 18 foreign countries counting the Philippine Islands and Porto Rico numbered 116.

TABLE I. COLLEGIATE STUDENTS BY SCHOOLS AND COLLEGES 1922-24

College or School	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Science, Literature, and the Arts:								
Seniors	120	157	277	163	160	323	46	....
Juniors	195	188	383	191	161	352	.....	31
Sophomores	839	589	1,428	856	660	1,516	88	....
Freshmen	989	608	1,597	965	651	1,607	10	....
Unclassed	106	114	220	122	139	261	41	....
Total	2,249	1,656	3,905	2,288	1,771	4,059	154	....

TABLE I—*Continued*

College or School	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Engineering and Architecture:								
Seniors	155	1	156	195	3	193	42	....
Juniors	198	.....	198	205	7	212	24	....
Sophomores	346	2	348	315	1	316	....	32
Freshmen	354	4	358	421	3	424	66	....
Unclassed	10	1	11	3	4	7	....	4
Total	1,063	8	1,071	1,139	18	1,157	96	....
Agriculture, Forestry, and Home Economics:								
Seniors	120	115	235	92	93	185	....	50
Juniors	102	121	223	83	104	187	....	36
Sophomores	107	77	184	99	98	197	13	....
Freshmen	112	93	205	103	93	196	....	9
Unclassed	10	28	38	13	20	33	....	5
Total	451	434	885	390	408	798	....	87
Law:								
Third year	48	1	49	69	1	70	21	....
Second year	84	3	87	84	2	86	....	1
First year	120	4	124	111	9	120	....	4
Unclassed	4	3	7	2	2	4	....	3
Total	256	11	267	266	14	280	13	....
Medical:								
Internes	93	7	100	100	6	106	6	....
Seniors	58	3	61	96	8	104	....	....
Juniors	98	7	105	96	7	103	....	....
Clinical period (net total)	....	.....	.....	189	15	204	....	....
Sophomores	100	8	108	102	6	108	....	....
Freshmen	95	5	100	89	11	100	....	....
Didactic period (net total)	....	.....	.....	190	17	207	....	....
Unclassed	2	.....	2	29	3	32	30	....
Special	11	.....	11	11	1	12	1	....
Total Medicine	457	30	487	519	42	561	....	....
Duplicates	....	.....	.....	45	2	47	....	....
Net total Medicine	457	30	487	474	40	514	27	....
Nursing	....	244	244	....	268	268	24	....
Medical Technicians	....	5	5	1	5	6	1	....
Dentistry:								
Seniors	103	1	104	87	3	90	....	14
Juniors	82	2	84	91	1	92	8	....
Sophomores	96	1	97	88	1	89	....	8
Freshmen	109	.....	109	130	2	132	23	....
Unclassed	....	.....	.....	1	.....	1	1	....
Total	390	4	394	397	7	404	10	....

TABLE I—*Continued*

College or School	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Dental Nurses	....	33	33	....	26	26	....	7
Mines:								
Seniors	48	.....	48	24	.....	24	....	24
Juniors	26	.....	26	14	.....	14	....	12
Sophomores	37	.....	37	29	.....	29	....	8
Freshmen	25	.....	25	36	.....	36	11	....
Total	136	.....	136	103	.....	103	....	33
Pharmacy:								
Fourth year	2	2	4	....	.....	.....	....	4
Third year	29	7	36	20	3	23	....	13
Second year	36	6	42	40	14	54	12	....
First year	47	10	57	49	13	62	5	....
Unclassed	3	1	4	2	.....	2	....	2
Total	117	26	143	111	30	141	....	2
Chemistry:								
Seniors	20	1	21	23	2	25	4	....
Juniors	25	3	28	25	1	26	....	2
Sophomores	36	2	38	32	2	34	....	4
Freshmen	46	2	48	55	2	57	9	....
Unclassed	3	.....	3	....	1	1	....	2
Total	130	8	138	135	8	143	5	....
Education:								
Seniors	53	309	362	80	357	437	75	....
Juniors	60	327	387	60	394	454	67	....
Sophomores	4	69	73	10	98	108	35	....
Freshmen	3	78	81	10	60	70	....	11
Unclassed	80	260	340	74	268	342	2	....
Total	200	1,043	1,243	234	1,177	1,411	168	....
Business:								
Seniors	96	18	114	99	15	114	....	....
Juniors	90	20	110	120	13	133	23	....
Unclassed	24	1	25	30	7	37	12	....
Total	210	39	249	249	35	284	35	....
Graduate	711	194	905	712	235	947	42	....
War Specials	227	3	230	140	3	143	....	87
Total academic year	6,597	3,738	10,335	6,639	4,045	10,684	349	....
Less duplicates	199	290	489	293	357	650	161	....
Net total academic year	6,398	3,448	9,846	6,346	3,688	10,034	188	....
Summer Session:								
First term	....	.....	.....	1,774	1,484	3,258	....	....
Second term	....	.....	.....	1,013	292	1,305	....	....
Total	....	.....	.....	2,787	1,776	4,563	....	....
Less duplicates	....	.....	.....	849	191	1,040	....	....
Net total Summer Session	1,865	1,353	3,218	1,938	1,585	3,523	305	....

TABLE I—*Continued*

College or School	Year 1923-24			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Mayo Foundation (graduate) summer quarter..	....	.....	.....	156	11	167	....	....
Net total summer enrolment	1,865	1,353	3,218	2,094	1,596	3,690	472	....
Grand total.....	8,263	4,801	13,064	8,440	5,284	13,724	660	....
Less duplicates ...	933	321	1,254	1,667	426	2,093	839	....
Net grand total.....	7,330	4,480	11,810	6,773	4,858	11,631	....	179

TABLE II. COLLEGIATE ENROLMENT BY QUARTERS, 1923-24

	Men	Women	Total
Summer Session, 1923.....	2,094	1,596	3,690
Fall quarter	5,898	3,299	9,197
Winter quarter	5,670	3,087	8,757
Spring quarter	5,187	2,928	8,115
Total (individual) registrations.....	6,773	4,858	11,631

TABLE III. SUBCOLLEGIATE STUDENTS, 1922-24

School or Course	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Central School of Agriculture:								
Three-year course:								
Seniors	60	19	79	64	21	85	6	....
Juniors	110	31	141	88	36	124	....	17
Freshmen	160	26	186	70	17	87	....	99
Unclassed	297	23	320	131	19	150	....	170
Total school reg...	627	99	726	353	93	446	....	280
Vestibule School	395	.....	395	....	.....	.....	....	395
Total school and vestibule	1,022	99	1,121	353	93	446	....	675
Duplicates	93	.....	93	....	.....	.....	....	93
Net total	929	99	1,028	353	93	446	....	582

TABLE III—*Continued*

School or Course	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Northwest School of Agriculture, Crookston:								
Three-year course:								
Seniors	17	10	27	30	15	45	18	....
Juniors	49	22	71	27	21	48	....	23
Freshmen	54	30	84	67	23	90	6	....
Total	120	62	182	124	59	183	1	....
Intermediate course	8	.....	8	5	.....	5	....	3
Total school reg.	128	62	190	129	59	188	....	2
West Central School of Agriculture, Morris:								
Three-year course:								
Seniors	17	12	29	32	27	59	30	....
Juniors	49	22	71	51	23	74	3	....
Freshmen	119	34	153	84	30	114	....	39
Unclassed (specials)	....	.....	.....	16	4	20	20	....
Total	185	68	253	183	84	267	14	....
Intermediate course	11	5	16	7	2	9	....	7
Total school reg.	196	73	269	190	86	276	7	....
University High School	110	115	225	120	116	236	11	....
Total schools	1,363	349	1,712	792	354	1,146	....	....
Short Courses:								
Cereal chemists	20	4	24	17	1	18	....	6
Dairy school	81	.....	81	83	.....	83	2	....
Scout master's short course, Itasca	16	.....	16	32	.....	32	16	....
Junior short course, Crookston	52	56	108	56	56	112	4	....
Farm women's short course, Morris	....	44	44	....	97	97	53	....
Boys' and girls' short course, Morris	55	67	122	136	131	267	145	....
Home nursing short course	....	.....	.....	....	129	129	129	....
Horticultural short course	26	9	35	71	10	81	46	....
Beekeepers' short course	12	10	22	17	4	21	....	1
Net total short courses	262	190	452	412	428	840	....	....
Grand total	1,625	539	2,164	1,204	782	1,986	....	....
Less duplicates	1	3	4	....	.....	.....	....	4
Net grand total	1,624	536	2,160	1,204	782	1,986	....	174

TABLE IV. EXTENSION STUDENTS, 1922-24

Course	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
General	2,585	1,936	4,521	2,474	1,823	4,297	....	224
Correspondence	826	677	1,503	834	806	1,640	137	....
Total	3,411	2,613	6,024	3,308	2,629	5,937	....	87
Less duplicates	50	30	80	48	40	88	8	....
Net total	3,361	2,583	5,944	3,260	2,589	5,849	....	95

TABLE V. SUMMARY, 1922-24

Division	Year 1922-23			Year 1923-24			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Collegiate students	7,730	4,480	11,810	6,773	4,858	11,631	....	179
Subcollegiate students	1,624	536	2,160	1,204	782	1,986	....	174
Total	8,954	5,016	13,970	7,977	5,640	13,617	....	353
Less duplicates	9	1	10	15	6	21	11	....
Net total	8,945	5,015	13,960	7,962	5,634	13,596	....	364
Extension students	3,361	2,583	5,944	3,260	2,589	5,849	....	95
Grand total	12,306	7,598	19,904	11,222	8,223	19,445	....	459
Less duplicates	238	125	363	838	514	1,352	989	....
Net grand total	12,068	7,473	19,541	10,384	7,709	18,093	....	1,448

TABLE VI. COMPARATIVE REGISTRATION FIGURES, 1922-24

College or School	Year 1922-23			Year 1923-24			Gain		Loss	
	Men	Women	Total	Men	Women	Total	Men	Women	Men	Women
Science, Literature, and the Arts	2,249	1,656	3,905	2,288	1,771	4,059	39	115	....	.....
Engineering and Architecture	1,063	8	1,071	1,139	18	1,157	76	10	....	.....
Agriculture	1,970	936	2,906	1,477	1,148	2,625	....	212	493	.....
Law	256	11	267	266	14	280	10	3	....	.....
Medical (including Nursing and Med. Technicians)	457	279	736	475	313	788	18	34	....	.....
Dentistry including Dental Nurses)	390	37	427	397	33	430	7	.....	....	4
Mines	136	.....	136	103	.....	103	....	.....	33	.....
Pharmacy	117	26	143	111	30	141	....	4	6	.....
Chemistry	130	8	138	135	8	143	5	.....	....	.....
Education (including University High School)	310	1,158	1,468	354	1,293	1,647	44	135	....	.....
Graduate	711	194	905	712	235	947	1	41	....	.....
Business	210	39	249	249	35	284	39	.....	....	4
War Specials	227	3	230	140	3	143	....	.....	87	.....
Summer Session, Minneapolis campus (net)	918	950	1,868	403	1,091	1,494	....	141	515	.....
Summer quarter, Mayo Foundation (net)	.....	.....	.....	16	3	19	16	3	....	.....
Total	9,144	5,305	14,449	8,265	5,995	14,250	....	690	879	.....
Less duplicates	199	290	489	303	361	664	104	71	....	.....
Net total	8,945	5,015	13,960	7,962	5,634	13,586	....	619	983	.....
Extension:										
General	2,585	1,926	4,521	2,474	1,823	4,297	....	.....	111	113
Correspondence	826	677	1,503	834	806	1,640	8	129	....	.....
Total	3,411	2,613	6,024	3,308	2,629	5,937	....	16	103	.....
Less duplicates	50	30	80	48	40	88	....	10	2	.....
Net total	3,361	2,583	5,944	3,260	2,589	5,849	....	6	101	.....
Summary:										
Total, resident students	8,945	5,015	13,960	7,962	5,634	13,586	....	619	983	.....
Total, extension students	3,361	2,583	5,944	3,260	2,589	5,849	....	6	101	.....
Grand total	12,306	7,598	19,904	11,222	8,223	19,435	....	631	1,084	.....
Less duplicates	238	125	363	838	514	1,352	600	389	....	.....
Net grand total	12,068	7,473	19,541	10,384	7,709	18,083	....	236	1,684	.....

TABLE VII. DEGREES CONFERRED, 1922-24

Colleges and Degrees	Year 1922-23*			Year 1923-24†		
	Men	Women	Total	Men	Women	Total
Science, Literature, and the Arts:						
B.A. *summa cum laude*	1	.....	1	....	1	1
B.A. *magna cum laude*	3	3	6	7	6	13
B.A. *cum laude*	9	15	24	9	11	20
B.A.	100	117	217	109	110	219
B.A. (in music)	....	2	2	....	.....	.....
B.S. (academic-medical)	75	8	83	96	6	102
B.S.	1	7	8	2	2	4
Engineering and Architecture:						
B.S. in architectural engineering	1	.....	1	4	.....	4
B.S. in civil engineering	47	.....	47	43	.....	43
B.S. in electrical engineering	51	.....	51	70	.....	70
B.S. in mechanical engineering	26	.....	26	44	.....	44
B.S. in engineering	2	.....	2	....	.....	.....
B.S. in architecture	9	1	10	8	.....	8
Agriculture:						
B.S. (agriculture)	39	.....	39	54	.....	54
B.S. (forestry)	14	.....	14	17	.....	17
B.S. (home economics)	....	28	28	....	14	14
Agriculture and Education:						
B.S. (agriculture)	16	.....	16	9	.....	9
B.S. (home economics)	....	53	53	....	53	53
Law:						
LL.B.	43	2	45	66	1	67
Medicine:						
M.D. with distinction	4	.....	4	1	1	2
M.D.	74	7	81	55	1	56
M.B.	61	4	65	90	8	98
Graduate in nursing	....	20	20	....	39	39
Dentistry:						
D.D.S.	101	1	102	76	2	78
Graduate dental nurse	....	14	14	....	13	13
Mines:						
E.M.	27	.....	27	11	.....	11
E.M. in geology	13	.....	13	3	.....	3
Met.E.	4	.....	4	2	.....	2
Pharmacy:						
M.S. in pharmacy	1	.....	1	....	.....	.....
B.S. in pharmacy	2	1	3	3	.....	3
Phm.G.	20	7	27	11	2	13
Chemistry:						
B.S. in chemistry	2	1	3	1	1	2
B.S. in chemical engineering	16	.....	16	10	.....	10
Education:						
B.S.	133	199	232	283	57	340
Business:						
B.S. in business	76	14	90	82	12	94

* Degrees conferred from July 1, 1922 to June 30, 1923.

† Degrees conferred from July 1, 1923 to June 30, 1924.

TABLE VII—*Continued*

Colleges and Degrees	Year 1922-23*			Year 1923-24†		
	Men	Women	Total	Men	Women	Total
Graduate:						
M.A.	29	19	48	35	23	58
M.S.	30	6	36	46	1	47
M.S. in chemical engineering	1	.....	1	5	.....	5
Chem.E.	8	.....	8	....	.....	.....
M.S. in dermatology and syphilology	1	.....	1	....	.....	.....
M.S. in civil engineering	....	.....	.....	1	.....	1
C.E.	2	.....	2	....	.....	.....
M.S. in mechanical engineering	....	.....	.....	3	.....	3
M.E.	8	.....	8	....	.....	.....
E.E.	7	.....	7	....	.....	.....
M.S. in medicine	2	.....	2	1	1	2
M.S. in neurology	1	.....	1	1	.....	1
M.S. in ophthalmology	4	.....	4	1	.....	1
M.S. in oto-laryngology	1	.....	1	....	.....	.....
M.S. in pathology	2	.....	2	....	.....	.....
M.S. in surgery	7	.....	7	4	.....	4
M.S. in urology	3	.....	3	2	.....	2
M.S. in orthopedic surgery	....	.....	.....	2	.....	2
M.S. in pediatrics	....	.....	.....	1	.....	1
M.S. in radiology	....	.....	.....	1	.....	1
M.S. in roentgenology	....	.....	.....	1	.....	1
Ph.D.	19	2	21	24	3	27
Ph.D. in surgery	1	.....	1	....	.....	.....
Totals	997	531	1,528	1,294	368	1,662

* Degrees conferred from July 1, 1922 to June 30, 1923.

† Degrees conferred from July 1, 1923 to June 30, 1924.

TABLE VIII. SCHOOLS FROM WHICH ENTRANTS WERE ACCEPTED, 1923-24

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
MINNESOTA HIGH SCHOOLS:										
Ada										
Adams										
Adrian										
Aitkin	2									2
Akeley	1	1								2
Alberta			1							1
Albert Lea	7	2	1	1				1		12
Alden			1							1
Alexandria	9		2		1					12
Amboy								1		1
Annandale	2	1						1		4
Anoka	5	2						1		8
Appleton		1	2							3
Argyle	1									1
Arlington										
Ashley										
Askov	1									1
Atwater										
Audubon			1							1
Aurora	2	3								5
Austin	6		1					1	1	9
Backus										
Badger										
Bagley										
Balaton	1							1		2
Barnesville										
Barnum		1								1
Barrett										
Battle Lake			1							1
Baudette	1		2							3
Beardsley										
Becker										
Belgrade										
Belle Plaine	2									2
Bellingham										
Beltrami										
Belview										
Bemidji	2		1							3
Benson	4							1		5
Bertha			1							1
Big Falls										
Big Lake										
Bingham Lake			1							1
Bird Island	1									1
Biwabik		1								1
Blackduck										
Blooming Prairie		1						1		2
Blue Earth	5	1	1							7
Boyd		1								1
Braham										
Brainerd	3		2					2		7
Breckenridge										
Brewster										
Bricelyn								2		2
Brooten	1									1
Browerville	1									1
Browns Valley	1									1
Brownton	1									1
Bruno										
Buffalo	2								1	3
Buffalo Lake										

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Buhl	....	....	....	....	....	....	....	....	....	....
Burtrum	....	....	....	....	....	....	....	....	....	....
Byron	....	....	....	....	....	....	....	....	....	....
Caledonia	1	....	....	....	....	....	....	....	....	1
Cambridge	1	....	1	....	....	....	....	....	....	2
Campbell	....	....	1	....	....	....	....	....	....	1
Canby	1	....	....	....	....	....	....	1	....	2
Cannon Falls	1	1	....	....	....	....	....	....	....	2
Carleton	....	....	....	....	....	....	....	....	....	....
Carver	....	....	....	....	....	....	....	....	....	....
Cass Lake	....	....	....	....	....	....	....	....	....	....
Ceylon	1	2	....	....	....	....	....	1	....	4
Chaska	....	....	....	....	....	....	....	....	....	....
Chatfield	4	....	....	....	....	....	....	....	....	4
Chisholm	2	....	....	....	....	....	....	....	....	2
Chokio	....	....	....	....	....	....	....	....	....	....
Clara City	....	....	....	....	....	....	....	....	....	....
Claremont	....	....	....	....	....	....	....	....	....	....
Clarissa	....	1	1	....	....	....	....	....	....	2
Clarkfield	....	....	1	....	....	....	....	....	....	1
Clearwater	....	....	....	....	....	....	....	....	....	....
Cleveland	....	....	....	....	....	....	....	....	....	....
Climax	....	....	....	....	....	....	....	....	....	....
Clinton	....	....	....	....	....	....	....	....	....	....
Cloquet	3	....	1	1	....	....	....	1	....	6
Cokato	1	1	....	....	....	....	....	....	....	2
Coleraine										
Greenway	....	....	....	....	....	....	....	....	....	....
Olcott	....	....	....	....	....	....	....	....	....	....
Comfrey	1	....	....	....	....	....	....	....	....	1
Correll	....	....	....	....	....	....	....	....	....	....
Cottonwood	....	....	....	....	....	....	....	1	....	1
Crookston										
Central H. S.	3	....	1	....	....	....	....	....	....	4
Crosby-Ironton	6	....	....	....	....	....	....	1	....	7
Dassel	3	....	....	....	....	....	....	....	....	3
Dawson	....	....	....	....	....	....	....	....	....	....
Deephaven	....	1	....	....	....	....	....	....	....	1
Deer River	....	....	....	....	....	....	....	....	....	....
Delano	1	....	....	....	....	....	....	....	....	1
Delavan	1	....	....	....	....	....	....	....	....	1
Delhi	....	....	....	....	....	....	....	....	....	....
Detroit	3	....	....	....	2	....	....	....	....	5
Dodge Center	....	....	1	....	....	....	1	....	....	2
Duluth										
Central	37	1	8	1	....	....	....	....	1	48
Denfield	1	....	5	....	2	....	....	....	....	8
Morgan Park	1	....	....	....	....	....	....	....	....	1
Eagle Bend	....	....	1	....	....	....	1	....	....	2
East Grand Forks										
Central H. S.	1	....	....	....	....	....	....	....	....	1
Echo	....	....	....	....	....	....	....	....	....	....
Eden Valley	1	....	....	....	....	....	1	....	....	2
Edgerton	....	....	....	....	....	....	....	....	....	....
Elbow Lake	3	....	....	2	....	....	....	1	....	6
Elgin	....	....	....	....	....	....	....	....	....	....
Elk River	4	....	....	....	....	....	....	....	....	4
Elkton	....	....	....	....	....	....	....	....	....	....
Elmore	....	....	....	....	....	....	....	....	....	....
Ely	....	....	....	....	....	....	....	....	....	....
Erskine	....	....	....	....	....	....	....	....	....	....
Evansville	1	....	....	....	....	....	....	....	....	1
Eveleth	....	....	....	....	....	....	....	....	....	....
Excelsior	1	....	1	1	....	....	....	....	....	3
Fairfax	2	....	1	....	....	....	....	....	....	3

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Fairmont	2	....	1	....	....	....	....	....	....	3
Faribault	4	1	....	....	....	....	....	....	....	5
Farmington	2	....	1	....	....	....	....	....	....	3
Felton	....	....	....	....	....	....	....	....	....	....
Fergus Falls	6	....	1	....	....	....	....	1	....	8
Fertile	1	....	1	....	....	....	....	....	....	2
Finlayson	....	....	....	....	....	....	....	....	....	....
Fisher	....	....	....	....	....	....	....	....	....	....
Foley	....	....	....	....	....	....	....	....	....	....
Forest Lake	....	....	....	....	....	....	....	....	....	....
Fosston	1	....	....	....	....	....	....	....	....	1
Franklin	1	....	....	....	....	....	....	....	....	1
Frazee	....	....	....	....	....	....	....	....	....	....
Frontenac	....	....	....	....	....	....	....	....	....	....
Fulda	....	....	....	....	....	....	....	....	....	....
Gaylord	1	....	....	....	....	....	....	....	....	1
Gibbon	1	....	....	....	....	....	....	....	....	1
Gilbert	....	....	....	....	....	....	....	....	....	....
Glencoe	1	....	....	....	....	....	....	....	....	1
Glenwood	3	....	....	....	....	....	....	1	....	4
Glyndon	....	....	....	....	....	....	....	....	....	....
Good Thunder	....	....	1	....	....	....	....	....	....	1
Goodhue	....	....	....	....	....	....	....	....	....	....
Graceville	....	....	....	....	....	....	....	1	....	1
Granada	....	....	....	....	....	....	....	1	....	1
Grand Marais	....	....	....	....	....	....	....	....	....	....
Grand Meadow	....	....	1	....	....	....	....	1	....	2
Grand Rapids	3	1	3	....	....	....	1	....	....	8
Granite Falls	1	....	1	....	....	2	....	....	....	4
Greenbush	....	....	....	....	....	....	....	1	....	1
Grove City	2	1	....	....	....	....	....	....	....	3
Hallock	....	....	1	....	....	....	....	....	....	1
Halstad	1	....	....	....	....	....	....	....	....	1
Hancock	....	....	....	....	....	....	....	....	....	....
Hanley Falls	....	....	....	....	....	....	....	....	....	....
Harmony	....	....	....	....	....	....	....	....	....	....
Hastings Central H. S.	1	....	1	1	....	....	....	....	....	3
Hawley	....	....	....	....	....	....	....	....	....	....
Hayfield	....	....	....	....	....	....	....	....	....	....
Hector	....	....	....	....	....	....	....	....	....	....
Henderson	....	....	....	....	....	....	....	....	....	....
Hendricks	1	....	....	....	....	....	....	....	....	1
Hendrum	....	....	....	....	....	....	....	....	....	....
Henning	1	....	2	....	....	....	....	....	....	3
Herman	....	....	....	....	....	....	....	....	....	....
Heron Lake	1	....	....	....	....	....	....	....	....	1
Hibbing	1	....	....	....	1	....	....	2	1	5
Hill City	....	....	....	....	....	....	....	....	....	....
Hillman	....	....	....	....	....	....	....	....	....	....
Hinckley	1	1	....	....	....	....	....	....	....	2
Hitterdal	....	....	....	....	....	....	....	....	....	....
Hoffman	....	....	....	....	....	....	....	....	....	....
Holdingford	....	....	1	....	....	....	....	....	....	1
Hopkins	4	2	....	1	....	....	....	....	....	7
Houston	1	1	2	....	....	....	....	1	....	5
Howard Lake	3	....	....	....	....	....	....	....	....	3
Humboldt	....	1	....	....	....	....	....	....	....	1
Hutchinson	2	....	....	....	....	....	....	....	....	2
International Falls	....	....	1	1	....	....	....	....	....	2
Iona	....	....	....	....	....	....	....	....	....	....
Ironton	....	....	....	....	....	....	....	....	....	....
Ivanhoe	....	....	....	....	....	....	....	....	....	....
Jackson	1	....	1	....	....	....	....	....	....	2
Janesville	3	....	1	....	....	....	....	....	....	4

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Jasper	....	....	....	....	....	....	....	....	....	....
Jordan	....	....	....	....	....	....	....	....	....	1
Kasota	....	....	1	....	....	....	....	....	....	1
Kasson	....	....	....	....	1	....	....	....	....	1
Kelliher	1	....	....	....	....	....	....	....	....	....
Kellogg	....	....	....	....	....	....	....	....	....	1
Kenyon	1	....	....	....	....	....	....	....	....	....
Kerkhoven	....	....	....	....	....	....	....	....	....	....
Kimball	....	....	....	....	....	....	....	....	....	1
Lake Benton	1	....	....	....	....	....	....	....	....	
Lake City										3
Lincoln	2	....	1	....	....	....	....	....	1	1
Lake Crystal	....	....	....	....	....	....	....	....	....	
Lake Park										2
Sioux Valley	2	....	....	....	....	....	....	....	....	1
Lakefield	1	....	....	....	....	....	....	....	....	1
Lakeville	1	....	....	....	....	....	....	....	....	....
Lamberton	....	....	....	....	....	....	....	....	1	1
Lanesboro	....	....	....	....	....	....	....	....	....	7
LeRoy	1	1	5	....	....	....	....	....	....	....
Lester Prairie	....	....	....	....	....	....	....	....	....	2
Le Sueur	2	....	....	....	....	....	....	....	....	2
Le Sueur Center	1	1	....	....	....	....	....	....	....	....
Lewiston	....	....	....	....	....	....	....	....	....	2
Lindstrom-Center City	1	1	....	....	....	....	....	....	....	7
Litchfield	3	....	2	1	1	....	....	....	....	2
Little Falls	1	....	....	....	1	....	....	....	....	3
Long Prairie	1	1	1	....	....	....	....	....	....	1
Luverne	1	....	....	....	....	....	....	....	....	....
Lyle	....	....	....	....	....	....	....	....	....	1
McGrath	1	....	....	....	....	....	....	....	....	....
McIntosh	....	....	....	....	....	....	....	....	....	3
Mabel	2	1	....	....	....	....	....	....	....	1
Madelia	1	....	....	....	....	....	....	....	....	7
Madison	4	2	1	....	....	....	....	....	....	1
Magnolia	....	....	1	....	....	....	....	....	....	....
Mahnomen	....	....	....	....	....	....	....	....	....	....
Mankato	4	....	5	....	....	....	....	1	1	11
Mantorville	....	....	1	....	....	....	....	....	....	1
Maple Lake	2	1	1	....	....	....	....	....	....	4
Mapleton	1	....	1	....	....	....	....	....	1	3
Marietta	....	....	....	....	....	....	....	....	....	....
Marshall	1	....	1	1	....	....	....	....	....	3
Maynard	....	....	....	....	....	....	....	....	....	....
Mazeppa	....	....	....	....	....	....	....	....	....	....
Medford	....	....	....	....	....	....	....	....	....	....
Melrose	1	....	....	....	....	....	1	....	....	2
Middle River	....	....	1	....	....	....	....	....	....	1
Milaca	3	....	....	....	....	....	....	....	....	3
Milan	....	....	....	....	....	....	....	....	....	....
Milroy	....	....	....	....	....	....	....	1	....	1
Minneapolis										
Central	131	13	25	4	1	....	3	2	4	183
East	63	15	26	3	1	....	1	1	4	114
West	154	10	17	2	2	1	1	2	5	194
North	96	8	14	2	1	....	2	....	2	125
South	68	11	20	1	....	....	....	2	1	103
University	25	....	2	....	....	....	....	....	1	28
Edison	3	....	....	....	....	....	....	....	....	3
Minneota	....	....	....	....	....	....	....	....	....	....
Minnesota Lake	....	....	....	....	....	....	....	....	....	....
Montevideo	4	2	2	1	....	....	1	....	....	10
Montgomery	1	1	....	....	....	....	....	....	....	2
Monticello	....	1	....	....	....	....	....	....	....	1

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Montrose	....	....	....	....	....	....	....	....	....	....
Moorhead	....	....	1	....	....	....	....	....	....	1
Moose Lake	1	....	....	....	....	....	....	....	....	1
Mora	3	....	....	....	....	....	....	....	....	3
Morgan	....	....	....	....	....	....	....	....	....	....
Morris	2	....	....	....	....	....	....	....	....	2
Morristown	....	....	....	....	....	....	....	....	....	....
Morton	1	....	....	....	....	....	....	....	....	1
Motley	....	1	....	....	....	....	....	....	....	1
Mound	....	1	....	....	....	....	....	....	....	1
Mountain Iron	....	....	....	....	....	....	1	....	....	1
Mountain Lake	....	....	....	....	....	....	....	....	....	....
Murdock	....	....	....	....	....	....	....	....	....	....
Nashwauk-Keewatin	1	....	....	....	1	....	....	1	....	3
Nevis	....	....	....	....	....	....	....	....	....	....
New London	1	....	....	....	....	....	....	....	....	1
New Prague	3	....	....	1	....	....	....	....	....	4
New Richland	....	....	1	....	....	....	....	....	....	1
New Ulm	3	5	2	....	....	....	....	....	....	10
New York Mills	....	....	....	....	....	....	....	....	....	....
Nicollet	....	....	....	....	....	....	....	....	....	....
North Branch	....	....	....	....	....	....	....	2	....	2
North St. Paul	....	....	1	....	....	....	....	....	....	1
Northfield Central	1	....	....	....	....	....	....	....	....	1
Northome	....	....	....	....	....	....	....	....	....	....
Norwood	....	....	....	....	....	....	....	....	....	....
Ogilvie	....	....	....	....	....	....	....	....	....	....
Okabena	....	....	....	....	....	....	....	....	....	....
Olivia	....	....	....	....	....	....	1	....	....	1
Onamia	1	....	....	....	....	....	....	....	....	1
Ortonville	1	1	1	....	....	....	....	....	....	3
Osakis	....	....	....	....	....	....	....	....	....	....
Owatonna	....	....	1	....	....	....	....	....	....	1
Park Rapids	2	....	....	....	....	....	....	....	....	2
Paynesville	1	....	....	....	....	....	....	....	....	1
Pelican Rapids	2	....	....	....	....	....	....	1	....	3
Pequot	1	....	....	....	....	....	....	....	....	1
Perham	1	....	1	....	....	....	....	....	....	2
Pillager	....	....	....	....	....	....	....	....	....	....
Pine City	1	....	....	....	....	....	....	....	....	1
Pine Island	....	....	....	....	....	....	....	....	....	....
Pine River	....	....	1	....	1	....	....	....	....	2
Pipestone	3	....	1	1	....	....	....	....	....	5
Plainview	2	....	....	1	....	....	....	....	....	3
Preston	....	....	....	....	....	....	....	....	....	....
Princeton	1	....	....	....	....	....	....	....	....	1
Proctor	1	....	1	....	....	....	....	....	....	2
Randolph	....	....	....	....	....	....	....	....	....	....
Raymond	....	....	....	....	....	....	....	....	....	....
Red Lake Falls	1	....	....	....	....	....	....	1	....	2
Red Lodge	....	....	....	....	....	....	....	....	....	....
Red Wing	7	....	3	1	....	....	....	....	....	11
Redwood Falls	1	....	1	....	....	....	....	....	1	3
Remer	....	....	....	....	....	....	....	....	....	....
Renville	....	....	....	....	....	....	....	....	2	2
Rochester	4	2	....	....	....	....	....	....	....	6
Rockford	....	....	....	....	....	....	....	....	....	....
Roseau	....	....	....	....	....	....	....	1	....	1
Rosemount	....	....	....	....	....	....	....	....	....	....
Round Lake	....	....	....	....	....	....	....	....	....	....
Royalton	....	....	....	....	....	....	....	....	....	....
Rush City	1	....	....	....	....	....	....	....	....	1
Rushford	....	1	....	....	....	....	....	....	....	1

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
St. Charles	1	....	....	....	....	....	1	....	....	2
St. Clair	1	....	....	....	....	....	....	....	....	1
St. Cloud										
Technical	3	....	....	1	....	....	....	1	....	5
St. Francis	1	....	....	....	....	....	....	....	....	1
St. Hilaire	....	....	....	....	....	....	....	....	....	....
St. James	....	....	1	....	....	....	....	....	....	1
St. Louis Park	6	....	1	....	....	....	....	1	....	8
St. Paul										
Mechanic Arts	44	5	9	2	....	....	1	2	1	64
Johnson	7	2	1	....	....	....	....	....	....	10
Humboldt	17	3	3	....	....	....	1	....	....	24
Central	74	5	12	2	1	....	1	....	2	97
St. Paul Park	1	....	....	....	....	....	....	....	....	1
St. Peter	1	....	1	....	....	....	....	....	....	2
Sacred Heart	....	....	....	....	....	....	....	....	1	1
Sanborn	....	....	....	....	....	....	....	....	....	....
Sandstone	....	....	1	....	....	....	....	....	....	1
Sauk Centre	1	....	....	....	....	....	....	....	....	1
Sauk Rapids	....	1	....	....	....	....	....	....	....	1
Sebeka	....	....	....	....	....	....	....	....	....	....
Shakopee	2	....	....	....	1	....	....	....	....	3
Sherburne	2	....	....	....	1	....	....	....	....	3
Silver Lake	....	....	....	....	....	....	....	....	....	....
Slayton	3	....	1	....	....	....	....	....	....	4
Sleepy Eye	....	....	1	....	....	....	....	....	....	1
South St. Paul	....	2	1	....	....	....	....	....	....	3
Spooner	....	....	....	....	....	....	....	....	....	....
Spring Grove	....	1	....	....	....	....	....	....	....	1
Spring Valley	4	....	....	....	....	....	....	....	....	4
Springfield	....	....	....	....	....	....	....	....	....	....
Staples	1	....	1	....	....	....	....	1	....	3
Starbuck	....	....	....	....	....	....	....	....	....	....
Stephen	....	1	....	....	....	....	....	....	....	1
Stewart	1	....	....	....	....	....	....	....	....	1
Stewartville	1	....	1	....	....	....	....	....	....	2
Stillwater	11	1	1	....	....	....	....	....	....	13
Swanville	1	....	....	....	....	....	....	....	....	1
Taylors Falls	....	....	....	....	....	....	....	....	....	....
Thief River Falls										
Lincoln H. S.	3	1	....	....	....	....	....	....	....	4
Tower										
Soudan H. S.	1	....	....	....	....	....	....	....	....	1
Tracy										
Independent H. S.	1	....	....	....	....	....	....	....	....	1
Truman	....	....	....	....	....	....	....	....	....	....
Twin Valley	....	....	....	....	....	....	1	....	....	1
Two Harbors	2	....	1	....	....	....	....	....	....	3
Tyler	2	....	....	....	....	....	....	2	....	4
Ulen	....	....	....	....	....	....	....	....	....	....
Villard	....	....	....	....	....	....	....	....	....	....
Virginia	2	1	....	1	....	....	....	1	....	5
Wabasha	2	....	1	....	....	....	....	1	....	4
Wabasso	....	....	....	....	....	....	....	1	....	1
Waconia	....	....	1	....	....	....	....	....	....	1
Wadena	6	....	....	1	....	....	....	1	....	8
Wahkon	3	....	....	....	....	....	....	....	....	3
Waldorf	....	....	....	....	....	....	....	....	....	....
Walker	1	....	....	....	....	....	....	....	....	1
Walnut Grove	....	....	....	....	....	....	....	....	....	....
Warren	....	....	....	....	....	....	....	....	....	....
Warroad	....	....	....	1	....	....	....	....	....	1
Waseca	....	1	1	....	....	....	....	1	....	3
Watertown	1	....	....	....	....	....	....	....	....	1

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Waterville	1	1	....	....	....	....	....	....	....	2
Waubon	....	....	1	....	....	....	....	....	....	1
Waverly	....	....	....	....	....	....	....	....	....	....
Wayzata	4	....	1	....	....	....	....	....	1	6
Welcome	....	....	....	....	....	....	....	....	....	....
Wells	1	....	....	....	....	....	....	....	....	1
West Concord	....	....	....	....	....	....	....	....	....	....
Westbrook	....	....	....	....	....	....	....	....	....	....
Wheaton	1	....	....	....	....	....	....	1	....	2
White Bear	1	....	1	....	....	....	....	....	1	3
Willmar	4	....	....	....	....	....	....	....	....	4
Windom	1	....	....	....	....	....	1	1	....	3
Winnebago	1	....	....	....	....	....	....	1	....	2
Winona	3	1	1	....	....	....	....	....	....	5
Winthrop	....	....	1	....	1	....	....	....	....	2
Worthington	1	....	1	....	....	....	2	..	..	4
Wykoff	....	....	....	....	....	....	....	1	....	1
Young America	....	....	....	....	....	....	....	....	....	....
Zumbrota	1	....	1	....	....	....	....	....	....	2
Totals	1054	136	250	36	20	3	23	58	33	1613
OTHER SECONDARY SCHOOLS:										
Collegeville										
St. John's Univ.	4	....	1	....	....	....	....	....	....	5
Crookston										
Northwest School of Agriculture	1	....	....	....	....	....	....	....	....	1
Duluth										
Girl's Cathedral H.S.	....	....	....	....	....	....	....	1	....	1
Faribault										
Bethlehem Academy	1	....	....	....	....	....	....	....	1	2
St. Mary's Hall	5	....	....	....	....	....	....	....	....	5
Shattuck	10	1	1	....	....	....	....	....	....	12
Maple Plain										
Maplewood Academy	1	....	....	....	....	....	....	....	....	1
Minneapolis										
Minnehaha Academy	3	1	....	....	....	....	....	....	....	4
Minnesota College	8	....	2	1	....	....	1	2	....	14
Northrop Collegiate	9	....	....	....	....	....	....	....	....	9
St. Margaret's Acad.	10	....	....	....	....	....	....	....	....	10
Moorhead										
Concordia College	....	1	....	....	....	....	....	....	....	1
Morris										
West Central School of Agriculture	....	1	1	....	....	....	....	....	....	2
Owatonna										
Pillsbury Academy	....	....	....	1	....	....	....	....	....	1
Red Wing										
Lutheran Ladies Seminary	1	....	....	....	....	....	....	....	....	1
St. Paul										
Bethel Academy	6	....	....	....	....	....	....	....	....	6
Blake School	1	....	....	....	....	....	....	....	....	1
Breck	3	....	....	....	....	....	....	....	....	3
Central School of Agriculture	....	8	1	....	....	....	....	....	....	9
College of St. Thomas	3	....	2	....	....	....	1	....	....	6
Cretin High School	6	....	4	....	....	....	....	....	....	10
Durham Hall	4	....	....	....	....	....	....	....	....	4
Oak Hall	....	....	1	....	....	....	....	....	....	1
St. Joseph's Acad.	5	....	....	....	....	....	....	....	2	7
Summit School	2	....	....	....	....	....	....	....	1	3
Visitation Convent	4	....	....	....	....	....	....	....	....	4

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Winona										
St. Mary's	....	....	....	....	....	....	1	....	....	1
College Entrance Board Examinations	2	....	....	....	....	....	....	....	....	2
State Board Examinations	6	....	....	....	....	....	....	1	....	7
Totals	95	12	13	2	....	....	3	4	4	133
Totals for Minnesota	1149	148	263	38	20	3	26	62	37	1746
UNITED STATES:										
Arizona										
Bisbee	2	....	....	....	....	....	....	....	....	2
Yuma										
Yuman Union H. S.	....	....	1	....	....	....	....	....	....	1
Colorado										
Denver										
South Side H. S.	....	....	1	....	....	....	....	....	....	1
La Junta	1	....	....	....	....	....	....	....	....	1
Rockyford	....	....	1	....	....	....	....	....	....	1
Connecticut										
Bristol	1	....	....	....	....	....	....	....	....	1
Hartford	1	....	....	....	....	....	....	....	....	1
Tarrington	1	....	....	....	....	....	....	....	....	1
Watingford										
Choate School	1	....	....	....	....	....	....	....	....	1
Westover	1	....	....	....	....	....	....	....	....	1
District of Columbia										
Central H. S.	....	....	1	....	....	....	....	....	....	1
Georgia										
Columbus	....	....	1	1	....	....	....	....	....	2
Idaho										
Bonners Ferry	....	....	....	1	....	....	....	....	....	1
Caldwell	1	....	....	....	....	....	....	....	....	1
Twin Falls	1	....	....	....	....	....	....	....	....	1
Illinois										
Chicago										
Austin H. S.	1	....	....	....	....	....	....	....	....	1
Central Y.M.C.A. School	....	....	1	....	....	....	....	....	....	1
Hyde Park H. S.	1	....	....	....	....	....	....	....	....	1
Lake View H. S.	1	....	....	....	....	....	....	....	....	1
Waller H. S.	1	....	....	....	....	....	....	....	....	1
Wendell Phillips H. S.	1	....	....	....	....	....	....	....	....	1
Dixon										
North H. S.	1	....	....	....	....	....	....	....	....	1
Glen Ellen										
Glen Bard H. S.	1	....	....	....	....	....	....	....	....	1
Harvey										
Thornton H. S.	....	....	1	....	....	....	....	....	....	1
Lake Forest										
Ferry Hall	1	....	....	....	....	....	....	....	....	1
Mt. Sterling	....	....	....	....	....	....	....	1	....	1
Moline	1	....	....	....	....	....	....	....	....	1
Oak Park	1	....	....	....	....	....	....	....	....	1
Peoria	1	....	1	....	....	....	....	....	....	2
Rock Island	1	1	....	....	....	....	....	....	....	2
Rockford	1	....	1	....	....	....	....	....	....	2

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Indiana										
Columbus City	1	....	....	....	....	....	....	....	....	1
Culver										
Culver Military Academy	2	....	....	....	....	....	....	....	....	2
Kempton	1	....	....	....	....	....	....	....	....	1
Michigan City	1	....	....	....	....	....	....	....	....	1
Pierceton	1	....	....	....	....	....	....	....	....	1
Iowa										
Allerton	1	....	....	....	....	....	....	....	....	1
Allison	1	....	....	....	....	....	....	....	....	1
Belmond	1	....	....	....	....	....	....	....	....	1
Cambridge	1	....	....	....	....	....	....	....	....	1
Carpenter	1	....	....	....	....	....	....	....	....	1
Cedar Falls										
Iowa State Teachers' Col. H. S.	1	....	....	....	....	....	....	....	....	1
State University of Iowa H. S.	....	1	....	....	....	....	....	....	....	1
Washington H. S.	....	....	1	....	1	....	....	....	....	2
Clear Lake	....	....	....	....	....	....	....	....	1	1
Coon Rapids	....	....	1	....	....	....	....	....	....	1
Cresco	....	....	....	....	....	....	....	1	....	1
Creston	1	....	1	....	....	....	....	....	....	2
Decorah										
Luther College	1	....	....	....	....	....	....	....	....	1
Des Moines										
East H. S.	1	....	....	....	....	....	....	....	....	1
Dubuque	1	....	....	....	....	....	....	....	....	1
Fort Dodge	1	....	....	....	....	....	....	....	1	2
Harlan	1	....	....	....	....	....	....	....	....	1
Havelock	1	....	....	....	....	....	....	....	....	1
Hayfield	1	....	....	....	....	....	....	....	....	1
Humboldt	....	....	....	....	....	....	....	1	....	1
Inwood	1	....	....	....	....	....	....	....	....	1
Lake Park	1	....	....	....	....	....	....	....	....	1
Le Mars	....	....	....	....	....	....	....	1	....	1
Lyons	2	....	....	....	....	....	....	....	....	2
Marshalltown	....	....	....	....	....	....	....	1	....	1
Mason City	....	....	....	....	1	....	....	....	....	1
Northwood	2	....	1	....	....	....	....	1	....	4
Osage	1	....	....	....	....	....	....	....	....	1
Perry	....	....	1	....	....	....	....	....	....	1
Rock Valley	1	....	....	....	....	....	....	....	....	1
St. Ansgar	1	....	....	....	....	....	....	....	....	1
Slater	....	....	1	....	....	....	....	....	....	1
Sumner	1	....	....	....	....	....	....	....	....	1
Waterloo	1	2	....	....	....	....	....	....	....	3
Waverly	....	....	1	....	....	....	....	....	....	1
Wartburg Acad.	1	....	....	....	....	....	....	....	....	1
Winterset	1	....	....	....	....	....	....	....	....	1
Kansas										
Arcadia	1	....	....	....	....	....	....	....	....	1
Kansas City										
Sumner H. S.	1	....	....	....	....	....	....	....	....	1
Kentucky										
Louisville										
Male High School	1	....	....	....	....	....	....	....	....	1
Maine										
Blue Hill										
George Stevens Academy	....	....	....	....	....	....	....	....	1	1

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Massachusetts										
Boston										
Choates School	1	....	....	....	....	....	....	....	....	1
Newburyport	1	....	....	....	....	....	....	....	....	1
Michigan										
Ann Harbor	1	....	....	....	....	....	....	....	....	1
Bessemer	4	....	....	....	....	....	....	....	....	4
Escanaba	1	....	....	....	....	....	....	....	....	1
Ironwood	1	....	....	....	....	....	....	....	....	1
Luther Wright H.S.	1	1	....	....	....	....	....	....	....	2
Ishpeming	1	....	....	....	....	....	....	....	....	1
Missouri										
Kansas City										
Central H. S.	1	....	....	....	....	....	....	....	....	1
St. Louis										
Sumner H. S.	1	....	1	....	....	....	2	....	....	4
Webster Grove	1	....	....	....	....	....	....	....	....	1
Montana										
Billings	2	....	2	....	....	....	....	....	....	4
Scientific H. S.	1	....	....	....	....	....	....	....	....	1
Chinook	2	....	....	....	....	....	....	....	....	2
Glendive	1	....	....	....	....	....	....	....	....	1
Great Falls	1	....	....	....	....	....	....	....	....	1
Harlowton	1	....	....	....	....	....	....	....	....	1
Helena	....	....	....	....	....	....	....	1	....	1
Ishmay	1	1	....	....	....	....	....	....	....	2
Kalispell	1	....	....	....	....	....	....	....	....	1
Polsan	....	....	....	....	....	....	....	1	....	1
Nebraska										
Newcastle	....	....	....	....	....	....	1	....	....	1
Omaha	1	....	....	....	....	....	....	....	....	1
Central H. S.	2	....	1	....	....	....	....	....	....	3
Valentine	....	....	1	....	....	....	....	....	....	1
New Jersey										
Summit	1	....	....	....	....	....	....	....	....	1
New York										
Buffalo	1	....	....	....	....	....	....	....	....	1
Manilus										
St. John's H. S.	1	....	....	....	....	....	....	....	....	1
Troy										
Emma Willard School	....	2	....	....	....	....	....	....	....	2
North Dakota										
Ashley	1	....	....	....	....	....	....	1	....	2
Bisbee	....	....	1	....	....	....	....	....	....	1
Bottineau	....	1	....	....	....	....	....	....	....	1
Carrington	1	....	2	....	....	....	....	....	....	3
Columbus	1	....	....	....	....	....	....	....	....	1
Cooperstown	1	....	....	....	....	....	....	....	....	1
Dickinson	2	....	....	....	....	....	....	1	....	3
Donny Brook	1	....	....	....	....	....	....	....	....	1
Edgeley	1	....	....	....	....	....	....	....	....	1
Fargo	3	....	....	....	....	....	....	1	....	4
Golden Valley	1	....	....	....	....	....	....	....	....	1
Grafton	1	....	....	....	1	....	....	....	....	2
Hankinson	1	....	....	....	....	....	....	....	....	1
Mapleton	1	....	....	....	....	....	....	....	....	1
Mohall	1	....	....	....	....	....	1	....	....	2
Minot	1	....	....	....	....	....	....	....	....	1
Minto	1	....	1	....	....	....	....	....	....	2
Oakes	1	....	....	....	....	....	....	1	....	2
Park River	....	....	....	....	....	....	....	1	....	1
Upham	....	....	1	....	....	....	....	....	....	1
Valley City	1	....	....	....	....	....	....	....	....	1
State Normal H. S.	1	....	....	....	....	....	....	....	....	1
Willeston	4	....	....	....	....	....	....	....	1	5
Wishek	....	....	....	....	....	....	....	1	....	1

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Ohio										
Akron	....	....	1	....	....	....	....	....	....	1
Canton										
McKinley H. S.	1	....	....	....	....	....	....	....	....	1
Dayton										
Steele H. S.	1	1	....	....	....	....	....	....	....	2
Oklahoma										
Binita	....	....	1	....	....	....	....	....	....	1
Oregon										
Estacada	....	1	....	....	....	....	....	....	....	1
Grants Pass	1	....	....	....	....	....	....	....	....	1
Pennsylvania										
Midland	1	....	....	....	....	....	....	....	....	1
South Carolina										
Charleston	1	....	....	....	....	....	....	....	....	1
South Dakota										
Aberdeen	....	....	1	....	....	....	....	....	....	1
Central H. S.	1	....	....	....	....	....	....	....	....	1
Brookings	2	....	....	....	....	....	....	....	....	2
Eagle Butte	1	....	....	....	....	....	....	....	....	1
Emery	2	....	....	....	....	....	....	....	....	2
Flandreau	1	....	....	....	....	....	....	....	....	1
Gary	....	1	....	....	....	....	....	....	....	1
Highmore	2	....	....	....	....	....	....	....	....	2
Hurley	1	....	....	....	....	....	....	....	....	1
Huron	2	....	....	....	....	....	....	....	....	2
McIntosh	1	....	....	....	....	....	....	....	....	1
Miller	1	....	....	....	....	....	....	....	....	1
Mitchell	4	....	....	....	....	....	....	....	....	4
Mobridge	2	....	....	....	....	....	....	....	....	2
Pierpont	1	....	....	....	....	....	....	....	....	1
Sioux Falls	4	....	1	....	....	....	....	2	....	7
Sisseton	1	....	....	....	....	....	....	....	....	1
Vermillion	1	....	....	....	....	....	....	....	....	1
Wagner	1	....	....	....	....	....	....	....	....	1
Webster	1	....	....	....	....	....	....	....	....	1
Yankton	....	1	....	....	....	....	....	....	....	1
Washington										
Colfax	1	....	....	....	....	....	....	....	....	1
Spokane	....	1	....	....	....	....	....	....	....	1
North Cent. H. S.	1	....	....	....	....	....	....	....	....	1
Tacoma										
Lincoln H. S.	1	....	....	....	....	....	....	....	....	1
Wisconsin										
Ashland	....	....	1	....	....	....	....	....	....	1
Barron	....	....	1	....	....	....	....	1	....	2
Black River Falls	1	....	1	....	....	....	....	....	....	2
Blair	1	....	....	....	....	....	....	....	....	1
Burlington	1	....	....	....	....	....	....	....	....	1
Chippewa Falls										
MacDonell Memorial H. S.	....	....	1	....	....	....	....	....	....	1
Delafield										
St. John's Military Academy	1	1	....	....	....	....	....	....	....	2
Eau Claire	1	....	....	....	....	....	....	....	....	1
Fall River	1	....	....	....	....	....	....	....	....	1
Fond du Lac	1	....	....	....	....	....	....	....	....	1
Frederic	....	....	....	....	....	....	....	2	....	2
Kenosha	1	....	....	....	....	....	....	....	....	1
La Crosse	1	....	1	1	....	....	....	....	....	3
Lake Geneva										
N. W. Military & Naval Academy	1	....	....	....	....	....	....	....	....	1

TABLE VIII—*Continued*

	Science, Literature, and the Arts	Agriculture	Engineering	Chemistry	Mines	Dental Nurses	Pharmacy	Nursing	Education	Total
Loyal	1	....	....	....	....	....	....	....	....	1
Marinette	1	....	....	....	....	....	....	....	....	1
Mellen	.....	....	1	....	....	....	....	....	....	1
Menomonie	3	....	....	....	....	....	....	....	....	3
Milwaukee										
Milwaukee-Downer	1	....	....	....	....	....	....	....	1	2
West Div. H. S.	.....	....	1	....	....	....	....	....	....	1
Mondovi	1	....	....	....	....	....	....	....	....	1
New Richmond	2	....	....	....	....	....	....	1	....	3
Oconto	.....	....	....	....	....	....	....	1	....	1
Phillips	.....	1	....	....	....	....	....	1	....	2
Princeton	1	....	....	....	....	....	....	....	....	1
Roberts	1	....	....	....	....	....	....	....	....	1
St. Croix Falls	3	....	....	....	....	....	....	....	....	3
Sinsinawa										
St. Clara Academy	1	....	....	....	....	....	....	....	....	1
Spooner	1	....	....	....	....	....	....	....	....	1
Stanley	1	....	....	....	....	....	....	....	....	1
Sturgeon Bay	1	....	....	....	....	....	....	....	....	1
Superior										
Nelson-Dewey H. S.	.....	....	1	....	....	....	....	....	....	1
Tomahawk	1	....	....	....	....	....	....	....	....	1
Turtle Lake	2	....	....	....	....	....	....	....	....	2
Waupaca	1	....	....	....	....	....	....	....	....	1
Wyoming										
Sheridan	2	....	....	....	....	....	....	....	....	2
Star Valley	1	....	....	....	....	....	....	....	....	1
Total for U. S. (except Minnesota)	187	16	38	3	4	....	4	22	5	279
FOREIGN COUNTRIES:										
Canada	3	....	2	1	....	....	....	1	....	7
Greece	1	....	....	....	....	....	....	....	....	1
Norway	1	....	1	....	....	....	....	....	....	2
Philippines	.....	....	....	....	1	....	....	....	....	1
Russia	1	....	....	....	....	....	....	....	....	1
Totals	6	....	3	1	1	....	....	1	....	12

SUMMARY

Wisconsin	50	Connecticut	5	Massachusetts	2
Iowa	48	New York	4	Oregon	2
North Dakota	40	Ohio	4	District of Columbia	1
South Dakota	35	Washington	4	Kentucky	1
Illinois	19	Arizona	3	Maine	1
Montana	15	Colorado	3	New Jersey	1
Michigan	10	Idaho	3	Oklahoma	1
Indiana	6	Wyoming	3	Pennsylvania	1
Missouri	6	Georgia	2	South Carolina	1
Nebraska	6	Kansas	2		

Total number of entrants for Minnesota	1746
Total number for the United States outside of Minnesota	279
Total number for foreign countries	12
Grand total	2037

TABLE IX. STUDENTS ADMITTED WITH ADVANCED STANDING, 1923-24

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Business	Total
MINNESOTA:														
Augsburg Seminary	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Bemidji Normal	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Carleton College	47	5	...	6	4	...	...	3	1	...	1	10	7	84
Coleraine Junior College	...	1	1	...	...	...	...	...	...	1	...	...	...	3
Concordia College (Moorhead)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Concordia College (St. Paul)	1	1	...	...	...	...	...	...	...	...	...	...	...	2
Eveleth Junior College	1	5	...	1	1	...	...	...	...	1	...	2	...	11
Gustavus Adolphus	2	1	...	...	2	...	...	...	...	1	...	1	...	7
Hamline University	38	7	9	2	3	1	...	5	...	3	...	11	5	84
Hibbing Junior College	8	2	...	1	...	...	...	1	1	...	2	5	1	21
Macalester College	6	3	4	1	4	1	...	3	1	1	...	...	1	25
Pipestone Junior College	...	1	...	...	...	...	...	1	...	...	...	...	...	2
Rochester Junior College	2	...	1	...	1	...	...	1	...	...	...	2	2	9
St. Benedict's College	1	...	...	...	...	...	...	...	...	...	...	1	...	2
St. Catherine's College	9	...	...	...	1	1	...	...	...	...	...	3	...	14
St. John's University	2	1	...	...	...	...	...	...	...	1	...	1	...	5
St. Mary's College	1	...	...	...	...	...	...	...	...	...	...	...	...	1
St. Mary's Hall	2	...	...	...	...	...	...	...	...	...	...	...	...	2
St. Olaf College	15	3	1	6	2	2	...	2	...	...	...	7	...	38
St. Scholastica	1	...	...	...	...	...	...	...	...	...	...	1	...	2
St. Teresa College	4	...	1	...	...	...	...	...	...	...	...	2	...	7
St. Thomas College	7	10	...	3	7	...	...	5	...	4	2	...	2	40
State Teachers College (Duluth)	...	...	...	...	...	...	...	...	...	...	...	5	...	5
State Teachers College (Mankato)	...	...	1	...	...	...	...	...	...	...	...	11	...	12
State Teachers College (Moorhead)	1	...	1	...	...	...	...	...	...	...	...	5	...	7
State Teachers College (St. Cloud)	1	...	1	...	...	...	...	1	...	...	...	20	1	24
State Teachers College (Winona)	3	...	3	...	...	...	...	...	...	...	...	9	...	15
Virginia Junior College	1	...	...	...	1	...	...	2	...	...	1	2	...	7
Totals	153	40	24	20	26	5	...	24	3	12	6	100	19	432
UNITED STATES:														
Arkansas, University of	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Armour, Institute of Technology (Ill.)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Augustana College (Ill.)	1	...	...	1	...	...	...	...	...	...	...	...	...	2
Austin College (Texas)	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Beloit College (Wis.)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Brown University (R.I.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Bryn Mawr (Pa.)	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Buena Vista College (Ia.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
California, University of	1	...	...	...	...	...	...	...	...	...	...	1	...	2
Case School of Applied Science (Ohio)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Central Michigan Normal School (Mich.)	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Chicago, University of	4	...	...	...	...	...	...	...	...	...	...	4	...	8
Chicago Central Y.M.C.A. School (Ill.)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Coe College (Iowa)	2	...	...	...	...	...	...	...	...	...	...	1	3	6
Colorado, University of	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Columbia College (Iowa)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Columbia University (N.Y.)	...	...	1	...	2	...	...	...	...	...	...	4	...	7
Cornell College (Iowa)	1	...	1	...	...	...	...	...	...	...	...	...	...	2
Dakota Wesleyan (S.D.)	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Dartmouth (N.H.)	4	...	...	...	...	...	...	1	...	...	...	...	1	6
Denver, University (Colo.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Business	Total
De Pauw University (Ind.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Detroit, University of (Mich.)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Dickinson Normal (N.D.)	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Drake University (Ia.)	2	...	...	...	...	...	...	...	...	...	...	1	...	3
Eau Claire Normal (Wis.)	1	...	...	...	...	...	...	...	...	...	...	1	...	2
Elmira College (N.Y.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Emmanuel Missionary Junior College (Mich.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Emporia College (Kan.)	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Eureka College (Ill.)	1	...	1	...	...	...	...	...	...	...	...	...	...	2
Fargo College (N.D.)	...	...	...	1	...	...	...	...	...	...	...	...	1	2
Fisk University (Tenn.)	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Florida, University of	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Frances Shimer School (Ill.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Grinnell College (Ia.)	4	...	1	...	...	...	...	...	...	...	...	2	2	9
Grundy College (Ia.)	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Harvard, (Mass.)	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Hastings College (Neb.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Huron College (S.D.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Idaho, University of	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Illinois, University of	1	...	...	...	...	...	...	...	...	...	...	1	2	4
Illinois Woman's College (Ill.)	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Iowa, University of	5	...	...	...	...	...	...	2	...	...	...	...	2	9
Iowa State College	4	2	2	...	...	...	...	...	...	...	...	...	...	8
Iowa State Teacher's College	...	...	...	1	...	1	...	...	...	...	...	...	1	3
Jamestown College (N.D.)	...	...	...	...	...	...	...	...	...	...	...	1	1	2
Johns Hopkins University (Md.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Kansas, University of	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Knox College (Ill.)	...	...	...	1	...	...	...	...	...	...	...	...	...	1
La Crosse Normal (Ill.)	6	1	...	...	...	...	...	...	...	...	...	2	...	9
Lake Forest College (Ill.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Lane College (Tenn.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Lawrence College (Wis.)	3	...	...	...	...	...	...	...	...	...	...	...	...	3
Layton School of Art (Wis.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Lewis Institute (Ill.)	...	1	1	...	...	...	...	...	...	...	...	...	...	2
Lindenwood College (Mo.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Luther College (Ia.)	1	1	...	...	...	...	...	...	...	...	...	...	...	2
Lutheran Normal School (S.D.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Madison Normal (S.D.)	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Marquette University (Wis.)	...	2	...	...	...	...	...	...	...	...	...	1	...	3
Mason City Junior College (Ia.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Massachusetts College of Pharmacy	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Mayville Normal (N.D.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Michigan, University of	...	...	1	...	...	...	...	...	...	...	1	1	...	3
Mills College (Cal.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Milwaukee Downer (Wis.)	5	...	...	...	...	...	...	...	...	...	...	...	...	5
Milwaukee School of Engineering (Wis.)	...	2	...	...	...	...	...	...	...	...	...	...	...	2
Milwaukee State Normal (Wis.)	...	...	...	...	...	...	...	...	...	...	...	2	...	2
Minot Normal (N.D.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Mississippi Agricultural College (Miss.)	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Missouri, University of	2	...	1	...	...	...	...	...	...	...	...	...	...	3
Missouri Wesleyan College	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Montana, University of	3	...	...	...	...	...	...	...	...	1	...	1	...	5

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Business	Total
Montana State College of Agriculture and Mechanic Arts	...	...	2	...	...	...	...	...	...	...	...	...	...	2
Monticello Seminary (Ill.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Morningside College (Ia.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Mount Saint Charles College (Mont.)	...	...	...	...	1	...	...	1	...	...	...	...	...	2
Nebraska, University of	3	1	...	1	1	...	...	2	...	...	...	...	...	8
New York, College of the City of	...	...	...	1	...	...	...	...	...	...	...	...	...	1
North Dakota, University of	2	1	...	1	...	1	...	2	...	1	...	3	...	11
North Dakota Agricultural College	3	3	1	...	...	...	...	...	...	...	...	1	...	8
North Western College (Ill.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Northern Normal and Industrial School (S.D.)	5	1	...	...	...	...	...	...	...	...	...	4	...	10
Northwestern University (Ill.)	2	...	...	...	...	...	...	...	...	...	...	1	...	3
Notre Dame (Ind.)	1	1	...	...	1	...	...	...	...	...	...	...	...	3
Oberlin College (Ohio)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Ohio State University	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Oregon Agricultural College	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Oshkosh Normal (Wis.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Parson's College (Ia.)	2	...	...	...	...	...	...	...	...	...	...	...	...	2
Pennsylvania, University of	1	2	...	...	...	...	...	...	...	...	...	...	1	4
Pittsburgh, University of	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Princeton University (N.J.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Providence College (R.I.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Purdue, University of (Ind.)	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Reed College (Ore.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
River Falls Normal (Wis.)	...	...	1	...	...	...	...	1	...	...	...	7	...	9
Rockford College (Ill.)	4	...	2	...	...	...	...	...	...	...	...	1	...	7
Rosary College (Ill.)	2	...	...	...	...	...	...	...	...	...	...	...	...	2
St. Mary's College (Ore.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Sargent School of Physical Education (Mass.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Simmons College (Mass.)	2	...	...	...	...	...	...	...	...	...	...	...	...	2
Simpson College (Ia.)	...	...	...	...	...	...	...	1	...	...	...	1	...	2
Sioux Falls College (S.D.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Skidmore College (N.Y.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Smith College (Mass.)	2	...	...	...	...	...	...	...	...	...	...	...	...	2
South Dakota, University of	7	...	...	...	1	...	...	...	...	...	...	2	...	10
South Dakota School of Mines	2	1	...	...	...	...	...	...	...	...	...	...	...	3
South Dakota State College	4	2	3	...	...	1	...	...	...	...	...	1	...	11
Stanford University (Cal.)	2	1	...	...	...	...	...	...	...	...	...	...	...	3
State College of Washington	1	...	...	...	...	...	...	...	...	...	...	...	...	1
State Normal and Industrial School (N.D.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Stevens Point Normal (Wis.)	2	1	...	...	...	...	...	...	...	...	...	3	...	6
Stout Institute (Wis.)	1	...	11	...	...	...	...	...	...	...	...	2	...	14
Superior Normal (Wis.)	9	1	...	1	1	...	...	...	...	...	...	5	1	18
Tabor College (Kan.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Taylor University (Ind.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Texas, University of	...	1	...	...	...	...	...	...	...	...	...	...	...	1

	Science, Literature, and the Arts	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Business	Total
Texas Christian College..	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Thomas Normal Training School (Mich.)	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Union College (Neb.)...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Valley City Teacher's College (N.D.)	...	...	...	...	...	...	...	...	...	...	...	3	...	3
Valparaiso University, (Ind.)	1	1	...	1	...	...	...	...	...	...	...	...	...	3
Vassar College (N.Y.)...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Virginia Military Institute (Va.)	2	...	...	...	...	...	...	...	...	...	...	...	...	2
Warrensburg State Normal (Mo.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Wartburg College (Ia.)...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Washington, University of	3	1	...	...	1	...	...	...	...	...	...	...	...	5
Wayne State Normal (Neb.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Western Maryland College	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Western State Normal (Mich.)	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Whitman College (Wash.)	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Wisconsin, University of	3	2	3	2	1	...	...	...	...	...	...	...	3	14
Wisconsin Mining School.	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Wyoming, University of..	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Yale University (Conn.)	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Yankton College (S.D.)..	...	...	...	...	...	...	...	...	...	...	...	2	1	3
Totals	147	38	39	14	10	4	0	10	1	3	2	78	24	370
FOREIGN COUNTRIES:														
Christiana, University of (Norway)	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Gothenburg, University of (Sweden)	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Gymnasium (Norway)....	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Karolinska Institute, University of Stockholm (Sweden)	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Manitoba, University of (Canada)	2	...	...	...	...	...	...	...	...	...	...	...	...	2
Saskatchewan, University of (Canada)	1	...	1	...	...	...	...	...	...	...	...	...	...	2
Tsing-Hua College (China)	2	...	1	...	...	...	...	...	...	...	...	...	...	3
Totals	5	0	2	0	1	0	0	3	0	0	0	0	0	11
Grand totals	305	78	65	34	37	9	...	37	4	15	8	178	43	813

TABLE X. GEOGRAPHICAL DISTRIBUTION OF UNIVERSITY STUDENTS OF COLLEGIATE GRADE (OTHER THAN SUMMER SESSION), 1923-24

	S., L., and A.	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Duplicates	Total
Aitkin	7	3	1	1	....	....	....	....	....	....	....	3	....	1	1	1	16
Anoka	10	1	6	....	....	1	....	....	....	....	1	4	2	2	....	2	25
Becker	14	3	1	....	....	....	....	2	1	1	....	2	2	....	1	3	24
Beltrami	12	5	....	1	1	....	....	1	....	....	....	1	2	1	1	2	23
Benton	....	1	1	1	1	....	....	....	....	....	....	....	2	....	....	....	6
Big Stone	9	2	5	....	1	2	....	....	1	1	....	4	....	1	....	3	23
Blue Earth	30	18	11	5	7	2	....	4	....	....	....	15	8	4	1	9	96
Brown	10	8	8	2	5	3	1	1	....	1	2	5	3	2	....	3	48
Carlton	12	3	5	2	1	5	....	....	....	....	4	3	....	....	1	....	36
Carver	3	5	1	....	....	....	....	3	....	....	....	2	....	....	....	....	14
Cass	6	7	1	....	1	2	....	....	1	....	....	4	....	....	....	2	20
Chippewa	6	8	9	2	1	2	1	1	....	3	1	3	....	1	....	3	35
Chisago	8	3	3	1	6	2	....	1	1	1	....	4	....	2	1	3	30
Clay	5	1	1	1	1	1	....	5	....	....	2	8	4	1	1	3	28
Clearwater	....	....	1	....	....	1	....	....	....	....	....	3	....	....	....	....	5
Cook	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Cottonwood	8	4	3	....	....	....	....	....	....	1	....	4	2	1	....	2	21
Crow Wing	16	12	6	5	5	10	....	3	1	....	....	8	1	2	....	4	65
Dakota	12	8	2	1	4	1	....	1	....	....	1	7	3	....	....	1	39
Dodge	6	2	5	1	....	....	....	3	1	....	....	2	1	....	....	1	20
Douglas	18	6	4	3	....	5	....	4	1	....	1	2	....	1	1	2	44
Faribault	13	5	2	2	3	1	....	5	....	....	1	6	2	....	....	3	37
Fillmore	17	4	8	4	5	....	....	3	1	1	1	11	5	5	1	6	60
Freeborn	18	9	6	1	1	3	....	2	1	....	1	8	2	1	1	7	47
Goodhue	25	10	10	5	5	5	....	5	....	....	2	10	7	1	2	4	83
Grant	13	1	1	1	1	1	....	3	....	1	1	2	2	1	....	1	27
Hennepin	1986	437	258	106	166	40	13	111	41	52	59	645	271	95	75	233	4122
Houstin	8	2	2	....	....	1	....	3	....	1	....	2	....	1	....	1	19
Hubbard	7	2	2	1	....	....	....	3	....	....	....	1	....	....	....	....	16
Isanti	12	4	....	1	2	....	....	....	....	....	2	....	....	....	....	3	18
Itasca	10	8	4	1	1	2	....	2	3	2	....	5	1	1	....	1	39
Jackson	8	2	1	....	3	1	....	1	....	....	....	4	1	2	....	3	20
Kanabec	7	....	2	....	1	....	....	....	....	....	....	1	1	....	....	1	11
Kandiyohi	21	6	1	1	3	....	....	4	....	1	....	5	1	2	....	3	42
Kittson	2	3	3	....	....	....	....	1	....	....	....	....	....	....	....	....	9
Koochiching	5	4	....	1	1	1	....	....	....	1	....	1	2	1	....	1	16
Lac qui Parle	12	3	3	2	4	....	....	2	....	1	1	4	2	1	....	3	32
Lake	6	2	....	1	1	....	....	1	....	....	....	2	1	3	....	2	15
Le Sueur	11	6	5	....	....	....	....	1	....	....	1	2	1	....	....	1	26
Lincoln	7	2	3	....	1	2	....	1	....	....	1	2	3	1	1	4	20

TABLE X—*Continued*

	S., L., and A.	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Duplicates	Total
Lyon	7	4	6	....	....	4	....	3	....	....	....	9	2	2	....	6	31
McLeod	10	6	7	2	2	7	....	5	2	....	1	3	2	....	1	2	46
Mahnomen	3	1	....	....	....	1	....	1	....	....	....	....	....	....	....	....	6
Marshall	8	1	3	1	1	2	....	....	....	....	....	4	....	....	1	....	21
Martin	21	7	3	2	3	1	....	3	1	2	....	3	1	2	....	1	48
Meeker	13	3	6	1	4	2	....	4	1	1	1	7	2	1	....	7	39
Mille Lacs	9	2	2	1	....	2	....	2	....	....	....	1	....	....	1	....	20
Morrison	14	4	4	1	1	1	....	....	1	1	....	3	1	1	....	3	29
Mower	27	9	8	1	....	3	....	1	....	....	....	11	3	2	2	8	59
Murray	12	5	....	....	....	....	....	....	....	....	....	....	....	2	....	1	18
Nicollet	2	5	3	....	5	1	....	....	....	....	....	3	....	1	....	3	17
Nobles	12	3	2	....	3	....	....	2	....	2	....	2	1	....	....	3	24
Norman	6	3	3	2	3	2	....	1	....	1	....	3	4	1	....	5	24
Olmsted	19	5	9	....	7	2	....	3	1	....	1	7	30	4	....	5	83
Otter Tail	22	8	9	....	3	3	....	2	....	....	1	11	2	....	1	3	59
Pennington	5	3	5	2	....	2	....	....	....	....	....	1	....	2	....	1	19
Pine	11	4	5	1	1	2	....	1	....	....	....	5	1	1	....	2	30
Pipestone	6	3	....	1	....	....	....	2	....	....	1	3	....	....	....	....	16
Polk	13	4	3	....	3	2	....	2	....	1	1	5	4	....	....	2	36
Pope	10	6	2	....	....	3	....	....	....	1	....	5	2	....	....	2	27
Ramsey	617	165	151	33	75	20	6	58	11	25	28	179	157	37	16	94	1484
Red Lake	1	3	1	....	....	3	....	....	....	....	....	....	....	....	....	....	8
Redwood	10	4	3	....	4	....	1	2	....	2	....	7	1	2	....	2	34
Renville	17	5	6	....	5	....	....	3	....	3	....	7	....	2	1	4	45
Rice	13	4	4	....	9	4	....	2	....	2	....	6	4	1	3	6	46
Rock	5	2	....	....	1	....	....	....	....	....	....	2	....	....	1	1	10
Roseau	1	2	1	1	....	4	....	....	....	....	....	2	....	....	....	1	10
St. Louis	136	72	30	15	20	8	....	29	12	4	6	48	11	18	4	25	388
Scott	7	5	3	1	1	1	....	5	....	....	....	1	....	....	....	1	23
Sherburne	8	....	2	....	....	....	....	....	....	....	....	2	3	1	....	....	16
Sibley	7	4	1	1	4	1	....	2	1	....	....	3	4	1	....	4	25
Stearns	25	12	7	3	5	5	....	8	....	4	3	19	8	2	1	6	96
Steele	5	9	6	2	2	1	....	1	....	4	1	4	1	2	....	4	34
Stevens	4	3	2	....	....	....	....	....	....	1	....	3	....	2	....	3	12
Swift	9	3	3	2	2	1	....	4	1	....	....	5	1	3	1	3	32
Todd	10	7	3	....	2	2	....	2	....	1	1	4	2	2	....	....	36
Traverse	5	2	1	2	....	2	....	1	....	1	....	2	2	....	....	1	17
Wabasha	20	7	6	1	1	3	....	1	....	2	1	6	1	....	....	3	46
Wadena	13	4	2	....	3	1	....	....	....	....	1	1	1	....	....	1	25
Waseca	9	3	3	....	2	1	....	2	....	....	....	....	....	1	....	1	20
Washington	30	5	8	1	3	2	....	1	1	....	....	12	4	4	1	7	65

TABLE X—*Continued*

	S., L., and A.	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Duplicates	Total
Watonwan	3	2	4	....	....	1	....	1	....	....	....	3	2	1	....	1	16
Wilkin	1	1	1	....	....	....	....	....	....	....	....	2	1	1	....	1	6
Winona	13	6	5	....	3	1	....	1	2	1	2	19	7	4	2	8	58
Wright	33	5	6	1	1	4	....	2	1	4	....	11	3	....	....	3	68
Yellow Medicine	11	6	2	4	2	2	....	1	....	....	....	3	1	....	....	1	31
Totals	3624	1037	726	235	413	201	22	335	88	131	131	1232	601	237	124	556	8581
UNITED STATES:																	
Alabama	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	4
Arizona	2	....	....	....	1	....	....	....	....	....	....	1	....	....	....	1	3
Arkansas	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1
California	1	1	2	....	1	....	....	....	....	....	....	1	9	....	....	1	14
Colorado	....	2	....	....	2	....	....	....	....	....	....	....	4	....	....	....	8
Connecticut	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3
Delaware	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	2
District of Columbia	....	....	....	....	1	....	....	....	....	....	....	....	6	....	....	....	7
Florida	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	2
Georgia	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Idaho	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	2
Illinois	10	4	7	2	4	1	....	....	....	....	2	4	21	2	....	7	50
Indiana	5	....	2	....	1	....	....	1	....	....	....	2	15	....	....	1	25
Iowa	86	18	9	8	8	16	1	7	1	1	1	28	20	9	....	21	192
Kansas	5	2	....	....	1	....	....	....	....	....	....	1	6	2	....	1	16
Kentucky	1	1	....	....	....	....	....	....	....	....	....	....	6	....	....	1	7
Louisiana	1	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	3
Maine	....	....	....	....	....	....	....	....	....	....	....	1	3	....	....	....	4
Maryland	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	2
Massachusetts	4	....	....	....	1	....	....	....	....	....	....	....	6	....	....	....	11
Michigan	8	4	6	1	4	....	....	....	1	....	....	15	13	1	....	5	48
Mississippi	1	....	....	....	....	....	....	1	....	....	....	....	3	....	....	....	5
Missouri	6	1	2	....	1	....	....	....	....	2	....	....	10	1	....	3	20
Montana	37	9	3	1	8	6	....	4	2	1	1	4	4	1	7	5	83
Nebraska	4	4	....	....	1	....	....	1	....	1	....	....	12	....	1	....	24
Nevada	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
New Hampshire	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	2
New Jersey	1	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	5
New Mexico	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
New York	4	....	1	....	2	....	....	....	....	....	....	....	10	....	....	....	17
North Carolina	....	....	....	....	1	....	....	....	....	....	....	....	4	....	....	....	5
North Dakota	77	17	9	18	15	17	2	18	3	3	1	43	18	8	3	17	235

TABLE X—*Continued*

	S., L., and A.	Engineering	Agriculture	Law	Medical	Nursing	Dental Nurses	Dentistry	Mines	Pharmacy	Chemistry	Education	Graduate	Business	War Specials	Duplicates	Total
Ohio	4	1	1	....	1	....	....	....	1	....	....	2	15	....	....	....	25
Oklahoma	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	2
Oregon	2	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	4
Pennsylvania	5	....	....	....	2	....	....	1	1	....	....	....	19	1	....	....	29
Rhode Island	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
South Carolina	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	4
South Dakota	62	18	10	6	10	8	....	6	1	1	1	19	21	13	4	18	162
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	2
Texas	....	....	....	....	....	....	....	....	....	....	....	1	6	....	....	....	7
Utah	2	....	....	....	4	....	....	....	....	....	....	1	2	....	....	1	8
Vermont	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1
Virginia	....	....	....	....	1	....	....	....	....	....	....	1	6	....	....	....	8
Washington	7	2	1	....	5	....	....	2	....	....	1	3	8	1	....	2	28
West Virginia	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	3
Wisconsin	65	22	12	6	20	18	1	17	2	1	2	48	27	4	4	6	243
Wyoming	5	2	....	....	....	....	....	1	....	....	....	....	1	....	....	....	9
Totals	411	109	66	42	96	67	4	59	12	10	9	177	302	44	19	90	1337
FOREIGN COUNTRIES:																	
Africa	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
Australia	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
Belgium	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	2
Canada	9	3	....	....	3	....	....	2	....	....	....	1	29	1	....	1	47
China	5	....	2	....	....	....	....	....	2	....	....	....	2	....	....	1	10
Hawaii	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
India	1	3	....	....	....	....	....	....	....	....	2	1	....	....	....	1	6
Ireland	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
Japan	1	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	3
Korea	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Norway	3	....	....	1	2	....	....	2	....	....	....	....	1	1	....	1	9
Philippine Islands	1	5	3	2	2	....	....	....	1	....	1	....	5	1	....	....	21
Poland	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1
Porto Rico	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Scotland	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
Serbia	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Sweden	1	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	7
Switzerland	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	2
Totals	24	11	6	3	11	....	....	10	3	....	3	2	44	3	....	4	116
Grand totals	4059	1157	798	280	520	268	26	404	103	141	143	1411	947	284	143	650	10034

GIFTS

During the past year the University has been the recipient of a number of gifts in the way of prizes, scholarships, fellowships, books, etc. These include:

Two scholarships of $100 each from the Agricultural Faculty Women's Club.

The sum of $1003.81 from the Class of 1911 to be known as the "Class of 1911 Memorial Trust Fund," the income of which is to be used for a prize or prizes to a student or students enrolled in the University of Minnesota writing during the college year then ending the best play or plays.

From Mrs. George Chase Christian, $1000 for the construction of small school groups for the Zoological Museum.

From the National Research Council, $7000 for a research study of motor ability.

From Mrs. Edna Kruse, $50 for an electric incubator and accessories, to the Department of Animal Biology.

A water softener from the Wayne Tank and Pump Company to the School of Chemistry.

An additional $150 from Mr. J. S. McLaughlin for the McLaughlin Asphalt Fund in the College of Engineering.

Gift of certain furniture from Mrs. Alice Tolg to the Women's Gymnasium.

An additional scholarship of $100 for the Minneapolis Journal Dairy Calf Club scholarships by adding the Brown Swiss breed to the four breeds of cattle enumerated in the action of the Board of Regents on February 6, 1923.

From R. G. Allison, a fellowship of $600 in Roentgenology in the University Hospital for the year 1923-24.

Sum of $1288.53 from the Law School alumni as a loan fund for needy law students.

The gift of an additional $150 from J. S. McLaughlin and Sons for the McLaughlin Asphalt Fund in the Engineering Experiment Station.

A clay bas-relief plaque to the Library from Mrs. J. E. Bulckley Shelland.

Five Minneapolis Journal Dairy Calf Club scholarships of $100 each for the year 1923-24, and to approve the Journal plan for 1923-24 of paying the expenses up to an average of $30 a person for a trip to the National Boys' and Girls' Club Conference in Chicago in 1924 for the winner in boys' and girls' dairy clubs in each Minnesota county having a dairy calf club enrolment of twenty-five or more.

Gifts to the Library, with special mention of nine volumes of guides and handbooks from the British Museum from Professor M. B. Ruud, and three volumes of the history of the Seventh Day Baptists from the Seventh Day Baptist Conference.

From the St. Louis County Club, $2000 for one year for an experimental field for the growing of truck crops at the Fens peat fields, under the supervision of the Department of Agriculture.

From Lehn and Fink, a gold medal award in the College of Pharmacy.

A grant of $5000 by the Commonwealth Fund to cover a portion of the expense of printing the report on junior colleges by L. V. Koos.

Thirty volumes of the Transactions of the American Institute of Mining and Metallurgical Engineers to the School of Mines from Mr. Frank M. Warren.

To the Library, 729 gifts from 143 sources.

An additional gift of $50 from J. S. McLaughlin and Sons for the McLaughlin Asphalt Fund in the Engineering Experiment Station.

From Mrs. E. Mapes, $5000 for the Todd Memorial Hospital.

From the National Research Council, a gift of $1200.

A gift of $696 as first payment on the Coffman Educational Research Foundation to be established by gifts from graduates of the College of Education.

From Mrs. E. C. Gale, $20,000 for the Todd Memorial Hospital.

From the Commonwealth Fund, a gift of $5000 for junior college study and $2000 for senior college study.

Gifts to the Library of 660 volumes from 208 donors, including two volumes on Excavations in Samaria from Harvard University.

A gift of $50 from District Grand Lodge No. 6, Independent Order B'nai B'rith, to the Library for the purchase of books relating to the Jews and to Jewish history.

Gift of a model outdoor substation from the Delta Star Electric Company to the Department of Electrical Engineering.

From the Alpha Gamma Sorority, $10, as an annual prize for the School for Dental Nurses.

One ton of composite sample from the Chief Consolidated Mining Company to the School of Mines.

Amedee Hans Herbarium of ferns from the Minnesota State Florists' Association as a memorial to the late Professor Leroy Cady.

A grant of $1000 from the Royal Baking Powder Company for experimental studies under the direction of Dr. Esther Greisheimer in the Department of Physiology.

A $50 gold medal annually from Mr. David L. Jacobson for graduate work in the College of Pharmacy.

Two tons of typical copper concentrator mill feed from the Anaconda Copper Mining Company to the School of Mines.

A gift of $20,000 from Mrs. F. C. Todd for the Todd Memorial Hospital.

An allotment of $8200 from the National Research Council to continue the study on Scientific Problems of Human Migration.

Gift of a $100 prize from the Minneapolis Journal for an English contest.

Schliemann's *Atlas Trojanischer Alterthuemer* to the Library from F. L. Searing.

THE ENDOWMENT FOR JOURNALISM

During the year Mr. Frederick Murphy purchased for the Murphy Holding Company the stock which the University of Minnesota had in the *Minneapolis Tribune* for $350,000. This was paid in cash and was invested as an endowment for work in journalism at the University. With reference to this particular transaction, Mr. Fred B. Snyder, chairman of the Board of Regents, issued the following statement:

> The University of Minnesota has received $350,000 from Mr. Frederick E. Murphy, publisher of the *Minneapolis Tribune*, in payment for stock in the Minneapolis Tribune Company, received by the University in settlement of its bequest under the will of the late William J. Murphy. This money will be invested as a separate fund to be known as the W. J. Murphy Endowment Fund for the School of Journalism. The purchase of the stock of Mr. Murphy satisfies the obligations of the W. J. Murphy estate to the University of Minnesota as they were created by his will.

Under the will the University of Minnesota was to receive whatever money would be left in the estate after the settlement of other bequests and provisions for a number of annuities had been made. It was provided at first that the final settlement should be made at the end of a twenty-year period. The various heirs subsequently agreed to a prompter settlement of the estate and the various corporations in which Mr. Murphy was principal owner were merged to make the final settlement possible.

Mr. W. J. Murphy's gift to the University of Minnesota is a very significant and generous endowment, one that manifests in a striking way his interest in the advancement of his profession and in the support of higher education.

It is an instance of the sort of thing that is coming to be done on behalf of higher education by men who have the best grasp of our American problems. Contributions of this kind have begun coming to the University of Minnesota only recently, and the example of pioneer donors, if followed by others, will strengthen the institution beyond measure. Assistance to any branch of the University definitely increases the strength not only of that branch but of the whole institution.

The University will make a thoro investigation into the workings and accomplishments of schools of journalism elsewhere, and will investigate also the need of journalistic training before deciding how it will use the W. J. Murphy bequest.

Among the actions of the Board of Regents, the following appears to be of such public interest as to warrant incorporating them in this report:

CLASS OF 1911 MEMORIAL TRUST FUND

Voted to refer the establishment of the Class of 1911 Memorial Trust Fund in accordance with the following indenture, to the President of the Board with power:

This indenture made this 14th day of June, 1921, by Minneapolis Trust Company (a corporation under the laws of the state of Minnesota with its principal place of business in the city of Minneapolis, and hereinafter for brevity sometimes called the "Trustee")

Witnesseth as follows:

That the Trustee hereby acknowledges receipt from the Memorial Committee of the Class of 1911 of the University of Minnesota, of the property described in schedule hereto attached marked "Exhibit A" and hereby made a part hereof, constituting and to be known as the "Class of 1911 Memorial Trust Fund" and it hereby declares that it hold said securities and will hold all investments and reinvestments thereof and all additions thereto as Trustee in trust for the uses and benefits and in the manner and upon the conditions hereinafter stated, to-wit:

First. That the Trustee shall hold, manage and control said Class of 1911 Memorial Trust Fund; may sell, assign and transfer any securities belonging thereto; shall invest and reinvest all of the cash principal funds thereof in securities authorized by the laws of the state of Minnesota for the investment of trust funds; shall collect, receive and receipt for all principal funds and income arising therefrom; and shall apply and distribute such income and principal as follows:

The net annual income arising from said Class of 1911 Memorial Trust Fund as it may from time to time be constituted shall be paid over annually beginning with June, 1924, to the Treasurer of said Memorial Committee of the Class of 1911 of the University of Minnesota, to be expended by him or her under the direction of said Committee as a prize or prizes to be awarded to such student or students enrolled in the University of Minnesota writing during the college year then ending the best play or plays in the opinion of three (3) judges, one of whom shall be a member of the faculty of said University appointed by the President thereof, another a dramatic critic and the third a member of said Class of 1911 named by said Memorial Committee upon such terms and conditions governing

said competition as may be prepared and published by said Memorial Committee annually beginning with October, 1923. Provided, however, that if said Memorial Committee or the judges in any year decide not to make such an award or awards then said net annual income arising during the year shall be added to the principal of this trust fund, to be thereafter dealt with like the latter. Provided further that when said Class of 1911 votes at any quinquennial meeting to relinquish active control of this trust fund the net income thereafter accruing therefrom shall thereafter be paid to The Minneapolis Foundation (a Minnesota corporation) for the uses and purposes of said Foundation (it being the recommendation of said Memorial Committee, however, that said net income be thereafter used by said Foundation to promote creative writing in dramatics and other similar activities among the students enrolled in the University of Minnesota upon such terms and conditions as may be deemed proper and suitable by the governing body of said Foundation) after which time all rights hereinafter provided for said Memorial Committee shall inure to the benefit of said Foundation.

Second. That the Trustee shall hold any additions made from time to time to the principal hereof by the said Memorial Committee or by the said Class or by any member thereof or by others as though originally a part of the securities described in said Exhibit A and subject to all the terms and conditions hereof, such additions to be described in a supplementary receipt and declaration of trust to be signed by the Trustee certifying that such property is being so held by it.

Third. That the duly constituted representative of said Memorial Committee shall have access at all reasonable times to the books and records of the Trustee in so far as they relate to said Class of 1911 Memorial Trust Fund and shall be permitted to inspect the securities and properties then constituting said Trust Fund, and the Trustee shall, during the month of July of each year beginning with 1924, make to said Memorial Committee a written report as to the condition of said trust fund, such report to contain a complete inventory and description of the securities and properties belonging to said fund and a complete statement of the principal and income receipts and disbursements in connection therewith for the preceding twelve (12) months.

Fourth. That the securities and properties belonging or to belong to said Class of 1911 Memorial Trust Fund shall be held in the name of said Minneapolis Trust Company as Trustee, and shall constantly be shown on its books and records to be a part of said trust fund, and all the funds belonging thereto shall be deposited in its name as Trustee.

Fifth. In case the Trustee shall purchase for said Class of 1911 Memorial Trust Fund securities of the classes above specified upon which the borrower has paid to it a commission such commission in excess of the actual cost to the Trustee for its services and disbursements incidental to the purchase and negotiations of such securities shall be considered as additional interest and credited to the trust hereby created as income received thereon,

it being understood that the actual cost of such services and disbursements shall be left to the determination of the Trustee. The trustee is hereby authorized to purchase securities of the classes above specified at their reasonable value and then owned by it upon the terms and conditions as aforesaid.

Sixth. That the Trustee shall use its best judgment in the selection of the securities of the classes above specified for said Class of 1911 Memorial Trust Fund and in the care of the properties belonging thereto, but it shall not be held for any loss by reason of any mistakes or errors of judgment made by it in good faith in the execution of said trust.

Seventh. That the trustee shall be and hereby is given full power and authority to collect, receive and receipt for all sums of money due by the terms of the evidences of indebtedness and other instruments hereby receipted for by it; to invest and reinvest the same in securities of the classes above specified; to sell, assign and transfer all of said personal property and any that may at any time become a part of said Class of 1911 Memorial Trust Fund or come into its hands pursuant hereto; to sell, convey, exchange, demise, let, lease or ground-lease any real estate which may at any time become a part of said Class of 1911 Memorial Trust Fund as it may deem to be for the best interests of said Class of 1911 Memorial Trust Fund, investing and reinvesting the principal proceeds from the sale thereof as the same are received by it from time to time in securities of the classes above specified; and to make, execute and deliver any and all instruments necessary or incidental to the carrying out of this trust in every respect.

Eighth. That the Trustee shall receive, as its compensation for all services rendered by it and its attorneys in the performance of this trust, three per cent (3%) of the income collected from all securities and properties belonging or to belong to said Class of 1911 Memorial Trust Fund, but no less than Ten Dollars ($10.00) per annum, to be deducted as said income is received. In case of litigation or in case the Trustee performs services other than aforesaid its charges for the services of its attorneys or for such additional services shall be reasonable and just.

Ninth. That this trust agreement shall be subject to revocation, and the terms of this trust as set forth in paragraph First above subject to amendment, provided that such revocation or amendment be regularly adopted by a three-fourths vote of the members of said Class of 1911 present at its regular quinquennial meeting in June, 1926, or 1931, or 1936, but not thereafter.

In Witness Whereof the Trustee has caused this instrument to be executed in duplicate by its duly authorized officers and its corporate seal to be hereunto affixed the day and year first above written.

(Seal) MINNEAPOLIS TRUST COMPANY,
By Robt. W. Webb, Its President.
Attest: H. V. Bruchholz, Its Secretary.

BUILDINGS AND IMPROVEMENTS

The following improvements were completed during the past year.

MAIN CAMPUS

The following improvements were completed during the past the University campus, and the railroad depression has been completely filled from Oak Street, westerly to Pleasant Street near the School of Mines. The new Library Building costing, with equipment, approximately $1,257,000 has been completed and will be occupied for the second half of the Summer Session in 1924. The new Storehouse and Shops Building was completed and occupied, and the buildings vacated have been removed from the campus. This includes the old heating plant and shops, storehouse, print shop, and garage. The new Electrical Engineering Building, erected at a cost, including equipment, of $375,000 has been occupied. The new Administration Building, for which plans were originally prepared in 1919-20, and the erection of which was postponed in order that even more pressing needs of the University could be taken care of, has finally been started, and this building will be completed by July 1, 1925, at a cost of approximately $471,000. The Todd Memorial Hospital Building, costing approximately $170,000 including equipment, and the Cancer Institute, costing approximately $250,000 including equipment, have been started and will be completed by July 1, 1925.

AGRICULTURAL CAMPUS

The two home management houses for the Department of Home Economics, erected at a cost of approximately $30,000, were completed and occupied at the beginning of the school year. The new Dairy Building, erected at a cost, with equipment, of approximately $242,000, is completed and occupied. The Soils Building has been remodeled.

GENERAL UNIVERSITY INTERESTS

THE DEVELOPMENT OF THE MEDICAL SCHOOL PROGRAM

A special committee of the faculty of the Medical School at the request of the president, prepared during the year a program for the expansion of the Medical School. This expansion is required in order that medical education in Minnesota may compare favorably with medical education in a number of other states, and in order that this institution may render the best service possible to the people of the state. The program which was outlined by the committee representing the medical faculty involves the co-operation of the state, the various counties of the state, the University, the city of Minneapolis, and the General Education Board of New York City. It will be recalled that the Legislature of 1921 passed an act known as the General Hospital Act which provided that patients might be sent from any county in the state to the General Hospital of the University of Minnesota with the understanding that the University would keep a careful accounting of the cost of the care and treatment of these patients, and that it would file its bills from time to time with the state auditor who would reimburse the University, collecting one-half the cost from the counties from which the patients come. It will also be recalled that the Citizens' Aid Society of Minneapolis gave $250,000 for the building of a cancer unit to the General Hospital, and that Mrs. Todd and Mrs. Gale and Mrs. Mapes gave the sum of $45,000 to be used in the erection of an eye, ear, nose, and throat unit to the General Hospital. This latter sum was supplemented by a sufficient amount of money from the University's funds so that the contract for the two new units to the Minnesota General Hospital on the campus was let during the year.

Among other things the plan outlined by the faculty committee contemplates the location of the General Hospital of the city of Minneapolis upon ground adjacent to the University campus. It is understood in case this plan is carried out that the relationship now existing between the Medical School and the General Hospital will be continued. For years the General Hospital has been used by the University for teaching purposes. It is recognized that a teaching hospital is the best kind of hospital. Inasmuch as it will be necessary for the city of Minneapolis to remove the General Hospital some time in the comparatively near

future, it is hoped that the plan which has been outlined may be carried to fruition. It is obvious that there would be a distinct loss if the General Hospital were so located that it could not be used for teaching purposes. It should be said on the other hand that the University has profited by the arrangement which has permitted it to use the General Hospital for teaching purposes.

For Minnesota to compare favorably with medical schools as they are being developed at Michigan, Illinois, Iowa, it will be necessary in the comparatively near future for it to expand its laboratory and its hospital facilities. This will mean the completion of Millard Hall, the completion of the Anatomy Building, the erection of suitable buildings and quarters for nurses, increasing the capacity of the University Hospital to about 580 beds, and the erection of a suitable building in the present medical group for the College of Dentistry, so that the College of Dentistry and the Medical School may co-operate in maintaining a more efficient out-patient department.

THE STADIUM

In the report of last year, we called attention to the fact that faculty, students, alumni, and friends of the University had pledged $1,619,603.19 for the erection of an auditorium and stadium upon the campus. During the winter the Greater University Corporation employed Professor Frederick Mann to draw up plans for the stadium. The Osborne Engineering Company of Cleveland, Ohio, was engaged in the capacity of consulting engineering experts. When the plans were completed and submitted for bids the James Leck Construction Company of Minneapolis proved to be the successful bidder. The contract for the erection of the stadium, including the players' quarters was $570,236.45. On March 8, 1924, work actually began, on the land lying east of Northrop Field, between University and Washington Avenues. This building has moved forward with great rapidity. There is every reason to believe that the stadium will be completed in time for use during the fall quarter of 1924. When completed it will seat 50,000 persons. It will be U-shaped with the seats slightly dished so that it will be possible for one to see the entire field from any point. The outside will be bricked up so that it will have the appearance of other University buildings.

During the year 1923-24, additional pledges to the fund were received amounting to $112,234, of which $99,656.50 came from the campus group, and $12,577.34 came from alumni and friends.

CONVOCATIONS

During the past year certain convocation hours have been set aside for the use of the colleges and schools of the University in case they desired to call assemblies of their own students. The convocation hour has been the same as in previous years, the fourth hour on Thursdays, and the program has been varied and interesting. Following is a list of the all-University convocations held during the year, with the names of the speakers:

August 3—Summer Session Commencement Exercises:[1] John H. T. Main, president of Grinnell College, "English Speech and World Unity."

September 27—Opening Convocation on Northrop Field: Lotus D. Coffman, president of the University, "Address of Welcome."

October 25—Archbishop Nathan Soderblom, pro-chancellor of the University of Upsala, Sweden, "The Scholar, the Ascetic, and the Hero in Religion."

November 1—Glenn Frank, editor-in-chief, *Century Magazine*.

November 8—Frank Orren Lowden, former governor of Illinois: "Is the Constitution Outworn?"

December 6—State Day Convocation: The Honorable Theodore Christianson, member of the House of Representatives.

December 13—Fall Quarter Commencement Exercises: Albert Ross Hill, formerly president of the University of Missouri.

February 14—Charter Day Convocation (in recognition of the granting of the charter and those who have served the University for thirty years): Lotus D. Coffman, president of the University, "The Pattern Makers of the University;" William Watts Folwell, president emeritus of the University, "How the University Secured Its Charter."

February 21—Syud Hossain, lecturer and journalist.

March 6—Breaking Ground for the Memorial Stadium: Thomas F. Wallace, president of the Greater University Corporation, "The Stadium Idea;" Fred W. Luehring, director of athletics, "What the Stadium Will Mean to the University;" Lotus D. Coffman, president of the University, "Breaking Ground."

April 24—Sidney F. Wicks, editor of the *Manchester Guardian Weekly*.

May 1—Major John L. Griffith, conference commissioner of intercollegiate athletics, "Modern Development of Athletics."

May 8—Hamilton Holt, "America and the World."

[1] Attention is called to the fact that the exercises of August 3, 1923, mark the first Summer Session Commencement at the University of Minnesota. The function was held in the Music Auditorium and was very successful as a ceremony as well as in point of attendance. Seventy-five degrees were conferred. It is the understanding of the committee that similar exercises will be held each year.

May 15—Cap and Gown Day Convocation: Alfred B. Greene, president of the All-University Senior Class, "Presentation of the Class of 1924;" Lotus D. Coffman, president of the University, "Response."

June 15—Baccalaureate Service: The Reverend Henry Chapman Swearingen, pastor of House of Hope Church, St. Paul, "The Balance of Life."

June 17—Laying the Cornerstone for the Memorial Stadium: Edward C. Nicholson, Hennepin County commander, representing the American Legion of Minnesota: "The Stadium a Memorial;" Albert M. Welles, president, Nobles County Alumni Association and publisher of the *Worthington Globe*, "Laying the Cornerstone."

June 18—Commencement Exercises: William Oxley Thompson, president of Ohio State University, "Public Sentiment in a Democracy."

CHARTER DAY CONVOCATION

It was decided this year that Charter Day should be celebrated on February 14. This was Dr. Folwell's birthday as well as St. Valentine's day.

Charter Day is one of the days upon which the University holds a special convocation to honor those who were responsible for the founding and upbuilding of the institution. These pioneers had a keen appreciation of the importance of higher education. They understood that the welfare of the state depended upon it.

But the men who create a university are not necessarily the men who make it. It is not so in this case. The building of an institution of learning is usually more difficult than the laying of the foundation itself. We hold in high esteem those sturdy pioneers who believed that the democracy of a commonwealth is dependent upon a process of continuous education open to all, and who provided by law for the establishment of the University. We cherish with equally high regard the devoted men and women on the board, the faculty, and in the employ of the institution who contributed to the upbuilding of the University but who have now passed to their rewards. It was our supreme pleasure, however, at the convocation on Charter Day to have seated upon the platform in the Armory thirty-nine members of the faculty and staff who have served the institution for thirty years or more.

It is conceivable that a more distinguished gathering never assembled in the old Armory. Many of the names are now world famous.

The names of these thirty-nine members of the faculty and staff for whom we assembled to pay honor are:

Amos W. Abbott
William Remsen Appleby
Richard O. Beard
John W. Bell
Andrew Boss
Peter Christianson
Edwin A. Cuzner
Harry Dixon
William H. Doty
John F. Downey
James Meddick Drew
Charles A. Erdmann
Ina Firkins
Oscar Firkins
Henry Fletcher
William Watts Folwell
George Bell Frankforter
Theophilus L. Haecker
John Hoffman
John Corwin Hutchinson
E. Bird Johnson
William H. Kirchner
Frederick Klaeber
Francis P. Leavenworth
Thomas G. Lee
Archibald McLaren
John G. Moore
Henry Francis Nachtrieb
Oscar W. Oestlund
Alfred Owre
James Paige
Joseph Brown Pike
Myron Herbert Reynolds
Charles E. Riggs
George D. Shepardson
Charles F. Sidener
Oscar A. Weiss
Matilda Jane Campbell Wilkin
Frederick J. Wulling

There is nothing of greater significance and really nothing finer than that of paying our respects to the living who for more than thirty years have remained faithfully at their work. A university is not made by the itinerant sojourner. He may color its policies and influence its practices a little, but his influence upon its total development is comparatively slight. The stream of institutional progress may zigzag a little here and there because of the influence of dynamic but transient personalities, but its course is steadily forward because there are always those present who are familiar with its history, its traditions, its ideals, its struggles, its successes, and its ambitions who steady its course of onward progress.

The builders of an institution are its pattern makers. They determine its modes of thought and preserve its traditions. Sometimes the patterns are made by conspicuous and outstanding characters, but not always wholly so. What appears to be leadership

is not always leadership. Our own conception of it varies with reference to age, sex, idiosyncrasies, and personal development. The popular heroes should not be confounded with the true leaders. Progress is made, of course, by the socially and intellectually brilliant, but progress is conserved, made stable, and passed on as the most valuable inheritance of the race by the patterns set by those who have stood firm at all times for the things that are good and true.

It was for these reasons that we met in high convocation to pay tribute to the men and women representing every rank and type of work connected with the University. To them we owe a debt which we cannot very well repay, not merely because they have spent more than thirty years in the employ of the University, but rather because the example of their lives and services is worthy of emulation. To found a university is wonderful. To make it after it has been founded is even greater and more wonderful. Whatever respect and faith the state has in the University is due largely to their quiet conduct and faithful work. They have never brought her fair name into disrepute. They have always stood for just standards and genuine service. Courageous when courage was required, staunch when firmness was needed, progressive when change was warranted, they have helped to build this stable structure upon the foundations laid so securely by the pioneer founders of the University.

The leader of this group, of course, was William Watts Folwell who since 1879 has been associated with the University first as president, then as professor, then as professor emeritus, and now as president emeritus. A copy of his most excellent address is published in the *Alumni Weekly* of February 14, 1924. In this address he traces the history of the founding of the University of Minnesota. It is his opinion that the day that should be celebrated as Charter Day is February 25, for on that date in 1851 the Territorial Legislature established the University of Minnesota. Altho the University did not actually become a university until later and did not open its doors to college students until 1869, the University established by the Territorial Legislature in 1851 was, according to Dr. Folwell's researches, never disestablished. That is the day which he insists we should celebrate.

MOTHERS DAY

The announcement of the first "Mothers Day" at the University, May 10, 1924, was greeted with a quite unexpectedly generous response by the mothers. Invitations were sent to the mothers of all the students in attendance. More than a thousand written acceptances were received, and many of them contained expressions of appreciation for the University's efforts to bring about a closer relation between the mothers and the institution to which they have entrusted their children. Probably more than two thousand mothers came to the campus during the day.

The program consisted of visiting classes in the forenoon, and a tour of the buildings in the afternoon, calling upon the instructors in their offices. Tea was served at several places in the afternoon, and a dinner in the Minnesota Union at 5:30, complimentary to the visiting mothers. At this dinner more than a thousand were served, and addresses were made by Dean Blitz, Commissioner McConnell, Mrs. Dieudonne, and President Coffman. Dean Nicholson presided.

ORIENTATION COURSE

Under the best of conditions the break between the high school and the college is abrupt. The student is living independent of his home, often for the first time. His purposes in attending college are not always well defined, and the tendency to be lost in his efforts to adjust himself to the new methods of study is too often present. The University desires in every way to reduce to a minimum the serious consequences of this break.

Furthermore, the student finds a large number of practically independent departments of instruction from which he must choose his college courses. There is not always the closest coordination among these many departments, and any particular subject of study may stand almost alone even with respect to other subjects within the same department.

To meet these two situations the University of Minnesota began in 1923-24 what is known as the Orientation Course. Four sections of the course of twenty-five students per section, were organized and a careful study made of the results, in order to determine whether the course should be used later with larger numbers of students. The Orientation Course comprises fundamental materials from a large number of departments, such as

the social sciences, the physical sciences, the biological sciences, psychology, and philosophy. With these fundamental materials effort is made to secure in the student a consciousness of his social relationships, a spirit of questioning and of thoughtfulness as to the meaning of his life, and a realization of his responsibilities. Such tests as were possible to use have indicated very satisfactory results in this initial trial of the orientation course.

If the idea proves sound, as there seems little doubt that it will, it is capable of expansion and probably much of the waste that has existed in the past from the student's failure to orient himself properly in the college community will be removed.

DEFALCATION OF MR. HUEBNER

The examination of the records of the University Bureau in February, 1924, disclosed certain irregularities in the accounts of the assistant bursar, Mr. Walter L. Huebner. A detailed check of the records showed a shortage of $7,271.35 which had been embezzled as shown in the special report of the public examiner received on March 11, 1924. The bonding company was notified at once upon evidence of irregularity, the facts were reported to the county attorney and the office of the attorney-general. Mr. Huebner was arrested, pleaded guilty, and was sentenced to the district court. The shortage was paid to the University promptly by the bonding company.

THE TWIN CITY CHILD GUIDANCE CLINIC

Children who are abnormal physically, have doctors trained to administer to their needs. Children who are abnormal mentally, have no professional group comparable with the physicians to whom they may go. Yet their distress is often far more grievous. Furthermore, recent developments indicate that there is relief possible to many if they can but be brought under the advice of completely trained specialists.

To study the needs and advise concerning the treatment of those children whose mental conditions seemed in some aspect not normal, the University co-operated with the Commonwealth Fund of New York City in maintaining for a year the Twin City

Child Guidance Clinic, the fund providing the money, and the University the rooms. The staff under Dr. Lawson G. Lowrey as director consisted of psychologists, psychiatrists, and social workers, with physicians invited in for special cases. An average of about sixteen persons were engaged in the work.

During the ten months ending September 23, 1924, there were 533 children's cases examined, referred to the clinic by 27 social agencies, by homes, and by school officers. To indicate that these cases are not commonly caused by low general intelligence, the record of intelligence tests is given. The range of intelligence quotients is as follows:

20 to 69—feeble-minded	13.8 per cent of cases
70 to 79—borderline	14.9 per cent of cases
80 to 109—averages	55.4 per cent of cases
110 to 159—superior	15.9 per cent of cases

The year's work has demonstrated that for many of these mental cases, the manipulation of the environmental forces by psychiatric, medical, educational, and social measures is very important and efficacious in treatment. The clinic was financed by the Commonwealth Fund of New York City with the understanding that each of the Twin Cities would continue a clinic for at least two additional years with revenue derived from local sources. Those two clinics have now been organized. The Minneapolis clinic has a staff of seven workers, with Dr. Smiley Blanton as director, and the St. Paul clinic has a staff of six workers, with Dr. M. L. Stiffler as director. In addition to these two clinics, the University clinic has been organized with a staff of three workers. Thus it is clear that the experimental year supported by the Commonwealth Fund and provided with quarters by the University is bearing rich fruit.

THE "MINNESOTA CHATS"

In the fall of 1922 the Board of Regents established a new office under the supervision of the president for the purpose of interpreting education, and in particular the activities and services of the University to the public. This office has been operating as the University of Minnesota News Service, and has followed

the dual policy of serving the press by giving it accurate statistics and news concerning the University, and of distributing directly to Minnesotans a series of inexpensive pamphlets intended to show in an interesting manner how the institution functions and what it accomplishes.

As a means to direct contact with the people of the state, *Minnesota Chats* has been published and distributed weekly. Each number has been a unified article discussing some single phase of University of Minnesota work or policy, or some student activity. *Minnesota Chats* appears as a four-page leaflet, without illustrations, simply but attractively printed. Its contents are usually prepared by the director of the News Service, but on occasion abstracts of striking addresses and reports are used, with the idea that material so carefully gotten together should be utilized to the fullest extent.

The usual number printed has been 7500 a week, but on occasion as many as 10,000 have been distributed, making the average probably 8000. Sixty-two issues were distributed between July, 1923, and December, 1924, or a total of about 500,000 copies. The cost of these papers is something less than one cent apiece.

As a guide for distribution of these leaflets, a mailing list has been worked up including high school principals, superintendents of schools, newspapers, and libraries of the state—also partial lists of officers in the federated women's clubs, members of the League of Women Voters, implement dealers, bankers, dentists, physicians, ministers, superintendents of Sunday schools, club organizations, such as the Kiwanis, the Rotary, and the Lions, and a considerable list of those who have asked to be included.

A STUDY OF THE JUNIOR COLLEGE

Probably there is no more urgent question facing students of education today than the proper discrimination in subject-matter and methods between the secondary education on the one side, with its emphasis upon the strengthening of character and personality and the specialized education on the other side, with its emphasis upon the mastery of subject-matter and upon vocational or professional efficiency. The key to the situation seems to lie in

the determination of the proper place for the beginning of specialized instruction. Naturally, therefore, a study of the junior college would have a very great bearing upon this question.

With the aid of a subvention from the Commonwealth Fund of New York, Leonard V. Koos, professor of secondary education in the University of Minnesota, brought to completion during the year 1923-24 a very significant study of the junior college. The report comprises two large volumes together occupying more than nine hundred pages, and constitutes without doubt, the most significant group of contributions to the problem of the junior college that has yet been published. It was published as No. 5 of the Education Series of the Research Publications of the University of Minnesota. During the investigations Mr. Koos visited practically all the important junior colleges now in operation in this country. He made quantitative studies through which to compare junior colleges with four-year colleges, as well as the different types of junior colleges one with the other, in respect to training of the faculties, teaching load, size of classes, standards of work required, intelligence scores of students, retention and exclusion of students, and the like. This study cannot but be of immense significance in the ultimate solution of the problem.

A STUDY OF LIBERAL ARTS COLLEGES

The liberal arts college holds a unique position in American education. It was among the earliest institutions founded, and has evolved with the American public school system, making adjustments in its curriculum as the high schools have expanded, but at the same time making no material modifications in the purposes and methods which characterize it. Today it is under fire of criticism, and yet is the most cherished of our educational institutions. People who scold about it yet hold warm affection for it. Because of this peculiar status it is timely that a study of liberal arts colleges should have been made during the year

The study was made by F. J. Kelly, dean of administration, with the aid of a subvention from the Commonwealth Fund. To obtain data from the study a visit was made to twelve liberal arts colleges, including four in state universities, three in endowed universities, four private colleges, and one city college. In all these colleges effort was made to establish clearly the purpose

for which the college was organized, the principles underlying the organization of its curricula, and its courses, the methods of instruction being used, and the extracurricular activities which it fostered.

In addition to these data there were also assembled answers to questions by a large number of seniors and alumni touching upon the more or less intimate questions of college life, such as the qualities of teachers who were regarded as the strongest teachers, the characteristics of courses which were regarded as the strongest courses, the values of extracurricular activities, and the like.

The report is published by the Macmillan Company and will undoubtedly aid greatly in the study of adjustments needed in higher education.

CONCLUSION

The year under review has been a happy one in the cordial relations which have existed among students, faculty, regents, and friends of education throughout the state. There is a harmonious effort on the part of all to make the University of Minnesota worthy of the state it is trying to serve.

The foregoing pages discuss only a few of the major administrative questions which constantly confront the University, but a more lengthy report seems inappropriate at this time. In the succeeding pages appear reports of the heads of the various colleges, schools, and divisions of the University. In the working together of all these units with good will and mutual regard, it is believed that the University is making steady progress.

Respectfully submitted,

L. D. COFFMAN, *President*

THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

To the President of the University:

SIR: I have the honor to present herewith my report of the work of the College of Science, Literature, and the Arts for the year 1923-24.

There has been a generally recognized improvement in the spirit of the students, their interest, and the quality of their work as compared with the years following the war.

The ratio of students to teachers is nearly 20 to 1, whereas in 1913-14 the ratio was 14 to 1.

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

	1919-20	1920-21	1921-22	1922-23	1923-24
Men	2111	2262	2296	2249	2288
Women	1635	1701	1612	1656	1771
Total	3746	3963	3908	3905	4059

ADVICE AND DIRECTION FOR STUDENTS

The orientation course for freshmen.—The planning for this course was begun in the spring of 1923, the syllabus was written during the fall and winter quarters of 1923-24, and the course was conducted for the first time in the winter and spring quarters of 1923-24. The class of one hundred two included a few advanced freshmen and sophomores. The course was pitched on a high plane both as to the ground to be covered and the character of the reference readings. The staff were kept hard at work and it was reported from the reference reading room that students had never been known to show so much interest in their reading. The instructors feel that the course has been decidedly successful. Plans are now under way for offering the course to a larger number of students. A special report will be made on the performance of the students in this course as soon as the results of certain tests can be calculated.

Mr. John M. Gaus has been appointed chairman of the staff and director of the orientation course.

Measures of student ability.—The best measure thus far found for determining the ability of students to do college work is a combination of high school performance and intelligence test scores, both reduced to a percentile rating. We have had good co-operation from the high schools of the Twin Cities in our studies of this matter. It has been demonstrated during the last three years that about 20 per cent of the entering freshmen,

who will fail to secure satisfactory standing in college work, can be individually identified in advance with an error of less than one per cent of the entire group studied. A similar selection can be made of those who are able to do distinguished work but the prediction is not as reliable because many of those who have intellectual ability are lacking in interest or in moral stamina or in other qualities necessary for good work. Plans have been made for giving formal information by letter to parents regarding the probable degree of success or failure in the case of all students in the highest and lowest 20 per cent of the newly entering freshmen. For the present this information can be given with a reasonable degree of reliability only for those students coming from large high schools.

Under the direction of Mr. Paterson constant efforts are being made to improve the intelligence tests which are used in the college. Northwestern University and Dartmouth College have co-operated with us in the use of identical tests, exchanging data upon the results and reliability of these tests. Efforts are being made to extend this co-operative work.

The College of Engineering and the School of Chemistry have asked us to admit the freshmen in these colleges to the same intelligence tests as are given to liberal arts freshmen.

The student personnel record blank used in this college has undergone thoro revision by the University Committee on Educaitonal Research and will now be available for the use of all colleges.

Character estimates of students.—In order to test the value of estimates made by teachers of those characters such as industry, interest, etc., which contribute to scholastic success, arrangements have been made with the principals of the West High School of Minneapolis, the Central High School of St. Paul, and the Stillwater High School to furnish us such estimates of all their graduates of June, 1924 made independently by at least two teachers for each pupil. These estimates will be studied during 1924-25 in relation to our other tests and the college records of such students as come to the college from those high schools. It is hoped that this experiment will go far toward determining the reliability of such estimates and their usefulness in connection with other tests in predicting success or failure in college and the factors involved.

Faculty advisers.—Special reports have been made upon the work of this group during the year. The three advisers have given attention this year to a necessarily limited number of students including those on probation and some of those of unusually high ability. Their work has been of great value and their experience has led the advisers to a better understanding of their problems. For next year it is planned to ask a larger number of advisers to take some part in this work under the chairmanship of Mr. Paterson.

This committee is co-operating with the All-University Association of Faculty Advisers.

ADJUSTMENT OF COLLEGE WORK TO VARIOUS TYPES OF STUDENTS

In addition to the traditional work of a college of liberal arts this college has for many years endeavored to meet the demands of four chief types of students—(a) those preparing to enter professional schools of medicine, law, dentistry, business, and education; (b) those preparing to enter one of a number of semiprofessions or occupations for which training can be given in an arts college; (c) students of the professional schools, certain courses of whose curriculum are given in the departments of this college; (d) students enrolled in the Graduate School.

In recent years it has become more and more evident that there are a large number of students who do not take degrees from this or any other college, who remain only one or two years but who are satisfactory students and do not belong to the group who withdraw because of failure in greater or less degree.

In the case of many, if not most, of these students the college work which they will take should be determined chiefly by consideration of their future vocations or occupations. By vote of the faculty the college has offered students the opportunity to register as non-candidates for a degree with freedom to elect studies suited to their individual needs. A small number of students have availed themselves of this privilege.

During the past year there have been numerous discussions by the Advisory Committee and by the Senate Committee on Education based on certain recommendations made by the dean looking toward the organization of courses and combinations of courses of study especially designed to meet the needs of students who will be in residence not more than two years. The proposal has met with the approval of the Senate Committee.

The college has given the degree of bachelor of science for the completion of a course which is largely professional or technical in character. This year the requirements for this degree in various courses of this type have been brought together and expressed in a general statement of the terms under which this degree is granted. As one example of the operation under this general requirement a special curriculum has been drawn up for those students who are interested in the advanced R.O.T.C. course so that they may obtain the degree of bachelor of science together with the lieutenant's commission in the infantry division of the United States Army.

Respectfully submitted,

J. B. JOHNSTON, *Dean.*

THE COLLEGE OF ENGINEERING AND ARCHITECTURE

To the President of the University:

SIR: I beg to submit the following report for the College of Engineering and Architecture for the year 1923-24.

FACULTY

New appointments.—Architecture: Leon Sault, lecturer; Rhodes Robertson, assistant professor of design; Civil Engineering: Berry E. Brevik and Joseph A. Wise, instructors; Mechanical Engineering: John Flodin, Thomas P. Hughes, Dayton A. Rogers, Ronald M. Hazen, Laurence F. Campbell, C. Robert Egry, Charles C. Sampson, and Guy Marchant, instructors; Drawing and Descriptive Geometry: Edward F. Murphy, Claude W. Campbell, Walter C. Lawson, Lloyd J. Quaid, and Everett H. Tollefson, instructors; Mathematics and Mechanics: Frank E. Miller and Walter R. Warne, instructors.

Promotions.—From associate professor to professor, Hans H. Dalaker, mathematics and mechanics; William T. Ryan, electric power engineering; from assistant professor to associate professor, Robert T. Jones, architectural construction; Roy C. Jones, architectural design; Otto S. Zelner, surveying; from instructor to assistant professor, Henry C. T. Eggers, drawing and descriptive geometry; Victor Gauvreau, automotive engineering; Milo E. Todd, electric power engineering.

Leaves of absence.—William H. Kirchner, professor of drawing and descriptive geometry, sabbatical furlough for study in Europe; John J. Flather, professor of mechanical engineering, sabbatical furlough to be spent in California; Victor Gauvreau, assistant professor of automotive engineering, without pay; George A. Maney, assistant professor of structural engineering, without pay, to take charge of important construction work in Texas; Paul C. Gauger, lecturer in estimating, without pay, winter quarter.

Resignations.—Drawing and Descriptive Geometry: Joseph E. Finley and Edgerton W. Kibbey, instructors (spring quarter); Mathematics and Mechanics: Lewis M. Becker, instructor; Mechanical Engineering: Joseph W. Nilson and Paul W. Rhame, instructors.

Deaths.—During the year, the college lost through death, John H. Rowen, associate professor of mechanical engineering, who died September 7, 1923; and Edward P. Quigley, instructor in forging, who died August 7, 1923. The following resolutions were voted by the faculty of the College of Engineering and Architecture.

1. Whereas, the sudden and unexpected death of John Howard Rowen, Associate Professor of Power Plant Engineering, has taken from the College of Engineering and Architecture, an able teacher, a man of upright character, and one who has devoted much of his service to his country, and more recently to the cause of education;

Whereas, the College of Engineering and Architecture has lost a brilliant student and specialist along Power Plant lines; who was a delightful companion, had the confidence of his students, and who labored long and seriously for their benefit;

Therefore, be it resolved that we, the members of the faculty of the College of Engineering and Architecture at the University of Minnesota, desire to offer our tribute of honor and esteem for him whose service has contributed much to the development of Power Plant work in the College.

Be it resolved that these resolutions be placed in the minutes of the College and a copy sent to the bereaved family.

Whereas, by the death of Mr. Edward P. Quigley, the University of Minnesota and more especially the College of Engineering and Architecture, has lost one of its most able and inspiring teachers; one who was not only an expert in his line through a life-long occupation, but one who was also gifted with the ability to impart his knowledge to others;

Therefore, be it resolved that we, the faculty of the College of Engineering and Architecture, in appreciation of his loyal service for the past sixteen years, extend our heartfelt sympathy to the members of his family.

Resolved further that this resolution be entered in the minutes of this faculty.

STUDENTS

ATTENDANCE BY QUARTERS

Fall Quarter, 1923-24

	Freshmen	Sophomores	Juniors	Seniors	Unclassed	Total
Architecture	32	24	10	18	..	84
Architectural Engineering	10	17	8	4	..	39
Pre-Business	2	..	..	..	..	2
Interior Decoration	..	..	4	1	..	5
Civil Engineering	80	77	62	53	..	272
Electrical Engineering	118	97	81	67	..	363
Mechanical Engineering	48	49	32	40	..	169
Undetermined	83	3	..	..	1	87
Total	373	267	197	183	1	1021
Total 1922-23	335	304	186	149	6	980

Winter Quarter, 1923-24

	Freshmen	Sophomores	Juniors	Seniors	Unclassed	Total
Architecture	50	18	14	17	1	100
Architectural Engineering	2	14	7	4	..	27
Pre-Business	2	4	..	..	..	6
Interior Decoration	..	..	4	1	..	5
Civil Engineering	72	83	63	52	..	270
Electrical Engineering	115	94	78	70	..	357
Mechanical Engineering	45	38	33	44	..	160
Undetermined	44	1	..	..	..	45
Total	330	252	199	188	1	970
Total 1922-23	293	278	197	149	4	921

SPRING QUARTER, 1923-24

	Freshmen	Sophomores	Juniors	Seniors	Unclassed	Total
Architecture	40	20	15	16	3	94
Architectural Engineering	3	15	6	4	1	29
Pre-Business	..	3	..	..	..	3
Interior Decoration	..	..	4	..	..	4
Civil Engineering	73	68	61	30	..	232
Electrical Engineering	100	92	78	69	..	339
Mechanical Engineering	41	37	33	44	..	155
Undetermined	27	2	..	..	..	29
Total	284	237	197	163	4	885
Total 1922-23	265	268	191	126	2	852

DEGREES CONFERRED, 1923-24

	Fall 1923	Dec. 1923	March 1924	June 1924	Total
Bachelor of science in					
Architecture	..	..	..	10	10
Architectural engineering	..	1	1	2	4
Civil engineering	..	2	21	19	42
Electrical engineering	2	5	2	63	72
Mechanical engineering	..	..	1	43	44
Total	2	8	25	137	172
Total 1922-23	5	6	13	113	137

BUILDINGS

The new Electrical Engineering Building has been completed during the year and the departmental equipment is being transferred to the new quarters as the year closes. The design and construction of this building have been exceptionally satisfactory and it is confidently believed that this will afford better facilities for instruction in electrical engineering than exist at other leading universities. The relief of the crowded conditions which have existed for many years in this department will mark an epoch in the history of the college.

A similar need of additional space for instruction is seriously felt in Mechanical Engineering, and it is hoped that this situation may be relieved in the near future by the construction of a part, at least, of a new building sufficient to house the mechanical laboratories, or shops, as they are familiarly called. When the complete new Mechanical Engineering Building is provided, it could be said that the conditions produced by the post-war period, involving a remarkable increase in the number of students, will have been satisfactorily met, as far as instruction space is concerned.

Respectfully submitted,

O. M. LELAND, *Dean*

THE DEPARTMENT OF AGRICULTURE

To the President of the University:

SIR: I herewith submit the annual report of the Department of Agriculture for the fiscal year ending June 30, 1923.

From 1897 to 1913 the general price level of agricultural products in the United States rose at the rate of over two per cent per year. It was a period of prosperity for those engaged in farming. Land of doubtful agricultural value was brought under cultivation. Intensive methods came to be used. A spirit of optimism relative to the future for agriculture prevailed. A back-to-the-land movement got under way. Homesteading was popular. Ambitious young men foresaw a career for themselves as farmers. Both country and city parents encouraged their sons to prepare themselves for farming. Consequently it was a period of remarkable growth in agricultural college enrolment. This growth continued through the early years of the World War but declined when the United States entered the conflict. Immediately after the close of the war, however, agricultural colleges were again crowded and the future for agricultural education seemed bright indeed, for the whole nation felt that there would be a long period of high prices for agricultural products.

Young men who graduated from agricultural colleges in the years 1919 and 1920 went on the land confident of success. They either purchased or rented land at high costs; they paid dearly for equipment; their prospects were so promising that it was easy for them to incur heavy indebtedness. In August, 1920, prices for agricultural products began to collapse. In five months, August to December inclusive, the index of prices paid to farmers for farm products declined from 239 to 147. In a year the decline of prices as measured by the price index was from 241 to 108.

At first few could believe that prices for agricultural products could remain at so low a level for long, nor could they believe that they could long remain on an unfavorable level in comparison with the prices of products for other commodities. But for three years they were in an unfavorable position in both respects. This developed a situation which has had a very depressing effect upon agricultural education. Nearly all of the agricultural graduates who went on the land after the war and many who started farming in pre-war years, like great numbers of farmers who had not had the advantages of higher education, failed financially and suffered bitter disappointment. A heavy movement of population from farm to city developed and studies made by the Federal Department of Agriculture indicated that the movement of population from farms to cities in 1922 was 1,120,000 persons.

The sharp and unprecedented decline in prices for agricultural products brought about a situation that caused young people to feel that they would not be justified in preparing for the occupation of farming. Therefore, there has been a decline in agricultural college enrolments. I know of but

one state, Texas, in which the agricultural college enrolments have not declined. And were it not for the fact that agricultural colleges train for careers in professions closely related to agriculture, the decline would have been still more marked.

That there is a lack of interest in agricultural education on the part of young people at the present time cannot be denied, but this is no criterion of the general interest in agriculture nor of the obligation resting on the Department of Agriculture which is responsible not only for formal instruction in the college and schools but also for very important activities in the short courses, extension service, and experiment station.

There is perhaps a more widespread interest in agriculture in the United States now than ever before. But it is different from the interest of a decade ago. Ten years ago investments in land were classed amongst the most desirable to be made. While such investments did not yield exceptional returns they were regarded as safe and dependable. In practically all sections except a few in the New England and Middle Atlantic states farming was a flourishing and expanding industry which furnished a good living to owners and in addition permitted them to lay by a fair amount of surplus wealth. In fact many farms in the more fertile regions maintained two families—that of the owner and that of the man who rented from him. Both not only lived off the land but also laid by a little money. Therefore, the interest in agriculture was largely from the viewpoint of a desire to engage or invest in it. This type of interest still exists to a certain extent and there are indications of its return in larger degree in the near future but a large part of the fervid interest in this great industry at present comes from a desire to protect investments and established lines of business. It is an interest that permeates not only the agricultural groups but the business groups as well, for the business groups of Minnesota clearly recognize the extent to which their existence and prosperity depend on a prosperous agriculture in the Northwest.

The active interest in agriculture on the part of so many groups has resulted in many unusual demands being made on the Department of Agriculture. We have been asked to participate in many local and national conferences called for the purpose of finding ways and means of securing relief for farmers. Far more than the usual number of requests have come to us for the full time services of members of our staff for periods ranging from a few weeks to a year. For example, the Federal Tariff Commission asked us to release certain members of our farm management and agricultural economics division to assist in wheat and butter studies being directed in order to determine whether or not the tariff on these products should be raised or lowered. We lost a number of members of our staff to cooperative marketing organizations within the state; others have received tempting offers from these organizations but have decided to remain with us.

Because of the interest in agriculture manifested by various groups, the department has made more numerous and various contacts than ever before, for it has been our policy to participate in discussions, to grant interviews, and to listen to proposals for relief and betterment as much as possible.

I am convinced of the wisdom of following this policy because the Department of Agriculture is a part of a state supported institution and needs therefore to be in intimate touch with the evolving developments in its field. A state supported institution must be sensitive to public pressures and the gravity of the situation in agriculture has been serious to the extent that we would have merited scathing criticism had we been unwilling to contribute as much as we could to a speedy and sound agricultural recovery. We have been passing through a period which has tested our spirit of service. Moreover, our numerous contacts have in the main helped to clarify our own views and to make us feel surer of our own program.

An organization such as the Department of Agriculture should have a clearly defined program in which both immediate and long time objectives are set forth. This is especially necessary in unsettled periods similar to that through which we have been passing. Briefly stated our long time objectives consist in making those contributions that will help to develop an agriculture which will satisfy the agricultural needs of state and nation and will be capable of adjusting itself to the changing conditions of society. We also hope to make contributions that will result in developing a progressive, contented people on the land, who will foster high ideals and who will be capable of articulating smoothly with other groups in society. It is unnecessary to state that work on our long time objectives is always in progress. Our immediate objectives, designed particularly to give as much aid as possible in this period of financial depression in agriculture, are embodied in our extension program and will be considered later in this discussion.

The Department of Agriculture is an educational and research institution. Its ambition in research is to be timely in its attack on problems and to be thoro in its methods so that the results it obtains will bear up under scientific interpretation. The timeliness of attack does not necessarily mean that our research program is to be confined to those problems only for which the people have asked solution. In its educational program the department seeks in its short courses, extension service, as well as in its college and schools, to present its material with an ever increasing degree of skill. There is a real ambition in the department to do good teaching—anyone acquainted with the educational needs in the field of agriculture, which is rapidly growing more complex and difficult, would be disappointed did this ambition not exist. Both the resident and extension staffs have held conferences and discussion groups during the past year for the purpose of improving teaching methods. The extension specialists devoted three days to discussions with experts who had specialized on methods in their respective lines of work. This was an activity of much significance because I know of no other group of workers in the department who have so difficult a task. These specialists are responsible for giving over to the people a correct interpretation of the work of the department, they are in contact with county agents, educators, business men, and farmers. They deal with college and university graduates and with people who have not completed the work of the grade schools. They work where the class attendance is voluntary;

their success is dependent solely upon their skill and the interest of those who sit under them.

ACTIVITIES IN EXTENSION SERVICE

As stated above the immediate objectives of the department center chiefly in the program of the extension service which for the past year was as given in the following outline.

OBJECTIVES

1. Increase income first—cut expense where possible and advisable.
2. Develop local leadership and initiative.
3. Develop right relationships to business and social agencies.

LIVESTOCK

1. Greater production per animal at a reduced cost per unit of product.
2. Better balanced rations with legumes grown on the farm.
3. More cow-testing associations—100 by July.
4. Purebred sire campaigns—bull association work.
5. Improved poultry products by better feedng, housing, and care.
6. Prevention and control of animal diseases.
7. Special attention to eradication of tuberculosis.
8. Expansion of ton litter project in hogs.
9. More and better pastures—both annual and permanent.

CROPS AND SOILS

1. More alfalfa, sweet clover, other clovers, and soybeans.
2. Improved and standardized varieties of corn and grains.
3. Better truck and garden crop production for home consumption.
4. More fruit-spraying and expansion of small fruits in the state.
5. Prevention and control of plant diseases.
6. Sand and peat soil demonstrations.
7. The development of forest products as *crops*.

MARKETING

1. Principles and practices of co-operative marketing.
2. Use of *quality* of products to affect prices and consumption.
3. Transportation as related to types of products, costs, and prices.

HOME PROJECTS

1. Home management
2. Human nutrition
3. Clothing
4. Home poultry
5. Home gardens
6. Home conveniences
7. Home beautification

BOYS' AND GIRLS' CLUB WORK

1. Dairy
2. Beef
3. Pig
4. Corn
5. Garden
6. Bread
7. Sewing
8. Canning
9. Farm management

The first objective, "Increase income first—cut expense where possible and advisable" has been especially emphasized during the past year. The means by which we have endeavored to bring an increase of income about are for the most part given under the headings, Livestock, Soils and Crops, Marketing. They all point to a more efficient system of diversified farming. When prices for agricultural products dropped to abnormally

low levels in comparison with other commodities, many thought no further emphasis should be placed on production. It was a natural reaction. During the war farmers were stimulated to large production of certain products through appeals to their patriotism and the inducement of high prices. They were also drawn into a program of unbalanced production. When they were confronted by ruinous prices they were antagonistic toward any program of production, but the Department of Agriculture had to take the stand that there is no way to avoid giving consideration to production. It would have been a mistake, however, to place the emphasis upon volume of production as was done in war time, or to ignore ways and means of getting the farmer a larger net price for his products. Our object has not been to get a larger volume but rather the necessary volume of production at lower cost through more efficient and better balanced methods.

We most certainly believe that the extension service for 1923-24 has been of direct benefit to the individual farmer. Some of the evidences are as follows: first, the splendid support of the county agent work in the various counties. In this line of service alone over one million contacts were made with the public. The average county appropriation for county agent work was a little over $2200 for the year, which is the highest it has been in the history of the movement in the state. Second, active response to the program inaugurated. The following are a few of the evidences of this response. There are 5696 farmers who planted alfalfa for the first time. The total area planted by them was 26,287 acres which was more than twice the acreage planted by beginners in the previous year. Many farmers had their initial experience with two other important legume crops, soybeans, and sweet clover. During the year, 2483 farmers planted 26,788 acres to soybeans and 2751 planted 23,000 acres to sweet clover. As a result of demonstrations 3580 farmers treated their potatoes for disease and 7204 farmers dusted or sprayed their potato crops.

There has been an increased activity in the introduction and care of fruits, particularly tree fruits and a considerable amount of work has been done on the vegetable garden crops in the counties surrounding Minneapolis, St. Paul, and Duluth. In this work the extension service has had a strong ally in the State Horticultural Society with its membership of more than 4500. This society has been aggressive in spreading the results of the work of the University Fruit Breeding Farm at Zumbra Heights.

The Extension Division is making a significant contribution to the rapid progress in dairying in the state. Perhaps the division's greatest influence is in connection with cow-testing associations. (They have no connection with official testing.) In 1923 there were 65 associations in 43 counties having a total membership of 1678. (Toward the close of the year there were 85 associations.) Last year 23,000 cows were tested, and 600 cows were discarded because they were unsatisfactory producers. Cow-testing association work yields other results besides furnishing an intelligent basis for discarding cows. It develops more efficient methods of feeding and breeding, and ultimately a better system of farming. And

its influence extends beyond the membership of the association. Undoubtedly this work had an influence in securing 1100 registered dairy sires and 1854 registered dairy cows which was one of the results achieved by the extension service last year.

During the year the extension activities in poultry have been directed largely toward the production of eggs of better quality and higher grade in connection with co-operative marketing. But the demonstrations in culling flocks have not been neglected. As a result 4820 farmers culled their flocks and 25 per cent of their birds were discarded for laying purposes.

At the last session of the legislature a co-operative marketing law was passed and throughout the year 1923-24 a state-wide co-operative potato marketing association has been in process of organization. The Department of Agriculture has indorsed co-operative marketing and the extension service has been called upon to give a large amount of instruction relative to procedure in this type of marketing. Last November a conference on co-operative marketing was held at University Farm in connection with the annual conference of county agents. County agents, extension specialists, and the officials of co-operative marketing organizations were present. The conference was really an open forum in which agricultural economists, marketing experts, and managers of co-operative marketing organizations were called upon to answer specific questions relative to marketing such commodities as livestock, wool, wheat, potatoes, butter, and eggs. Since certain types of co-operative marketing are still in an experimental stage this conference did much to clarify matters in the minds of county agents. The director of extension, Mr. F. W. Peck, has rendered very valuable service, indeed, in connection with the organization of the State Potato Marketing Co-operative which is known as the Potato Exchange. He has given over many hours of his time in consultation relative to the principles and methods that should be followed in this large co-operative composed of 12,812 members.

BOYS' AND GIRLS' CLUB WORK

During the year under review, 1846 boys and girls clubs were organized with a total enrolment of 19,846 members. Of these members, 14,422 completed the work for the year. We have been assured that Minnesota stands well toward the top in this work. The interest in it is increasing and the various projects are constantly receiving better support from local groups. Practically every fair in the state is giving financial support to the work and the budget of the State Fair for it in 1923 was $17,335. Educational trips given by various companies and institutions are adding incentive to boys' and girls' club work. About 1400 trips were awarded in 1923. There were trips to the State Fair; the Inter-State Fair, Sioux City; the International Livestock Show, Chicago; the National Boys' and Girls' Congress, Chicago; the Horticultural Society meeting in Minneapolis; the Junior Livestock Show, South St. Paul; the National Dairy

Show, Syracuse, New York; and to the three large junior short courses held at University Farm, Morris, and Crookston. Mention should also be made of the scholarships in either the schools of agriculture or the college awarded by the *Minneapolis Journal* to the boys and girls winning the state dairy championships in Holstein, Guernsey, Ayrshire, Jersey, and Brown Swiss dairy cattle at the State Fair.

The organization and range of the work in boys' and girls' clubs are such as yield both economic and social values to those connected with it, that is, to the children who are the members, and also to their parents and friends. In an address before the Minnesota State Conference and Institute of Social Work at University Farm, Saturday evening, September 6, Owen R. Lovejoy, general secretary, National Child Labor Committee, made the following statement about boys' and girls' club work. (I submit his statement as he wrote it out for me.)

> It is my belief, without desiring to minimize the value of the efforts of any social worker here, that the county farm agents and the home demonstrators through their development of boys' and girls' project and achievement clubs and with the inspiration of our agricultural colleges, are performing the most important and vital social work that is being done in America today.

A large responsibility rests upon the extension service in its supervision of boys' and girls' club work. This becomes more evident as it grows and spreads and draws financial support from various interests. It is an educational enterprise and those in charge of it should constantly uphold the best educational methods for the type of work involved and make sure that they are building health and character and inculcating high ideals while they are developing the skill and knowledge that increase the power of boys and girls to win prizes and to make money. One of the points that demands attention in the future is the awarding of prizes—what kind shall be given and how shall they be distributed in order to preserve the primary purpose of club work and uphold a high standard for it. At present we believe more can be gained by making more use of educational opportunities and trips within the state rather than by undue expansion of outside trips, and we also believe that rather attractive but relatively less valuable prizes than are sometimes given would more nearly accomplish the results that should be attained.

GENERAL OBSERVATIONS

As stated elsewhere, the extension service in 1923 gave particular attention to those things that would increase the farmer's income. In so doing it was not unmindful of, nor has it knowingly neglected, its duties toward those other activities that enhance farm life and contribute to rural progress. It was justified in laying chief emphasis on economic matters because the farmer was in economic distress and also because the basis of our civilization is largely economic. The making of money and economic efficiency should not be ends in themselves—they are parts of the foundation rather than of the superstructure, but up to a certain point

they are indispensable to the development of human life. With the foregoing in mind we have functioned to the best of our ability as an educational institution in helping farmers to a just and reasonable financial reward for their labors. Along with adequate economic returns there must be an adequate educational system in the country, an adequate social life, and a combination of circumstances that will help to develop high ideals if rural progress is to be what it ought to be. It is because we have all these things in mind that we have included in our program such objectives as the developing of local initiative and leadership, and the developing of right relationships to business and social agencies.

What happens to rural life is a matter of concern to urban, as well as to rural, communities. From the standpoint of material prosperity this is better understood in the Northwest than ever before. Whether it is as well understood from the standpoint of general human welfare and progress is not so clear. One half the children reared in the country move to urban centers. Certainly urban groups, from the standpoint of their own selfish resident interests, should be concerned about the social and educational opportunities of these children and about their capacity for idealism. On the whole I believe that they are, and perhaps more so than in the past, and that the entire University is rendering service at this point through its attack on the many problems that have to do with human relationships.

THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

The collegiate attendance has (see registrar's figures) declined during the past year. This has been the experience of many of the state agricultural colleges and particularly those of the Middle West. In fact most of the latter have suffered greater losses than Minnesota. An analysis of the figures at Minnesota shows an attendance loss of 6.7 per cent in home economics, a gain of 6.4 per cent in forestry, and a loss of 18.7 per cent in agriculture.

The attendance in home economics is more largely drawn from the Twin Cities and has followed fairly close to the general University attendance. There is a renewed interest in forestry and in forest industries not only state-wide but national in scope. The standardization and stabilization of these industries offer many new fields for college men in the lumber trade and in special industries. The swing away from agriculture also accounts for a small number in this increase in attendance.

It seems probable that the low ebb of registration in agriculture has already been or will shortly be reached. With the rehabilitation of agriculture in the Northwest, improvement is bound to follow. It is also worthy of notice that the period of agricultural depression is a most important period for agricultural education. Even tho agricultural college graduates have failed at farming in recent years it is nevertheless true that scientific agriculture has enabled many farmers to weather the financial storms. Conditions in the future will demand an increasingly large knowledge of

scientific agriculture, and the agricultural college will be called upon to provide the opportunities and training for that future. A danger at present is that the number of students in general agriculture will decline to the point where the number of well-trained and capable men will not be sufficient to meet the demands as agriculture recovers. During these times there has not been an over-supply of good men in certain fields, notably dairying and agricultural economics, and there has been no let down in the competition for their services.

THE SCHOOLS OF AGRICULTURE

At the Central School, University Farm, there was a decline in attendance due to the fact that the educational needs of the trainees under the Veterans' Bureau were provided for at various centers in the state where they have taken up land. On the whole, conditions at the school were improved by this action because the veterans were much older than the students in the remainder of the student body and their interests were so different that it was impossible fully to harmonize the two groups in activities outside the classroom.

The attendance at the Crookston school gained some over the previous year but it was still below normal. Almost a hundred young men and women who were desirous of attending the school sent in requests for part time employment but only a few of these requests could be met.

The Morris school had a prosperous year. The dormitories for men were not adequate for housing the students and a number had to room in the town of Morris. The women's dormitory was occupied to within five or six of its capacity.

Studies of the areas from which students came to the Crookston and Morris schools were most interesting. Both institutions draw attendance from the undiversified grain-producing area of the Red River Valley and from areas practicing methods of diversified farming. The attendance from the areas given over to diversified farming was much larger than from the grain areas. All the causes for the differences are not known. However, it is well known that the farmers in the areas where diversified farming is practiced were more nearly prosperous than were those in the grain areas. Possibly the necessity of agricultural training was more clearly recognized by the parents in those areas.

THE EXPERIMENT STATION

The Minnesota Experiment Station was created by act of the state legislature in 1885. The act was as follows:

> It shall be the duty of the Board of Regents of the University of Minnesota as soon as practicable after the passage of the act to establish at said University an agricultural experiment station for the purpose of promoting agriculture in its various branches by scientific investigations and experiment, which station shall be under the control of the Board of Regents and of which the professor of agriculture shall be the general superintendent.

The act became a law in 1885 but no funds became available for the operation of the station at that time and probably because the Hatch Act, which was enacted March 2, 1887, was before Congress, and its friends anticipated its passage. At the time the Experiment Station was created the University owned 250 acres of the present University Farm. At the request of the Board of Regents, Edward D. Porter, then professor of agriculture, presented a plan of organization for the Experiment Station at the meeting of the Executive Committee on January 26, 1888. A plan much different from the one presented by him was adopted by the Board of Regents, April 6, 1888.

The act of the legislature establishing the station was in response to requests of citizens of the state that Minnesota set about to solve agricultural problems that her farmers were not in position to solve. Some idea of the growth of the station may be gained from the observation that the area of land largely but not solely under its control at University Farm and the branch stations has increased from 250 acres to more than 5000 acres. But its growth has not been out of keeping with the demands made upon it. With the years the conviction that Minnesota is a vast commonwealth fitted for agriculture has become more firmly fixed. Therefore the expansion of the activities of agriculture and the growing complexity of its processes have brought increasingly heavy demands on the Experiment Station. Its contributions to the agriculture of the state and to agricultural education since 1888 have been many, more, in fact, than the average interested citizen is in position to realize. A bulletin setting out its more important achievements is now in preparation and will adequately supplement this report. Agriculture in the state of Minnesota is in quite as sound condition as in any other state and it is safe to say that it will be in the vanguard of agricultural recovery. That it is possible to make this statement is due in no small part to the contributions the Experiment Station has made to the healthy development of the agriculture of the state. The following are only a few of the contributions it has made in very recent years.

INVESTIGATIONS IN CROPS

Corn.—Through the development of early maturing and high-yielding varieties of corn, the corn belt has been pushed rapidly northward to the Red River Valley and the Canadian border, whereas the Iowa-Minnesota line used to be considered the northern limit of the corn belt. In 1899 the corn crop of the state was about 50,000,000 bushels. In 1923, because of the added areas conquered for corn, the total yield of the state was 155,000,000 bushels. Improvements in corn are still in progress. The Division of Agronomy, in co-operation with the Division of Plant Pathology is attempting to develop varieties of corn resistant to smut, which takes heavy toll of the farmers from year to year. Again, the plant-breeders are seeking to develop a method of producing hybrid seed corn which will give from 10 to 15 per cent higher yields than the ordinary pure line varieties.

Wheat.—In co-operation with the plant pathology workers, the plant breeders of the station have developed strains of wheat which promise freedom from rust, and it is only a question of a few years at most until new varieties of rust-resistant spring and winter wheat will be offered to the farmers of the Northwest.

Oats.—A variety of oats with stiff straw, high-yielding ability, and good market quality, which has been given the name "Gopher" oats, was developed by the Minnesota station, and is rapidly coming into favor among the farmers in southern Minnesota.

Barley.—Minsturdi barley, a stiff-strawed variety, now quite widely grown in Minnesota is the product of experiments at the Minnesota station. It yields as well as any other variety in the state. Velvet barley, a smooth-awned variety, created by crossing Manchuria with Lion, the latter an African variety, will be ready for distribution in 1926, and is sure to win favor because it will prove more comfortable to handle than the rough-awned varieties. Farmers visiting the Crookston Station manifested more interest in the new Velvet barley than any other crop appearing in the varietal trials.

Flax.—Flax production, on the decline for several years because of the losses inflicted by wilt, has been given a fresh impetus by the development of two wilt resistant varieties. One of these, Winona, is wilt resistant under almost all conditions. The other, Chippewa, while not universally resistant, is giving satisfaction in some parts of the state.

FARM MANAGEMENT

Through farm management studies, the station has been able to place in the hands of farmers, in printed form, data by which to estimate their own, and to encourage individual, cost accounting. As a result, increasing numbers of farmers are giving attention to accounting as a means of making their enterprises yield larger returns, and not infrequently as the basis for farm re-organization. Such studies are strictly in line with trends in other industries. They lead to the organization of the farm business with a view to enable the farmer to make the best choice of crops and livestock and to employ fully all of the resources of his plant to the best effect.

A recent bulletin, "A Study of Farm Organization in Southwestern Minnesota," for example, shows how a farmer in the region indicated might by a very simple readjustment of his cropping system employ his labor to so much better advantage that he could add $690 annually to his net income.

HORTICULTURE

The fruit-breeding farm has produced 30 valuable new varieties of fruits. A few of them are as follows:

The Latham raspberry.—The Latham raspberry (Minnesota No. 4) has come to be the leading raspberry of the Northwest. The money received in 1924 by Minnesota berry growers and nurserymen from the sale of fruit and plants of this variety was in excess of the whole cost arising

from the purchase and maintenance of the fruit-breeding farm to date. The value of this berry lies not only in its exceptional quality but in the fact that it is winter-hardy. Varieties grown before its introduction called for the complete covering of the plants within earth through the winter. This is unnecessary with the Latham anywhere in Minnesota. This variety is now becoming popular in New England and in the Great Lakes states.

Plums.—Fourteen plums and plum hybrids now being put on the market by the nurseries of the state promise the establishment of a rather extensive commercial plum industry in the upper Mississippi Valley. These hybrids are a combination of Japanese and native American plums, carry the hardiness of the American parent and the large size and fine appearance of the Japanese fruit. In size, appearance, and quality they equal the best of the California plums, and they grow to perfection in Minnesota and the surrounding states.

Strawberries.—Out of 75,000 seedling strawberries tested, seven have been retained and named. Of these seven, the Minnehaha, a large, firm, late variety has become a standard variety recommended for Minnesota planting. It gives promise of becoming the most widely planted strawberry in Minnesota in the next five years.

Other fruits.—In addition to the fruits mentioned, the fruit-breeding station has in process of development apples, pears, cherries, grapes, currants, gooseberries, blackberries. Results with these are just as certain to follow as results have followed with raspberries, plums, and strawberries.

DAIRYING

Among the important problems, answers to which have been worked out, are these:

Effect of feed and management.—By proper feeding and management, many a cow or herd can be transferred from the unprofitable to the profitable class. To show this to be true, four cows of three different breeds were taken from farms where cow-testing records had been kept, and placed on rations according to their milk production. Their rations on the farms from which they came had included expensive purchased feeds. Those at University Farm were made up of such feeds as could be grown altogether on the farm. Yet on the new rations the cows have produced 27.3 per cent more milk and 33.4 per cent more butterfat than they did under their former rations.

Reducing the milk fed to calves.—The milk from 45 of every 100 cows kept in the United States is sold "whole." This means a serious problem to dairy farmers selling whole milk, as it leaves them no skimmilk with which to feed calves. If they raise no calves, they have to buy to keep up their herds, and they take the risk of bringing in disease and cannot improve production. The Minnesota Experiment Station has shown that, with a suitable grain mixture and legume hay, calves may be weaned from milk at the age of 60 days, and that the milk may be skimmilk after two weeks. In this way the milk required to raise a calf may be reduced to

450 pounds. The possibilities of powdered skimmilk and powdered buttermilk in the same connection are being studied.

Soybeans in the dairy ration.—Experiments at the Minnesota station have shown that pound for pound soybeans are equal to linseed meal. By growing soybeans, therefore, the farmer may have a completely balanced ration, all home-grown. Bran worth about $1,500,000 and linseed meal worth about $500,000 are bought every year by Minnesota farmers. By growing the proper feeds, including soybeans, the farmer may now supply from the farm everything the cow needs. He will thus be more likely to feed enough protein than when he has to buy expensive concentrates.

Butterfat waste pointed out.—The Dairy Division of the Minnesota Experiment Station after testing 2050 samples of butter from widely different state sources, pointed out that Minnesota butter-makers were putting into their butter enough unnecessary butterfat to make an additional 7,110,000 pounds of butter, standardized at 81.5 per cent of fat, and that they were not improving the market grade of their product by so doing. This information was spread widely through the dairy press, at creamery operators' meetings, and by demonstrations. A marked improvement resulted, according to later tests, and a man prominent in creamery circles in Minnesota asserted that this piece of work on the part of the station alone had brought direct returns to the state in excess of the total cost of the dairy division of the state since its organization in 1890.

ANIMAL HUSBANDRY

Baby beef feeding trials.—For three years feeding trials have been carried on with lots of calves from seven to nine months old to determine the most economical methods. Beef cattle men have followed these trials closely, and have signified their approval of the results achieved by adopting the rations which have produced the most satisfactory gains. The trials have demonstrated clearly that under normal conditions Minnesota farmers can grow and fatten beef calves for the market with a reasonable assurance of satisfactory profits.

Raising fall farrowed pigs.—A way to added profits through the fall farrowing of pigs has been convincingly pointed out. For years pork producers in Minnesota have accepted the belief that pigs farrowed in the fall could not be raised with profit. The Minnesota station has shown this to be wrong. It has demonstrated that, taking into consideration the feed requirements, rate of gain, cost of gain, and selling prices, fall pigs can be successfully raised and marketed. The conclusion is that farmers can use their equipment far more profitably by raising some fall pigs and some spring pigs than by raising only spring pigs to be sold on a glutted market at a low price in the winter months.

VETERINARY MEDICINE

Contagious abortion and sterility.—Sources of great loss to farmers are contagious abortion and sterility among cattle, horses, and swine. With these, the veterinarians of the station staff have wrestled successfully.

Their investigations have given results which when applied have returned diseased animals to a healthy breeding condition. This has been the means of saving many valuable animals to their owners for the improvement of their stock. The value of such results through future years cannot be estimated. Vaccines, it has been shown, will not effectively control contagious abortion.

Tuberculosis of poultry.—An element of anxiety among poultry raisers has been removed by investigations which have shown that tuberculosis of poultry is not readily transmitted through the egg, and that farmers need not fear the introduction of the disease from hatching eggs or day-old chicks.

Dangers from sweet clover.—It has been found that under certain conditions, sweet clover hay, which is rapidly gaining favor in Minnesota as a forage crop, may produce a fatal disease among cattle. A study of the conditions, however, discloses the fact that only rarely does disease result from feeding sweet clover, and even then, if fed with other feeds, it is not usually fatal. Farmers are advised, however, to be watchful of feeding sweet clover extensively. No trouble has been observed in feeding sweet clover silage or pasture.

BIOCHEMISTRY

Biochemistry is of importance in every other field of agricultural experimentation, as may be seen in part from a few of the problems which the biochemists have solved or are at present attempting to solve, as follows:

Nutritive values of breads.—Through extended analyses, the Division of Biochemistry determined the nutritive values of various kinds of bread. The solution of this problem meant an accumulation of knowledge of great value in the promotion of human health and in the guidance of manufacturers of foods made from farm products.

Deterioration of stored grains.—The division determined the causes of the deterioration of grains in storage. The effects of moisture content were carefully determined. As a result, farmers and manufacturers now may know how to store their grains with much less danger of losses than formerly.

Milling and baking values of wheats.—The division has worked out many problems relating to the milling and baking qualities of the different wheats. The solutions of these problems have already contributed, and will continue to contribute, greatly to the successful milling of standardized flours of given quality, and to the manufacture of breads of uniform merit. They will, also, serve to guide the farmer as to the most desirable kinds of wheat to grow and thus aid him in getting premium prices. The information uncovered in this field alone is of immense value, and is so recognized, cereal chemists from different parts of the United States and of Canada coming to University Farm to make personal study of it.

ENTOMOLOGY

Station aids in grasshopper war.—The old grasshopper attack, such as early residents of the state so clearly remember, is not likely to be repeated, because the Minnesota station, along with others, has been instrumental in developing control measures through the use of poison bait. Especially has Minnesota contributed to a knowledge of the best poison baits and the factors which influence their effectiveness. It was through the application of this knowledge that the grasshopper attack in the summer of 1924 was prevented from being vastly more serious than it would have been had no control measures been available.

A $200,000,000 loss of stored products.—Insects annually cause a loss of $200,000,000 in stored grains, fruits, and other foods in the United States. This is an underestimate rather than exaggeration. The Minnesota station has been among the foremost agencies of the country in working out methods to reduce this enormous economic waste. Extensive studies of the relation of temperature and moisture to insect development have a very immediate and practical application in the solution of this great problem. New methods of fumigation of stored food products as well as of furs, clothing, and furniture are being developed. The possibly injurious effects of some of the methods recommended are not being overlooked.

CO-OPERATION WITH LAKE STATES FOREST EXPERIMENT STATION

The Lake States Forest Experiment Station which established headquarters at University Farm in 1923 is working in close co-operation with the Division of Forestry on questions relating to forest production. Dr. Raphael Zon, director of the station, was given rank of professor in the University, without salary, and was made director of our Cloquet Forest Experiment Station. This arrangement insures unification of program and effort between the Experiment Station and the Lake States Station on practically all problems related to the growing of timber.

IMPROVEMENTS WITHIN THE DEPARTMENT OF AGRICULTURE

Late in the year 1923-24 the new Dairy Building at University Farm was completed. While it is not as spacious as some of the dairy buildings recently erected at other institutions, it is, nevertheless, ample for our dairy work, for located as we are we do not find the need for engaging in dairy manufactures on a large scale as do such institutions as Cornell, Pennsylvania State, Nebraska, and others. The new building, in architecture and arrangement, is a credit to the University Farm campus.

During the year improvements were made at Morris, Crookston, and Waseca. At Morris the building given over to auditorium and administrative officers was rebuilt. As a result the school now has a splendid building for these uses. A new hospital was also erected at Morris.

At Crookston a beef cattle building and an animal products building were erected.

At Waseca a new horse and cattle barn was built.

Respectfully submitted,

W. C. Coffey, *Dean*

THE LAW SCHOOL

To the President of the University:

SIR: I beg to submit the following report on the Law School for the academic year 1923-24.

Faculty.—The school records with regret the resignation of Professor Henry W. Ballantine. His fine character, outstanding scholarship, ability as a teacher, and helpfulness as a colleague, made him a most valued member of the faculty. It also regrets the resignation of Assistant Professor Wesley A. Sturges. Altho Mr. Sturges was only one year in Minnesota, he showed qualities as scholar and teacher of great promise. Paul J. Thompson, professorial lecturer, was unable because of pressure of professional work to accept re-appointment after the close of the year. He has been for a number of years a helpful assistant in the conduct of the work in practice. Thomas C. Lavery has been appointed professor of law for 1924-25 to carry on the work of Mr. Ballantine; Henry W. McClintock, assistant professor, to succeed Mr. Sturges. Edward Lees, commissioner of the Supreme Court of Minnesota, gave the course of special lectures formerly given by Chief Justice Calvin A. Brown. He proved himself a valuable lecturer, and has been re-appointed for 1924-25. The work of Mr. Thompson will be carried on by R. Justin Miller. It is a pleasure once again to report the generous performance of valuable unremunerated services to the school by Justice Homer B. Dibell and Judge Bert Fesler.

Curriculum.—The curriculum of the academic year has been reduced in quantity. The course for the degree of bachelor of laws, is all prescribed except fifteen credits in the senior year. All prescribed work is offered each academic year. Because so few subjects may be elected, fewer elective subjects are offered. A correlation has been worked out between the curriculum of the summer quarter and the academic year. One group of elective subjects is offered in summer, and another group in the academic year. The order is reversed the following year. In this way, most of the special topics in the law, may be had at one time or the other. It may be necessary for students to attend in summer to get certain subjects; but there are enough equally valuable electives in the academic year. Students who wish to study a large number of special subjects, must attend in summer anyway because there is time for only a few electives in the three-year course. In this way the need for a larger faculty is avoided and the teaching load kept within reasonable bounds.

Registration.—The registration table will be found in the report submitted by the registrar. The total registration was 283, an increase of 7 over the preceding year. There has been a steady decrease for several years in the number registered as special students who cannot qualify for a degree. There were 17 of these in the school in 1923-24, compared with 27 in 1922-23. Experience has shown that very few of them are able to do the work of the law course with even modest success.

Preliminary training.—There has been a marked increase in the number of students entering with more than the minimum two years of college work required for admission. In 1921-22, 17 per cent of the entering class had a degree or three years of college work; in 1922-23, 28 per cent; and in 1923-24, 39 per cent. These students do strikingly better work than the others. Over 74 per cent of them passed all examinations, compared with 45 per cent of those having only two years of college work, and 33 per cent of those having less or no college work. Only 7 per cent of them failed in the year's work compared with 29 per cent and 33 per cent of the other groups respectively. Similar results are shown in the report for last year.

Entrance requirements.—The striking difference between the accomplishment of the better prepared and the other students raises the question whether entrance requirements should not be raised to three years of college work. The subject-matter and methods of law study are difficult and seem to require greater training and maturity than are secured by the requirement of two years of college work for entrance. Furthermore, the larger liberal education produces more capable and public-spirited practitioners. There is a clearly evident tendency on the part of university law schools to require larger preparation. Harvard University, the University of Pennsylvania, the University of Pittsburgh, and Northwestern University, have required a degree for admission to their law schools. Leland Stanford University and the University of California, which formerly required three years of college work, have this year changed to the degree requirement. Yale University, the University of Chicago, Columbia University, Western Reserve University, have required three years of college work. The University of Michigan Law School has given notice of the same requirement. The time is not far distant when most university law schools will be graduate schools.

Scholarship.—The scholarship tables given in the reports for other years, are omitted because they do not show noteworthy changes this year. The students' work has been better. The honor point average for the first year class is .17 higher than in the preceding year. The increase is largely due to a larger number of very capable students in the class. The percentage of failures was about the same as in the preceding year. Of 126 in the first year class, 13 withdrew before final examinations, and 90 qualified to enter the second year.

Minnesota Law Review.—The *Law Review* has had another very successful year. The subscription list is growing. It now includes almost all the highest court libraries in the United States, and several libraries abroad. The contract with the Minnesota State Bar Association by which the *Review* goes to all the association members, has proved very satisfactory to both parties and is continued. The financial condition is excellent, the surplus for the year amounting to approximately $1500, and the accumulated surplus to approximately $3700. Great credit is due to Professor Fletcher, the editor, and to Professor Paige, the business manager, for the success of the *Review*.

Law alumni loan fund.—The Law School Alumni Association collected some years ago a fund to aid the Law School. Last year the principal and accumulated interest, amounting to $1389.98, was turned over to the University to be loaned to law students according to rules to be prescribed by the Law School faculty. The amount has been increased to $1700.54 by an anonymous donor. The faculty voted that the fund should be made available primarily to the students working on the *Law Review*. They give their time to the *Review* without credit or compensation and sacrifice opportunities to earn part of their school expenses for this reason. The fund has proved most helpful in this way. It was all loaned last year. The school is deeply grateful to the alumni for this fund and hopes that it may be increased from time to time. A much larger fund could be helpfully used for this purpose.

Respectfully submitted,

EVERETT FRASER, *Dean*

THE MEDICAL SCHOOL

To the President of the University:

SIR: The Medical School, during the year 1923-24, has recorded with deep regret the deaths of Dr. Warren A. Dennis and Mr. David O. Spriestersbach, members of its faculty; Dr. Dennis, a devoted alumnus of the school, a teacher of long experience, and a successful surgeon; Mr. Spriestersbach, a young man who had early proved his ability in bacteriologic teaching and research.

Its losses by resignation include Dr. Clemens Pirquet who held but briefly the chiefship of the Department of Pediatrics; Miss Louise M. Powell, director of the School of Nursing, who gave fourteen years of valuable service to the University and, latterly, to the associated hospitals, and has retired to become the dean of the School of Nursing of Western Reserve University; and Dr. LeRoy A. Calkins, assistant professor of obstetrics and gynecology, who has been chosen to the headship of his department in the University of Virginia.

Dr. Clarence M. Jackson, director of the Department of Anatomy, has been on leave of absence for the year to enable him to act as medical member of the National Research Council, Washington, D.C.

The following promotions have been made: from associate professor to professor, Dr. Archibald MacLaren; from assistant professors to associate professors, Dr. George E. Fahr, Dr. Angus W. Morrison, Dr. Horace Newhart, Dr. E. T. F. Richards; from instructors to assistant professors, Dr. Ernest S. Mariette, Dr. John A. Pratt; from assistants to instructors, Dr. Edward D. Anderson, Dr. Donald McCarthy, Dr. Frank S. McKinney, Dr. Arthur E. Mark, Dr. Cecile Moriarty, Dr. Morris Nathanson, Dr. W. Ray Shannon, Dr. Davis Stern, Dr. Lauritz S. Ylvisaker; from teaching fellow to instructor, Dr. William A. O'Brien.

Additions to the faculty have been made by the appointments of Dr. Frederick W. Schlutz as chief of the Department of Pediatrics; Dr. George S. Stevenson, as assistant professor of medicine and director of the Psychiatric Clinic; Miss Eula B. Butzerin, as director of the courses in Public Health Nursing and instructor in preventive medicine; Dr. Lillian M. Mayer, Miss Alma Haupt, and Miss Alice Fuller, as instructors in preventive medicine and public health; Mr. Robert D. Evans and Miss Madeleine Guillemin, as instructors in bacteriology; Dr. Harold J. Goss, as instructor in ophthalmology and oto-laryngology; and Dr. Carl B. Drake, as instructor in medicine.

An executive committee of the general faculty has been appointed, whose chairman sits with the Administrative Board.

Dr. Arthur T. Henrici has been chosen, by vote of the general faculty, as one of its representatives upon the Administrative Board.

Regulations for the governance of full time members of the Medical School faculty have been adopted.

The student interneship, which has been on trial for a period of three years, has been abandoned and additions of one quarter have been made to the clinical didactic period and to the clinical clerkship.

Honor students have been given a large measure of freedom, under supervision, in their courses of study.

Limited registration, imposed for some years by the lack of physical growth, has been stretched to the utmost capacity of the Medical School. The numbers in the several classes and student groups, for 1923-24 are as follows:

First year	100	Fifth year	106
Second year	108	Special students	44
Third year	103	Graduate students	59
Fourth year	104	Teaching fellows	28

An event of importance to the school has been the establishment of the Child Guidance Clinic, for an experimental period, under the direction of Dr. Lawson G. Lowrey.

An evening clinic for the treatment of tuberculosis has been established with the co-operation of the Hennepin County Public Health Association.

An appropriation of $3600 has been made by the Child Bureau of the Department of Labor, Washington, D.C., for the conduct of research into the causes of death in the unborn and the newborn child. The work will be conducted by Dr. F. L. Adair and Dr. William A. O'Brien under the auspices of the departments of Obstetrics and Gynecology and of Pathology, with the assistance of the Department of Anatomy.

The school completed and presented to the Board of Regents, through its committee, a report upon its needed physical expansion. Including the proposed site for a new Minneapolis General Hospital, the report calls for the sum of $3,583,900.

The erection of the Todd Memorial Clinic and of the Cancer Institute is in rapid progress and the completion of these buildings is expected within the ensuing year.

To the benefactions which have made these new developments possible, has been added the noble gift of Mr. William Henry Eustis, approximating $1,000,000 for the remedial care of children and the reconstruction of the crippled and deformed among them.

The reports of the School of Nursing and of the University Hospital are appended.

Respectfully submitted,

E. P. Lyon, *Dean*

THE SCHOOL OF NURSING

Following is the report of the School of Nursing for the year July 1, 1923, to June 30, 1924:

Regular students in central school	265
Students affiliating	196
Total registration during year	461

Students	June 30, 1923	June 30, 1924
Central school	170	200
Affiliates	57	77
Total	227	277

Nursing students by classes	June 30, 1923	June 30, 1924
First year	94	68
Second year	51	80
Third year	25	52
Affiliates	57	77

Students in combined Arts and Nursing Course	June 30, 1924
In hospitals	13
In College of Arts	30
Total	43

Graduates	March, 1924	June, 1924	Total
Three-year course	8	31	39
Arts and Nursing	..	4	4

We have made a definite advance in creating in the students a keener sense of loyalty to the school as a whole, no matter in which hospital they may be resident. There has been a sincere effort on the part of some departments of the Medical School to improve the teaching of our students, but there is much to be done in fixing responsibility for courses and assigning lectures to a smaller number of men. Our courses can be better organized, and I am sure this will come when fewer men are giving the courses.

Again this year, four of the three-year students have been given three months in the University as part of their course for academic or field work in advanced nursing.

The students raised money to send two of their number to the National Student Volunteer Convention meeting in Indianapolis in December. They also sent two of their number to the American Nurses' Association meeting held in Detroit in June. Two of the students used their vacation periods in attending this national nursing convention at their own expense.

The group of women taking the combined Arts and Nursing Course is steadily increasing. Eight have entered the hospitals during the year, having completed the two years of pre-hospital academic work; nine entered the freshman class in the University and seven returned to the University, having completed their hospital course.

Respectfully submitted,

LOUISE M. POWELL, *Director.*

THE UNIVERSITY HOSPITAL

The following report of the Minnesota General Hospital is submitted for the year ending June 30, 1924.

COMPARATIVE STATISTICAL REPORT

	1922-23		1923-24	
Hospital (Statistical)				
Patients in hospital at beginning of the period, July 1.	162		162	
Patients admitted during year	2,819		3,067	
Patients treated during year	2,981		3,229	
Total days hospital care	57,096		59,425	
Average days per patient	19+		18+	
Highest daily census	179		180	
Daily average number of patients	155		162	
Hospital (Financial)				
Daily average cost per patient (net)	2.31		2.25	
Daily cost per capita for provisions for all persons supported	.326		.342	
Out-Patient Department (Statistical)				
New patients treated	14,779		15,747	
Day clinic		15,478		
Night clinic		269		
Total patients' visits	65,922		66,127	
Day clinic		57,858		
Night clinic		8,269		
Average visits per day	274.25		272.33	
Total prescriptions issued	22,693		23,529	
Total X-ray requests	1,757		1,747	
Out-Patient Department (Financial)				
Daily average cost per patient's visit (net) exclusive of Social Service Department	.082		.109	
Daily average cost per patient's visit (gross) exclusive of Social Service Department	....		.294	
Daily average cost per patient's visit (net) inclusive of Social Service Department	.193		.220	

From the above it may be noted that a larger number of patients were cared for during the last fiscal year than in the year 1922-23 at a smaller per diem cost and with a shorter average number of days in the hospital.

The total number of patients admitted was 3067. Of these, 838 were admitted to the pay service and 769 were admitted under the provisions of chapter 411, *Laws of 1921*, as amended by chapter 265, *Laws of 1923*.

The construction of the Todd Memorial Hospital and Cancer Institute was begun June 2, 1924, and the work is progressing favorably. The total capacity of these units will be 96 beds, bringing the total capacity of the University hospitals to approximately 300 beds.

THE SOCIAL SERVICE DEPARTMENT

Field of service.—The clinics which have had adequate and special service during the time are the diabetis, nervous and mental, obstetrics and gynecology, and syphilis. Such other types of cases as have been

referred to us as emergencies from other clinics and hospital wards have been cared for. There should be extension of the work to include medicine, pediatrics, and the entire venereal group.

Students have been registered in the department for field work as follows:

Student dietitians (Division of Home Economics)	30
Graduate student nurses (Division of Preventive Medicine and Public Health)	9
Total students	39

Lectures and conferences have supplemented the actual practice in the field in these courses and in addition single lectures have been given to other groups of students not regularly working in the department.

Statistical

Number of individual families with whom we worked	1079
Number of additional instances of patients assisted without home visiting	4334
Number of visits made	1601
Number of reports given to agencies	2307
Number of agencies co-operated with	228
Number of instances of such co-operation	2978
Number of interviews with patients	5927
Number of letters sent	3570
Number of pieces of educational literature distributed	1147

The above figures are less rather than more than the actual facts but are as nearly accurate as can be effectively kept.

Personnel—During the above period the members of the staff have been as follows: Miss Marion Tebbets, director, Miss Lydia Christ, Miss Mary C. Smith, Miss Rebecca Pond, Miss Mary Roberts, Miss Isabel Gibson (half time, October 1, 1923), Miss Lydia Madsen (July 1, 1923-January 15, 1924), Miss Mildred Johnson (January 15, 1924).

The efficiency of the work has been greatly increased by the cordial co-operation of the members of the medical and nursing staff and all co-operating agencies.

Respectfully submitted,
L. B. BALDWIN, *Superintendent*

THE COLLEGE OF DENTISTRY

To the President of the University:

SIR: I beg to submit herewith my report for the year 1923-24.

The college has followed with keen interest the progress of the study of dental education by the Carnegie Foundation for the Advancement of Teaching. While the full report is not yet published, the substance of it as so far made public has given unqualified support to the university ideal in dental education. The report will probably support a plan of two pre-dental years, with three years of dental training.

Extension work has increased greatly. The district dental societies of Ramsey and Hennepin counties have co-operated heartily in planning extension courses for practitioners. These have been largely attended.

There have been several students from foreign countries, one of them holding a scholarship from the Scandinavian-American Foundation.

The faculty has lost the following members:

Dr. F. H. Orton, for many years professor of crown and bridge work, now a full time professor in the University of California.

Dr. Theodore W. Maves, assistant professor of crown and bridge work, now professor in Western Reserve University.

Dr. J. R. Gill, instructor in crown and bridge work, now a full time teacher in the University of California.

Dr. Allen T. Newman, formerly superintendent of the clinic, now dean of the College of Dentistry, University of Denver.

Dr. Merrill G. Swenson, formerly instructor in prosthetic dentistry, now full time practitioner with the Deaner Institute, Kansas City.

Dr. Bert G. Anderson, formerly assistant professor of oral diagnosis, who spent the last two years with the Union Medical College of Peking, has renewed his appointment after a furlough in the United States.

Promotions: From associate professor to professor, Ray R. Knight; from assistant professor to associate professor, Herbert C. Nelson, Carl F. Otto, Carl W. Waldron; from instructor to assistant professor, George D. Estes, Louis W. Thom.

Respectfully submitted,
ALFRED OWRE, *Dean*

THE SCHOOL OF MINES

To the President of the University:

SIR: I herewith submit my report for the University year 1923-24.

SCHOOL OF MINES EXPERIMENT STATION

Personnel.—The only changes made in the personnel of the staff of the Experiment Station were the substitution of Mr. Swanson as millwright in the place of Mr. Lofgren, and Miss Kirk as engineering clerk in the place of Miss Fargo. It has been necessary to carry quite a staff of laborers during the year, as a large amount of mechanical work has been required in connection with the installation of equipment in the new building.

Newly acquired equipment.—The sum of $6000 was made available by the Board of Regents for the purchase of new equipment for the Experiment Station during the year 1923-24. Much of this money was spent for the purchase of material and for labor for manufacturing equipment for our metallurgical work. It is practically impossible to purchase on the market, machinery of a size and nature suitable for experimental work in ore-dressing, and we find it much cheaper and more convenient to purchase the rough material and provide the labor so that this equipment can be built in our own shops. As an example of the equipment purchased outright from this $6000 fund the following may be tabulated:

Monroe calculating machine	Cylindrical trommel
Several motors	Vacuum pump
Several speed reducers	Gas meter
Dictograph telephone system	Pyrometers

As an example of the equipment that has been built in our shop, the following tabulation has been prepared:

Pipe launders	Two experimental jigs
Cylindrical ball mill	Rebuilding the Janney classifier, Herreshoff roasting furnace, Dorr classifier, etc.
Several belt conveyor installations	

Work is now actively under way on the construction of a new log washer, as inquiries indicated that the prices charged by the manufacturing company for the log washers were excessive. At the present time, we are erecting an eight-foot tray type Dorr thickener which has been deposited in our laboratory by the Dorr Company of New York for use in our experimental work. This thickener is priced at about $2000 and the Dorr Company has given us the use of this thickener indefinitely. This was quite a concession on their part and reflects their interest in our work as this organization is in a non-competitive field of work, and seldom, if ever, gives or loans any equipment without charge.

The laboratory equipment is now beginning to appear more complete and it is slowly becoming possible for us to do more experimental and state service work. During the coming year with the money available

we expect to complete the equipment. We will then be able to give more attention to metallurgical work.

In connection with the special appropriations for peat and manganese, most of our energy during the past year has been directed along mechanical lines owing to the fact that the gas producer had to be completely torn down when removed from the old building last summer. No attempt was made to assemble this machine until this spring on account of the fact that we wish to carry on this experimental work out of doors on the platform behind the building. During last summer about 1000 tons of peat were excavated from a peat bog near the Northwestern Terminal, and partially dried. Due to early rains, this drying was not as complete as was desired and it was necessary to store a large part of this peat in sheds at the bog before the drying operation was completed. Work is now under way spreading this peat so that within a month or two we expect to have an ample sample of the dry peat for the operation of our gas producer this summer. The gas producer is now being set up outside of the building and will be ready for operation by the time the peat is dried.

All of the money available on the manganese appropriations was spent in erecting a blast furnace in the furnace room of the Experiment Station Building. This installation was completed early in June when the furnace was ready for use. The cost of this installation overran the appropriation somewhat, but the deficit was made up from our other budgets. In connection with the construction of this furnace it was necessary to remove about 2000 yards of dirt from the furnace room in order to lower the floor sufficiently to accommodate the additional height of the new blast furnace. The lowering of this floor necessitated the strengthening of the walls, for which the Board of Regents appropriated $2000. The superintendent of buildings and grounds took care of the reinforcing of these walls, and our own staff excavated all of the dirt. The construction of this furnace and the preparation of the furnace room has required a very large amount of work and considerable attention by the whole staff, but the plant is now in excellent shape for future experiment work and little or no additional mechanical work will be necessary in this department.

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

A. Work submitted by citizens of the state:
   a. Large scale tests (½ ton or more) 16
   b. Small scale tests (less than ½ ton) 19
   c. Samples submitted for assay and examination 534
   d. Number of samples referred to other departments 4

B. Special experimental work
   a. As was the case during the previous year it has been quite difficult to carry on any special experimental work during the present year. This was, of course, due to the fact that so much time and attention had to be devoted to the construction of equipment and installation of equipment already on hand. We have not encouraged the mining operators to submit samples for tests for the reason above stated, and have done only that experimental work which seemed to be of greatest importance. During the past year the following investigations have been carried on:

1. *Utilization of the Cuyuna manganiferous iron ores.*—A special appropriation of $5000 was available for this work, and as previously stated all of this money was expended in the construction of the experimental blast furnace. Through the co-operative arrangement with the United States Bureau of Mines, we constructed this furnace with the understanding that the bureau would appropriate the money necessary for the experimental work. As a matter of fact, they have already made the first test on this furnace, but results of the investigation are as yet not available. About 150 tons of manganese iron ore were smelted in this furnace, and mechanically the plant operated quite satisfactorily. The experiments that are being conducted are for the purpose of demonstrating the value of the manganese in the Cuyuna Range ores. As a result of these experiments we hope to convince the purchasers of the manganese ore that the manganese content is of more value than the iron.
2. *Technological investigation of peat.*—A special appropriation of $5000 was available during the year for this work. This money has not all been spent during this year on account of the fact that it was impossible to reassemble and erect the gas producer last summer in the midst of our moving operations. The part of this appropriation that has been expended, outside of salaries, has been largely for the excavation and drying of sufficient peat to enable us to operate the gas producer during the present summer. The program laid down at the present time consists in operating the peat gas producer as an up draft machine during the coming summer. It previously has been operated as a down drive machine. With the results of these experiments available, a report will be prepared during the coming winter which will include all of the work done at the Experiment Station, together with descriptions of the various processes now on the market for preparing peat fuel.
3. The W. S. Tyler Company established a research fund at the Mines Experiment Station amounting to about $5000 to be expended during the year 1923-24. This experimental work has been progressing satisfactorily. The work involves crushing and screening ore by use of the vibrating screens which the W. S. Tyler Company manufacture. The work involves not only the use of their screen for making the separation but the ore is also separated by the use of other equipment and the results compared. Reports are prepared from time to time covering details of the work, and if the information is of sufficient interest a bulletin may be published covering the entire investigation.
4. For the last two years considerable interest has been centered in the low silica manganiferous iron ore on the Cuyuna Range. Experimental work at the Experiment Station has indicated that sintering is all that is required in order to make this kind of ore suitable for blast furnace use. Attempts were made to interest several different concerns in this process and finally the R. M. Adams Company, at Ironton, Minnesota, became sufficiently interested to pay for some experiments on a larger scale. Accordingly, arrangements were made to carry on experimental work in a commercial sintering plant at Birdsboro, Pennsylvania. The results checked the small scale experimental results which were secured in our laboratory, and after receiving our report Mr. Adams decided to construct a similar plant on the Cuyuna Range. This plant is now practically completed and will begin operation within a few weeks. The cost of this plant was about $125,000 and its success will mean the development of a new industry for the Cuyuna district. It will make available a large quantity of low grade ore, and the successful operation of this plant will undoubtedly mean the construction of several similar plants by other mining operators.

Assays.—The total number of assays made in connection with the Mines Experiment Station during the past year was 7554.

For the purpose of encouraging the development of the mineral resources of the state of Minnesota, the Experiment Station makes tests and assays free of charge for companies and individuals provided the company is operating within the state and provided a legal description is given of the properties from which samples are taken. The following statement will give an idea of the amount of work and service rendered by the Experiment Station along these lines:

TESTS MADE AT THE MINES EXPERIMENT STATION
1912-1924 (INCLUSIVE)

Large tests (½ ton or more)	286
Small tests (less than ½ ton)	1,376
Samples for assay and examination	2,501
Assays	100,000

Publications.—The only publication made during the last year was the *Mining Directory of Minnesota for 1924.* This book has been enlarged somewhat, due to popular demand, and while considerable work is required to prepare the subject-matter, it is so cordially received and seems to fill such a long felt want, that we feel that the work of preparing this publication is well worth while.

New building.—On April 24, 1923, we started moving into the new Experiment Station Building. This moving operation was completed during the summer of 1923 and most of our equipment has now been installed. The building has turned out to be a very satisfactory laboratory in which work of almost any metallurgical nature can be carried on. There has been some trouble with the elevator due to the poor electrical locking device on the door. These locks have been repaired several times, and whether or not this elevator can be made to operate satisfactorily with the present type of locks is doubtful. As the staff becomes more accustomed to working in the new building the operations will become smoother and more efficient. The large amount of construction work that has been going on continuously has made it impossible to get the laboratory into smoothly operating condition, but it is expected that during the coming year practically all of our construction will be completed. It will then be possible to give all of our attention to the metallurgical and experimental work.

During the past two years, more and more attention has been drawn to the so-called direct reduction process. This process consists in changing iron ore to metallic iron at a relatively low temperature. When this conversion is completed, it is possible to separate the metallic iron from its impurities after which the metal can be melted into steel of any desired quality. This is not a new process, and more or less experimental work has been going on for the past fifty years along this line. As the price of fuel, labor, and transportation increases, this direct reduction process becomes more attractive. With the large amount of iron ore available in Minnesota it seems that some attention should be given this work by

our Experiment Station staff. During the past few years sufficient attention has been given this direct reduction process to keep us informed on the work that is being carried on, and also, to check up some of the experimental data that have been published. Careful study has been given to various plans for carrying on this reduction work, with the result that we have been able to work out a method for metallizing iron ores of any quality in a very inexpensive manner. Sufficient funds have not been available to enable us to go into this investigation in an exhaustive manner. The development of a direct reduction process would be of immense value to the state of Minnesota, as it would be possible by the use of low grade fuels, such as lignite or possibly peat, to produce iron and steel in large quantities here in our own state rather than to export all of our raw material. Attention is called to this situation because we feel that for the good of the iron ore industry in Minnesota this direct reduction process should be carefully investigated.

UNITED STATES BUREAU OF MINES

Object.—The North Central Experiment Station of the Bureau of Mines was established in 1917 to undertake on a co-operative basis with the School of Mines of the University of Minnesota the solution of mining and metallurgical problems having a particular bearing on the Lake Superior district. Mine Rescue Car 10 is maintained in this district which covers Minnesota, Wisconsin, upper Michigan, and North and South Dakota, to conduct mine rescue and first aid work among employees in the mining industry. Annual visits are made to the University of Minnesota to give similar instruction to students in the School of Mines.

Personnel.—At the present time the activities of the station are under the direction of T. L. Joseph, holding the position of metallurgist and acting superintendent. Other members of the station staff are P. H. Royster, associate metallurgist, S. P. Kinney, assistant metallurgist, W. F. Holbrook, assistant chemist, F. A. Hartgen, senior aid, S. Olson, principal clerk, P. A. Johnson, and J. A. T. Addison, skilled laborers. At intervals when special furnace tests are made it is necessary to hire approximately twenty laborers in addition to those regularly employed.

Activities.—The following major investigations have been under way during the past year:

1. *Production of ferromanganese from Cuyuna Range ores.*—The major problem under investigation during the past year has dealt with research designed to find a new outlet for the manganiferous iron ores of the Cuyuna Range. A rather extensive program was outlined at the outset, consisting of the construction and operation of an experimental blast furnace by means of which the smelting of these ores could be studied. Considerable progress has been made on this portion of the program. A furnace, designed by the bureau engineers, was built by the University of Minnesota. This furnace, which is 20 feet high and has a capacity of from 3 to 5 tons, is housed in one wing of the Mines Experiment Station Building. The design of this furnace is the result of several years research by the bureau, during which furnaces of various shapes and dimensions have been operated. During a recent test of the furnace about 30,000 pounds of metal were produced from the Cuyuna ores. This metal is being used

at present to study the remaining steps of the proposed process. Experiments are in progress daily which are designed to separate the iron, manganese, and phosphorus, producing three products: (a) steel; (b) manganese slag, which can be used in making ferromanganese, an alloy essential in the manufacture of steel; and (c) slag, bearing sufficient quantities of phosphate to make it valuable as a fertilizer. A small cupola and a miniature Bessemer converter have been installed to accomplish the foregoing result by a modification of known metallurgical procedure. If successful metallurgically, and commercial application of the process is feasible, a new outlet will be opened for the manganiferous iron ores of the Cuyuna Range. At the present time this resource is practically a dormant one.

2. *Investigations at commercial blast furnace plants.*—In conducting its blast furnace studies the bureau has found it advisable to carry on research work at commercial furnace plants. This is done in co-operation with various companies and the particular line of research followed has in many cases been tried out on experimental furnaces operated on the University campus. During the past year considerable progress has been made in procuring gas samples from the shaft of a commercial furnace and temperature measurements at different levels between the bottom of the furnace and the charging level. The object of such work is to find out what is actually happening within the blast furnace. Such field work is necessary in order to keep in close contact with the iron industry. It also serves as a valuable background and aid in conducting laboratory experiments or research on an experimental scale.

3. *Studies relating to the beneficiation of iron ore.*—In arriving at the expenditures which will be permissible in the beneficiation of iron ore, it is necessary to know how the value of the beneficiated ore will compare with that of the untreated ore. To answer this question a study, based upon the operating data of some fifty blast furnaces, was made in an effort to determine what modifications in practice could be effected with a beneficiated ore. From basic relations which were found to exist between the gangue present in the ore and the fuel required to smelt it, conclusions were reached as to how silica or ore gangue affects the cost of pig iron. Such a study was made possible because the bureau, through the co-operation of steel manufacturers, had obtained a rather large amount of complete blast furnace operating data.

4. *Properties of metallurgical fuel.*—It is generally known and recognized that sulphur and ash are harmful to metallurgical fuel, but no definite quantitative relationships have been developed by which the true relative value of various fuels can be determined. With the aid of data collected from the industry a set of curves was worked out showing how the value of coke for blast furnace use changes as its ash and sulphur content change. Such information is of special value in undertaking the development of new coal fields and in evaluating coal-washing methods.

5. *Small scale tests.*—A number of laboratory studies, related particularly to the blast furnace process, have been carried over from last year. The most important of these are:

a. Factors affecting the rate of heat transfer from a moving gas stream to a bed of solid particles, e.g., lumps of ore.
b. How does the pressure required to force air through a bed of solids vary with the size and shape of particles, temperature of the air, etc.?
c. Principal factors affecting the rate of iron ore reduction under conditions comparable to those maintained in the blast furnace shaft.

By way of conclusion, it may be repeated that the major problem of the station during the past year has been connected with the utilization of the Cuyuna ores, and a large proportion of the station's annual appropriation has been expended in pursuing this work.

MINNESOTA TAX COMMISSION

Object.—The School of Mines still continues its service to the State Tax Commission. The ore estimates, as checked and submitted, are used as a basis for the valuation of mineral properties in the state of Minnesota.

Services.—Owing to the fact that our report to the Tax Commission is made biennially and as the report for the biennial period, 1923-24 is not due until September 1, 1924, no detailed statement will appear in this year's report.

Personnel.—Mr. E. M. Lambert, assisted by Mr. A. J. Carlson, continues in charge of the work. The cordial relations with the officials of the various mining companies and the expressions of appreciation of this branch of the service to the state which come to us both from the Tax Commission and the mining companies are a source of considerable gratification.

EDUCATION

Registration.—The total registration during the year was 103, distributed as follows:

Seniors	21
Juniors	17
Sophomores	28
Freshmen	37
Total	103

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

Becker	1	Meeker	1
Bigstone	1	Morrison	1
Cass	1	McLeod	2
Chisago	1	Ramsey	12
Crow Wing	1	St. Louis	13
Dodge	1	Scott	1
Douglas	1	Sibley	1
Fillmore	1	Swift	1
Freeborn	1	Washington	1
Hennepin	36	Winona	2
Itasca	3	Yellow Medicine	1
Martin	1		

Students registered from outside the state as follows:

California	1	North Dakota	3
China	3	Ohio	1
Iowa	2	Pennsylvania	1
Michigan	1	South Dakota	1
Montana	2	Wisconsin	2
New York	1		

Withdrawals.—During the year, twenty-six students withdrew. These students were distributed by classes as follows:

Seniors	0
Juniors	4
Sophomores	7
Freshmen	15

The reasons for these withdrawals were as follows:

Financial	3
Ill health	2
Transferred to other colleges within the University	5
Suspended	4
Scholastic deficiency	11
Unknown	1

Faculty.—Early in July, L. S. Heilig, instructor in mining, resigned to accept the position of resident mining engineer for the Minnesota Tax Commission which had been tendered him.

It was with the deepest regret that we were forced to accept his resignation due to the fact that it was impossible to meet the salary which had been offered him by the Tax Commission. Mr. Heilig was exceptionally well qualified to fill the position of instructor in mining as he had had extensive experience both in the United States and foreign countries. He was unusually successful in handling students and in securing good work from them. He enjoyed teaching and might have been induced to remain with us, even at a financial sacrifice, had it been possible to give him reasonable assurance that an adequate salary would have been forthcoming in the future. This was impossible, however, in justice to men of equal rank in other departments of the school.

We were able to fill this vacancy by rearranging the work somewhat and by the appointment of Mr. R. W. Allard who, tho a metallurgical engineer, has carried on the work assigned to him in a satisfactory manner. We found it impossible to secure the services of a trained mining engineer with the necessary experience.

Mr. C. M. Reasoner also resigned and Mr. L. J. Weber, a graduate of the University of Minnesota, was appointed to fill his place. He has proven to be very satisfactory, both as an instructor and in carrying on research work in the department. No other changes have been made in the faculty.

Curriculum.—At the suggestion of the Department of Geology a slight rearrangement of the courses in geology has been made. The course in mineralogy will be preceded by a course in general geology. It is felt that this change will result in a better comprehension on the part of the student of the necessity for the intensive work required in mineralogy.

Because of the possibility of accidents and mine fires in mining operations and the desirability of having a knowledge of the steps to be taken in such emergencies that the men in their charge may be protected to the fullest extent, mine rescue and first aid training have been required of our students for some years. These courses were given, with the assistance of the crew and the use of the apparatus on the United States Bureau of Mines rescue car assigned to this district.

Fire departments in large cities have somewhat similar problems, particularly in their work of fire-fighting in basements, chemical plants, and refrigerating plants, and are using the oxygen breathing apparatus developed for use in mine rescue work.

Learning of the courses offered our students, the Minneapolis Fire Department asked to be allowed to have some of their members take the course in mine rescue and first aid with the students of the School of Mines. Permission having been granted by the president of the University, twelve men took the mine rescue course and seventy-five men took the course in first aid. This work was of great value to the men, as evidenced by the letters of appreciation sent by Chief Ringer and the captains in charge. They also expressed their appreciation for the aid and assistance given them by Mr. Parker, of the Department of Mining, and the members of the crew of the United States Bureau of Mines, as well as the authorities of the University for having granted permission to take this work.

Attendance.—The total attendance during the year showed a decrease from the previous year. This was due in part to the graduation last year of an unusually large class of seniors, the accumulation resulting from the war, and in part also to the unsettled conditions surrounding the mining industries throughout the United States.

UNITED STATES BUREAU OF MINES
and
MINES EXPERIMENT STATION

The following is a copy of the co-operative agreement between the United States Department of the Interior and the University of Minnesota covering technical mining and metallurgical work:

Preamble: The Department of the Interior, acting through the Bureau of Mines (hereinafter referred to as the Bureau) and the University of Minnesota (hereinafter referred to as the University), desiring to make investigations and disseminate information with a view to improving conditions in mining, quarrying, metallurgical and other mineral industries, safeguarding life among employees, preventing unnecessary waste of resources, increasing efficiency in the utilization of mineral substances, and otherwise contributing to the advancement of these industries, hereby agree with each other as follows:

(1) *Facilities and Moneys Furnished by the Bureau:* The Bureau will maintain in the buildings furnished by the University on its campus at Minneapolis, Minnesota, an experiment station devoted to the above purposes and to such other investigations as may be assigned to it from time to time by the Director of the Bureau and will, during the fiscal year ending June 30, 1925, expend in the work of this station at least a sum approximating $23,000, which includes operation, supplies, equipment, salaries and traveling expenses of such of the Bureau's employees as shall be assigned to this work.

The Undergraduate students of the University may make visits to and observations of the researches under way at the station provided this does not interfere with the investigations under way. Graduate fellows may be appointed by the University to the station, who may conduct or assist in conducting research investigations at the station. While engaged on this work they shall be under the technical control of the Bureau engineer in charge of the station; but they shall remain under the administrative control and rules of the department of the University to which they are attached.

(2) *Facilities and Moneys Furnished by the University:* The University will provide on its campus, free of charge to the Bureau, suitable and adequate office rooms and laboratories for the experiment station and such laboratory equipment as is available, will pay all expenses incident to making any minor changes and alterations necessary to

provide such office space and laboratories, and will furnish free of charge heat, light, and janitor service, also a reasonable amount of electric power, gas and water for ordinary experimental purposes. The University will make expenditures for salaries, operation, supplies, equipment, publications and traveling expenses for its part of the work of the station at the rate of $20,000 per annum in accordance with the following budget:

14 professional employees	$15,500.00
Operation, supplies, equipment, publications, and traveling expenses	4,500.00
	$20,000.00

In addition to the rooms and laboratory space thus furnished for the station, the University will permit the Bureau employees the use of other laboratories, libraries and general college facilities in so far as such use does not interfere with the University's regular work of instruction and research.

(3) *Title to Equipment:* It is understood and agreed that such equipment, apparatus and supplies, including office furniture, as shall be required for the work of either party shall be owned and controlled by the party purchasing such equipment and supplies.

(4) *Supervision of the Work:* Investigations or parts of investigations at the experiment station which relate to the state in which the University is situated will be under the joint control of the Director of the Bureau and the President of the University, or their representatives, who together will determine the problems to be undertaken, the general methods to be employed and the manner in which results are to be published, but the Director of the Bureau will have sole supervision of the work of the Bureau employees and of investigations or those parts of investigations which do not relate to the state in which the University is situated.

(5) *Limits of Work:* It is the intent of the Bureau in estabishing the experiment station to assist the state and district adjacent to the University on its own local problems. However, if problems of a similar nature arise in other parts of the United States, work on which, by reason of special equipment installed or trained personnel present, can be carried out to the best advantage at this experiment station, and the solution of such problem shall be of specific or general benefit to the district, the district problems under investigation, or to the students of the University, the work may be carried out at this experiment station.

(6) *Reports of Progress:* All records and reports of the progress, status, or results of all work relating to problems arising in the state, or being carried out cooperatively shall be freely accessible to both parties at all times. Representatives of either party will at all times have access to the work in progress by the other contracting party on all cooperative work for the purpose of inspection and mutual discussion.

(7) *Statements of Expenditures:* Each party will submit to the other semi-annual statements of expenditures incurred by reason of this cooperation for periods ending December 31 and June 30.

(8) *Right of Publication:* Each publication issued by either party giving results of investigations at the experiment station relating principally to the State of Minnesota, or in the pursuance of which the funds of the University of Minnesota have been used, will recognize in the text and on the cover and title page the cooperation of the other party, but the University will not publish such results prior to publication by the Bureau except with the express consent of the Director of the Bureau. Publications issued by the Bureau as a result of investigations at the station in which the University did not cooperate or in which no university moneys were expended shall contain acknowledgement by the Bureau of the situation of the Bureau of Mines Experiment Station on the campus of the University of Minnesota and of the privileges and courtesies afforded.

(9) *Distribution of Publications:* The Bureau will distribute free to the citizens of the State containing the University, a reasonable number, to be eventually agreed upon, of copies of each published report relating principally to the State of Minnesota resulting from the work of this cooperation, not more than one copy of any report being given to any one person. The University in its reports published as a result of this cooperation shall furnish the Bureau of Mines for its distribution among its principal employees and others not less than 250 copies of each publication.

(10) *Status of Bureau Employees at University:* The employees of the Bureau will not teach in the University nor will their names appear in publications of the University as members of the University faculty. Publications of the University may recognize the existence on the campus of a Bureau of Mines Experiment Station working in cooperation with special departments of the University but it shall appear tnat the experiment station and Bureau employees are working in cooperation with the University or some of its departments and are not a part of any department of the University.

(11) *Termination of the Agreement:* This agreement will be effective as of July 1, 1924, and will expire on June 30, 1925. It may be renewed from year to year by mutual agreement and is subject to termination at the option of either contracting party at the expiration of any fiscal year.

(12) *Approval of the Secretary of the Interior:* Subject to the approval of the Secretary of the Interior.

IN WITNESS WHEREOF the said parties by their duly authorized officers have hereunto set their hands and seals this ——— day of ————, 1924.

Minnesota is particularly fortunate in having a government station located at the State University in Minneapolis. Federal assistance along the lines indicated in the co-operative agreement works to the advantage of the state in assisting it in solving some of the important problems bearing on the treatment of low grade ores and making them of value to the industries as well as a source of income to the state.

The most important co-operative work at the present time that is being carried on by the United States Bureau of Mines and the University of Minnesota School of Mines is the possibility of so treating low grade manganese ores of the Cuyuna Range as to produce eventually a high grade manganese alloy so desirable and essential in the manufacture of steel.

The important rôle which manganese plays in the manufacture of steel was emphasized during the late war when it seemed likely that that supply of imported ores would be cut off due to lack of shipping facilities. Various governmental departments took up the problem and under the spur of necessity a domestic industry for producing manganese alloys was aroused. Consideration was given to the use of substitutes, such as aluminum, ferro-silicon, and ferro-titanium, but the logical conclusion seemed to be that manganese is basically essential in the manufacture of steel. It might be noted in passing that manganese is used as a deoxidizer, cleanser, or purifier, which removes non-metallic particles from the bath of steel just before solidification takes place. This increases the general quality of the steel and adds to it desirable rolling or hot-working properties.

In present practice about 90 per cent of all the manganese used in the manufacture of steel is added in the form of ferromanganese, an alloy containing about 80 per cent manganese, the remaining 20 per cent being largely iron with smaller percentages of carbon, silicon, and phosphorus. Spiegeleisen, a lower grade alloy, containing about 20 per cent manganese, is also used. It can readily be seen that a smaller amount of impurities is added when the more concentrated alloy is used. This is the reason for the wide usage of ferromanganese in preference to the low grade alloy or spiegeleisen.

To produce the high grade alloy, or ferromanganese, requires high grade ores. Unfortunately the supply of domestic ore from which ferromanganese can be made is very limited. The supply of low grade ore which can be used in making high manganese pig iron and spiegeleisen is more adequate. The manganiferous ores of the Cuyuna Range constitute the major portion of the country's supply of low grade manganiferous ore and, because of the proximity of this deposit to the Great Lakes, make the utilization of these ores a promising field for research. The problem arising out of the foregoing situation involves the production of ferromanganese, a high grade alloy, from the low grade ores of the Cuyuna Range.

The Federal Bureau of Mines and the University of Minnesota, realizing the importance of the foregoing problem, have undertaken experiments which will show whether it is feasible to accomplish the desired results by a new process or by a combination of modified methods now in existence. The work up to the present time has centered about the production of spiegeleisen and high manganese pig iron from the Cuyuna ores. This has been accomplished with an experimental blast furnace, designed by the Bureau of Mines and built by the University of Minnesota. The furnace, which is housed in one wing of the Mines Experiment Building, is about 30 feet high and has a capacity of from 3 to 5 tons per 24-hour day. During a recent run of the experimental furnace about 30,000 pounds of metal were produced from Cuyuna ore. This constitutes the first step in the new or proposed process.

Work is now in progress on the second step of the process which consists in melting the metal on hand in a cupola and bessemerizing it in a basic-lined converter for the purpose of separating the manganese from the iron and phosphorus. The manganese will be reclaimed in the slag first formed in the converter below, while the phosphorus will appear in the slag last formed. The iron will remain in the molten bath of steel. In all there will be three products: (1) steel, (2) manganese-bearing slag, and (3) slag, rich in phosphorus. The manganese slag will be used in the production of ferromanganese, while the phosphorus-bearing slag should have possibilities as a fertilizer. If successful, these experiments will open up a new outlet for the Cuyuna ores and should result in their utilization in the production of ferromanganese, an alloy vital in the manufacture of steel.

I understand that in the appropriation bill before Congress is a request for a government appropriation of $49,500 to continue further research work on the treatment of manganiferous iron ores.

Respectfully submitted,
W. R. Appleby, *Dean*

THE COLLEGE OF PHARMACY

To the President of the University:

SIR: I beg leave herewith to submit the 1923-24 College of Pharmacy report.

Graduation.—The college completed its thirty-second year on June 18, 1924, which was also the date of the thirty-first commencement of the college. A total of sixteen students graduated, the smallest number in several years. These sixteen graduates represent the survivors of an entering class of over seventy. Many factors have contributed toward reducing the original number of matriculants to so small a number of graduates, the chief reason being, however, that the state law requires an attendance of a minimum of only two years. It is expected that this prerequisite law will be amended to a minimum of three or four years very soon.

Registration.—The registration reached a total of 145. The faculty gave instruction to an additional 100 medical students. During the year 14 students withdrew from the college for reasons which have been reported to the registrar and are on record in his office.

Scholarship prizes.—The Minnesota State Pharmaceutical Association annual scholarship prize of $105 for the payment of next year's tuition was earned by Ralph Elsenpeter who made the highest general average in all subjects for the first and second years.

The Lehn and Fink Gold Medal, for the highest general standing at the end of the four-year course, was awarded to Earl M. Hodel.

Special lecturers.—It proved impossible to secure the special lecturers which the college desired. Dr. C. Naumann McCloud gave his usual special lectures in First Aid to the Injured.

Changes in staff.—No changes were made during the year. The student helpers, of course, change from year to year. The college had the assistance of five student assistants.

Instruction.—The usual instructional work was carried out. More difficulties would have been encountered if the senior class had not been comparatively small. This was the second year in which the east basement laboratory had to be used for instructional work. It is proving not to be a good laboratory for the purposes for which it is used.

The usual educational trips to botanical fields and manufacturing establishments were made by the several classes. The classes also attended as usual the meetings of the scientific and practical section of the Minnesota State Pharmaceutical Association in Minneapolis during February.

College exhibit.—The college participated in the University exhibit at the Public Health Exposition held in the Minneapolis Armory May 3-10. The college exhibit was housed in two booths and was presided over continuously by members of the two upper classes, all under the direction of Dr. Newcomb.

The State Pharmaceutical Association.—The association again seriously discussed at its February 1923 convention the question of offering to the regents its help to place the College of Pharmacy into more favorable housing conditions and to make the minimum course of the college the present four-year course. The association unanimously adopted a number of resolutions advocating higher educational pharmaceutical standards. Copies of these resolutions were reported to you by me and also by the association secretary. The association, through its College of Pharmacy Committee, has agreed to make no further recommendations until the result of the study in pharmaceutical education which Dr. Charters is making under the auspices of the Commonwealth Fund is known, providing the completion of that study will not take too long a time. It is my opinion at this time that the association will press its requests for higher educational standards for pharmacy in Minnesota irrespective of the results of Dr. Charter's study.

Supplies budget.—The amount asked for pharmacy supplies when the budget was made up, was not granted in entirety but an additional appropriation of $1500 was granted the college during January. The supplies budget was strengthened by the sum of $1256 granted it from other University departments for medicinal preparations furnished, bringing the supplies budget up to a total of $5756.

Free Dispensary.—The total number of physicians' prescriptions dispensed in the drug room of the Free Dispensary and the University Hospital by the senior class under supervision, reached 23,586.

Pharmaceutical service.—The usual service which the college has been rendering the Hospital, Free Dispensary, Health Service, and other University departments and to those pharmacists who request digitalis of our production for the dispensing of physicians' prescriptions specifying our digitalis, was continued through the year. The college was not in a position to meet the unusually large number of requests for examination or analysis of proprietary and other medicines.

The medicinal plant garden.—The usual crop of medicinal plant drugs was harvested and converted into medicinal preparations by the students of the college. Some thought will soon have to be given to a new site for the drug garden since the Northrop Memorial Building is to be erected upon the present site of the drug garden. The need of the selection of a new site for the garden has already been stated a number of times and need not be repeated.

Respectfully,

FREDERICK J. WULLING, *Dean*

THE SCHOOL OF CHEMISTRY

To the President of the University:

SIR: I beg to submit the following report for the School of Chemistry for the year 1923-24.

FACULTY

The following changes in the instructing staff above the rank of assistant have been in effect during the year:

New appointments.—Robert C. Ernst, instructor in chemical engineering; J. Lewis Maynard and Henry N. Stephens, instructors in general inorganic chemistry; Philip J. Riley, instructor in technological chemistry; Arthur E. Stoppel, instructor in analytical chemistry.

Absent on leave.—Ralph E. Brewer, instructor in technological chemistry.

Resignations.—Charles F. Sidener, professor of analytical chemistry, (retired); Carl Fosse, instructor in general inorganic chemistry.

STUDENTS

ATTENDANCE BY QUARTERS, 1923-24

	Freshmen	Sophomores	Juniors	Seniors	Total
Fall					
Chemistry	6	5	4	4	19
Chemical engineering	40	26	18	22	106
Total	46	31	22	26	125
Total, previous year	..	..	..	..	(125)
Winter					
Chemistry	5	6	6	5	22
Chemical engineering	35	23	18	20	96
Total	40	29	24	25	118
Total, previous year	..	..	..	..	(118)
Spring					
Chemistry	5	4	5	5	19
Chemical engineering	33	23	17	18	91
Total	38	27	22	23	110
Total, previous year	..	..	..	..	(106)

DEGREES CONFERRED, 1923-24

	Fall 1923	Winter 1924	Spring 1924	Total
Bachelor of science in				
Chemistry	..	..	2	2
Chemical engineering	..	..	10	10
Total, 1923-24	..	..	12	12
Total, previous year	2	1	16	19

Amount of instruction.—The total amount of instruction for the year, exclusive of research and thesis work of graduate students, but including the previous Summer Session, has been 22,042 student quarter credits. The corresponding figure for the year 1922-23 was 21,854 student quarter credits.

Respectfully submitted,

O. M. LELAND, *Dean*

THE COLLEGE OF EDUCATION

To the President of the University:

SIR: I beg to submit a brief report for the College of Education for the year 1923-24.

1. The chief problems presented to the College of Education during the year just closed are those due to the steadily increasing enrolment of students in Education and to the failure of our facilities to keep pace with the increasing demands.

a. The facts concerning inadequate building facilities were covered in my report of a year ago. The predictions made at that time of increasing pressure on our room space were more than realized during the year just passed. No adequate solution for relief is at present in sight.

b. The increase in the number of undergraduate students desiring to teach places a heavy burden on our training school facilities which should be considerably enlarged to meet this increased demand.

c. The increased enrolment has rendered necessary the teaching of our professional courses in large groups of from eighty to two hundred students. In general, such teaching is regarded as unsatisfactory. The faculty are making efforts to devise methods for large class instruction with a view to compensating somewhat for the excessive size of classes. How successful such efforts will be cannot be determined as yet.

2. For the first time since the war, we have had a surplus of candidates for public school positions. At present this applies to a few of the high school positions in academic subjects. Whether this is a temporary condition or whether the public schools have reached the limit of their ability to absorb increasing numbers of new teachers, it is not possible as yet to say. There is still an obvious deficiency in the number of men who are graduating in Education.

3. The year has shown a fortunate fruition of our plans for a psycho-education clinic which was begun in 1916. At that time, the departments of Pediatrics and Mental and Nervous Diseases of the Medical School and the Department of Educational Psychology in the College of Education co-operated to establish a clinic for the physical and mental examination of children. This clinic has been in continuous operation since that time. During the past year the Commonwealth Fund has conducted a demonstration Child Guidance Clinic on the campus, with facilities greatly enlarged over those which were available during the University's previous efforts. As a result of this demonstration clinic, there are child guidance clinics now established in the Wilder Charities of the city of St. Paul, with a complete staff for handling all kinds of behavior problems in school and other children. A similar clinic is established in Minneapolis and will be taken under the direction of the Board of Education beginning January 1. The University clinic in a somewhat modified form will be continued. It will be possible in all three of these units to give training to University students in handling the difficult problems of child education.

Respectfully submitted,

M. E. HAGGERTY, *Dean.*

THE GRADUATE SCHOOL

To the President of the University:

SIR: I submit herewith the report of the Graduate School for the year 1923-24.

REGISTRATION 1923-24

YEAR	STUDY	MASTER	DOCTOR	ENGINEER	MEN	WOMEN	TOTAL
1924	87	1004	329	9	958	375	1333

DISTRIBUTION ACCORDING TO YEAR OF GRADUATE WORK

FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR
986	242	77	28

GRADUATE STUDENTS DOING FULL OR PART TIME WORK

	FULL TIME	PART TIME	TOTAL
Men	512	446	958
Women	104	271	375
Total	616	717	1333

MEMBERS OF STAFF REGISTERED IN GRADUATE SCHOOL

	MEN	WOMEN	TOTAL
Instructors doing graduate work*.....	152	35	187
Graduate students serving as assistants...	73	25	98
Teaching fellows	55	10	65
Graduate students holding scholarships....	22	17	39
Fellows (on Mayo Foundation).....	191	9	200
	493	96	589

* Nineteen assistant professors, two associate professors.

GRADUATE STUDENTS MAJORING IN THE VARIOUS DEPARTMENTS
1923-24

Department	Men	Women	Total
Agricultural Biochemistry	31	6	37
Agricultural Economics	35	..	35
Agricultural Education	9	..	9
Agronomy and Farm Management	16	..	16
Anatomy	16	1	17
Animal Biology	8	1	9
Animal Husbandry	5	..	5
Anthropology	2	..	2
Architecture	2	..	2
Bacteriology	13	2	15
Botany	8	9	17
Chemical Engineering	14	..	14
Chemistry	39	16	55
Civil Engineering	4	..	4
Comparative Literature	2	2	4
Comparative Philosophy	3	..	3
Dairy Husbandry	21	..	21
Dermatology	7	..	7
Economics	46	6	52
Education (General)	101	50	151
Educational Administration	79	17	96
Educational Psychology	15	13	28
Electrical Engineering	3	..	3
English	26	61	87
English Philology	..	1	1
Entomology	14	..	14
Forestry	1	..	1
Geology	16	1	17
German	6	8	14
Greek	1	..	1
History	40	47	87
Home Economics	..	18	18
Horticulture	12	..	12
Latin	4	6	10
Mathematics	14	8	22
Medicine	52	3	55
Metallography	2	1	3
Mechanical Engineering	5	..	5
Mineralogy	1	..	1
Neurology	5	..	5
Obstetrics and Gynecology	7	1	8
Ophthalmology	8	1	9
Oto-Laryngology	8	..	8
Pathology	12	2	14
Pediatrics	10	4	14
Pharmacology	3	..	3
Philosophy	3	1	4
Physics	17	4	21
Physiology and Physiologic Chemistry	13	6	19
Plant Breeding	8	..	8
Plant Pathology	15	3	18
Plant Physiology	2	..	2

Department	Men	Women	Total
Political Science	14	2	16
Preventive Medicine and Public Health	5	3	8
Psychology	10	13	23
Radiology	6	..	6
Rhetoric	3	1	4
Romance Languages	9	21	30
Scandinavian	4	2	6
Sociology	19	21	40
Soils	5	..	5
Surgery	86	13	99
Orthopedic Surgery	4	..	4
Veterinary Medicine	3	..	3
Urology	6	..	6
Total	958	375	1333

MASTERS' AND ENGINEERS' DEGREES GRANTED IN 1924 BY DEPARTMENTS

Department	Minnesota Graduates		Other Colleges		Totals		
	Men	Women	Men	Women	Men	Women	Total
Agricultural Biochemistry	1	..	1	1	2	1	3
Agricultural Economics	1	..	4	..	5	..	5
Agricultural Education	..	..	1	..	1	..	1
Agronomy	..	..	2	..	2	..	2
Anatomy	1	..	1	..	2	..	2
Animal Biology	..	..	1	..	1	..	1
Animal Husbandry	1	..	1	..	2	..	2
Bacteriology	..	..	2	..	2	..	2
Botany	2	1	1	1	3	2	5
Chemical Engineering	7	..	..	..	7	..	7
Chemistry	3	..	2	..	5	..	5
Civil Engineering	1	..	..	..	1	..	1
Dairy Husbandry	1	..	4	..	5	..	5
Economics	2	..	2	..	4	..	4
Education	2	..	..	..	2	..	2
Educational Administration	4	1	4	..	8	1	9
Educational Psychology	1	..	1	..	2	..	2
English	..	4	1	2	1	6	7
Entomology	..	..	1	..	1	..	1
Farm Management	..	..	1	..	1	..	1
Geology	3	1	1	..	4	1	5
History	..	..	2	1	2	1	3
Horticulture	1	..	1	..	2	..	2
Latin	..	..	..	1	..	1	1
Mathematics	1	..	2	..	3	..	3
Mechanical Engineering	3	..	..	..	3	..	3
Medicine	..	..	1	1	1	1	2
Neurology	1	..	..	..	1	..	1
Ophthalmology	..	..	1	..	1	..	1
Orthopedic Surgery	1	..	1	..	2	..	2
Oto-Laryngology	..	..	..	..	..	..	..
Pathology	2	..	..	..	2	..	2
Pediatrics	..	..	1	..	1	..	1
Petrology	1	..	..	..	1	..	1
Physics	..	..	1	..	1	..	1
Physiology	..	..	1	..	1	..	1
Plant Breeding	1	..	1	..	2	..	2
Plant Pathology	3	1	1	..	4	1	5
Political Science	2	..	1	2	3	2	5
Preventive Medicine and Public Health	1	..	..	..	1	..	1
Psychology	..	2	..	1	..	3	3
Radiology	..	..	1	..	1	..	1
Roentgenology	..	..	1	..	1	..	1
Romance Languages	..	2	1	1	1	3	4
Scandinavian	..	..	1	1	1	1	2
Sociology	..	1	1	..	1	1	2
Soils	..	..	1	..	1	..	1
Surgery	..	..	4	..	4	..	4
Urology	..	..	2	..	2	..	2
Total	47	13	57	12	104	25	129

EDUCATIONAL INSTITUTIONS REPRESENTED IN THE GRADUATE SCHOOL, 1923-24*

Aas, Norway	1
Aberdeen	1
Adelbert	1
Alabama	1
Alberta, Canada	2
Albian	1
Amherst	1
Arizona	1
Augsburg Seminary	10
Augustana Seminary	2
Aurora	1
Barnard College	1
Basil, France	1
Belfast, Ireland	2
Beloit	4
Bethany	2
Boston	2
Bowdoin	2
British Columbia, Canada	1
Brown	1
Bryn Mawr	2
California	5
Campbell	1
Capitol	2
Carleton	18
Catholic University of America	3
Central College	1
Charleston	1
Chicago	20
Chicago (Rush)	9
Chili, South America	1
Christian Brothers	1
Cincinnati	2
Clemson	1
Coe	1
Colby	1
Colorado	8
Columbia	12
Concordia	6
Connecticut Wesleyan	1
Cornell College	1
Cornell University	15
Cotter	1
Creighton	6
Cumberland	1
Dakota Wesleyan	3
Dartmouth	3
Davidson	1
Dennison	1
De Pauw	1
Des Moines	2
Detroit College of Medicine	1
Drake	3
Dubuque	1
Earlham	1
Edinburgh, Scotland	1
Emery	1
Fargo	2
Geneva College	3
George Washington University	5
Georgetown	2
Glasgow, Scotland	1
Grinnell	4
Gustavus Adolphus	12
Hamline	27
Hanover	2
Harvard	11
Heidelberg, Germany	1
Hope	4
Huron	1
Illinois	13
Indiana	14
Iowa	14
Iowa State College	18
Jamestown	2
Jefferson	2
Johns Hopkins	2
Kansas	10
Kansas State Agricultural College	1
Kansas State College	3
Kirksville State Teachers' College	2
Knox	2
Lafayette	2
Lake Forest	1
Lawrence	1
Louisville	1
Loyola	1
Luther College	7
McGill	2
McLean	1
McMaster	1
McPherson	1
Macalester	20
Manitoba, Canada	5
Marquette	1
Maryland	1
Maryland State College	2
Massachusetts Agricultural College	2
Miami	2
Michigan	15
Michigan Agricultural College	2
Milwaukee Downer	1
Minnesota	544
Mississippi A. and M. College	2
Missouri	10
Missouri State Teachers' College	1

* In cases where the rating of college is low the student's entry blanks show extra undergraduate work here or elsewhere or tested qualifications in their major work.

Monmouth	1
Morningside College	2
Montana	4
Montana State College	2
Mount Holyoke	1
Nebraska	18
Nebraska State Teachers College	2
Nebraska Wesleyan	1
New Hampshire College	1
New York	2
North Carolina State College	1
North Dakota	14
North Dakota Agricultural College	4
Northland	1
Northwestern	9
Oberlin	8
Oglethorpe	1
Ohio	10
Ohio State University	2
Ohio Wesleyan	4
Oklahoma A. and M. College	3
Oregon Agricultural College	3
Oregon University	3
Oxford, England	1
Paris, University of, France	1
Park College	1
Pennsylvania	14
Pennsylvania State College	9
Pennsylvania Wesleyan	1
Pittsburgh	3
Pomonac	4
Princeton	1
Purdue	6
Queen's University, Canada	1
Radcliffe	2
Red Wing Seminary	2
Ripon	4
Rome, Italy	1
St. Benedict's	3
St. Catherine's	20
St. Lawrence	1
St. Louis	3
St. Olaf	32
St. Teresa	2
St. Thomas	7
Saskatchewan, Canada	3
Schwerin, Germany	2
Scotland	1
Sidney, Australia	1
Simmons	1
Simpson	4
Smith	1
South Dakota	5
South Dakota State College	4
South Dakota Wesleyan	1
Southern California	1
Southwestern	2
Stanford	4
Syracuse	1
Tennessee	2
Texas	4
Thiel	1
Tokio, Japan	2
Toronto, Canada	12
Trinity	3
Tufts	1
Tulane	3
Union College	6
Upper Iowa	6
Ursinus	1
Vanderbilt	1
Vassar	1
Virginia	5
Virginia Polytechnic	1
Wabash	2
Wartburg	3
Washburn	1
Washington	10
Washington State College	2
Wellesley	8
Wells	1
West Point	1
West Virginia	3
Western	1
Wheaton	1
Whitman	1
Whitworth	1
Willamette	2
Wisconsin	34
Wooster	1
Yale	2
Yankton	3
Foreign countries represented	11
Total colleges represented	198
Total registration from other colleges	789
Minnesota registration	544
Total registration	1333

DOCTORS OF PHILOSOPHY, 1923-24

Ira Shimmin Allison, B.A. '17, Hanover College. Major, geology; minor, petrography. Thesis: *The Giants Range Batholith of Minnesota.*

Mary Grace Arthur, B.S. '17, Hamline, M.A. '19, Minnesota. Major, psychology; minor, educational psychology. Thesis: *A Group Point Scale for the Measurement of Intelligence: a Further Study in Method.*

Dixon Lloyd Bailey, B.A. '18, Queen's University, M.S. '21, Minnesota. Major, plant pathology; minor, plant physiology and breeding. Thesis: *Specialization in Puccinia Graminis Avenae Erikss. and Henn.*

William Horatio Brown, Jr., B.S. '20, Virginia Polytechnic Institute, E.M. '21, Colorado School of Mines. Major, geology; minor, metallurgy. Thesis: *The Mineral Zones of the Whitecross District and Neighboring Deposits in Hinsdale County, Colorado.*

S. Elizabeth Carlson, B.A. '17, M.A. '18, Minnesota. Major, mathematics; minor, physics. Thesis: *On the Convergence of Certain Methods of Closest Approximation.*

John Robert Eyer, B.A. '17, Cornell, M.S. '21, Pennsylvania State College. Major, entomology; minor, plant pathology. Thesis: *The Comparative Morphology of the Male Genitalia of the Primitive Lepidoptera.*

Ernest August Fieger, B.S. '20, Ch.E. '21, Minnesota. Major, soils; minor, chemistry (physical) and plant physiology. Thesis: *Hydrogen-Ion Concentration Studies of Minnesota Soils.*

Reynold Clayton Fuson, B.A. '20, Montana, M.A. '21, California. Major, chemistry (organic); minor, chemistry (physical). Thesis: *Naphthalene and the Centroid Structure.*

Paul McCullough Gilmer, B.A. '08, Monmouth College, M.A. '22, Minnesota. Major, entomology; minor, physiology. Thesis: *A Comparative Study of the Poison Apparatus of Certain Lepidopterous Larvae.*

Fred Griffee, B.S. '19, Kansas State Agricultural College, M.S. '20, Minnesota. Major, plant breeding; minor, plant pathology. Thesis: *Correlated Inheritance in Barley of Botanical Characters and Manner of Reaction to Helminthosporium Sativum.*

James Bishop Harrington, B.S.A. '20, Saskatchewan, M.S. '22, Minnesota. Major, plant breeding; minor, plant pathology and physiology. Thesis: *The Inheritance of Resistance to Puccinia Graminis in Crosses between Varieties of Durum Wheat.*

Mildred Lucile Hartsough, B.A. '19, M.A. '21, Minnesota. Major, history; minor, economics. Thesis: *The Development of the Twin Cities, As a Metropolitan Market.*

Walter Fred Hoffman, B.A. '19, Nebraska Wesleyan University, M.S. '21, Minnesota. Major, biochemistry; minor, plant physiology. Thesis: *Studies on the Protamines.*

Carey Morgan Jensen, B.A. '18, M.A. '20, Minnesota. Major, mathematics; minor, physics. Thesis: *Some Problems in the Approximate Representation of a Function by a Sturm-Interpolating Formula.*

Herman Hans Jensen, B.Phm. '20, B.A. '20, Nebraska, M.S. '21, Minnesota. Major, pharmacology; minor, physiology. Thesis: *An Experimental Study of Certain Benzyl Compounds with Especial Attention to the Importance of Substitution in the Benzyl Nucleus and the Significance of the Side Chains.*

Arnold Harvey Johnson, B.S. '21, M.S. '23, Minnesota. Major, biochemistry; minor, chemistry (organic). Thesis: *A Physico-Chemical Study of Cracker Dough Fermentation.*

Frank Carl Kracek, B.S. '20, Minnesota. Major, chemistry (physical); minor, physics. Thesis: *The Separation of Radium and Barium As Chromates.*

Fred Alfred Krantz, B.S. '18, M.S. '21, Minnesota. Major, horticulture; minor, plant breeding. Thesis: *Potato Breeding Methods.*

Charles Byron Kuhlmann, B.A. '06, Wisconsin; M.A. '20, Minnesota. Major, economics; minor, history. Thesis: *The Development of Flour Milling in the United States with Special Reference to the Industry in Minneapolis.*

Carney Landis, B.A. '21, Ohio State University, M.A. '22, Dartmouth. Major, psychology; minor, animal biology. Thesis: *Studies of Emotional Reaction.*

Walter McClellan Lauer, B.A. '13, Ursinus College, M.S. '17, Minnesota. Major, chemistry (organic); minor, chemistry (physical). Thesis: *I. The Action of Bromine on the Sodium Salt of Tribromophenol. II. The Constitution of Tribromophenolbromide and Its Congeners.*

Arthur Levine, B.A. '16, Augustana College. Major, chemistry (organic); minor, chemistry (physical). Thesis: *The Oxidation of the Halogenated 1, 3 Dimethyl Ethers of Pyrogallol.*

Thomas Seward Lovering, E.M. Geology '22, M.S. '23, Minnesota. Major, geology; minor, metallurgy. Thesis: *A Report of the New World Mining District, Park County, Montana.*

Paul Helie Perigord, B.A. '02, Toulouse, France, M.A. '12, Chicago. Major, sociology; minor, philosophy. Thesis: *The International Labor Organization of the League of Nations.*

Walter Julius Saupe, B.S. '20, M.A. '21, Missouri. Major, educational administration; minor, educational psychology. Thesis: *Financial Accounting Practice in American City Schools in Cities over 10,000.*

Arthur Edward Stoppel, B.S. '20, C.E. '21, Minnesota. Major, chemistry (analytical); minor, chemistry (organic). Thesis: *Studies in the Analytical Chemistry of Molybdenum and Vanadium.*

RESEARCH PUBLICATIONS

Since the last report the following publications have appeared:

Education Series

Fletcher H. Swift, Richard A. Graves, and Ernest W. Tiegs, *Studies in Public School Finance: The East—Massachusetts, New York, and New Jersey.*

Leonard V. Koos, *The Junior College.* Two volumes.

In press are the following:

Studies in the Biological Sciences

C. O. Rosendahl, *et al., Minnesota Studies in Plant Science.*

Social Science Series

Faith Thompson, *The First Century of Magna Carta: Why It Persisted As a Document.*

E. W. D. Holway, *North American Uredineae.*

APPROPRIATIONS FOR RESEARCH

Allotments from the Graduate School Research Funds have been made by the Executive Committee during the past year to the following persons for the purposes stated, with results as summarized:

S. J. Buck, $200 for assistant in connection with compilation of a bibliography of Minnesota newspapers.

W. H. Emmons, $400 for assistant in connection with monograph on ore deposits with respect to the magmas which deposited the ores and to the secondary enrichment of the deposits and their downward changes. Paper presented at the New York meeting in February, 1924, and published in *Mining and Metallurgy,* March, 1924.

W. W. Folwell, $500 for assistant in connection with preparation of materials for *History of Minnesota.* Third volume now almost completed. Work to be continued.

R. B. Harvey, $300 appropriation not used.

A. T. Henrici, $600 for assistant in connection with study of organisms in media of varying osmotic pressure and in media of varying rension. Bacterium Coli published in *Proceedings of the Society for Experimental Biology and Medicine.* Two more studies on morphological variations in Bacillus megatherium published, and several other papers published in bacteriological journals.

A. H. Hanson, $125 for assistant in connection with recapitulating by the geometric mean and medium the series of wholesale prices in the investigation of trade unions —average wages of skilled and unskilled labor. Work to be continued.

W. P. Larson, $150 for animals in connection with research on problems on the effect of wetting bacteria. Three papers published. Work to be continued.

R. G. Green, $150 for materials in connection with research in measuring surface temperature tension. Several papers published. Work to be continued.

H. S. Diehl, $250 for assistants in connection with research in taking measurements and compiling statistics in vital capacity studies and physical efficiency tests of University students in the Students' Health Service. One paper given at the American Medical Association and published. Two more papers to be published.

H. A. Erikson, $1200 for apparatus in connection with research on measurements of relative intensities of the spectral lines in structure of atoms. Three abstracts and one article on ions in gases, published. Two articles in press.

F. F. Grout, $200 for assistant in connection with research on rock analysis. Paper published on *The Relation of Texture and Composites of Clays.*

G. S. Ford, $500 for assistant in connection with research on history. Appropriation not used.

W. H. Hunter, $150 for assistant in connection with research on the action of iodin on sodium phenolate.

O. E. Harder, $200 for assistant in connection with research on investigation of the treatment of steel for permanent magnets. Two papers presented at the Council of the American Society for Steel Testing in Pittsburgh, and later published in *Scientific Journal.*

Karl S. Lashley, $200 for assistant in connection with research on cerebral motor functions. Report on *Motor Area of the Cerebrum* published and another, *Binocular Transfer*, ready for press. Work to be continued.

C. J. V. Pettibone, $50 for materials in connection with research on problem on metabolism amino acids and simple peptids. Appropriation not used.

C. Searles, $300 for books.

E. J. Lund, $200 for apparatus in connection with research in investigation on polarity in living cells and tissues and their relation to growth. Four articles published under title: *Continuous Bioelectric Currents, Their Origin and Function in Growth and Development.* Three articles in press.

H. E. Michelson, $280 for assistant in connection with research in investigation of tumors of the scalp. Paper in process to be published. Work to be continued.

J. F. McClendon, $600 for assistant and supplies in connection with research on mineral metabolism, particularly calcium-phosphate and iodin. Several papers published on rickets and goiter.

D. L. Minnich, $100 for materials in connection with research on sensory physiology, with special reference to insects. Work in progress, to be continued.

Josephine Tilden, $100 for assistant and materials in connection with research on source books. Work to be continued and books to be published.

M. J. Van Wagenen, $200 for printing and supplies, and for assistant in connection with research in experimental work in educational psychology. Making a revision of *Moody Arithmetic Scales.* Published two articles in *Educational Administration and Supervision,* February and March, 1924, one article in *School and Society,* June, 1924.

A. T. Rasmussen, $200 for assistant in connection with research on human hypaphysis. *Differential Cell Count of the Type Cells* in *Pars Anterior of the Human Hypaphysis* in press.

J. A. Myers, $200 for assistant in connection with research work on the vital capacity in tuberculosis. Two papers and a handbook on the *Vital Capacity of the Lungs* published. Other papers in progress.

R. E. Scammon, $600 for assistant in connection with research work on pre-natal growth. Six papers published.

William A. Riley, $150 for assistant in connection with research on concilium bibliographum. Work completed and made ready for future use.

F. H. Scott, $400 for materials and equipment in connection with research on investigation of certain metabolic phases produced by insolin and on the colloidal condition of the blood.

Woods Hole, $50 for maintenance of one table at the Woods Hole Laboratory.

F. H. Swift, $350 for assistants in connection with research on studies on public school finance. Three addresses, five magazine articles, and two books published.

Respectfully submitted,
GUY STANTON FORD, *Dean*

THE MAYO FOUNDATION

Herewith is presented a brief résumé of the finances and of the work in medical education and research of the Mayo Foundation during the first nine years of its connection with the University.

General and financial.—The Mayo Foundation for Medical Education and Research became a definite part of the University of Minnesota on June 9, 1915.

During the first year there were 25 members of the faculty and 72 graduate students. The total budget for the year was $95,932, all of which money was paid by the Mayo Clinic. The budgets for the next seven years were met in the same way. Since July 1, 1922, the income

from the foundation endowment fund has been used to meet a portion of the annual budget. For the year just closed there were 72 members of the faculty and 210 graduate students, while the total budget was $289,249.62, of which $79,913.30 was paid by the income from the Mayo Foundation and the remainder, $209,336.32, by the Mayo Clinic. During the total period of nine years there have been 570 different graduate students, and the total expenses have been $1,853,884.45, of which $159,733.30 has been paid from the income of the foundation and the remainder, $1,694,151.15, from the Mayo Clinic.

STATEMENT OF THE EXPENSES OF THE MAYO FOUNDATION
(For the years ending on July 1 each year)

Year	Paid by Foundation	Paid by Clinic	Total
1916	.....	$ 95,932.00	$ 95,932.00
1917	.....	131,642.09	131,642.09
1918	.....	126,064.76	126,064.76
1919	.....	141,452.16	141,452.16
1920	.....	232,671.01	232,671.01
1921	.....	277,742.21	277,742.21
1922	.....	291,050.20	291,050.20
1923	$78,020.00	190,060.40	268,080.40
1924	81,713.30	207,536.32	289,249.62
	$159,733.30	$1,694,151.15	$1,853,884.45

Medical education.—Of the 570 graduate students registered in the foundation since June 9, 1915, 55 have done or are doing their major work in pre-clinical fields and as such since July 1, 1922, have been paid from the income of the Mayo Foundation. There are 5 graduate students in this group at present in the foundation. Four hundred thirty-two graduate students have done or are now doing their major work in clinical fields, and as such have received their stipends from the Mayo Clinic. There are at present 158 of this group in the foundation. Sixty-four graduate students working in either clinical or nonclinical fields have received their support from institutions other than the Mayo Foundation, or the Mayo Clinic, such as the Rockefeller Foundation, the C. R. B. Foundation, the United States Navy, the United States Army, etc. Students in this latter group have been accepted from the institutions named out of courtesy. There are at present eleven of these in the foundation. In addition to the above groups there have been a total of 39 members of the staff of the Mayo Clinic who at no time have been on fellowship stipends but have been registered as graduate students. There are at present 8 of these. Of the total of 570 graduate students, the periods of residence have been as follows:

Five years and over	32	These groups include the graduate students who are still in the foundation.
Four years	54	
Three years	145	
Two years	125	
One year	57	
Less than one year	157	

Of the total number of 384 graduate students who have left the foundation, 85 have been granted the degree of master of science and 5 the degree of doctor of philosophy. Seventy-one of these are in teaching positions. It should be noted that some of the graduate students have not been candidates for advanced degrees, many have had to leave before they had completed their required residence, and a fairly large percentage failed of recommendation.

ANALYSIS OF DEGREES CONFERRED ON GRADUATE STUDENTS IN THE MAYO FOUNDATION

Major Field	Master of Science	Doctor of Philosophy
In Medicine	9	1
In Dermatology	2	..
In Neurology	2	..
In Pediatrics	1	..
In Surgery	42	2
In Orthopedic Surgery	3	..
In Urology	9	..
In Oto-Laryngology	3	..
In Ophthalmology	4	..
In Pathology	6	1
In Roentgenology	1	..
In Radiology	1	..
In Bacteriology	1	1
In Chemistry	1	..
	85	5

The thesis subjects of the candidates for advanced degrees have ranged pretty thoroly through the entire field of medicine. Most of them have been published in scientific journals and are republished either as a whole, in abridgment, or in abstract in the annual volume issued from the foundation and clinic. Aside from their inestimable value from the standpoint of training the student in the spirit and method of research, these studies are of great permanent value in the additions they have made to our knowledge of medicine.

Research.—Besides the research work done by graduate students, the faculty personnel of three departments of the foundation have been engaged entirely in research work. These are Experimental Surgery and Pathology under Professor F. C. Mann, Experimental Bacteriology under Professor E. C. Rosenow, and Experimental Biochemistry under Professor E. C. Kendall. The expenses of these departments, which are nonclinical, are now met almost entirely by the funds of the Mayo Foundation.

The relatively high expenses of these laboratory departments, it is believed, is more than offset by the scientific results obtained in them. In Dr. Mann's laboratory a number of important physiological and pathological problems have been studied and solved. At present he is engaged in a most far-reaching and fundamental study of the physiology of the liver, in which we believe it is no exaggeration to say he has already accomplished more than has been previously accomplished in the last seventy-five years. Dr. Rosenow's work on several serious infectious diseases, particularly in relation to focal infections and the selective growth of bacteria, is very far-reaching and well in advance of the time. Dr. Kendall and his co-workers have confined themselves to one field, namely the biochemistry of the thyroid. In this, they have successfully solved several problems which had been under unsuccessful investigation by a host of other observers for half a century. The University has a right to be proud of the achievements of these three departments and of the honors which have been accorded them by scientific men of this and other countries.

Besides the research work which has been done in the three departments mentioned above a very large volume of high grade scientific research has been constantly in progress and much has been accomplished in other departments and by other members of the faculty of the foundation who have been using the facilities and material furnished the University free of expenses by the Mayo Clinic. The list of studies is too long to enumerate, but it is sufficient to say that each year when reprinted in condensed form it has made up a very respectable portion of the volume of approximately 1200 pages. In the last of these volumes there were 221 articles.

General plan of work.—The general plan of graduate education in the Mayo Foundation may be summarized as follows.

1. Selection from a large number of applicants of a small number of exceptionally well-qualified graduates in medicine who have already had at least one year's hospital residence.

2. Placing these applicants into active work for a probationary period of six months.

3. Recommending the appointment of desirable probationers at the end of six months by the Board of Regents as follows for a period of one year, six months of which has already been successfully served.

4. The annual reappointment for a period of a year and for a grand total of not more than five years, of desirable fellows:

5. Placing all graduate students under individual instruction in laboratory or clinical departments of the Mayo Clinic. In no department are there more than nine graduate students engaged at one time. These are under the charge of at least three members of the faculty. In most departments there are only three graduate students. Each graduate student during his three to five years of residence, unless engaged wholly in research, is given opportunity under careful supervision to do clinical work in sufficient amount to make him skillful and to develop his clinical

judgment. He makes careful study of from 1000 to 1200 patients each year he is on clinical work. At the same time he is given opportunity and is constantly stimulated to make clinical and laboratory investigations in the field of his major subject. Indeed, he must do this before he is an eligible candidate for a graduate degree.

6. No classes in the ordinary sense of the term are held, but group seminars and conferences more in keeping with the advanced preparation of mature students are a salient feature in all departments. Throughout the scholastic year regularly scheduled lectures by members of the faculty are given, covering the essential points in the various medical specialties. In addition to this, a large number of lectures by eminent men from outside the faculty are given. Last year a very noteworthy course on heredity was provided. During the coming year a similar course on nutrition will be provided covering the very latest progress in these fields by the men who have been originally responsible for the investigations. These two courses of lectures are shared by the Medical School of the University of Minnesota, the University of Wisconsin, the University of Nebraska, the University of Iowa, and Washington University in St. Louis.

The system of graduate training may perhaps be summed up by saying that it is an attempt to preserve the very best features of the old apprentice system and to add thereto the best features of modern graduate education. This consists essentially in providing every facility in material, laboratories, and time for selected graduate students to work under the immediate supervision of a large faculty of well-trained specialists. This faculty can thus intelligently certify to the faculty of the Graduate School the competency of each candidate to begin the practice of the special field of his major study in a scientific manner without supervision. This, it is believed, is placing the certification of medical and surgical specialists on a sound basis and one which the University of Minnesota has originated.

Without boasting, it may be stated that during the past two years numerous commissions and individual investigators who have studied the foundation have said in effect that the University of Minnesota has in the Mayo Foundation and the Graduate Department of its Medical School the most effective working graduate school of medicine in the world and one of the best, if not the best, organized, manned, and most productive departments of medical research.

Respectfully submitted,

LOUIS B. WILSON, *Director*

THE SCHOOL OF BUSINESS

To the President of the University:

SIR: The following are the outstanding developments of the year 1923-24 in the work in economics and business administration at the University of Minnesota:

1. A very marked reduction in the "turnover" of the instructional staff. Out of about forty members of the teaching staff but two persons, holders of minor positions, declined re-appointment for 1924-25. This situation insures more effective teaching and progress in research during the coming year. It is due to both fortunate and unfortunate circumstances, being the result of the increasing attractiveness of college teaching and of continued business depression which has lessened the demand for economists, statisticians, and accountants outside of the universities.

2. While business education, because of its relative youth, is still in a state of flux, substantial progress has been made at Minnesota and other universities, the past year, in increasing the effectiveness of the instruction in the several courses. With the collection of case and problem material, the introduction of outside business experts for lectures and conferences, and the part time supplementary training work done by seniors in Twin City establishments, has come a marked improvement in classroom result.

3. During the five-year period which has elapsed since the School of Business was established, the trend has been very definitely in the direction of a more general preparation in the fundamentals of economic science and in the use of such administrative tools as accounting and statistics. The effort on the part of some collegiate business schools to supply men and women trained for a great variety of specialized positions in the business world has not yielded satisfactory results. The needs of society in this field will be better met by broadly trained, socially minded men and women who will find their respective permanent places in the business world and attain special proficiency in them only after a necessary apprenticeship which no amount of college training can supplant. This point of view underlies all of the changes in the curriculum which are being made by our faculty.

4. The work of the freshman year in economics has been modified in such a way as to afford a better introduction to the study of economic principles and to provide a more practical and helpful body of material for the large number of students who do not remain in college longer than one or two years.

The highly satisfactory results obtained at Harvard, Northwestern, Pennsylvania, Illinois, Nebraska, and other universities through the inauguration of bureaus of business research in connection with the work in commerce is further proof of the desirability of the establishment of a bureau at this University. The enrichment of teaching material, the service to the business interests of the state, and the supplementary training afforded faculty and graduate students by such an organization would mark such a step as the most significant that the School of Business could take. It is the earnest hope of the faculty that means may be found to make at least a beginning.

Respectfully submitted,

GEORGE W. DOWRIE, *Dean*

THE DEAN OF WOMEN

To the President of the University:

SIR: The dean of women herewith submits the following report for the year 1923-24.

REGISTRATION OF WOMEN

Academic	1771
Agriculture and Home Economics	408
Business	35
Chemistry	8
Dental Nurses	26
Dentistry	7
Education	1177
Engineering and Architecture	18
Graduate	235
Law	14
Medicine	40
*Nurses	268
Pharmacy	30
Technicians' Course	5
War Specials	3
Total excluding duplicates	3687
During Summer Session, 1923	1596
Total for the year less duplicates	4858

* Including 20 in Public Health Nursing Course.

The distribution as to residence (figures based on the census cards supplied by the registrar's office, and by private information obtained by this office) during the regular session of 1923-24, is as follows:

At home, or with relatives and friends	2215
In approved houses	330
In dormitories	280
In co-operative cottages	46
In home management house	10
Nurses, in homes and hospitals	227
In sorority houses	150
Working for room and board	50
Total	3308
Wholly self-supporting	472
Partly self-supporting	510
Wholly dependent	1633
No reply	693

Delinquents.—The dean of women has worked in co-operation with Dean Nicholson, Dean Shumway, Dean Freeman, and Dean Haggerty. She has served on the Students' Work Committee of the College of Science, Literature, and the Arts in all cases of women students on probation because of poor scholastic work. This seems to be one of the really important tasks of this office.

Domestic employment.—All domestic work for students, that is, care of children or general housework, is handled by this office. Permanent work has been found for about thirty-five women students, and occasional work for about forty. Only girls having had experience in domestic work, and who are strong physically, should attempt to work for room and board. Otherwise, such work is done at too great expense to health and scholarship. It is hardly advisable for students working for room and board to carry a full academic program.

Absences.—Excuses for absences, except in cases of sickness, have been written by the dean of women. Absence excuses for the fall quarter number 295; for the winter quarter, 322; and for the spring quarter, 272, making a total for the year of 889.

HOUSING

Sanford Hall.—Mrs. Ora C. Gayle, the very efficient director of the Hall, has been on leave of absence since February 9. Her place has been supplied by Miss Lilah G. Hainer. The east and west wings of the dormitory have been chaperoned by Miss Marion Weller and Miss Agnes Douglas, the latter since January, in place of Miss Ruth Raymond, who has been away on sabbatical leave.

Co-operative cottages.—Northrop Cottage, reserved for medical students, has housed nine girls the past year, and three others have taken their meals there. Miss Gertrude Ross of the Art Education Department has acted as chaperone. Every place in the cottage has already been reserved for next year. Loring Cottage, where Miss Jean Alexander, of the Department of Education, has been the chaperone for a number of years, has had its usual quota of sixteen, and is also filled for next year. The Winchell group has been enlarged this past year by adding the former nurses' home at 209 State Street to the other two houses—113 and 125 State Street. Twenty-eight students have been cared for, and one other, Miss Cora Elliot, has acted as chaperone for 125 State. Winchell Annex, at 113 State Street, has been chaperoned by Miss Dora Rice, the cashier of the Extension Department. Mrs. Mary Staples, the head of the Housing Bureau, has lived at 209 State Street, and has taken charge of the group, thirty-two in all, including the cook.

In all of the cottages, the rental is the same. Each student pays $22.50 a quarter to the University. This means a heated house, with plenty of hot water. The other expenses never run over $20 a month, and the living conditions, including table board, are first-class. All of the work, except the cooking and the weekly cleaning, is done by the students, and requires an average time of twenty minutes a day.

We are losing the old house at 125 State Street this summer, and already have a waiting list of girls, working their way, who want to live in a co-operative cottage We should have several more houses to devote to this worthy work. The four houses which we shall have for next year are all good houses and well worth preserving. When they have to be

moved from their present sites, which we hope will not be for several years, it would seem an excellent plan to place them where they can be used for this same purpose, permanently. Surely there must be a piece of ground somewhere on the campus, which could be turned over for co-operative cottages.

In spite of the fact that all the girls who live in the cottages are mainly self-supporting, their scholarship rank is higher than that of any other single group on the campus. They maintain a fine type of social life, and the co-operative house affords them an opportunity for congenial associations which would be practically impossible for such busy women under any other conditions. We could easily fill double the number of houses we are maintaining at present, if we had the facilities. No groups on the campus are rendering the University finer service than those young women in the co-operative cottages

Home management houses.—Since the new home management houses are used only as a laboratory for the course in home management, the report belongs properly to the Home Economics Department.

Home economics dormitory.—The College of Home Economics first housed its women students in the farm dormitory in the fall of 1922-23. Thirty-six women were cared for on the ground floor of the old dormitory. In the fall of 1923-24 the entire dormitory was available, and accommodated forty-five women students. These students take their meals at the farm cafeteria, so the dormitory furnishes housing only. Miss Georgina Lommen is the chaperone. We are so well satisfied with the experiment that we hope to continue it, and gradually to improve the living conditions and furnishings there.

Rooming and boarding houses.—All houses where students live are inspected and graded according to desirability by the director of the Housing Bureau, Mrs. Mary E. Staples. We are constantly raising the standard of our rooming and boarding houses. Only houses that can be graded A and B are listed on our approved directory. The monthly meetings of the Householders' Organization, composed of the women in charge of rooming and boarding houses, have continued throughout the year. Next year, attendance at these meetings will be compulsory for all women wishing to keep their names on the approved list.

SUMMER SCHOOL

No printed lists of rooming houses were sent out. Arrangements for rooms were again made through the Housing Bureau. This has proved to be very satisfactory. Shevlin Hall was open for the social activities of the women, and Shevlin cafeteria served meals to both men and women. All the co-operative cottages were open for the first summer session; Northrop and Winchell Annex for the second session. Sanford Hall was open for both sessions.

WOMEN'S ORGANIZATIONS

Women's Self-Government Association.—The activities of the W.S.G.A. have covered a wide field of usefulness. The Big Sisters have helped the freshmen adjust themselves to University life. For next year this committee has been reorganized under the name of Senior Advisers, with a chairman of a committee of 12, under each of whom are 10 advisers who will keep in touch throughout the year with the 5 freshmen assigned to them. Record blanks have been worked out, meetings are being arranged, and the committee is planning with enthusiasm for work that shall be continuous instead of dropping off at the end of the second or third week of the first quarter.

The Vocational Committee, in connection with Miss Rosenstiel and the Occupational Bureau, participated in the Women's Activities Exhibit, down town, held from March 5 to 8. At the same time they held a vocational conference and round table discussions with Miss Emma Hirth, of New York City, who came on for both the conference and the Activities Exhibit. This was in addition to the regular weekly conferences maintained by Miss Rosenstiel, the director of the Woman's Occupational Bureau, and to some minor round table conferences held from time to time with special speakers from the Twin Cities. The bookstore has served approximately 3000 students, with a volume of business roughly estimated at $8500. The rest rooms on both campuses, with the exception of the Shevlin Hall rest rooms, have been furnished by W.S.G.A., and magazines and sewing supplies have been provided for Shevlin Hall. W.S.G.A. has also established ink stations in the Library, Shevlin and Folwell Halls. W.S.G.A. has contributed to the social life of the students by giving social hours, sunlites, a Christmas party, teas on the farm campus, Big Sister parties, and parties for rooming house girls. The class in social dancing was continued.

Women's Athletic Association.—The W.A.A. has been active throughout the year. In the fall they sponsored outdoor sports, horseback riding, and hiking. The winter sports of basket-ball, dancing, swimming, and ice-hockey were followed in the spring quarter by baseball, tennis, hockey, archery, horseback riding, and track.

Young Women's Christian Association.—The social and religious activities of the Y.W.C.A. have reached a large number of students. One of the outstanding achievements in religious education has been the promotion, in co-operation with the Y.M.C.A., Liberal Discussion Club, and the religious units on the campus, of a series of forums on the fundamentals of different religious faiths. The Social Service Department this year has sent out workers throughout the city, to the settlements, hospitals, and industrial plants, and to the schools and to various groups for Americanization work. Friendship and understanding between the students and industrial girls have been stimulated by social gatherings, discussion groups and forums, and exchange of delegates at conferences. The Y.W.C.A. assisted in sending seventy delegates from the University to the Student

Volunteer Convention at Indianapolis, at which students from colleges and universities from all over the United States and Canada received a clearer understanding of the responsibility of America in relation to world problems.

Sororities.—We have eighteen national sororities, and there is also one sorority composed of colored girls. Two locals have been organized this year, with the hope that in the near future they may be chartered by national organizations.

Early rushing proved moderately successful. Invitations were given out through this office prior to the opening of college, and all rushing was at an end after the second day of school. The eligibility of all pledges, for initiation, was locked up by this office and reported to Pan-Hellenic. All sororities maintain houses; their chaperones are approved through this office, and monthly meetings of the chaperones are held with the dean of women and the head of the Housing Bureau for discussion of problems that may arise.

Great interest is shown by the students in the comparative tables of the scholarship of the fraternities and sororities. Such comparative tables were also published, this year, for the women students in the dormitory and the larger rooming houses.

Shevlin Hall.—Shevlin Hall is in use continuously for various organized and unorganized groups. Its greatest present need is better arrangements for luncheon and supper service to small groups, through some rearrangement to provide attractive private dining room space. Its rest rooms and its assembly rooms are in constant use by the women students. The Shevlin cafeteria has served luncheon to about 450 girls daily.

CHAPERONAGE

The chaperonage of all campus parties is under the supervision of the dean of women. An effort has been made to confine parties to Friday and Saturday evenings. The meetings of the rooming house chaperones and those of the sorority house chaperones have enabled the dean of women and the head of the Housing Bureau to keep in close touch with this phase of chaperonage.

Early in the spring quarter, the All-University Student Council, in co-operation with the Interfraternity Council and the Pan-Hellenic Association, passed the ruling that "at all parties at which women are to be present, the organization shall have the time, the place, and the chaperones approved by the proper University authorities at least three days before such party is to be held." The dean of women was designated as the proper University authority to pass on these matters. The co-operation of the students has been extremely fine, and the action, tho new to this generation of students, has met with cordial response. By another year it is anticipated that the ruling will be working smoothly, and that practically all student parties will be confined to Friday and Saturday evenings.

FINANCIAL AID TO STUDENTS

Loan funds.—The following loan funds are administered through the office of the dean of women:

Faculty Women's Club loan fund
Faculty Women's Club emergency loan fund
The Jessie Ladd loan fund (formerly the Minneapolis Alumnae Club loan fund)
The St. Paul Alumnae Club loan fund
Minneapolis College Club loan fund
Pathfinders' Club loan fund
The Home Economics Self-Government Association loan fund

From the Faculty Women's Club loan fund, April 1, 1923 to April 1, 1924, 55 students borrowed a total of $3190.15; 96 students paid back a total of $3147.34. We also have the interest from $2000 invested in bonds to add to the loan fund.

Small amounts have been given out as short time loans from the Minneapolis Alumnae Club, the St. Paul Alumnae Club, the College Club, and the Pathfinders' Club loan funds—a total of $1229 in loans given out, and of $649 in loans repaid.

Interest on the Edward M. and Effie R. Johnston Foundation gift of $5000 was available in the spring quarter. The interest from this fund is used for loans to women students and will be administered through the office of the dean of women.

Scholarships.—Twenty-six scholarships, totaling $3375, have been awarded to women students through this office:

Mrs. Elbert L. Carpenter scholarship	$100.00
Mrs. George C. Christian scholarship	100.00
National Council of Jewish Women, Minneapolis Branch, donors of the Nina Morais Cohen scholarship	125.00
Mrs. George P. Douglas scholarship	100.00
George H. Partridge scholarships	500.00
College Women's Club of Minneapolis	600.00
College Women's Club of St. Paul	900.00
Faculty Women's Club, Student Section	150.00
P.E.O. Organization	100.00
Woman's Club of Minneapolis, Arts and Letters, and Home and Education Departments	300.00
Women's Self-Government Association	400.00
Total	$3375.00

The year has been devoted very largely to securing a twofold acquaintance (1) with the problems of the University at first hand; (2) with the personnel of both faculty and students. The size of the student body, as well as that of the faculty, has meant that this has been a task in itself. I hope that next year, with many of the preliminaries out of the way, I can go forward to a more constructive program for the office. I cannot speak too highly of the cordiality of the welcome and of the co-operation that the women students have offered the office.

Respectfully submitted,

ANNE DUDLEY BLITZ, *Dean*

THE DEAN OF STUDENT AFFAIRS

To the President of the University:

SIR: I herewith submit my report, as dean of student affairs, for the year 1923-24.

The general spirit and morale of the student body has been very good this past year. There have been no difficulties which could not and were not handled by the students themselves through their leaders.

Student councils.—The college councils in Agriculture, Law, and Engineering have been active and efficient. In the other colleges the councils have been dormant or sluggish.

The All-University Council has been very active and has to its credit a number of constructive accomplishments.

Student publications.—Of the recognized publications the *Minnesota Daily,* the *Gopher,* the *Minnesota Law Review,* and the *Techno-log* have each completed a successful year. The *Minnesota Farm Review* has discontinued. The *Ski-U-Mah* has not been successful this year either financially or constructively. It has been slowly building up and gives promise of success for next year.

Finances.—The *Minnesota Daily,* for the first time in some years, shows a reasonable balance at the close of this year. The *Gopher* closed the year with a good balance. Other active publications, with the exception of *Ski-U-Mah,* are clear of debt.

There have been very few calls upon this office for assistance in collecting bills from fraternities, and in these few cases satisfactory arrangements were easily made.

The Junior Ball, the Senior Prom, and the Military Ball were most efficiently handled, and were clear of any criticism.

The Students' Mock Convention and the Senior Circus were efficiently handled and both showed a balance after payment of bills.

The dramatic organizations were not as a rule successful financially, but were able to remain clear of indebtedness through small reserves on hand.

Class organizations have closed the year, I believe, clear of indebtedness.

Dramatics.—There are today six recognized dramatic clubs—five recognized as all-University in character. The Masquers, the Players, Punchinello, the Garrick (a membership of men only), and Paint and Patches (a membership of women only). The Arabs is college in character representing the Engineering College.

The general situation has not been quite so good this year as before. In the shifting of coaching responsibilities from a regular member of the staff to the part time service of one from outside there was a loss in close contact, supervision, and financial support on the part of the University.

General social activities.—The large all-University social affairs, such as the Senior Prom, the Junior Ball, the Common People's Ball, and the Military Ball were the most successful of any within my recollection in that there were no after criticisms and rumors. Their finances, tickets, and auditing were in charge of the University Business Office, as recommended by the All-University Council. Final audit was completed within a few days. Every ticket was accounted for.

In general there has been no change in the social situation. For the general student body, it is in no way excessive. There was a comparatively small group, as has been true in past years, who undoubtedly indulge in social affairs to their detriment.

Fraternities and sororities.—Detailed reports covering these groups will be submitted by Dr. Holman, president of the Interfraternity Council, and by Dean Blitz. There have been added two new national social and three professional fraternities during this year.

Self-supporting students.—The following tabulation, while far from exact, gives interesting comparisons and is reasonably indicative of the facts:

	1922-23		1923-24	
	Men	Women	Men	Women
Wholly self-supporting	1425	386	1027	438
Partly self-supporting	2318	419	2434	471
Not self-supporting	1457	1931	1003	1385

Loan funds.—In addition to the two special loan funds of $500 placed in my hands during the last two years, there has been created during this last year a Minneapolis Rotary Club fund of about $3000 from which loans may be made to men students of the University and Dunwoody.

The St. Paul Rotary Club is considering the establishment of a fund. A group in the St. Paul club has already guaranteed the necessary loans to see a specified student through his medical course.

The demand made on the special and University loan funds this year has not been exceptional in any way.

It is hoped that in the near future it may be possible to arouse such an interest in groups scattered through the state that individual needy students from their localities may find such interest and help in their home group as will so supplement the work of the University as greatly to increase our efficiency in helping those needing assistance.

Veterans' Bureau trainees.—Of our Veterans' Bureau trainees fifty graduated this spring from the various colleges. Of this group it is interesting to note that one of them had the highest average grade for his four-year course of any man in his college class. Furthermore he was an active and forcible leader in the student body, possessing their confidence in a very large degree. Seven others were honored either by fellowships or election to the honorary society of their college. Two other men, in addition to strong scholastic records, were active as student leaders and participated in much constructive work during the past year.

Respectfully submitted,

EDWARD E. NICHOLSON, *Dean*

THE GENERAL EXTENSION DIVISION

To the President of the University:

SIR: There is submitted herewith the annual report of the General Extension Division for the academic year 1923-24. The statistical and other information conveyed by the report covers the activities of the Department of Instruction by classes including the administration of the short courses, the Department of Correspondence Instruction, the Municipal Reference Bureau, and the Department of Community Service. The latter department includes among its functions the administration of University lectures, and the Lyceum Service, Visual Instruction, Drama Service, and the fostering of community organization. Statistical reports for all of these departments are given in some detail. General statements about all of these activities are contained in the body of the report.

Certain administrative events and changes in policy should be noted:

1. On December 13, 1923, following a recommendation by the Senate Committee on University Extension, the University Senate adopted the following resolution: "Students who complete extension credit courses in extension classes shall be held to have satisfied to the extent of those courses, the residence requirements of the University for obtaining a Bachelor's Degree." Subsequently on February 14, 1924, the University Senate limited the application of this regulation to the Twin Cities and Duluth. The effect of this new regulation is not to modify the requirements for a degree so far as standards of scholarship, number of credits, honor points, or prerequisites are concerned. It merely states that students who attend extension credit courses in extension classes in the Twin Cities and Duluth are hereafter to be considered as students in residence. This action will be of great importance and service to teachers and others in the Twin Cities and Duluth who are slowly working toward the attainment of a degree while at the same time making a living.

2. Towards the end of the year under review, it was determined to abandon, at least for the time being, a work which has been carried on for the past three or four years by Judge Frank T. Wilson in fostering community organization and in establishing correlations with business men's associations throughout the state. It was felt that the results attained were not commensurate with the labor and expenditure involved. The decision to abandon this line of activity was made reluctantly and only after consultation with the dean of the School of Business.

3. Another matter of reorganization involves the Department of Community Service. In an effort to bring about retrenchment and economy, it was decided to dispense with the services of the head of the Bureau of Visual Education, to add some clerical assistance, and to centralize the administration of this work in the head of the whole Department of Community Service. The Bureau of Visual Instruction is doing fine work and it is hoped that the reorganization will not unfavorably affect the

excellence of the service rendered. Responsibility for results and for efficiency will be centered in the head of the department.

4. The wisdom of opening downtown offices in Minneapolis, St. Paul, and Duluth has been vindicated so far as results are concerned. Registration is effected more easily and efficiently. Responsibility for publicity and organization is centered in one person for each city, and the convenience of extension students who work all day and must register in the evening or in the noontime hour is subserved.

5. It is the opinion of the entire staff of the Extension Division that the addition of seven full time extension instructors two years ago, has been of marked usefulness to the work of the division. These people not only teach their subjects as do other University teachers, but they also give some time and thought to the problems connected with the methodology of extension teaching. They prepare their work with the needs of extension students in mind. They are also easily available for consultation at times convenient to this class of student They have also been of great help in preparing and conducting correspondence courses. I recommend as a future policy that as fast as the work demands the full time of a teacher in any branch or subject, such a teacher be added to the staff.

6. The economic situation in the Northwest for the past two or three years has been reflected in the registrations for evening extension classes. For the year under review, the registration was slightly lower than for the preceding year. The difference was not great and it may be overcome by an aggressive campaign of publicity at the opening of the evening extension classes next September. On the other hand the Correspondence Study Department has shown a marked growth over any preceding year.

7. The usefulness of our Municipal Reference Bureau is developing in a very marked degree. The bureau is not only a useful administrative agency for correlating the work of municipal officers and bringing about an affiliation with students of political science at the University, but it is also a means for training students for the public service. In this connection I hope you may have the opportunity of making mention to public-spirited citizens that through the bureau they may make a real contribution to the development of our public services. This may be done through the creation of fellowships or scholarships for graduate students to train for the public service in connection with the Municipal Reference Bureau, and in the second place through gifts of special collections or editions of books on government and law.

8. A glance at the statistical matter contained in this report will indicate that the numerous short courses carried on by this division are maintaining their usefulness and are providing a unique opportunity for several classes of our citizens to keep in touch with progress in theory and practice of their several professions. I regret to report that one short course which has been maintained for about eight years with varying success, has not been conducted during the year under review. This was the short course for retail merchants. So few attended this course last year

that it was decided not to offer it during the current year. The cause for the falling away in attendance is probably the economic depression which has been uncommonly severe in its effect upon retail merchants. Whenever the occasion seems favorable, this course will be offered again. I am convinced that short courses running from three days to twelve weeks fill a unique and necessary place in our educational scheme.

9. It is a source of gratification to me to report that the League of Minnesota Municipalities decided at its last annual convention to continue its scheme of subsidizing two or three graduate students of political science at the University of Minnesota, to the extent of $500 a year apiece, these students to be engaged on a part time basis in the office of the Municipal Reference Bureau in making researches and investigations on problems of particular interest to municipal officers. This is a form of co-operation which should be encouraged and which should greatly strengthen the bond now existing between the League of Minnesota Municipalities and the University of Minnesota. The secretary of our Municipal Reference Bureau continues to be the executive secretary of the league, and the director of University Extension continues to hold the office of secretary-treasurer of the league.

10. A new feature of this year's work has been the activity of the student organizations formed among those who attend the evening extension classes of the General Extension Division. There is now a fully organized student organization in Minneapolis, and one in St. Paul, as well as separate organizations of the engineering, collegiate, and business students in these cities. Moreover there is a general association of extension students of the University. These students have been actively co-operating with the University officers in arranging for courses, in planning the curriculum, and in bringing to the attention of deans and other University officers the needs of this large and growing class of students of the University. These students are anxious that, so far as possible, all obstacles be removed from the path of those who are striving to obtain an education, including a degree, outside of the regular or conventional path. The officers of these student associations are co-operating in every way to maintain high standards in the courses and to obtain recognition from University authorities for worthy work done. These students are now actively urging through committees the organization of all the extension work of the University into an extramural college. Such an organization within the University would perhaps simplify procedure and the administration of University regulations. It is at least possible that work amounting to a junior college course could be given in such an extramural college, and that a certificate to that effect could be granted at the end of the course. Such a certificate would furnish an incentive to work for many of these students who have no hope of ever completing a full four-year college course. Many of them, however, could make good use of a junior college course and should obtain recognition for such an amount of work. The organization of a junior college curriculum within the General Extension Division, this curriculum leading to a

certificate at the end of the Junior College course, would be a step in the right direction. I recommend that the project be given serious consideration.

11. It should be made clear to the administrative officers of the University as well as to the members of the state administration, and to the members of the legislature, that virtually the only limitation upon the expansion and the serviceability of University extension is the financial limitation. We are doing now about as much work as can be accomplished with the state contribution from the University budget of about $45,000 a year, plus the fees contributed by the students who attend our classes. These fees are very much higher than the fees paid by students in full time residence at the University. If a way could be found of taking up a larger share of the burden through the University budget, so that fees might be correspondingly reduced, it would be, I believe, a good move from the educational standpoint. However, the point to be emphasized here is that an indefinite expansion of activities and services is in sight, provided the funds wherewith to meet the necessary expenditures may be secured. We have followed a conservative course in Minnesota and have made our advances with short steps and with the minimum expenditure of state funds. No excessively large or spectacular programs have been attempted. I may express the hope, however, that as the annual budget of the University at large steadily grows year by year, so it may be found possible to increase somewhat proportionately the amount assigned to the support of the General Extension Division.

12. During the past two years we have found ourselves very much cramped for room in our quarters in the Main Engineering Building. The plans are now that the General Extension Division shall occupy the whole fourth floor of the new Administration Building and also have for the use of its Visual Education Department, space in the attic for a projection room, a dark room, a slide storage room, and a photographic gallery. Prospects are that the new quarters may be occupied in July, 1925. The release from overcrowding will be very welcome.

DEPARTMENT OF INSTRUCTION BY CLASSES

During the year, evening extension classes have been conducted in Minneapolis, St. Paul, Duluth, Virginia, and Cloquet. The total registration in collegiate subjects was 3522; in business subjects, 2471; in engineering subjects, 1244; making the total number of student semester registrations for the year 7235. The total number of individuals taking work during the year was 4272. The tuition fees collected during the year for collegiate courses amounted to $34,906; for the business courses, $22,643; for the engineering courses, $13,058; making the total of fees collected during the year for evening extension classes $70,607. In comparison with the year 1922-23, the year under review shows a net loss of 32 registrations, or 189 individuals. Both the collegiate classes and the engineering classes show gains, but these gains were offset by losses

in the business classes. The net loss in fees as compared with the preceding year was $4203.

During the year thirteen short courses in various subjects were conducted, these courses lasting from one to twelve weeks. The total number of registrations for these courses was 462, and the amount of fees produced was $6866.

CORRESPONDENCE STUDY DEPARTMENT

The demand for instruction through correspondence continues to grow. There have been 1302 enrolments in regular courses during the fiscal year, which, together with 1058 enrolments in force at the beginning of the year, make a total of 2360 in force in the year, an increase of 18.5 per cent over the previous year, which in its turn saw the largest enrolment in regular courses up to that time. In addition there has been a surprising demand for the special course for mothers, conducted in cooperation with the State Board of Health and the Children's Bureau of the Federal Department of Labor. This course was instituted in the middle of the previous fiscal year and was taken by 436 individuals in the last half of that year. This year there have been 3275 enrolments, or more than double the number enrolled in regular courses. Altogether the Correspondence Study Department during the year just past has handled new enrolments to the number of 4577, an increase of 131 per cent over the preceding year and nearly equal to the total of all enrolments during the previous decade. The fees paid by students make the department virtually self-supporting.

DEPARTMENT OF COMMUNITY SERVICE

The year just closed has not been a prosperous one in some respects but from the viewpoint of useful service rendered it has been a good year because there has never been, during the life of the department, a time when it could do a greater service than it has done by taking information and entertainment into communities which were becoming despondent over their bank failures and hard times.

There are no letters in our files to serve as evidence of such a statement but we have it from direct conversation that the lectures, films, and entertainments furnished by us have kept discouragement and despondency from ruling some neighborhoods.

The combined audiences reported from our lectures, visual instruction programs, and lyceum entertainments, make a total of over 340,000 people who have been served at a cost to the committees of $32,183, which compares favorably with the totals of last year when we served a total of 315,000 at a cost to committees of $36,592. We have reached 25,000 more people at a cost to them of $4000 less than in 1922-23.

A good increase of service is shown in the drama branch. We have added 200 copies of plays to the library, making a total of 1500 plays,

and have served 709, or four times as many communities as last year and more than twice as many of them have been able to make selections from our service for local production. This represents a minimum saving of $150 to the people using the service as well as offering help and inducement for local or home production of plays. We hope this service may be the nucleus for the organization of a dramatic contest league in the state.

The lecture service has supplied speakers for 87 engagements including the commencement addresses. This is 24 fewer bookings than were made during 1922-23 but the difference is explained by the several lectures arranged for the teachers of St. Paul and Minneapolis during 1922-23 but not during 1923-24. These will undoubtedly be offered again in 1924-25.

The demand for films is steadily increasing but with that increase a falling off in the call for slides is noticeable. The industrial and educational picture distribution has increased approximately 15 per cent while the distribution of slides has decreased 50 per cent. A part of this slump is due to the poor condition of many of our slide sets which must be repaired and brought up to date before they can be used to good advantage and a part of it is due to the publicity which has been given to the use of films educationally.

The increase in the use of films, the ease with which radio lectures and programs can be picked up, and the lack of money have all contributed to the small demand for Lyceum. The income for 1923-24 has been about $3000 less than in 1922-23 and it will be much smaller in 1924-25 than at any time before.

MUNICIPAL REFERENCE BUREAU

Inquiries.—Inquiries requiring special reports numbered 356 as against 271 for the year 1922-23 and 173 for the year 1921-22. These inquiries are classified by subject as follows:

Municipal government	23	Sewers	12
People's part in government	4	Garbage disposal	2
Municipal corporations	17	Public utilities (general)	16
Forms of municipal government	6	Electricity	12
Administration	20	Water	25
Finance	23	Gas	1
Public safety (general)	20	Transit	1
Fire departments	10	Telephone	1
Public health	1	Education	3
Public welfare	86	Civic organizations	3
City-planning	15	Miscellaneous	38
Public works (general)	5		
Streets and bridges	12	Total	356

During the year, 1109 books and pamphlets on municipal subjects were loaned as against 879 for 1922-23 and 576 for 1921-22.

Conferences.—The Eleventh Annual Convention of the League of Minnesota Municipalities, arranged by the bureau, was held at Detroit, Minnesota, on June 19-20-21. There were 272 municipal officials and other interested citizens present to discuss and take action upon problems of

municipal administration and policy. The Conference on Politics and Government, conducted jointly by the General Extension Division and the Department of Political Science, was held at the University June 23-27. Twenty-five citizens, mostly women, including candidates for the legislature, teachers of government and civics, and leaders of women's clubs were in regular attendance to consider the subjects of political parties and party problems, the government of the state of Minnesota and American government.

On two occasions (April 24 and November 16) the bureau, in its capacity of executive headquarters for the League of Minnesota Municipalities, entertained the Executive Committee of the league and chairmen of league committees in all-day conferences. Special committee conferences were held on the subjects of city plan (June 10) and municipal indebtedness (June 12). The bureau in co-operation with the Minnesota Tax Conference arranged for a two-day session at the University for the discussion of the problems of taxation and finance. Approximately three hundred municipal, county, and state officials were in attendance. Our co-operation was offered and accepted in the conduct of an Institute of Politics arranged and managed jointly by the University of Minnesota and the League of Women Voters. (November 5-9.)

PUBLICATIONS

Minnesota Municipalities—the bi-monthly magazine of the League of Minnesota Municipalities. The number of pages in each of the last two issues has been increased from thirty-six to forty. The magazine is financed by the league and edited by the bureau.

The Municipal Budget—(24 pages) by Morris B. Lambie, University of Minnesota.

Municipal Home Rule in Minnesota—(11 pages) By William Anderson, University of Minnesota.

Administration of the State of Minnesota—(72 pages, 9x13, including 30 charts) prepared jointly by the staff of the Municipal Reference Bureau.

Licensing Transient Merchants and Peddlers—(10 pages including a model ordinance) by Ambrose Fuller, staff member of the St. Paul Bureau of Municipal Research.

Statutory Limitations on Property Taxation in Minnesota—(12 pages) by Bryce E. Lehman, staff assistant of the Bureau for Research in Government, University of Minnesota.

These publications are published from funds furnished by the League of Minnesota Municipalities.

STAFF ASSISTANTS—TRAINING FOR THE PUBLIC SERVICE

Through official action on the part of the League of Minnesota Municipalities two positions for staff assistants were created by the league at the 1923 convention. Appointments are open to graduate students in political science on condition that they devote one-half time to the league

and bureau work. Stipends of $500 each are paid out of the funds of the league. The supervision of the work is vested in the Municipal Reference Bureau. These assistantships are in line with the proposition that the bureau is in a strategic position to offer unusual opportunities for training for the public service. At the same time the incumbents of the positions add to the productivity of the bureau's work. The appointments for this last year were given to Mr. Welles A. Gray, Minneapolis, B.A., 1923, University of Minnesota, and Mr William Edwards, Washington Court House, Ohio, M.A., Ohio State University. Mr. Gray has been devoting his time to the subject of municipal indebtedness. Mr. Edwards has worked upon the subject of state administration. Both of the assistants have made valuable contributions.

APPENDIX

EXTENSION CLASSES, SUMMARY FOR THE YEAR 1923-24

Number of Student Registrations						
Department	First Semester		Second Semester		Year	
Collegiate						
Minneapolis	1177		961		2138	
St. Paul	490		323		813	
Duluth	253		227		480	
Virginia	61		17		78	
Cloquet	....		13		13	
Total		1981		1541		3522
Business						
Minneapolis	853		589		1442	
St. Paul	370		284		654	
Duluth	189		168		357	
Virginia	18		....		18	
Total		1430		1041		2471
Engineering						
Minneapolis	532		436		968	
St. Paul	127		71		198	
Duluth	57		21		78	
Total		716		528		1244
Totals		4127		3110		7237

EXTENSION CLASSES, SUMMARY FOR THE YEAR 1923-24

Department	First Semester	Second Semester	Year
	Number of Extension Classes		
COLLEGIATE			
Minneapolis	52	55	107
St. Paul	28	21	49
Duluth	15	12	27
Virginia	5	2	7
Cloquet	..	1	1
Total	100	91	191
BUSINESS			
Minneapolis	37	31	68
St. Paul	17	17	34
Duluth	10	10	20
Virginia	1	..	1
Total	65	58	123
ENGINEERING			
Minneapolis	30	28	58
St. Paul	8	8	16
Duluth	5	2	7
Total	43	38	81
Totals	208	187	395

EXTENSION CLASSES, GRAND SUMMARY FOR THE YEAR 1923-24

Department	First Semester	Second Semester	Year
	Number of Student Semester Registrations		
Total collegiate	1981*	1541*	3522*
Total business	1430*	1041*	2471*
Total engineering	716*	528*	1244*
Totals	4127*	3110*	7237*

Total number of registrations (student) for the year 1923-24 was 7237.
Total number of individuals taking work 1923-24 was 4272.

* This is the total number of student semester registrations for sixteen weeks each.

FEES

Department	First Semester	Second Semester	Year
Total collegiate	$19,743.97	$15,162.14	$34,906.11
Total business	14,151.72	8,491.43	22,643.15
Total engineering	7,401.23	5,657.47	13,058.70
	$41,296.92	$29,311.04	$70,607.96

COMPARISON OF THE ENROLMENT OF EXTENSION CLASSES FOR THE YEAR 1922-23 AND THE YEAR 1923-24
SUMMARY OF STUDENT REGISTRATIONS

Department	1922-23	1923-24	Loss	Gain
Total collegiate	3443*	3522*	...	79
Total business	2793*	2471*	322	...
Total engineering	1033*	1244*	...	211
Totals	7269*	7237*	322	290
Net loss 1923-24=32				
Total number of individuals	4461	4272	189	...

* This is the total number of student semester registrations for sixteen weeks each.

SUMMARY OF FEES

Department	1922-23	1923-24	Loss	Gain
Total collegiate	$36,664.59	$34,906.11	$1,758.48	.....
Total business	28,124.33	22,643.15	5,481.18	.....
Total engineering	10,022.43	13,058.70	.....	$3,036.27
Totals	$74,811.35	$70,607.96	$7,239.66	$3,036.27
Net loss 1923-24=$4,203.39				

COMPARATIVE STATEMENT OF EXTENSION CLASSES

1913-24

Collegiate Courses	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24
Number of classes	39	61	67	68	65	52	63	88	118	181	191
Number of instructors from Extension Division	2	2	2	1*	2†	1†	1*	1*	1*	4	4
Number of instructors from outside Extension Division	18	24	27	34	25	25	32	47	53	70	60
Number of semester registrations	690	1,155	1,425	1,655	1,420	1,234	1,952	3,118	4,027	3,443	3,522
Fees received from registrations	$3,695.00	$5,863.00	$6,569.75	$7,608.50	$6,255.00	$6,007.50	$7,780.50	$11,844.00	$24,622.00	$36,664.59	$34,906.11
Salaries paid to instructors on Extension Division	.....	3,300.00	3,300.00	750.00	2,300.00	500.00	500.00	450.00	200.00	9,850.00	9,650.00
Fees paid to instructors not on Extension staff	.....	6,709.50	7,975.00	9,875.00	8,756.25	7,590.00	11,270.50	17,664.85	29,227.26	27,298.82	22,578.48

* Part time collegiate; part time business.

† Part time collegiate.

COMPARATIVE STATEMENT OF EXTENSION CLASSES

1913-24

Business Courses	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24
Number of classes	50	69	49	62	51	43	79	102	106	122	123
Number of instructors from Extension Division	3	4	3	3*	2	3*	3*	3*	3*	4	6†
Number of instructors from outside Extension Division	12	18	12	11	19	15	23	36	42	35	30
Number of semester registrations	1,100	1,846	1,080	1,739	1,056	1,012	2,337	2,713	2,916	2,793	2,471
Fees received from registrations	$6,481.50	$9,059.50	$6,821.00	$10,649.50	$7,013.75	$6,004.50	$17,546.25	$20,917.50	$22,289.50	$28,124.33	$22,643.15
Salaries paid to instructors on Extension Division	.....	9,100.00	6,100.00	6,250.00	5,750.00	5,200.00	7,550.00	6,350.00	7,180.00	11,600.00	11,830.0*
Fees paid to instructors not on Extension staff	.....	5,421.00	4,135.00	6,349.00	4,944.50	5,137.52	9,185.00	14,839.95	22,087.50	17,528.04	17,180.00

* Full time for two instructors, part time for one.

† Full time for four instructors, part time for two.

COMPARATIVE STATEMENT OF EXTENSION CLASSES

1913-24

Engineering Courses	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24
Number of classes	23	31	27	33	25	16	44	44	44	67	81
Number of instructors from Extension Division	1	1	1	1	1	1	1	1	1	2	2
Number of instructors from outside Extension Division	14	13	8	11	6	5	17	19	16	19	23
Number of semester registrations	225	349	349	373	210	215	927	710	859	1,033	1,244
Fees received from registrations	$1,657.00	$2,298.50	$2,154.00	$2,164.00	$1,675.00	$1,446.00	$5,245.00	$5,400.00	$5,997.50	$10,022.43	$13,058.70
Salaries paid to instructors on Extension Division	.....	2,000.00	2,000.00	2,000.00	2,100.00	2,100.00	2,400.00	2,400.00	2,750.00	6,250.00	6,250.00
Fees paid to instructors not on Extension staff	.....	3,000.00	2,325.00	2,787.50	1,925.00	1,700.00	6,092.00	6,122.50	7,687.50	6,222.00	8,951.00

COMPARATIVE STATEMENT OF EXTENSION CLASSES

1913-24

All Courses	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24
Number of courses	112	161	143	163	141	111	186	234	268	370	395
Number of instructors from Extension Division	6	7	6	5	5	5	5	4	4	10	12
Number of instructors from outside Extension Division	44	55	47	56	50	45	72	104	111	124	123
Number of semester registrations	2,215	2,350	2,054	3,767	2,686	2,461	5,216	6,541	7,802	7,269	7,237
Fees received from registrations	$11,833.50	$17,221.00	$15,544.75	$20,422.00	$14,943.75	$13,458.00	$30,571.75	$38,161.50	$52,949.50	$74,811.35	$70,607.96
Salaries paid to instructors on Extension Division	.....	14,400.00	11,400.00	9,000.00	10,150.00	7,800.00	10,450.00	9,200.00	10,130.00	27,700.00	27,730.00
Fees paid to instructors not on Extension Division	.....	15,130.50	14,435.00	19,011.50	15,625.75	14,427.52	26,548.00	38,627.00	59,002.26	51,048.86	48,709.48

CORRESPONDENCE STUDY DEPARTMENT

REGULAR COURSES

Registrations in force July 1, 1923		1058
New registrations during year		1302
Total registrations in force during year		2360
Deduct: Completions	582	
Expirations	688	
Cancellations	204	
	1474	1474
		886
Add: Reinstatements		216
Registrations in force July 1, 1924		1102

SPECIAL COURSE IN HYGIENE
(Maternity and Infancy)

Registrations in force July 1, 1923		818
New registrations during year		3275
Total registrations in force during year		4093
Deduct: Certificates issued	336	
Completions—All lessons sent	2262	
Cancellations	155	
	2753	2753
Registrations in force July 1, 1924		1340

SUMMARY OF ALL COURSES

Registrations in force July 1, 1923	1058
New registrations during year	4577
Total registrations in force during year	5635
Registrations in force July 1, 1924	2442

INDIVIDUALS ENROLLED
(Distinguished from courses registered for)

Regular courses	1146
Special course in Hygiene	3275
Total new enrolments during year	4421

REGISTRATIONS BY COURSES

Anthropology	4	Journalism	16
Business	69	Latin	37
Economics	57	Mathematics	65
Education	124	Music	2
Engineering	18	Physics	16
English	259	Political Science	30
German	53	Psychology	90
Greek	2	Romance Languages	78
History	48	Scandinavian	38
Hygiene	3275	Sociology	70
Interior Decorating	3	Special	6
Preparatory	217		

ACTIVITY OF STUDENTS

Active during year:		Inactive during year:	
Four or more reports	1053	Expired or cancelled without report	521
Less than four reports	372	Unexpired, no reports	414
	1425		935

COMPARISON OF ANNUAL REPORTS FOR FIVE YEARS

1919-24

	1919-20	1920-21	1921-22	1922-23	1923-24
Registrations in force at first of fiscal year	286	636	869	843	1058
Registrations during year	595	809	888	1149	1302*
Total registrations in force during year	881	1445	1757	1992	2360*
Completions	124	226	396	445	582
Expirations	128	386	614	562	688
Cancellations	27	21	15	111	204†
Reinstatements	34	57	111	194	216
Registrations in force at end of fiscal year	636	869	843	1058	1102‡
Enrolment of individuals as distinguished from registrations for courses	504	731	779	1012	1146*
Number of courses offered	146	150	147	187	188
Number of instructors	52	51	51	51	54

* In regular courses only. To obtain grand total add 3275 special registrations.

† A more liberal policy as to refunds caused an increased number of cancellations with a corresponding reduction of expirations.

‡ In regular courses only. To obtain grand total add 1340 special registrations.

DEPARTMENT OF COMMUNITY SERVICE

1923-24

LYCEUM BRANCH

Number of different attractions used	27
Number of towns having courses	149
Number of engagements filled	568
Total attendance at entertainments and lectures	119,200
Total receipts from courses	$29,392.94
Amount outstanding	355.13

Amounts outstanding are as follows:

Town	Attraction	Amount
Borup	Ambassador Quartet	$80.00
Warren	Mrs. Nancy Shoomaker	30.00
Minneapolis (Simpson Church)	Sarah Willmer	10.00
Argyle	Smith-Spring-Holmes ..... $ 8.00)	
	Ceora B. Lanham ..... 22.50)	30.50
Fairmont	Gamble Concert Company	58.65
Baudette	Mrs. Nancy Shoomaker	40.98
Little Fork	Robert Briggs	35.00
	Marine Maids	55.00
	Mrs. Nancy Shoomaker	55.00
	Warren Colston Company	40.00

$253.65 of the outstanding accounts are promised for payment during July; the balance as soon as funds are available.

LECTURE SERVICE

Number of faculty people available for lectures	40
Number of communities served by single lectures	16
Total number of engagements filled	38
Total attendance at lectures	5,700
Total receipts from lectures	$430

COMMENCEMENT ENGAGEMENTS

Number of people available for commencement addresses	35
Number of communities served by addresses	49
Number of persons actually filling engagements	30

COMPARATIVE STATEMENTS

Courses

	1914-15	1915-16	1916-17	1917-18	1918-19
Number of towns having courses	100	110	136	180	176
Number of engagements filled	522	541	654	905	780
Total receipts from courses	$25,040.93	$29,145.00	$34,692.00	$38,814.50	$33,087.50
	1919-20	**1920-21**	**1921-22**	**1922-23**	**1923-24**
Number of towns having courses	178	208	190	146	149
Number of engagements filled	837	909	782	545	568
Total receipts from courses	$43,692.20	$48,359.55	$47,028.75	$32,978.09	$29,392.94

LECTURES—SINGLE AND IN SERIES

	1914-15	1915-16	1916-17	1917-18	1918-19
Number of towns having lectures	89	42	14	12	16
Number of engagements filled	94	59	27	14	21
Total receipts from lectures	$2,784.49	$1,785.00	$560.00	$280.00	$275.00
	1919-20	**1920-21**	**1921-22**	**1922-23**	**1923-24**
Number of towns having lectures	48	25	14	32	16
Number of engagements filled	74	51	31	57	38
Total receipts from lectures	$880.00	$330.00	$430.00	$1,070.00	$430.00

VISUAL INSTRUCTION REPORT
1923-24

IN MINNESOTA

Number of communities served		235
Number of film programs furnished		618
Number of slide programs furnished		67
Number of film programs shown (not number of reels)		1,020
Number of slide programs shown		136
Attendance at showing of films	203,321	
Attendance at showing of slides	11,050	
Total attendance at showings		214,371
Service fees received for films	$680.29	
Service fees received for slides	$68.75	
Total service fees received		$749.04
Rental fees received from films		$1,256.05
Total receipts of rentals and fees		$2,005.09
Number of reels discarded because of poor physical condition		1
Number of reels returned to owners		67
Number of reels lost		0

OUTSIDE OF MINNESOTA

Number of states served	5
Number of communities served	22
Number of film programs sent out	51
Number of slide sets sent out	3
Service fees from films	$52.75
Service fees from slides	$2.25
Rental fees from films	$198.37
Total receipts of rentals and fees	$253.37

Outstanding accounts amount to $156.08 which we expect to receive during the month of July.

COMPARATIVE STATEMENTS

IN MINNESOTA

	1922-23	1923-24
Number of communities served	268	235
Number of film and slide programs furnished	1,175	685
Attendance at film and slide programs	183,313	214,371
Gross receipts	$2,190.25	$2,005.09

OUTSIDE OF MINNESOTA

	1922-23	1923-24
Number of communities served	15	22
Number of film and slide programs furnished	56	54
Gross receipts	$88.00	$253.37

DRAMA BRANCH

1923-24

Total number of plays in the library	1427
Number of requests filled	713
Number of copies of plays sent out	4194
Number of plays selected for use	212
Number of new plays added to the library	190
Number of plays lost during the year	19
Number of plays discarded	0

COMPARATIVE STATEMENTS

	1922-23	1923-24
Number of plays	1301	1427
Requests filled	379	713
Copies mailed	1540	4194
Selections made	91	212

Respectfully submitted,

RICHARD R. PRICE, *Director*

THE SUMMER SESSION

To the President of the University:

SIR: I herewith submit the report of the Summer Session of 1924.

Attendance.—During the first term there were registered a total of 3404 students; during the second term, 1357. This is a total of 4761 different registrations. But 1029 of these students continued through both terms, while there were 328 who registered as new students during the second term. This leaves a net enrolment of 3732 different students for the entire Summer Session.*

A comparison of attendance figures for 1923 and 1924 may be had from the following table:

COMPARATIVE ATTENDANCE

	1923	1924	GAIN
First term registration	3285	3404	119
Second term registration	1305	1357	52
Total registrations	4590	4761	171
Total different students	3523	3732	209
Students attending both terms	1067	1029	38†
New students, second term	238	328	90

† Loss.

While these figures do not show the phenomenal growth of five years preceding (from 1467, in 1919, to 2781, in 1921, and 3218, in 1922) they represent a safe and wholesome progress in the establishment of a permanent summer attendance. It is perhaps remarkable that the growth which was brought about by the unusual conditions of five years ago has not failed to maintain itself under changing conditions. Such a failure has happened in the case of some of the larger institutions of the middle and far west; but Minnesota still holds its position as the fifth largest summer session in the country.

Of the registration for the first term 1607 were students previously matriculated, 254 of whom registered for some deficiencies, the other 1353 for entirely new work. In the second term a much larger proportion of these former students were enrolled, 216 registering for some deficiencies, 711 for entirely new work, a total of 927. These figures indicate that while there was a large proportion of entirely new students on the campus during the first term, the continuity is well preserved by the larger proportion of former students carrying through the summer. For the first time, apparently, there has been a slightly smaller number carrying through.

Attention should be called to the very large increase in registration for graduate work. Enrolment in the Graduate School totaled 559 for

* These figures do not include the 163 students at the Mayo Foundation in Rochester.

the entire summer, comparing with 453 in the summer of 1923. In addition there were a large number of students already holding Bachelor's degrees, who did not enroll in the Graduate School, but pursued advanced work. There were over 200 of these in the College of Education during the first term.

ENROLMENT AND STUDENT REGISTRATION BY COLLEGES

College	Enrolment	Student Registration	Student Credit Hours
Science, Literature, and the Arts	1,045	3,732	12,550½
Engineering and Architecture	291	523	1,896
Agriculture, Forestry, and Home Economics	243	538	1,546
Law	70	216	432
Medicine and Nursing	363	993*	4,109½
	...	1,804†	18,876
Dentistry	224	154	744
Mines	5	0	0
Pharmacy	21	0	0
Chemistry	65	241	945
Education	1,330	3,298	8,323½
Business	76	436	1,366
Graduate	559	0	0
War Special	123	0	0
Physical Education	0	508	523

* Laboratory courses on credit basis.
† Clinical courses on clock hour basis.

This table is inserted primarily to indicate the wide variety of instruction offered in the Summer Session. Incidentally it shows how little relation actually exists between the number of students enrolling in a given college and the amount of instruction carried in that college. For example, while the number of students enrolled in the College of Education was about 30 per cent greater than the number in the College of Science, Literature, and the Arts, the student credit hours given in the College of Science, Literature, and the Arts were nearly 50 per cent greater than those given in the College of Education.

For the first time the Summer Session has been organized entirely through the colleges of the University, each student being enrolled in some one of them. There were no registrations in the Summer Session, as such. Accordingly all matters of administration were handled by the offices of the deans of the several colleges, again helping to preserve the continuity with the rest of the year.

Finance.—The receipts from student fees and recreation admissions (applying to the Summer Session budget) were as follows:

Student fees, first term	$77,286.00
Student fees, second term	27,094.00
Student fees, medical quarter	11,080.70
	$115,460.70
Refunds of fees	1,509.25
	$113,951.45
Receipts from recreation	648.50
Total	$114,599.95

Expenditures, thus far recorded against the several budgets, and in the main the approximate total, were as follows:

Instructors' salaries, first term	$67,886.75
Instructors' salaries, second term	24,637.24
Administration	2,881.00
Printing and general expense	5,953.41
Recreational expense	3,512.59
Departmental supplies	2,704.79
Total	$107,575.78

The surplus of approximately $7000 is a substantial contribution to the overhead expense of the general University. It indicates that the Summer Session is not only self-sustaining so far as the immediate cost of instruction is concerned but is paying a large proportion of its entire support.

Recreation.—For the fourth year the recreational activities, replacing such extra-curricular activities as enrich the life of the other quarters, have been administered under definite organization, with Irving W. Jones, associate director, in charge. The program has been rich and varied, giving daily opportunity for participation in some form of activity outside the regular classroom work. The extent of attendance and participation, as well as the many expressions of satisfaction on the part of students, indicate that this feature of life at the Minnesota Summer Session is of vital importance. Its claim to uniqueness lies in its extent, and in the fact that it is all under one direction.

During the summer there has been a continuous offering of lectures, in the series of six convocations held during the first term, and in the almost daily offering of individual addresses on a variety of topics. The convocations were addressed by President Coffman; Dean Kelly; Dr. W. H. Kieckhofer, of the University of Wisconsin; Rev. Frank Jennings, of the University Baptist Church; Dean George F. Arps and Professor Boyd H. Bode, both of Ohio State University, the latter appearing at the summer commencement. Fifteen lectures were given by members of the University staff, and 23 by speakers brought to the campus for the purpose. Recitals to the number of 17 were given, 11 of them musical, the others of a literary character. A series of 4 weekly performances by the Studio Players, of Minneapolis, gave dramatics of high character which were thoroly appreciated; and 19 showings of motion pictures brought forth

good attendance and keen satisfaction. There were 8 organized social evenings, at which dancing was the principal item of entertainment, one held at the farm campus, the others in the Minnesota Union. In addition there were many informal parties and picnics, mainly under voluntary group direction. Fifteen personally conducted excursions were made to points of historical, industrial, artistic, or other interest in the Twin Cities.

The expense of this program is met by the allotment of one dollar from each student fee from each term, with the addition of small admission charges made to certain events. Such receipts for the summer amounted to $5409.50. The expenditures were $1381 for administration (salaries) and $3512.56 for other expenses, a total of $4893.51.

For two years past a motion picture projection apparatus has been rented for the period of the Summer Session, for temporary installation in the booth built into the Music Auditorium. Believing that it is good economy to own and install permanently such apparatus, a purchase has been made of the total installation. The entire equipment is of the most recent type and the highest efficiency, so that the University is now prepared to show motion pictures with the same perfection that characterizes the best theaters.

Respectfully submitted,

F. J. Kelly, *Director of the Summer Session*

DEPARTMENT OF PHYSICAL EDUCATION AND ATHLETICS

To the President of the University:

SIR: I submit herewith a report for the Department of Physical Education and Athletics for the academic year 1923-24.

GENERAL PHYSICAL EDUCATION

Freshman physical education.—Freshman physical education consists of a basic introductory course in physical education required of all freshman men in the College of Science, Literature, and the Arts, and the College of Education. This work runs through the three quarters of the freshman year and is offered in a number of regular and some special sections.

The freshman course in physical education *aims* to give the student (1) some elementary idea of the place of physical education in his educational process, (2) his physical education needs as determined by a thoro physical and medical examination, and (3) an introductory laboratory experience two or more times a week in physical education activities suited to his developmental, functional, and recreative needs during college days and later life. While this course cannot be considered in any sense a complete physical education for freshmen, it comprises some of the leading elements of an all-round physical education experience.

Every man enrolling in the University for the first time received a thoro *physical and medical examination* at the Students' Health Service. Members of the staff of Physical Education for Men assisted the Health Service staff in the giving of this examination. Dr. Cooke examined for orthopedic defects, classified the students according to their physical development and physical condition, and acted on all petitions for exemption from, or substitution for, the military science and the physical education requirement. Mr. Watson, Mr. Taylor, Mr. Glidden, Mr. Iverson, and Mr. Thorpe assisted in the giving of measurements and other tests. Carbon copies of all physical examination blanks were made for the Physical Education office.

All men examined were classified by two scales, A and B, or C, according to the results of their medical examination and 1, 2, or 3, according to Dr. Cooke's rapid judgment of their physical condition. Results of this classification were as follows:

Grade A-1 was intended to include all men who were well developed and physically and functionally sound and therefore probably fit to engage in the most strenuous activities. The A-2 and A-3 grades include men who passed an excellent medical examination, but who were somewhat below normal in physical development and condition, a situation which could be improved with physical education activities. *Grade A* then included the following distribution: A-1, 1182; A-2, 301; and A-3, 13 men.

Grade B included those fundamentally normal, but rather underdeveloped physically and at least temporarily unable to engage in strenuous physical activities. These were distributed as follows: B-1, 195; B-2, 110; B-3, 7 men. *Grade C* included all men with defects rendering them unfit for military work and men whose physical condition made it undesirable for them to work in the same physical education sections with A and B men. They were distributed as follows: C-1, 26; C-2, 26; C-3, 48 men. The total number taking the physical examination was 1908 men.

It will be seen from these results that altho the subnormals were easily and accurately classified, the A-1 group was so large that further specific *tests for physical efficiency and development* were necessary. These were next given in the form of (1) a forty-yard swimming test to all who were physically fit for such a test and who believed themselves capable of passing by the use of any stroke, and (2) by general physical efficiency tests, comprising attainment in one of three possible groups in the following tests:

One lap run (on indoor track) or 100-yard dash outdoors
Running high jump
Bar vault
Rope climb, 20 feet
Dive and roll to stand.

These several tests and examinations of the students were of prime significance in determining each student's physical education program according to his needs and attainments, and also gave him a comparative idea of his physical education rating with other students. Those who rated A-1 and who had also passed the swimming test were then permitted to elect work in the special athletic sections, where, in addition to developmental and recreational features, certain moral and social values are stressed. This comprised a section for freshman athletic teams. Those who could not swim, but who had an A or B medical grading, were required to register for elementary swimming for at least a part of their program. All other A and B men were then registered for the various regular sections of Physical Education 1, 2, or 3, the squads meeting chiefly outdoors in the fall and spring and indoors in the winter. The activities for this group were as follows:

1. Calisthenics for posture and disciplinary values
2. Occasional drills and apparatus work for body-building and physical development
3. Physical efficiency tests above noted and Sigma Delta Psi trials
4. Mass recreational games

Most of this work was under the direction of Mr. Watson, Mr. Taylor, Mr. McKusick, and a squad of student class leaders. After the resignation of Mr. Watson, Mr. Taylor took the main responsibility for these classes.

The Class C group, comprising students with physical defects, rendering them unfit for military work or having a physical condition, making it undesirable for them to work in the same sections with the A and B men, were registered for *corrective work*, (Physical Education 13-14-15).

This group comprised nearly 200 men this year, about one hundred of whom were upperclass men who were substituting physical education for military drill. The chief defects of the Class C men were grouped as follows:

Defects	Men
Missing and defective limbs	47
Spinal defects	11
Defective sight and hearing	10
Infantile paralysis	7
Heart defects	24
Lung defects	3
Hernia	11
Flat feet	33
Kidney diseases	15
Subnormal development and unclassed ailments	26

The instruction was given chiefly in classes with such individual work as is possible with our limited instructional staff. The work was conducted under the general supervision of Dr. Cooke. Mr. Iverson, however, gave most of the instruction. In this work he was assisted by Mr. Foote, Mr. Peterson, and Mr. Pramann, three students enrolled in our professional training course in corrective gymnastics. The work consisted of special exercises in corrective and medical gymnastics given in a manner that would not overstrain the individual. The Ling System of Corrective Gymnastics, comprising work on Swedish stall bars, table and mats, comprised a part of the work. Some play content was also introduced into the program to offset the irksome formal exercises given and to give the students some forms of recreation suited to their needs. The spirit of the class was excellent, and marked progress was made in the physical efficiency of this group of University students. We feel sure they gained added inspiration and help in the control of their physical handicaps.

An important change was made during the past year in the uniform which is required of students in Freshman Physical Education. Instead of the long trousers and long sleeved shirts of former years, the following uniform, costing approximately $5.25, was required:

White cotton sleeveless shirt
Sweat shirt
Gray knickerbockers
Maroon belt
Long white stockings
High tennis shoes

Our teaching staff has decided after one year's experience that this uniform is much better suited for work in physical education than the former one.

The new towel system which was instituted during this year has proved much more satisfactory from a hygienic point of view for all students using the lockers, and was much easier and less expensive of administration.

Freshman Hygiene.—Freshman Hygiene was again conducted as a course meeting one period per week for one quarter. The work consisted of lectures and tests on personal and community hygiene, followed by an examination. It was prescribed for all freshmen in the College of Science,

Literature, and the Arts; College of Engineering and Architecture; College of Agriculture, Forestry, and Home Economics; School of Chemistry; College of Pharmacy; and College of Education. There was also a special lecture on sex hygiene given by Dr. Litzenberg, of the School of Medicine. For a great many years the University hygiene courses have been required of freshmen in their first quarter in residence. The freshman class is becoming so large now, however, that the available instructional staff is unable to handle the work on this basis. It is, of course, desirable to acquaint the student with this introduction to personal hygiene as early as possible in his college course. With the limited instructional staff and very large classes, we are planning for the coming year to distribute this work over the college year, so that about one third of the class will be taking hygiene in any given quarter.

Dr. L. J. Cooke, who originated hygienic instruction at the University of Minnesota and conducted it largely alone for many years, was again in charge of the course. He was assisted by Mr. Metcalf and Dr. Diehl and Dr. Cady of the Health Service. One notable improvement of the past year was the fact that the courses in hygiene, when combined with the course in Freshman Physical Education, was made an elective in the colleges of Agriculture, Forestry, and Home Economics, Engineering and Architecture, and the School of Chemistry, carrying three credits when completed. The registration by quarter in hygiene was fall, 1060; winter, 92; and spring, 18; the total for the year being 1170.

Changes in staff personnel and staff meetings.—The work of the department has been considerably disturbed this year by changes in our staff personnel. About the middle of the fall quarter Mr. G. D. Taylor, assistant in charge of the department records in required work and physical examinations, died from heart disease at the advanced age of eighty-five. Mr. Taylor was a veteran of the Civil War who had been attached to the department for several years, and died at his post of duty as becomes a soldier. His work had been carefully and faithfully done. During the latter part of the fall quarter, Mr. P. C. Glidden, who had been instructor in swimming for the past six years, died of pneumonia. Early in the winter quarter Mr. Herbert N. Watson, who was in his second year of service in the University of Minnesota as instructor in gymnastics and scout-craft, resigned to take up an unusual opportunity in scout work at Pontiac, Michigan. Mr. Watson was a good teacher, systematic, painstaking, and thoro in his work. He was generally regarded as one of the best gymnastic experts in the Middle West. He was also a distinguished leader in boy scout work, where his efforts were beginning to receive wide recognition.

Mr. H. T. Taylor was advanced to take over Mr. Watson's physical education classes on the latter's resignation, and deserves much credit for the capable manner in which he handled this larger responsibility. The vacancy left by Mr. Glidden was filled by Mr. Max Herseth of the Minneapolis Athletic Club, and formerly of the Olympic team of Norway. Mr. Herseth, however, had no more than become well established in his

work for two quarters when he was offered an attractive position at Ely, Minnesota, with a very considerable advancement in salary.

By far the greatest loss in personnel sustained by the department, however, was that occasioned by the resignation of Professor T. N. Metcalf who has accepted the position of director of the department at Iowa State College at Ames. At the time of his leaving, Mr. Metcalf will have completed two full years of teaching at the University of Minnesota. It is very difficult for me to express adequately how much his splendid services have meant to the department. His fine training, excellent teaching ability, and loyal all-around assistance have been invaluable. He has helped greatly in the work of reorganizing our department on a more efficient basis. This year, after the death of Mr. Taylor, Mr. Metcalf took over the work of installing a new system of keeping departmental records and made numerous other valuable administrative suggestions suited particularly to the large classes in required physical education and hygiene, the rapid growth of the University having made the old procedure inadequate.

During the year 1923-24 we had regular staff meetings every Monday noon. The staff members met for luncheon which was followed by discussion of any matters of departmental interest. These meetings were well attended and were valuable in promoting a better acquaintance, cooperation, and greater appreciation of the scope and content of our program.

INTRAMURAL ATHLETICS

Marked progress was made this year in intramural athletics. For the first time in the history of the University a member of the department devoted his full time to the organization and supervision of this work. Mr. W. R. Smith this year succeeded Mr. Fred Whittemore in the supervision of this work.

Mr. Smith was given every assistance that the department could afford with its moderate budget of three hundred dollars from state funds and about five thousand dollars from the funds of the Senate Committee on Intercollegiate Athletics. These funds were supplemented somewhat by receipts from admission to intramural final games and contests, especially in basket-ball and boxing. All told, our budget this year was much larger than in preceding years. It is, however, still small, compared with the budgets at the University of Michigan and at Ohio State University, institutions which are substantially the same size as Minnesota. Mr. Smith received assistance from other members of the department in the planning of his athletic activities, each coach advising with him and helping in the organization of intramural activities in his special line. Mr. Zelner, who for years has been active in the promotion of international athletics, is continuing his interest and has also been of great help to Mr. Smith. Mr. Smith has also conducted a training course for officials, made up of students and a few of the younger faculty men, the best of whom officiated at all the intramural contests. This insured a better standard

of officiating, more promptness and precision in conducting athletic contests, and effected also an important saving in the student's time.

The greatest need in intramural athletics continues to be a lack of indoor and outdoor playing facilities. We are confronted with the most discouraging difficulties at times, especially in basket-ball indoors and in baseball and other spring games outdoors because of the large number of students who desire to play and the depressingly inadequate amount of playing facilities. At present we believe we are getting a maximum return from the playing facilities we have. During the winter quarter, for example, the Armory was in use from the first hour in the morning until eleven o'clock at night. The free space over the noon hour was occupied largely by faculty recreation groups which frequently numbered over fifty men. After the regular activities were over late in the afternoon, intramural athletic practice and contests lasted until the closing of the Armory after eleven o'clock at night. From a hygienic standpoint, the best time for recreation is from four to six in the afternoon; however, it is better to have some definite play provision as late as ten o'clock at night than not to have any at all.

STATISTICAL TABLE OF INTRAMURAL ATHLETICS

Sports	Total No. Teams	No. Participating	No. Games Played	No. Academic Fraternity Teams	No. Professional Fraternity Teams	No. College Teams	No. Boarding House Teams	Interclass Teams	No. Freshman Candidates
Football	26	286	28	10	..	4	..	8	185
Basket-ball	110	800	650	28	18	11	15	22	178
Horseshoe-pitching	..	47	52	..	..	..	..	..	...
Baseball	40	440	165	24	11	..	..	..	50
Track	35	435	14*	20	8	9	..	2	150
Kitten-ball	36	432	97	21	8	..	..	..	none
Cross country	20	275	5*	..	..	..	..	..	150
Bowling	46	322	528	28	18	..	..	..	none
Swimming	22	220	5*	..	..	..	..	..	75
Hockey	22	176	76	22	..	..	..	..	37
Tennis	28	276	172	28	..	..	..	..	28
Gopher Outing Club	..	470	...	..	..	..	..	..	...
Handball	250	500	...	..	..	..	..	..	...
Basket-ball throw	23	138	1	..	..	..	..	..	45
Sigma Delta Psi	..	750	12	..	..	..	..	..	600
Golf	..	98	185	..	..	..	..	..	24
Boxing	..	84	...	..	..	..	..	..	30
Total	658	5749	1990	181	63	24	15	32	1552

* Meets.

The foregoing summarized table gives a detailed record, showing the scope and content of intramural athletic activities for the year just closed. A comparison of this with a similar table in my report of last year attests the remarkable progress made this year. For more detailed information on any specific aspect of intramural athletics, the detailed report of Mr. Smith's work is on file in this office.

It should be pointed out that the figures for the total number of men participating in intramural athletics are liable to be misunderstood. With a male student body of 6436, approximately 5500 men are reported as taking part in intramural activities. Our intramural budget did not permit sufficient funds this year to ascertain an accurate individual intramural record of each man in the University. In another year we hope we can do this. From the figures of this year we do know, however, (1) that there were a good many duplications due to the fact that quite a number of men took part in more than one sport (varsity men in any given sport were, of course, excluded from participation in intramural athletics), and (2) that a much larger number than figures seem to indicate probably did not participate in intramural athletics. As rapidly as possible the University should provide more play space, more athletic equipment, and additional faculty leadership, so that very soon every student and every faculty member may get the developmental, recreative, moral, and social values inherent in intramural activities.

INTERCOLLEGIATE ATHLETICS

General statement.—Intercollegiate athletics are in a reasonably healthy condition. Minnesota now has intercollegiate athletic relations in twelve sports: namely, football, basket-ball, track, swimming, hockey, baseball, gymnastics, wrestling, golf, cross country, tennis, and rifle shooting.

Every effort is being made as far as possible to give all students who desire a try for varsity or freshman teams an opportunity to make the team and to secure the physical, moral, and social values of competitive athletics. While only a relatively few men become proficient enough to compete in intercollegiate contests, 89 per cent of the activities of intercollegiate and freshman athletic squads comprise one of our most important phases of intramural athletics. As yet, however, Minnesota is badly handicapped by lack of play space, both indoors and outdoors and by lack of sufficient funds to buy playing equipment for all the students who wish to participate in these activities. As may be seen from the intercollegiate and intramural athletic tables given elsewhere in this report, we have quite a number of men engaged in these activities, but we are distressed in practically all of our sports by the necessity of cutting men from squads, because of lack of playing equipment or playing space. Other Intercollegiate Conference institutions are at present surpassing Minnesota in the number of students accommodated in athletic activities.

The records of the football, basket-ball, hockey, track, gymnastics, and rifle teams were exceptionally good this year. The football team was

very well coached, and altho harassed with numerous serious injuries, particularly in the quarterback position, developed into one of the best teams in the Intercollegiate Conference, losing but one game during the season. The team showed its highest development in the homecoming game with Iowa on Northrop Field in which contest individual and team play of the highest order was displayed. The hockey team was undoubtedly the best college team in the Middle West, and won the conference championship. A splendid interest was built up in cross country running by a squad that was more than three times as large as the largest squad that Minnesota had ever had before, 250 men reporting. This resulted in a noticeable increase in the number of men who came out for track last spring. Track and field athletics for the past year were distinguished by an unprecedented number of contestants, an enlarged intramural program, and high class performances by several members of the team. Carl Schjoll established one of the best marks made in the country in the javelin throw this year at the Drake University meet with a record of 196 feet 9 inches. This is a new Minnesota record. Sam Campbell tied for first place in the high jump at the conference meet and tied for third in the final Olympic tryouts at Boston, jumping 6 feet 3 inches in three different meets during this season which also comprises a new Minnesota record. John Towler, Louis Gross, and Lyman Brown brought only slightly lesser distinctions to Minnesota during the track season recently closed. Our baseball this year completed its third year of the trial period set by the University Senate. On its southern trip and in the remainder of the season, the team did high grade work. Minnesota had one of the best batting teams in the conference, and although handicapped by climatic difficulties and perhaps too few conference games, established a fine record. All games were well attended and a large number tried for the team, thereby showing the strong hold which the game has on the Minnesota student body. We believe the resumption of baseball at Minnesota during this trial period has shown a steady improvement and has been successful, and we recommend that it be therefore re-established as one of our regular intercollegiate sports. Minnesota's rifle team won the intercollegiate championship of the United States. The credit for this should go to Captain Tychsen and his associates in the Military Department. The Senate Committee on Intercollegiate Athletics voted to give recognition to the team in the form of minor sports varsity letters, and honor sweaters. The gymnastic team won all of its dual meets and finished second in the conference championship. In swimming Minnesota's record was not as distinguished as in the two preceding years when figured in terms of contests won. The work for the year, however, has other characteristics which make it successful. Of the 266 entering men who were unable to pass the University swimming test of forty yards last fall, 259 succeeded in passing this test before the end of the year, and the remaining seven were able to swim twenty yards or more. Also for the first time in years there were no beginners registered in the eighth hour in the spring quarter, the period which heretofore has been filled with numerous beginners. A high grade freshman team was developed which

won all of its telegraphic meets. Harold Bird won the conference championship in diving and placed second in the national collegiate meet. A good program in the intramural swimming and water games was carried on. In basket-ball Minnesota had one of the strongest offensive teams in the conference. Unfortunately, however, the team was almost correspondingly weak on defense in spite of every effort on the part of the coaches. A strong freshman team was developed which gives promise of something better in another year. The wrestling team showed improvement over the preceding two years. Wrestling has as yet been handicapped badly by lack of playing space. This will be improved a great deal this year by the added room underneath the new stadium. Tennis and golf are two of our more minor intercollegiate forms of athletics which deserve more support because of their values as recreative activities suited for the needs of students in later life. Both are badly handicapped by climatic conditions. There is at present quite a wide intramural interest both in the fall and in the spring in these activities. Both are regular intercollegiate activities in all other institutions of the conference.

The following summarized table gives some information in condensed form on intercollegiate athletics. Should more detailed information be desired in connection with any of the sports, such information may be secured by reading the detailed reports of the individual coaches which are on file in our office.

STATISTICAL TABLE OF INTERCOLLEGIATE ATHLETICS

Sports	Total No. Games	No. Conference Games	No. Non-Conference Games	Total No. Receiving Athletic Instruc. Including Freshmen	No. Varsity Candidates for Teams	No. with Intercollegiate Competition	No. "M's" Awarded	No. Freshman Candidates	No. Numerals Awarded	No. Games Won	Total Amount of Each Sport Budget
Football	7	4	3	310	125	28	21	185	24	5	$49,600
Baseball	22	10	12	95	45	15	11	50	15	10	5,350
Basket-ball ..	17	12	5	253	75	15	7	178	10	9	7,050
Cross country	4	4	..	250	100	9	6	150	6	1	*
Golf	8	4	4	40	25	4	2	15	..	1	385
Gymnastics .	5	3	2	75	40	10	4	35	10	2	885
Hockey	14	8	6	58	36	12	12	22	8	13	4,510
Swimming ..	8	4	4	115	40	27	10	75	15	4	3,010
Tennis	8	4	4	63	35	6	4	28	..	1	600
Track	9	7	2	285	135	37	14	150	15	2	11,250
Wrestling ...	5	3	2	70	40	9	2	30	..	1	1,475
Rifle shooting	52	7	45	68	18	12	6	50	..	52	.....
Totals ..	159	70	89	1682	714	184	99	968	103	101	$84,115

* Included in track.

Total of all sports budgets	$84,115.00
General expense budget	24,500.00
Salaries chargeable to Senate Committee on Intercollegiate Athletics	34,620.00
Total cost of athletics	$143,235.00
Total number receiving athletic instruction	1,682
Approximate cost per man receiving athletic instruction	$85.19

Athletics and scholastic work.—Every effort is made to keep intercollegiate athletics properly subordinated to the main educational work of the student. Athletic team practices are made short and limited so as to begin promptly and to terminate on time. Each coach urges the men of his squad to make a good record in their academic subjects and follows up in individual conference those who are falling behind. Students who become deficient in their studies are urged to shorten their play periods or discontinue their sports entirely. It will be recalled that a report was made of a study which our staff conducted of freshman athletes who were deficient in their scholastic work and that this report seemed to us to show clearly that such deficiencies were chiefly due to other causes than athletic activities. We believe that athletics, conducted in a wholesome way, contribute to the athlete's efficiency as a student. A further step was taken during the present year which we believe will helpfully stimulate the scholarship of freshman athletes. At one of our department staff meetings it was voted:

1. That the awards of freshman numerals and sweaters be made early in the quarter following competition.
2. That at that time awards be made to only those men of the group approved for numerals who have successfully completed a full scholastic load in the quarter involved.
3. That men not eligible for numerals, because of scholastic deficiencies in the quarter involved, be given the awards at the beginning of the following season in the same sport, if by that time they have made up their deficiencies and are eligible for competition.

This action was adopted by the Senate Committee on Intercollegiate Athletics, November 28, 1923. A noticeable improvement in the scholarship of freshman athletes appears clearly, as a result.

Student manager system.—The student manager system instituted at Minnesota two years ago is proving well worth while. The Minnesota plan is a competitive merit system, embodying as far as possible the best ideas of the various systems evolved in eastern colleges. It gives students a valuable part in the managing and carrying on of athletic activities under supervision. The duties of manager candidates and our method of selecting managers was given in the departmental report a year ago. The scholarship provision in the selective process is an important one, candidates being impressed early with the fact that carelessness in their academic work automatically rules a man out of the competition. Those who continue

through the competition gain and develop an attitude of unselfish service to Minnesota. Experience elsewhere has demonstrated that such former manager candidates will continue to serve their alma mater helpfully after graduation.

Some of the outstanding accomplishments of student managers are the following:

1. Alfred B. Greene, football manager, 1923, drew up an excellent managership plan for football at Minnesota, covering organization, operation, and maintenance. He also worked out the traffic routing for ticket holders to the 1923 football games and provided each entrance with proper signs.

2. N. Theodore Waldor, football manager, 1924, designed and constructed a football charging machine which has been found highly satisfactory to the coaches.

3. Gilbert Mears, baseball manager, 1923, designed the official score board which stands on Northrop Field.

4. William Coffman, basket-ball manager, 1924, designed the basket-ball time indicators and score boards which have been used in our games for the past two years.

5. Earl Gray, baseball manager candidate, 1924, and Eldridge Meagher, football manager candidate, 1924, designed and constructed ingenious tape-winding machines which proved valuable labor-saving devices in the training room.

The 1923 footfall manager, assisted by his candidates, also accomplished the following:

1. Established locker room guard and service system for rotation of candidates for service in the locker room, on the field, and in the offices, at practices and games.

2. Perfected the towel system with the result that whereas in 1922 and previously a very large number of towels disappeared during the football season, but fourteen or one tenth of one per cent was lost in 1923.

3. Greatly reduced the loss of athletic equipment at practices and games. Last fall the loss was entirely wiped out, with the exception of a number of balls, a few sweat shirts, and a few head gears.

4. Established a system of maintaining permanent records of football games, including such items as number of men participating in a given game, length of participation, score, etc.

5. Compiled and edited football programs.

Purchase and care of equipment.—The purchase and care of equipment forms a very important part of our work. Athletic equipment is expensive and as yet there is but little competition in this field. Fully 90 per cent of the athletic equipment which is needed for the various sports is specified equipment in which one firm has attained greater perfection than all others in design, workmanship, or other desirable features. This, of course, rules out largely the element of competition. All purchases, however, are made in quantities and at wholesale rates in order to secure the greatest economy in buying. The coaches of the various sports are continually studying types of equipment in their respective activities; in fact, their success as coaches is to quite an extent dependent upon their judgment of, and selection of, athletic equipment for the players comprising their teams. Equipment is selected to provide protection from injury, to be comfortable, have good lasting qualities, and, if possible, a pleasing appearance. We annually purchase samples of a great many different kinds of athletic supplies which appear to give promise of something better. These samples are then tried in practices and in games and our quantity purchases made accordingly.

The appointment of Oscar Munson as equipment man two years ago has proved decidedly successful. He has undoubtedly more than earned his salary in the savings which have been effected in (1) the reduction of stolen equipment, (2) making of quick repairs, and (3) caring for equipment after being exposed to inclement weather. Inventories are made at the beginning and end of the season of each sport. At the close of each season, equipment is carefully cleaned, repaired and stored, so as to be proof against depreciation.

Equipment is issued on recommendation of the coach of a given sport. The material issued is charged to the individual players who are held responsible for its care and its return in good shape, wear and tear excepted, when it is again checked in at the close of the season. Failure to return equipment results in having an attachment made of the student's deposit fund. The business office and the registrar's office have been very co-operative in helping us to eliminate tardiness in returning athletic equipment.

Some idea of the quantity of equipment issued and exchanged during the year may be had from the figures of Mr. Munson's report. It also gives a good idea of the increase in number of men who are coming out for athletics.

500 men received equipment in the various sports for the year 1921-22.
866 men received equipment during the year 1922-23.
1322 men received equipment during the year 1923-24.

A clearer conception of the amount of equipment handled may be had when it is known that the quantity of equipment issued varies from two items for swimming team candidates to seventeen per candidate in football, and that in addition, there is a big weekly turnover for laundry, replacements, etc. Altho there has been quite a marked growth in the amount of equipment issued, there are still many men whom we cannot supply. Last year, for example, we had a total of 187 different freshmen who received football equipment. Since we did not have so many outfits, it was necessary to test these men out in relays.

The ticket system.—The system used for selling football tickets last year was modeled after the Chicago plan. Their system, adopted after years of study, is essentially one having several priority classifications determined by graduation, letter award, non-graduation, and general public, with a by-lot filling of the orders in each. Minnesota's classifications were the same, except that we had stadium subscribers to consider. Mr. Seitz, the University bursar, was in charge of ticket distribution for the season of 1923. This year the plan is essentially the same except that mail orders are to be considered in order of receipts, with a paid-to-date stadium subscription necessary to obtain priority. These changes were adopted by the Senate Committee on Intercollegiate Athletics to make the Chicago plan more nearly conform to our requirements. The students and faculty are to be given choice reserved seats if a student book is purchased. Dr. L. J. Cooke, assistant director of athletics, is to have supervision of football ticket sales in the capacity of ticket manager.

Financial budget.—The financial budget which was prepared a year ago and which was used for the year 1923-24 has proved very helpful and reasonably accurate. There were certain items which were overdrawn and others which were somewhat larger than necessary. With the help of Mr. Lobb this budget has been revised and should prove even more accurate for the coming year. The plan of having our business transactions go through the regular University channels has also been followed and has proved quite successful. The chief difficulties have been in connection with too many rush orders which were due to the fact that we had not as yet been able to determine in advance with reasonable accuracy what our actual needs for each sport would be. The rush orders, too, we have found more difficult to handle under the regular University procedure due to the necessity of acting through two middlemen, namely the purchasing agent and the University storehouse. However, a summary of our purchases for the first year has been made which we believe will greatly reduce emergency and rush orders. On the whole we are well satisfied with the new arrangement and believe that the splendid co-operation which the comptroller and purchasing agent have been giving us will help us to arrive at a more perfect standardization for the coming year.

The financial receipts of the past year from intercollegiate athletics have been nearly $200,000. This is an increase of about $15,000 over the preceding year. From this amount was first deducted the shares of visiting teams, which in the case of conference football games, amounted to one half the gross receipts. After meeting our moderate budget of operating expenses, the remainder has provided for a partial increase in our much needed playing equipment and some other savings which are being used for further necessary improvements connected with the stadium and the new field. The fact that this year we shall be obliged to put more than $60,000 in the new stadium improvements will strain our financial situation seriously. There is a reasonable prospect, however, that we may have considerable increased receipts to provide for the contemplated improvements. In this connection it has been suggested that it might be wiser to eliminate a number of our less prominent intercollegiate athletic activities. We have considered this in detail in staff meetings and have come to the conclusion that such action would be decidedly unwise for the following reasons:

1. Savings made from the elimination of these sports would be small and expensive when considered in terms of the large number of students deprived from intercollegiate and intramural athletic activities.

2. At present we have twelve intercollegiate sports. Each of the ten conference institutions now have at least the same number and several have more. It would hurt the student interest and student pride greatly and result in considerable adverse criticism to our department if we eliminate some of these activities.

3. The elimination of these sports would make us more susceptible to the criticism that we are running intercollegiate athletics to make money.

4. It would increase the per capita cost of intercollegiate athletics, for the per capita cost of the minor sports is less than that of the others.

Conference relations.—The relations between Intercollegiate Conference universities is on the whole good and we believe, growing better. In all intercollegiate contests, sportsmanship and courtesy in the treatment of students, alumni, and officials is being more and more stressed. Major Griffith, conference commissioner of athletics, is doing a great deal in improving intercollegiate relationship in all respects. The conference directors have pledged with each other their determination to uphold the conference rules both in letter and in spirit to the very best of their ability. Particular stress is laid on an active opposition to all forms of proselyting, betting, and professionalism. Major Griffith is making surveys of conditions along all of these lines and is taking the lead, with the help of the conference athletic directors, in an educational campaign for higher ideals in all aspects of college athletics.

The athletic directors of the conference have at least two meetings each year, one in the fall at the close of the football season and the other at the close of the indoor athletic season. Major Griffith makes a report at these meetings and joins in the proceedings. These meetings usually have a threefold purpose: (1) conference athletic schedule-making, (2) a frank consideration of the status in rules observance, and (3) a study and formulation of plans for the advancement of the educational values of athletics. These meetings are of the utmost importance in the proper conduct of our work. Much personal help and inspiration is gained by the contacts afforded and better intercollegiate feeling is developed.

Conference schedule-making, by these joint meetings, is greatly facilitated. It is a big improvement over the former difficult procedure of formulating schedules by mail and telegraph. Usually while the directors are having meetings on other aspects of intercollegiate business, representative coaches with full schedule-making instructions are formulating tentative athletic schedules. Some schedule meetings are attended by both directors and coaches. The present conference basket-ball schedules, with an observance of the principle of a modified rotation of games and limitation of conference and practice games, is proving very satisfactory. The present process of scheduling football games, however, is far from satisfactory. Considerable dissatisfaction has been manifested every year with the methods and results of scheduling conference games. It will be recalled that at the close of the football schedule meeting last winter, Wisconsin had but three conference games scheduled, all of which were away from home. Minnesota also had but three games scheduled, two of which were here. Improvement in this procedure must undoubtedly be worked out if wholesome intercollegiate relationships are to continue. Possibly some scheme whereby each conference institution will annually meet two or three of its more natural rivals, with a regular plan of rotation in the meeting of the other conference institutions, should be adopted.

With the renewed determination of the conference athletic directors to enforce the conference rules fully, there has come a need for a thoro understanding of all conference legislation by the directors and also by the

students. In this respect we have experienced a great deal of difficulty. The conference code has been in the process of making since 1905. The faculty representatives have, on the average, met about twice a year, and at almost every meeting some new legislation or modification of old legislation is made; also a great many rules which were passed some time ago are now obsolete. A committee of conference directors, of which Mr. Huff, of Illinois, was chairman, made a detailed study of all conference regulations and legislations which showed a great need for a re-codification. This report was presented to the faculty representatives who in turn appointed a re-codification committee which has the work well under way at the present time.

As indicated above, the faculty athletic representatives of the conference have also two, or sometimes more, meetings annually. Two of these are usually held at the same time and in the same city as those of the athletic directors. The meetings, however, are held in different parts of the city. The only joint meetings at present are brief formal meetings when the directors have asked for an opportunity to present suggestions for improved or new regulations. There may also be times when the faculty representatives ask for a joint meeting with the directors, but in the past two and a half years, no such joint meeting has been called, except at the initiative of the athletic directors. It would appear that, without violating in any degree the principle of faculty control, joint meetings, fairly frequently, at which both faculty representatives and athletic directors might meet for discussion of any matters of common interest, would be very helpful in improving our mutual relationships, bringing about better mutual understanding and better co-operation in the big tasks of solving intercollegiate problems, and promoting higher educational ideals in athletics.

PROFESSIONAL TRAINING COURSES

It will be recalled that there was established in the fall of 1922 a major and a minor in physical education in the College of Education for the preparation of teachers, coaches, and directors of physical education activities. The establishment of required physical education in the public schools of Minnesota and the growing appreciation of the importance of physical education as a part of general education has greatly stimulated this need. This work was organized by Mr. Metcalf, along with the help of members of the College of Education and our own staff. All of our leading staff members teach one or more courses in this work. The registration, while not large, has been growing, and the interest of those taking the work has been excellent.

Thus far eighteen students have registered for the major in physical education. In addition to this quite a number are taking the work for a minor, while others are taking certain elective courses. The following table shows the registration for the summer sessions of 1923 and of 1924, giving an added impression of the interest which has been developed over the state:

Subject	1923		1924	
	First Term	Second Term	First Term	Second Term
Athletic training	18	..	18	..
Athletic organization and administration	15	..	25	..
Baseball	16	..	..	..
Basket-ball	43	37	29	17
Football	32	12	27	..
Physical education in the public schools	..	..	22	..
Track	19	14	14	..
Elementary swimming	18	..	16	..
Intermediate swimming	..	..	9	..
Advanced swimming	12	..	10	..
Playground and gym. games / Playground supervision.	..	..	11	..
	7	..	10	..
Scouting	12	..	..	..
School gymnastics	..	..	14	..
Technique of gymnastic teaching	..	..	6	..
Tumbling and apparatus work	7	..	..	..
	199	63	211	17

Mr. Louis Keller, who succeeds Mr. Metcalf in the supervision of this division of our work, is doing special work with Dr. Hetherington at New York University and Dr. Williams at Columbia in matters pertaining to the organization and administration, scope and content, etc., of professional training courses in physical education.

SERVICES TO THE STATE

Third Annual Athletic Conference.—The Third Annual Spring Athletic Conference, comprising a three-day period of intensive courses for coaches and other physical educators of the state, was held April 16, 17, and 18. Fifty-six men, representing forty high schools and one of the state colleges, registered for this work. Only four failed to report. This makes it the largest of the series of the three annual conferences of this kind which we have held.

The chief values of the conference were (1) acquainting the members of our staff with the high school coaches of the state and their teaching needs and problems, (2) thereby enabling our staff members to help the state representatives wherever help was needed, and (3) making for a better mutual acquaintance among physical education leaders in the state. The following table gives the list of the courses given, staff members giving each of the various courses, and the number of registrations per course:

Course	Instructor	No. Enrolled
Athletic Problems	F. W. Luehring	28
Athletic Training	Dr. L. J. Cooke	21
Football	W. H. Spaulding	32
Track	T. N. Metcalf	26
Basket-ball	Dr. L. J. Cooke	30
Baseball	Major L. R. Watrous	22
Swimming	Niels Thorpe	8
Hockey	E. W. Iverson	5
Gymnastics	H. T. Taylor	17
Intramural Athletics	W. R. Smith	14

Training courses for athletic coaches, teachers, and officials.—This work is being well received by the high school physical education teachers and athletic coaches over the state as is indicated by the statement under Professional Training Courses elsewhere in this report. In addition to this Mr. W. R. Smith, director of intramural athletics, has been doing important work in training and supplying officials for high school and college games of the state. He was one of the organizers and for a number of years has been secretary of the Northwest Athletic Officials Association. Through this organization he provides instruction periods and written and oral quizzes for a large number of men who are preparing to be athletic officials. During the past year alone, Mr. Smith has supplied officials for more than 250 basket-ball games and a large number of other officials in other games.

State use of department equipment.—In the interest of promoting physical education needs outside of the University, our athletic equipment has been made available as follows:

1. Northrop Field
   a. University High School football games
   b. State high school track and field meet
   c. Minneapolis city grade schools track meet
   d. Minneapolis city high schools track meet
   e. University of Minnesota women's field day
   f. Minneapolis settlement houses track meet
   g. State private schools track meet
2. Armory
   a. Northwest Gymnastic Society championship meet
   b. Junior College basket-ball final championship game
3. Swimming Pool
   a. University High School boys, one-half hour three times per week
   b. Minneapolis and St. Paul high school boys had use of the pool every Saturday morning during the swimming season.
   c. Northwest interscholastic swimming championship meet.

Talks on physical education.—As in other years the department members have again responded to numerous calls to speak at high school and college athletic mass meetings, team banquets, fathers' and sons' banquets, radio athletic talks, Sunday school and Y.M.C.A. recreational meetings, and state and sectional athletic gatherings. At such meetings our talks have usually centered around some aspect of physical education such as sportsmanship, amateurism, the aims and scope of our department activities, and other physical educational subjects. Mr. Spaulding, Mr. Metcalf, Dr. Cooke, Mr. Iverson, Mr. Thorpe, and the director participated in these.

Respectfully submitted,

F. W. LUEHRING, *Director*

DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN

To the President of the University:

SIR: I submit herewith my report on the work of the Department of Physical Education for Women for the year 1923-24.

Faculty.—No changes in personnel have occurred. Miss Gertrude M. Baker was promoted from the rank of instructor to that of assistant professor. Dr. Alice H. Tolg was granted a sabbatical leave for the year 1924-25 for purposes of study in the East and Europe.

The presence of an additional member on the staff this year has made it possible to organize two factors in our problem that have been neglected for a good while.

The students in Home Economics carry so heavy a laboratory program and are so far from the main campus that they have not profited by the elective periods for games and sports which are scheduled there. This year one of the staff has spent time on the farm campus organizing the sports of the various seasons and an increasing interest has been shown by the students which promises well for further development next year.

Ice hockey is a sport which has never been regularly supervised on account of lack of staff. Through the courtesy of the Department of Physical Education for Men and the Department of Physical Education and Athletics men students have been found who were willing to give what time they could to it, but nevertheless the sport languished.

This year it was possible for members of our own staff to take charge of it and it bids fair to develop a much more widespread interest.

Women's Athletic Association.—The Women's Athletic Association has had a successful year under the direction of its president, Miss Margaret Krueger. Its co-operation with this department has been most satisfactory. By great effort it succeeded in earning enough money to send two delegates, Miss Krueger and Miss Jeannette Wallen, to the triennial national convention of the Athletic Conference of American College Women which was held at the University of California. These representatives brought back much that was of value.

It is of interest that the Athletic Conference has again gone on record as opposed to intercollegiate competition for women, except as may occur in telegraphic meets. It is true that there is what is called "interclass intercollegiate" competition among the three institutions around San Francisco Bay, where the three senior classes hold a tournament, and the other classes do the same. A good many southeastern colleges have regular varsity competition. The Middle West institutions in general have never developed it and we have had no problem so far.

The Women's Division of the National Amateur Athletic Federation, which held its first annual meeting last spring, has adopted a platform which encourages the participation in recreation of all members of a given

group rather than a picked few, and a spirit of play for its own sake, and which discourages gate receipts, traveling, and undesirable advertising. The influence of the publicity which has been given this platform will be helpful to college girls.

The W.A.A. seal, the highest award of the association, was won by only one girl this year, Miss C. Ruth Campbell.

Demonstrations and athletic competitions.—Demonstration of all branches of indoor work was given before an invited audience March 13.

The Aquatic League gave a swimming exhibition to fellow students during the winter quarter.

The Annual Dance Program was held on the Campus Knoll June 3, before an audience of about a thousand people. It was participated in by about a hundred girls.

Tournament.—An interclass tournament in field hockey, interclass and interhouse tournaments in basket-ball and baseball, and a tennis tournament were held during the year. An interclass swimming meet was held May 28.

Interclass tournaments required from eight to twelve squad practice periods (according to whether played outdoors or indoors) before students were eligible for choice on the teams. Twenty teams took part in basket-ball and baseball tournaments. The sixteen house teams (dormitories, sororities, large boarding houses, and co-operative cottages) played combination round robin and elimination tournaments, which, with the required squad practice, insured a schedule of from six to eight games for each team.

The Spring Carnival, held on Northrop Field, June 10, by courtesy of the Department of Physical Education and Athletics, gave opportunity for a program including final contests in the several spring sports: tennis, volley ball, archery, baseball, and track. Track included the 50-yard dash, high jump, broad jump, basket-ball throw, baseball throw, javelin, and discus.

The professional course.—The Physical Education Association, a group comprising all the women majoring and minoring in physical education, has met regularly once a month, sometimes for professional, and sometimes for social, purposes. It has been a strong influence in unifying the professional group and helping the younger members to develop professional spirit.

The graduates of the major course in physical education for the years 1922 and 1923 all secured positions before schools opened in the following September. All are doing satisfactory work so far as we can secure reports from the heads of their institutions and judging by reappointment. In all cases they are teaching physical education alone without a secondary subject.

They are distributed as follows:

Institution	
Teachers college	2
College or university	3
High school	1
High school and grades	2
Grades	4
Married	1
Total	13

State	
Minnesota	4
Michigan	3
Illinois	2
Iowa	2
Arizona	1

Four of the nine graduates of 1924 have grade and high school appointments. The rest are not yet placed. The delay in their securing positions is doubtless due to the fact that it is not yet generally known that this University is training teachers of physical education.

Summer Session.—In connection with the requirement enacted by the last legislature for the teaching of physical education in the public schools of Minnesota, this department has been called into conference by the State Department of Education several times during the year for the consideration of the physical education syllabus.

As a consequence, the teachers' courses in the Summer Session were planned definitely for the purpose of assisting the teacher without specialized preparation to acquire the fundamental knowledge, technical skill, and pedagogical proficiency necessary to co-operate with the state supervisor in putting the new physical education syllabus into effect in both grade and high schools. The development of a playground group of girls of junior high school age for use as practice material helped materially in the teachers' course in play.

University High School.—As one result of an additional member of the staff, a course of lessons in hygiene was arranged and given to the junior and senior classes of University High School girls. This will be developed still further another year.

The annual gymnastic meet and demonstration was held April 18 in the gymnasium before a large audience of invited relatives and friends.

On May 28 the annual swimming meet was held. The major college students in physical education acted as officials and judges.

A Posture Week, planned by the major students in physical education, included an essay contest, a poster contest, and a walk-straight tag day. A banner in maroon and gold was presented to the winning class by the women of the faculty of the University High School.

Equipment.—The completion of the natatorium dressing room has brought much satisfaction to all the people using it. Its appointments are adequate for the number using it and are devised for convenience, speed, and comfort.

The development of a grass athletic field below the College of Education will provide additional facilities for college and high school girls that will be of much value. A field hockey court of reasonable, tho not regulation, size will be afforded and an admirable range for archery, besides added available space for less formal activities. It is almost a necessity to have athletic spaces within easy reach of lockers and showers. It is to be hoped that in the future a really adequate athletic field with lockers at hand will be provided. A single field will be of decided advantage over a group of small disconnected areas. A greater number can use it and a greater number can be supervised by a single instructor.

ENROLMENT OF NON-PROFESSIONAL COLLEGE STUDENTS

Freshman requirement		
Hygiene		909
Elementary physical training (fall quarter)		855
Sophomore requirement (fall quarter)		
Physical training	74	
Elementary swimming	210	
Advanced swimming	73	
Interpretive dancing	116	
Games and folk dancing	78	
Major sports (field hockey)	83	
Total sophomores		634
Distribution of freshman among sports (spring quarter)		
Tennis	200	
Archery	136	
Volley-ball	139	
Baseball (2 periods)	305	
Pentathlon (1 period)		
		780
Enrolment for major sports		
Field hockey		
Sophomores, to fulfill requirement	83	
Other classes, elective	118	
		201
Ice hockey, elective	25	25
Basket-ball		
Sophomores, to fulfill requirement	73	
Elective classes, main campus	65	
Elective classes, farm campus	20	
		158
Baseball		
Freshmen, to fulfill requirement	305	
Sophomores, to fulfill requirement	37	
Elective, main campus	75	
Elective, farm campus	25	
		442
Elective swimming, number of swims		2,294

ENROLMENT OF PROFESSIONAL COLLEGE STUDENTS

Seniors	9	
Juniors	10	
Sophomores	24	
Freshmen	21	
Minoring in Physical Education	8	
Total		72

UNIVERSITY HIGH SCHOOL GIRLS

111

EXTENSION CLASSES

Swimming, both semesters 391

SUMMER SESSION

Teachers course in play	20	
Teachers course in gymnastics	37	
Interpretive dancing	42	
Teachers course in swimming	13	
Swimming	136	
		248

PHYSICAL EXAMINATIONS

Entrance examinations	
Fall	1,048
Winter	68
Spring	47
Total	1,163

A second examination was given in the spring to all freshmen and sophomores. During the year juniors and seniors were summoned for health consultations; 430 responded and personal interviews were held with them.

STUDENT HOURS PER WEEK DURING FALL QUARTER

	Students	Hours	Student Hours
Hygiene	800	1	800
Elementary physical training	855	3	2,565
Sophomore physical training	74	2	148
Sophomore elementary swimming	210	2	420
Sophomore advanced swimming	73	2	146
Sophomore interpretive dancing	116	2	232
Sophomore games and folk dancing	78	2	156
Sophomore major sports	83	2	166
Elective field hockey	118	2	236
Elective swimming	35	1	35
Extension swimming	210	1	210
Senior professional students	9	13	117
Junior professional students	10	12	120
Sophomore professional students	24	7	168
Freshman professional students	21	2	42
University High School	111	3	333
Total			5,894

Respectfully submitted,

J. ANNA NORRIS, *Director*

THE DEPARTMENT OF MILITARY SCIENCE AND TACTICS

To the President of the University:

SIR: I have the honor to submit the following report of the Department of Military Science and Tactics for the year 1923-24.

The training corps was organized during the first few days of the fall quarter with an enrolment of 2046 basic students and 179 advanced students. Training was carried on uninterruptedly throughout the year, under a schedule of instruction based on War Department regulations. Training was terminated on May 22, the students having been given credit for two drill periods for extra work done prior to inspection.

I am glad to be able to report considerable progress in training, especially along the lines of drills, and other exercises, calculated to promote a wholesome discipline and development of character qualities, all of which should be helpful to the student during his college career and also after he leaves college.

A sentiment has prevailed in certain military circles that officers on duty at colleges should stress the fact that the military course is a course in "science and tactics" and that the word "drill" should be largely kept in the background in the belief that students did not like drill and other disciplinary exercises. I have never concurred in this idea, and having been on duty at the University of Minnesota prior to the World War, I felt convinced that the Military Department should not only make discipline and the development of leadership its primary objective for the Basic Course, but also that the students would like the course. Accordingly, and with the full approval of Colonel Girard Sturtevant who was in command until February 1, the Basic Course was conducted with this end in view. The results have exceeded my fondest expectations. I am convinced now that the students are more interested in the Basic Course and have a greater appreciation of the benefits to be derived through military training. All this is evident from the fact that whereas only 9 students entered the Advanced Infantry Course last fall, at the present time in the neighborhood of 90 of the very best students completing the Basic Course have registered for the Infantry Course beginning next year.

Great difficulty has always been experienced heretofore in the Infantry Unit; largely because of the fact that infantry students have to go to camp in what they choose to call "their own back-yard"—Fort Snelling.

Heretofore it has been next to impossible to enroll basic students for the basic camp at Fort Snelling. Last year, one such student enrolled. This year, fourteen are going which, tho nothing wonderful, nevertheless shows that interest in military training is on the increase.

Much has been done during the year to improve the facilities for training. Through the military budget and certain additional appropriations that were allotted to the Military Department, we have provided offices

in the Armory for the entire military personnel which compare very favorably with the best on the campus. Through certain alterations, we now have in the Armory five classrooms in addition to the main floors of the Armory. The allotment of rooms for the Signal Corps Unit in the newly completed Electrical Engineering College leaves nothing to be desired. I do not believe there is a signal corps unit in the country as well provided with offices, classrooms, etc. The officer in charge of the Medical Unit has been allotted a new office for the coming year, much larger than the one he has occupied in the past. The new University storehouse affords ample space for storage of the government truck and anti-aircraft mount.

Having in mind, what has already been mentioned, that if we would make good second lieutenants in the Reserve Corps, we must make good soldiers first, the matter of changing the hours of instruction to promote this end was taken up with the various colleges. Through the splendid co-operation on the part of deans and other administrative officers of the colleges, we have been able to arrange the hours for the coming year so that only one unit trains in the Armory at one time. This also improves training facilities. At the same time, the new hours are so arranged that students from all four college classes, and belonging to the same military unit, can train at one time. In other words, beginning with the fall quarter and extending throughout the year, we will have a cadet organization with its privates, corporals, sergeants, lieutenants, and captains ready to function whenever this is desirable. I need not explain that this will bring about a cadet corps *esprit* impossible without a cadet organization.

It is most gratifying, no doubt, to all friends of the University of Minnesota to know that our cadet rifle team won both the official War Department National Rifle Match and the Hearst National Trophy, the former against 26 competing teams from leading colleges, and the latter against 128 such teams. The aforesaid are the only national matches in which college rifle teams from senior units compete.

As you know, the R.O.T.C. units were inspected by a board of War Department inspectors on May 15, 16, and 17. The list of colleges which have been rated as "distinguished" as a result of this year's inspection has been announced, but Minnesota is not on the list. The marks which the board assigned to the various items have been received and as anticipated, the small percentage of basic students who had entered the Advanced Course last fall was the one important item that operated against Minnesota. This matter, as I have indicated, is being largely corrected.

The University of Minnesota, for a number of reasons will never be able to compete against the smaller colleges for distinguished rating, when it comes to placing great weight on the percentage of basic students who enter the Advanced Course. For example: here at Minnesota, we have the College of Pharmacy and the School of Mines. Most students entering the former, complete the course in three years; those entering the latter are frequently away in the mines at times when the summer camp for advanced students takes place. The Advanced R.O.T.C. Course,

being a two-year course, and requiring a six weeks' camp, makes the enrolment of students from the aforesaid colleges practically impossible. Yet, all students in the aforesaid schools are required to take the Basic Course, and by virtue of doing so, lower the percentage of basic students in the Advanced Course.

The students in both the College of Pharmacy and the School of Mines were always exempt from required drill until 1916, when through my representations (I was commandant at the time), the Board of Regents passed a resolution that students from these schools would no longer be exempt from drill. I considered at the time that this was a great victory (I call it victory for want of a better word) for the Military Department and the War Department, and I cannot help but express a degree of sadness that as a result of the victory attained in 1916, the institution should now be penalized. It is my recommendation that this matter be taken up with the proper authorities of the War Department before another annual inspection.

The instruction in the Junior Unit (School of Agriculture) was conducted throughout the time this school was in session, with very satisfactory results. Much is expected from the new schedule of hours which has been arranged with the principal of the School of Agriculture. Instead of having the junior cadets report for three one-hour periods of instruction per week, beginning next fall they will report twice a week for one and one-half hours of instruction. This will enable us to give them a half hour's calisthenic drill each time they report, and such other drills as will give these boys what they need most.

Five new officers will report for duty with the Military Department next fall. All of these have just completed a year's course at the special service school of their particular branch. This should do much in the way of strengthening our teaching force.

It is most gratifying to report that the co-operation from administrative officers and college faculties has been exceptionally fine throughout the year. Within the past few days, a number of the faculty members have delivered addresses at Fort Snelling before a gathering of officers on duty at educational institutions in the Seventh Corps area. These addresses have done much to make the normal school for officers interesting and instructive. All this is greatly appreciated by the representatives of the Seventh Corps area and by the undersigned who was charged with the conduct of the school.

Respectfully submitted,

BERNARD LENTZ, *Major, Infantry, D.O.L., P.M.S.&T*

THE GEOLOGICAL SURVEY

To the President of the University:

SIR: I submit my report as director of the Minnesota Geological Survey for the period from July 1, 1923, to June 30, 1924.

The survey was allotted $16,500 for the biennial period begun July 1, 1922. The work was carried on according to plans outlined in earlier reports to the president of the University, and published in the annual reports of the president. At the end of the fiscal year there were under way, or completed, the following investigations:

1. The mapping of parts of St. Louis and Lake counties, particularly the areas bordering the Vermilion Iron Range. This work was done by Professor F. F. Grout, assisted by Mr. Ira H. Cram and Mr. C. W. Sanders, Jr. This area is difficult to traverse, and geologic structure is complicated, and detailed mapping is tedious. A report on the geology and mineral resources of the area will soon be issued and the results will be used also in the construction of the geologic map of Minnesota, now in preparation.

2. An investigation of the Paleozoic formations in southeastern Minnesota was continued by Professor C. R. Stauffer, assisted by Mr. William L. Strunk. Certain areas in Fillmore, Olmsted, and Winona counties have been remapped, where the New Richmond and Jordan sandstones have been confused with the St. Peter. These detailed stratigraphic studies are desirable for several reasons, and are necessary for the completion of the geological map of Minnesota, already mentioned.

3. The report on the iron-bearing series of the Mesabi Range, by Professor J. W. Gruner, is now in press and will be issued late in 1924, together with a geologic map on a scale of one inch to two miles. A proper understanding of the subdivisions of the iron-bearing series is vital to their exploration and development, but to the present time no maps have been issued showing the subdivisions, nor have adequate descriptions of the subdivisions been available. As the larger and richer deposits are worked out, the miners on the Mesabi Range will depend more and more on the less easily accessible lower grade and smaller deposits of iron ore. This map will probably be very serviceable in the near future to the operators on the Mesabi. It is of considerable scientific interest that Professor Gruner has identified organic remains in the Archean rocks of northern Minnesota.

4. Geological surveys of the Keweenawan area of the north shore of Lake Superior in Lake and Cook counties were made by Professor G. M. Schwartz, assisted by Mr. Leslie Miller. The contacts of the principal formations were remapped on a scale suitable for use on a state geologic map. A limited area near Two Harbors was mapped with the magnetic needle. Papers by Professor Schwartz on mineral deposits in this area have recently been published. A paper representing earlier studies, entitled

"The Contrast in the Effect of Granite and Gabbro Intrusive on the Ely Greenstone," was issued in the *Journal of Geology.*

5. The study of the manganiferous and magnetic ores of the Cuyuna Range was continued by Mr. George A. Thiel. The open pits and underground mines of the range were surveyed with the object of determining the origin and paragenesis of the manganese ores. Hundreds of drill cores of the southern part of the range were examined in order to determine the extent of, and the possibility of concentrating, the magnetic slates.

Microscopic study and laboratory experiments supplementing the field work have been undertaken. A paper on "The Paragenesis of Manganese Minerals, with Reference to the Cuyuna Range Ores" appeared in *Economic Geology,* and a paper on high temperature manganese minerals on the Cuyuna Range, with another on magnetic pyrrhotite deposits near the Cuyuna Range, are to appear in early numbers of the same journal. A preliminary paper on the possibility of commercial concentration of Cuyuna Range magnetites is ready for the press.

6. A reconnaissance study of the Giants Range granite was made by Mr. Ira S. Allison. The granite covers an area of about 1000 square miles, extending from the vicinity of Grand Rapids northeastward beyond Ely. The work included mapping certain areas and the collection of material for study. A report describing the petrography of the various phases of the granite and their structural relations, etc., is in preparation.

In addition to the more comprehensive investigations outlined above, many inquiriés are received in the offices of the survey concerning the geological structure at various places, by those who contemplate drilling for water or for ore. Many requests are received for information concerning deposits of peat, stone, clay, shale and other rocks for artificial shingles, mineral paints, fluxes, refractories, etc. These inquiries are given careful attention, and when practicable samples of material are forwarded in order that they may be tried out. Many samples of rocks and ores were forwarded from different localities in the state to be examined to determine their availability for various economic purposes.

Respectfully submitted,

W. H. Emmons, *Director*

THE ZOOLOGICAL SURVEY AND MUSEUM

To the President of the University:

SIR: I have the honor to submit the following report of the condition and activities of the zoological survey and museum for the year ending June 30, 1924.

MUSEUM

The general condition of the museum during the year just closed has been marked by a steady advance in exhibits, study collections, equipment, and the accumulation of data in regard to the natural resources of the state, as detailed under various headings below. But the demand for lectures both at the museum and outside and the attendance upon the Sunday afternoon lecture course has not been as great as formerly. The largely increased number of lectures and entertainments offered by other institutions and the rather inadequate facilities at the museum for taking care of large audiences has perhaps accounted in part for this decline. However, this falling off has not been discouraging and in fact the present work along this line is more nearly commensurate with the time that the director and curator can give to it without neglecting the other activities of the museum.

In all 77 lectures were given under the auspices of the museum with a total attendance of 6870. Thirteen of these were Sunday afternoon lectures, 2 of which were given by the director. Of the other 64, twelve were given away from the museum and 52 at the museum. Twelve of the latter were to adult audiences and 40 to groups of children divided as follows: public school groups, 28; boy scouts, 5; four square boys, 1; girl scouts, 5; campfire girls, 1. Mr. Kilgore, the curator, has taken a considerable part in the lecture work the past year, having given 14 of the lectures, several to outside audiences. He has also devoted much time to showing visitors through the museum and explaining the exhibits. At the beginning of the year Mr. Kilgore's title was advanced from assistant curator to curator.

Eleven small standard size or "school" groups have been added to the 13 previously finished and these have been placed on exhibition as completed. Cases and materials are on hand for 10 or 12 more groups of this style. All of the 11 groups constructed the past year contain birds, as follows: white-throated sparrow, savannah sparrow, chipping sparrow, crested flycatcher, yellow-throated vireo, and parula warbler, each with nest and eggs or young, colored background, and accessories; a case containing a number of common birds mounted on natural perches and selected and arranged to show the great difference in plumage between the male and female that sometimes exists; a case containing male and female of the various species of blackbirds found in Minnesota; two cases containing Minnesota warblers; and a case of Minnesota sparrows. These last 5 cases with the birds synoptically arranged are of special value to amateur bird students as they afford an opportunity to examine and compare closely

related species and the male and female where they differ. It is our purpose to continue the construction of these synoptical exhibits of Minnesota birds as far as is practicable within the limitations of these small cases. It is also the intention to include in this small group series exhibits containing insects, flowers, and mammals. Material for several small mammal groups is on hand.

Several applications have already been received for the loan of these small groups but with a single exception they have not yet been sent out as the details connected with their circulation and shipment have not been arranged. They are at present serving a very useful purpose in the general museum where they seemingly attract as much attention as the larger exhibits.

In the construction of the school groups Mrs. Richardson has assisted her husband, the museum taxidermist, to a considerable extent not only making the needed waxwork but mounting many of the birds and attending to the details of the final assembling.

Much of Mr. Richardson's time during the year has been devoted to the construction of the large black bear group which is nearing completion.

Mr. R. Bruce Horsfall of Portland, Oregon, came to the museum in December to paint the large background for the bear group. It is a very satisfactory and beautiful picture of a scene on the north shore of Lake Superior and is a good example of Mr. Horsfall's best work along this line.

On January 1 last, Mr. Kilgore was appointed by the Minneapolis Boy Scout organization, official examiner for merit badges awarded for proficiency in bird study. Up to June 30 forty-eight such examinations were held at the museum. Under the administration of Mr. Kilgore these examinations have been standardized and the qualifications required of applicants raised to a worth-while level.

More field work than usual has been done the past year, all within the limits of the state. This is a necessary adjunct to the museum if its material collections and information files are to be augmented and kept up to date. Considerable motion picture film and numerous photographs for lecture work were secured on these trips.

During the year the museum was visited at different times by Mr. Roy Chapman Andrews, noted explorer and scientist, and Mr. James L. Clark, assistant director and chief of preparation section, both of the American Museum of Natural History, New York City, and after careful inspection they commented favorably upon the progress made and especially on the exceptional excellence of the exhibits.

Exhibits.—No large group has been completed the past year but the work on the bear group has been advanced to such a point that its completion in the near future is assured.

Besides the eleven small groups listed above a medium sized group, similar to others in the museum, has been completed. It contains the nest and eggs and a pair of willow thrushes or veeries placed in the natural

setting of a northern alder swamp which this bird inhabits so commonly. The background is a transparent, colored, enlarged photograph mounted on glass showing characteristic environment. The coloring was done by Mrs. Richardson. In the foreground is a beautiful wax reproduction of the large showy lady's-slipper (*Cypripedium reginae*), one of the finest flower pieces, among the many, that the Richardsons have produced. This veery group fills the second compartment of a double case with the Nashville warbler group and is at present in the Dall's sheep group room on the basement floor.

A donation of $1000 was received from Mrs. George C. Christian, of Minneapolis, to be expended for the school group work. From this fund twelve new cases, made in the University shops, have been secured, several of which are already filled and displayed on the walls of the museum.

Study collections.—The catalog of the mammal skins has been completed, the work being finished by Mr. Orcutt Frost during the past spring. This collection is now available to students interested in this branch of natural history.

One hundred eighty-eight bird skins and 50 mammal skins have been added to the collections during the past year, a number of which will be used in the construction of small groups.

The study collections are in frequent use by visitors and the bird collection, now numbering 6895 specimens exclusive of the series used for class work, is the indispensible practical basis of the course in ornithology given annually by the director of the museum.

Accessions to the museum.—The following statement shows the nature and source of the additions to the museum during the past year. Special mention should be made of a fine pair of passenger pigeons received from Mr. C. D. Velie. As this bird, formerly abundant in Minnesota, is now extinct everywhere specimens are very desirable and of increasing value.

Mr. William L. and Mrs. Irene Finley, of Jennings Lodge, Oregon, generously presented to the museum 200 feet of motion picture positive of the barn owl and its young which will be interesting and entertaining in the lectures to school children.

The bird and mammal skins credited to the Minnesota Game and Fish Commission were collected by Mr. Thaddeus Surber and his son along the north shore of Lake Superior and among the mammal skins is one species new to the state. Mr. Surber has ever shown a generous interest in our work.

ACCESSIONS TO MUSEUM

BY GIFT

Dr. L. C. Bacon, St. Paul	9 bird skins and 1 horned toad
Mr. Russell H. Bennett, Minneapolis	1 resplendent trogon (skin)
Mr. William T. Cox, St. Paul	1 photograph of great gray owl
Mr. George H. Childs, Minneapolis	2 box turtles (alive)
Mrs. Edward C. Chatfield, Minneapolis	1 book "The Bird"
Mrs. and Mrs. Frank W. Commons, Crystal Bay	2 white-throated sparrows, 1 Harris's sparrow (in flesh); and section of tree with stored acorns, showing work of California woodpecker
Mr. J. M. Eheim, Hutchinson	1 golden eagle and 1 white leghorn chicken (in flesh)
Extension Division, University of Minn.	111 lantern slides (33 mounted, 78 unmounted)
Mr. William L. and Mrs. Irene Finley, Jennings Lodge, Oregon	200 feet of positive moving picture film of barn owl
Mr. P. O. Fryklund, Roseau	1 pileated woodpecker, 1 great gray owl, 2 least weasels and 6 wolf pups (in flesh)
Mr. F. W. Galland, Minneapolis	1 pine grosbeak (in flesh)
Mr. N. L. Huff, Minneapolis	98 photographs and 2 colored lantern slides
Mr. H. J. Jaeger, Owatonna	1 cackling and 1 blue goose (in flesh)
Mrs. Simon Kruse, Minneapolis	Small collection of shells
Mr. B. R. Lewis, Stillwater	1 rose-breasted grosbeak (in flesh)
Mr. E. J. Lund, Minneapolis	3 lantern slides
Miss Mary L. Mills, Preston	1 bird photograph
Minnesota Game and Fish Commission, St. Paul	3 bird and 17 mammal skins
Mr. C. O. Rosendahl, St. Paul	3 lantern slides
Mr. R. C. Smith, Minneapolis	1 least bittern (alive)
Mr. W. H. Smock, Minneapolis	2 black squirrels (in flesh)
Mr. Alfred Peterson, Pipestone	3 stilt sandpipers and 1 black-bellied plover (in flesh)
Mr. C. D. Velie, Minneapolis	2 passenger pigeons and 1 wood duck (mounted)
Mr. L. J. Holtzermann, Minneapolis	1 pair of greater kudu horns

BY MUSEUM FIELD WORK

Mr. Jenness Richardson, collector	146 bird skins, 15 small mammal skins, 8 large mammal skins (Black Bear), photographs, nests, and eggs, moulds, color studies and accessories for groups
Dr. Roberts and Mr. Kilgore, collectors	13 bird skins, 3 nests, 18 eggs

Publications.—No publication except an illustrated reprint of the annual report has been issued directly from the museum the past year. The bi-monthly articles prepared largely from the museum's current natural history records have been continued in "The Season" department of *Bird-Lore* by the director.

Photography.—About 1800 feet of motion picture positive has been printed from negative taken in the summer of 1923 and some 1200 feet

of negative was made in June, 1924. The latter has not been printed. All this film deals with natural history subjects, mostly birds, and is for use in lecture work. Some 500 feet, or about half a reel, illustrates the subject of bird-banding which is now, under the supervision of the Biological Survey at Washington, receiving so much attention throughout the United States and Canada. This picture was made in large part on the grounds of Mr. and Mrs. Frank W. Commons at Lake Minnetonka and thanks are due them for their kind and patient co-operation in the undertaking. Another half reel calls attention to the value and attractions of a properly constructed drinking and bathing place for birds in city as well as country grounds. The fact that birds of value to man will assemble in large numbers about such a place, even in a city yard, is clearly shown. The picture was made in the flower garden of Mr. N. L. Huff, southeast Minneapolis.

Fifty-two negatives and 158 lantern slides have been added during the year. Of the slides, 111 were received from the University Extension Department, being transferred because they deal with nature subjects more directly within the scope of the museum's work.

A new cabinet for filing the collection of negatives has been added to the office equipment. The total number of negatives thus made available for ready reference is 3469. The card catalog index of mounted prints from these negatives, together with a large number of other photographs and pictures, has been completed and serves a useful purpose in various ways.

Co-operation.—The lectures for public school children and other groups of children both at the museum and outside has continued to be an important feature of the work of the museum. Various societies, churches, and organizations of adults have applied for illustrated lectures and in most cases these have been given. When held at the museum in the evening, as occasionally happens, the museum is open and lighted for the inspection of the visitors.

A series of bird skins was loaned to the Carnegie Museum, Pittsburgh, for use in the study of the distribution of certain species.

Acknowledgment and thanks are due the Department of Public Education of the American Museum of Natural History, New York City, for the loan of a set of slides to illustrate the lecture on "Spider Lore" by Dr. W. A. Riley, Sunday afternoon, February 3, 1924.

The museum has been called upon frequently during the year to make use of its equipment in projecting motion pictures and slides for other departments of the University. This service has been rendered by Mr. Kilgore, usually in the lecture rooms of the Animal Biology Building.

The course in ornithology offered by the Department of Animal Biology was given by the director for the ninth consecutive year, using the collections of the museum for the laboratory and lecture work. Mr. Kilgore rendered much assistance this year and the field trips of the spring quarter were largely under his direction. The class was nearly full this year—nine students, ten being the number permitted—and never before has the class had such a successful series of outings, identifying and studying in

the field no less than 142 species of birds. Heretofore the average has been about one hundred.

Sunday afternoon lectures.—The Sunday afternoon course of lectures was offered to the general public at the museum for the fourth year. They were held as usual in the upper lecture room during the months of January, February, and March at 3:30, the museum being open on these occasions from 2 to 5 o'clock. The total attendance on the thirteen lectures was 1675, an average of about 129 each lecture. The attendance on these lectures has decreased considerably since the over-crowding of the first two years. The decrease has been largely in a lessened number of children, due undoubtedly to the fact that few motion pictures have been shown the last two years. The attendance is still as large as the room can accommodate comfortably and has been generally satisfactory to the lecturers.

Thanks are due to the men, all but one members of the University faculty, who so generously gave of their time and effort to make these lectures a success. The course this year was a varied one, covering a rather wide range of topics.

Other lectures.—During the year 76 public lectures were given, nearly all in the museum, the aggregate attendance at which was 6870 persons.

Attendance.—The number of visitors to the museum has increased somewhat over previous years, but there is no way of determining even approximately the total attendance. The building is open all day every week day and there are nearly always groups of people in the halls viewing the exhibits. Some days the upper hall is well filled and on such occasions and at any time when requested Mr. Kilgore or the director accompanies the visitors to explain the exhibits. On the afternoon of "Mothers' Day," May 10, the building was full from noon to 6 o'clock and motion pictures were shown to a group of those present at the time in the lower lecture room by Mr. Kilgore.

Live beaver.—The remaining one of the two beaver "kittens," donated to the museum by Mr. Carlos Avery several years ago, was wantonly killed in the pond where it had lived so long by a boy of the neighborhood last fall. Thus ended tragically a never-ending source of interest and entertainment to hundreds of people, adults as well as children. No further attempt will be made to keep live animals in connection with the museum as the cost and difficulties are too great.

FINANCE

University museum budget.—This fund for the past year was $2100. The principal items for which it was expended were motion picture film, developing and printing same; the making of negatives, slides, and enlargements for backgrounds; a cabinet file for negatives; expense of field trips; printing museum report; office stationery and filing blanks; and waxwork for groups.

Small group fund.—A donation of $1000 was received from Mrs. George C. Christian for use in constructing small groups for loaning schools, libraries, etc. This was deposited to the credit of Thomas S. Roberts, trustee, in the Minneapolis Trust Company. Twelve new cases were purchased and several groups completed during the year with the aid of this fund. There remained on June 30 a balance of $308.04.

Museum subscription fund.—Mr. James Ford Bell has continued his monthly contribution of $50. In addition to this there has been received from Mr. Bell during the year $3500 on account of the black bear group.

The sale of a discarded museum specimen originally paid for by Mr. Bell netted $75 and the amount was credited to this fund.

STATEMENT

Mr. James F. Bell's monthly contribution	$ 600.00
Sale of discarded Dall's sheep	75.00
From Mr. James F. Bell, account bear group	3500.00
	$4175.00

Balance in First National Bank to credit of Thomas S. Roberts, trustee, on June 30, 1924, $1266.50, of which $701.85 is to credit of bear group and $564.65 to general subscription fund.

Respectfully submitted,

THOMAS S. ROBERTS, *Director*

THE UNIVERSITY LIBRARY

To the President of the University:

SIR:—I respectfully submit herewith a report of the activities of the University Library for the fiscal year ending June 30, 1924.

The year has generally been marked by preparation for removal into the new library building and for the changes in policy and administration which will be made necessary by that removal.

Altho complete removal will probably not be effected much before the opening of the regular academic year in September, 1924, much of the preliminary work has already been done. Duplicates, University publications, and inactive material, to the amount of several thousands of volumes are already on the shelves of the working rooms or are waiting removal from the corridors to the new bookstacks. Moving equipment has been obtained and moving plans fairly well perfected. The furniture, with the exception of some minor articles, is in process of delivery and installation. Mr. Harold G. Russell, head of the order department, has rendered indispensable service in the details of moving.

As usual, the present building has been crowded far beyond its legitimate capacity. There is no question that it is inadequate for satisfactory library service, but rather extended observation, especially in the main reading room, seems to show that some of the congestion is occasioned by other than library use. Due to its urban location, the University has in attendance an unusually large number of commuters. During their vacant periods, they have no place in which to study their textbooks, write up notes, or even to engage in a social chat. The fraternity houses are too remote from the campus. The available space in Folwell Hall, Shevlin Hall, and the Union is entirely too small for the demand. The result is that the library rooms are crowded by hundreds of students whose chief need is a place to go. No building that is likely to be erected can take care of this large number at congested periods. Unless some relief is provided, those who really wish to use the library connection are likely to be almost as badly handicapped in the new quarters as in the old. In justice to all kinds of students, more study rooms should be provided at various strategic places on the campus. The experience of the College of Engineering in establishing such a room and the crowded conditions of those now available indicate clearly that they would fill a real need and would be extensively used.

The question of the use of books for assigned reading for large classes is becoming serious. Collateral reading has become a recognized essential in modern education. No librarian would willingly do anything to hinder any such use within the widest limits possible. Nevertheless, there are conditions which must be recognized. The demand for duplicate copies in sufficient numbers to enable every student in a large class to get a copy at his convenience cannot be met by the present library funds nor by any amount which the library is likely to get for book purchases in the near

future. Mr. Russell, head of the order department, estimates that about $6000 was spent in this way during the year 1923-24. In many cases, the demand is for books which are scarce, expensive, or otherwise virtually unobtainable in the quantities desired. The amount of use to which many books of the type are subjected even within legitimate class limits, wears them out in a short time and removes them from the library's resources. Unlike laboratory equipment or furniture, they cannot be replaced, or fabricated.

Just how far a state university should go or can go in the way of furnishing large quantities of books for undergraduate purposes is a matter which has never been adequately investigated. It is closely related to the fundamentals of undergraduate educational policy on the one hand. On the other, it is inseparable from the economic limitations of the university and the necessity of preserving material for research purposes even at the cost of refusing to allow it to be worn out by large classes in elementary courses. The problem is already acute at the University of Minnesota and will certainly become more serious unless some solution or satisfactory compromise can be found.

A special reading room for the new Freshman Orientation Course was fitted up on the second floor of the Perine Building. The attendance was voluntary, except as made necessary by the supervision of the instructors over the required reading. The results were disappointitng in that the attendance at any time was very small in proportion to the cost of administration. This in no way affects the validity of requiring the reading, but merely indicates the need of more economical methods of circulation of special collections.

A special appropriation of $20,000 for books was received. Two thousand dollars were spent for the Orientation Course. Some obvious gaps in the collections were filled. The remainder was chiefly spent in the purchase of sets, runs of periodicals, and other material of permanent reference and research value and in catching up arrears in binding. Among the sets purchased were several of Far Eastern periodicals for use in Political Science and a considerable number of the nineteenth century German periodicals. A large number of sets and runs of medical and biological serials were also received. Nearly 2000 items were received as gifts, exclusive of exchanges, during the year.

The various departmental libraries have shown healthy activity. Unfortunately it is impossible under present conditions to give a complete report of the library activities and expenditures of the University. The Law and Agriculture libraries and the libraries at Morris and Crookston make no reports (except as a special favor and on direct request) to the University librarian. All library statistics are, therefore, open to suspicion as far as aggregates are concerned.

The staff have so generally shown their interest and loyalty during the year that a list of those who should receive commendation would include all but a very few of those in the service of the library. There has been

a noticeable decrease in the number of complaints from students and faculty about service, and a very evident increase in an intelligent appreciation of the handicaps under which the service has been conducted. The library is greatly indebted to the faculty for the interest they have shown in suggesting books for purchase and the care they have generally taken to select those really worth purchase.

Summaries of the detailed reports submitted to the University librarian by the heads of the library departments follow. The statistics are as of June 1, 1924.

Order department.—The total expenditures were $60,084.26 divided as follows: books, $38,014.26; periodicals, $9500; binding, $12,534. Between 15,000 and 16,000 volumes have been accessioned and about 3000 unaccessioned ones (mostly gifts and exchanges) have accumulated. The number of volumes that have been bound for the library is 3278. In addition, the library bindery has bound 1199 volumes for other departments. Periodical costs have increased from $8383.60 to $9500. Nearly 500 volumes more of periodicals are now bound annually than in 1920-21.

Catalog department.—The department has, as usual, been handicapped by vacancies and by catalogers new to the work here. Fortunately, several of those newly appointed have been catalogers of undoubted ability. More progress in cataloging on Scandinavian books has been made. Eight hundred sixty-four volumes were cataloged for the Freshman Orientation Course. 230 for the University High School, and 1523 for the Law Library. Miss Selma Nachmann of the University of Chicago spent six weeks on a union list of serials in biology, medicine, and chemistry. This was continued and completed by Miss Anna Lenschow, of the catalog staff. A National Union List of Serials, to include important serial sets in the leading libraries of the country, was also checked by Miss Helen Norris and Miss Goss. Despite these added duties and other handicaps, about 15,000 volumes were cataloged and about 25,000 cards added to the main catalog. There is still great difficulty experienced in getting satisfactory candidates to fill the places of more who resign or are promoted.

Circulation department.—The total recorded circulation in the Main Library was 434,017 as against 466,090 in 1922-23. This decrease of about 7 per cent is not serious. It can be explained in large part by the wider use of textbooks and source books in several courses and by increased use of several of the departmental libraries, which reported a total circulation of 39,115. The new orientation reading room alone had a circulation of 8175 which, under ordinary conditions, would have been added to the general statistics. It is interesting to note that there was a decrease in the Summer Session circulation also. During the first session the circulation dropped from 51,640 in 1922 to 47,340 in 1923, a loss of 4300, or about 8 per cent. Corresponding figures for the second session of the two years are 14,974 and 14,568, a loss of 406, or about 3 per cent. It should be noted that, in a university library, quantity of circulation is not necessarily an indication of progress. A long, badly chosen reading list for a large class may increase

the circulation by thousands while a better planned course in which quality as well as quantity of collateral reading is kept in mind may perceptibly decrease the circulation.

Reference department.—There are two types of reference work, (1) the instructional, which is intended to help the user to more intelligent self-help in the library, and (2) the research work, which includes preparation of bibliographies, the collection of material for faculty and students, and the verification of references. Many requests for information come by mail and telephone and considerable time is spent in obtaining books through inter-library loan. The reference collection has been improved by the addition of many books and some progress has been made in rebinding. The development of the courses in "Use of books and libraries" is showing its effect in the increasing independent use of reference books.

Very respectfully yours,

FRANK K. WALTER, *University Librarian*

THE INTERFRATERNITY COUNCIL

To the President of the University:

SIR: I herewith submit my report as president of the Interfraternity Council for the year ending June 30, 1924.

Membership.—There are twenty-nine academic fraternities represented in the council of which twenty-seven are national and two local.

Scholarship.—The following table compiled by the dean of student affairs, gives the relative scholastic standing of the fraternities for the year 1922-23.

Acacia	1.202	Kappa Sigma	.952
Tau Kappa Epsilon	1.194	Pi Kappa Alpha	.944
Chi Psi	1.108	Phi Kappa Psi	.942
Phi Delta Theta	1.106	Psi Upsilon	.939
Beta Theta Pi	1.057	Delta Chi	.919
Alpha Delta Phi	1.048	Zeta Psi	.912
Alpha Tau Omega	1.041	Phi Sigma Kappa	.902
Delta Kappa Epsilon	1.033	Phi Gamma Delta	.897
Sigma Alpha Epsilon	1.031	Phi Kappa Sigma	.891
Theta Delta Chi	1.024	Delta Upsilon	.844
Alpha Sigma Phi	1.023	Sigma Nu	.784
Sigma Phi Epsilon	1.02	Delta Tau Delta	.682
Sigma Chi	.955		

The average scholastic standing of the fraternity men was .986; that of the non-fraternity men .978.

Change in the rushing and pledging rules.—A radical change was made in the system that has prevailed for several years of rushing and pledging. The following by-laws which were passed by the council and approved by the Board of Regents, explain the new system.

I. Beginning with September, 1924, no student shall be rushed or pledged by any fraternity during his first quarter in residence at the University.

II. No Rushing Period

1. There shall be no rushing of any man before the opening day of school of the second quarter in which he is registered.
2. No first quarter student shall be allowed to enter any fraternity house or attend any fraternity function on campus or off campus.

   (A fraternity function shall be taken to mean any function in which three or more fraternity men have gotten together at any one time with any man who will be, or is likely to be, an eligible candidate.)
3. No girls shall in any way, secretly or otherwise, participate in any rushing.
4. No alumni shall do any rushing at any time prior to the regular rushing period.

III. Rushing Period and Pledging

1. Pledging shall be on the tenth day after six o'clock p.m. of the second quarter counting the first day of classes as day No. 1.

   (This means the second quarter of the student's residence.)
2. No man shall be rushed in any capacity after eight-thirty o'clock p.m. except Friday and Saturday and days before holidays.
3. Rushing shall be confined to the campus except Friday and Saturday and days before holidays.

4. On week days there shall be two date periods: luncheon and dinner. On Friday and Saturday there shall be three date periods: luncheon, dinner and evening.
5. No fraternity shall be permitted to have more than four dates with any one student during the first five days of rushing.
6. After the regular organized rushing season any fraternity may rush or pledge any eligible student.

IV. Penalties

1. All violations of the word or spirit of these rules shall be investigated by a committee of six and the President of the Council, and if they shall decide that the case merits punishment, they shall refer it to the Inter-Fraternity Council. Penalties for violations shall be inflicted by the Council.
2. Penalties for infractions shall not exceed the following: Four weeks deferred rushing and pledging at a time set by the Council, or a fine of one hundred dollars ($100.00).
3. No fraternity shall be prohibited for more than one quarter from pledging any student involved in violation of these rules.

In my judgment the adoption of these rules or by-laws is an outstanding accomplishment of the fraternities and will react very favorably for the good of the fraternities, the welfare of the freshmen, and the University as a whole.

Respectfully submitted,

WILLIAM F. HOLMAN, *President*

FIELD SECRETARY AND GENERAL ALUMNI ASSOCIATION

To the President of the University:

SIR: I submit herewith the report of the field secretary and that of the secretary of the General Alumni Association for the year ending June 30, 1924. The two reports are combined in view of the fact that it is at times difficult to differentiate the functions of the two offices.

1. *The stadium-auditorium campaign.*—Prior to January 1 the amount subscribed by students, faculties, alumni, and friends of the University totaled $1,622,618.56. The freshman class (1927) felt that it should have a part in the enterprise and consequently a second or follow-up campaign was conducted on the campus May 6-10, to give new students, returned students who were not here in 1922, and those who did not subscribe at that time a chance to make a contribution to the fund. An unostentatious follow-up in the Twin Cities was conducted at the same time. The campus campaign resulted in subscriptions totaling $99,323.00, and the subscriptions from the outside campaign totaled $6,703.28, bringing the entire fund up to $1,728,644.84.

While all energies have been concentrated upon the construction of the stadium, the Greater University Corporation is not unmindful of its obligations in connection with the auditorium. The corporation will not in any case spend more than one-half the total amount pledged upon the stadium. In fact, considerably less than half will be devoted to that structure. Already plans are being made for the Northrop Memorial and active work will be started as soon as possible.

2. *Alumni units.*—New organizations have been established at Madison, Wisconsin; Omaha, Nebraska, and the women's auxiliary at Detroit, Michigan. No new units have been established within the state. There is room for two more, but thus far the leadership in those localities has not been equal to the situation.

Meetings held during the year that were reported to the office took place at Schenectady, September 22; St. Paul alumnae, October 12; Madison, October 26; Milwaukee, November 2; Omaha, November 3; Worthington, November 6; Ely, November 24; Washington, D.C., November 24; Watertown, November 27; Hibbing, November 27; Rochester, November 30; Detroit (women), December 8; Western Conference Alumni at Pittsburgh, December 8; Schenectady, January 1; Crookston, January 23; Minneapolis (men), January 29; Hibbing, February 1; Detroit, Michigan, February 2; St. Paul alumnae, February 28; Milwaukee, February 9; Detroit, Michigan, March 24; St. Paul (men), March 25; New York, April 28; Washington, April 29; Schenectady, March 6; Willmar, June 17.

There are now 29 units in Minnesota and 18 in other states, making 47 units in all.

3. *Life members.*—In 1922, 509 seniors responded to the invitation to become life members of the General Alumni Association and life subscribers to the *Weekly*.

The seniors of 1923, feeling the pressure of their stadium-auditorium subscriptions, did not respond nearly so well, only 309 signing the application. This spring 385 members of the graduating class have signed. While some of the groups, having real group loyalty and class spirit, made a 100 per cent response, it will not be possible to get the kind of co-operation desired until the stadium-auditorium obligations have been met. It will be four years at least before we shall approach a graduating class that will not be feeling the burden of a fairly heavy financial pledge, and until that time we cannot hope for a much larger response than we are now getting. Great credit is due those groups that have almost unanimously assumed the alumni obligation.

4. *Class of '99 Memorial Fund.*—It has not been the practice of outgoing classes to leave memorials, altho the classes of '89 and '90 established funds since their graduation. This year the class of '99, upon the celebration of its twenty-fifth anniversary, pledged itself to raise a fund of $2000 to be known as the '99 Memorial Loan Fund to be available for needy students. This is a most significant innovation in alumni circles, and it is hoped that succeeding quarter-century classes will emulate this splendid demonstration of class and University loyalty.

Alumni Directory.—The work on this publication was very seriously interrupted by the campaign, as lists of every description were urgently needed to meet situations as they arose.

Since the campaign Miss Potter has been obliged to carry on the work alone. She should have at least one permanent assistant and more provision for temporary help. One of our sister institutions, comparable to us in size, employs a director and three permanent assistants to do this work, spending approximately $8000 annually for the maintenance of the records. Less than $2000 is spent at Minnesota for similar purposes.

Respectfully submitted,

E. B. Pierce, *Field Secretary of the University and Secretary of the General Alumni Association*

THE UNIVERSITY HEALTH SERVICE

To the President of the University:

SIR: I have the honor to submit herewith the following report of the activities of the Students' Health Service for the year 1923-24.

General statement.—The purposes of the Health Service are to reduce to a minimum the illness and physical disability among the student body, to discover for students any physical defects which they may have, to assist students to overcome these defects and improve their general health, and educate students by means of a practical demonstration, as to what can be accomplished in the field of health conservation and disease prevention. During each previous year the Health Service has been able to report progress in this enormous task. During 1923-24 also one can note definite improvements in the service rendered and definite progress toward the goal set.

Education.—Everyone interested in public health work realizes that the greatest opportunity for educating people about disease prevention is presented when the people themselves become ill and seek medical attention. In the University the Health Service has a unique opportunity for such informal health education and the staff devotes as much time as possible to this phase of the work. When more consultation rooms and a few additions to the staff can be provided much greater advantage can be taken of these opportunities.

Staff.—During the past year the Health Service staff consisted of nine physicians on general medicine, five full time and four part time; two surgeons, part time; one eye, ear, nose, and throat specialist, full time; one specialist in tuberculosis, part time; one specialist in skin and genito-urinary diseases, part time; one specialist in nervous and mental diseases, part time; one specialist in corrective exercises and gymnastics, part time; eleven dentists, one on full time and ten on part time; one laboratory and X-ray technician, full time; ten nurses, full time; and three dental assistants, full time. This is a larger staff than we have ever had before and one which is rendering to the students the type of medical service which parents of the state would desire for their children who are attending the University.

At various times during the year it was felt desirable to have the advice and consultation of members of the staff of the Medical School and of the University Hospital. Whenever requested such advice or consultation was always cheerfully given. The administration of the Students' Health Service wishes to acknowledge this service and to express appreciation of the co-operation and assistance which was rendered.

Physical examinations.—The physical examinations which are required of all freshman men and of all athletes now are done at the Students' Health Service; the medical staff itself, in co-operation with the Department of Physical Education, performing the examinations. The physical examinations for women are still performed in the women's gymnasium but with the

co-operation which exists it is possible to carry out much the same type of examination as is given to the men.

Medical service.—Medical services of the staff are available to students at the several health service dispensaries and hospitals. To these institutions any student may come for advice or care. The staff also is ready to make calls upon students at their rooms when necessary. Table I shows the services rendered to students at the four stations of the University.

TABLE I. SERVICES RENDERED TO STUDENTS

Location	Physical Examinations	Dental Services	Dispensary Visits*	Outside Calls	Hospital Cases	Total Services	Hospital Days' Care
Main campus	3,342	9,871	43,035	386	736	58,766	2,429
Agricultural	249	....	4,618	2	156	5,464	1,128
Morris	212	....	1,480	0	71	1,487	638
Crookston	176	44	2,675	20	88	2,764	580
Total	3,979	9,915	51,808	408	1,051	68,481	4,775

* Not dental.

This table shows that the total number of services rendered was 68,481. The increase over the previous years is shown by the following comparison.

TABLE II. TOTAL NUMBER OF SERVICES RENDERED BY HEALTH SERVICE

1918-19	1919-20	1920-21	1921-22	1922-23	1923-24
17,347	32,639	43,205	58,246	60,463	68,481

Dispensaries.—Medical dispensaries exclusively for students are located on the main campus, on the agricultural campus. at Morris, and at Crookston. These are made as homelike as possible and the medical and nursing staffs take a personal interest in each and every student. The dispensary on the main campus has one or more physicians in attendance at all hours of the day. On the agricultural campus a physician is in attendance several hours each day, while at Crookston and Morris a nurse is in attendance at all times and a doctor is called when necessary.

These medical dispensaries can well be considered the front line of attack in our battle against disease. If the students come here upon the first appearance of symptoms, the possibilities of preventing the development of serious illnesses as well as of checking the spread of communicable diseases are greatly increased. For this reason the number of dispensary calls forms a good index as to the success of the service. The number of these visits on the main campus, which station gives the best general index of dispensary service, shows a progressive increase from year to year.

TABLE III. DISPENSARY VISITS—MAIN CAMPUS

1918-19	1919-20	1920-21	1921-22	1922-23	1923-24
12,689	21,053	28,223	29,785	35,654	43,035

Hospitals.—Infirmaries for students are maintained in close connection with the dispensaries. This is absolutely essential for the efficient administration of a students' health service, for when a patient is seen in the dispensary who should go to bed, it is necessary that it be easy to put him there. Early hospitalization minimizes the danger of communicable diseases spreading throughout the University community and it frequently prevents the development in the individual of serious complications from relatively insignificant primary infections. In order that this may always be practiced, there is a standing rule of the Health Service that any student with a temperature of 100° F. or more shall be hospitalized. The number of hospitalized cases during the past year was the lowest of any year since the Health Service was organized.

The following table shows the number of patients cared for in the various infirmaries.

TABLE IV. HOSPITAL PATIENTS

Hospital	Boys	Girls	Total
Main campus	560	176	736
Agricultural campus	113	43	156
Morris	39	32	71
Crookston	62	26	88
Total	774	277	1,051

Satisfactory hospitals on the agricultural campus in St. Paul and at Morris adequately meet the needs for bed care of students at those stations. On the main campus on the other hand the facilities for hospitalization are inadequate and unsatisfactory. In fact the situation here is one which frequently makes it impossible to render to students the type of medical service which they should have. Unquestionably this situation merits the earliest possible correction.

Conditions treated.—The diagnoses made in the various hospitals and dispensaries include a large variety of diseases but by far the largest group was made up of the acute infections, mostly respiratory. During the year there were four deaths; three from staphylococcic septicemia and the other from tuberculous pneumonia. Some of the more serious conditions treated were as follows:

TABLE V. DISEASES TREATED IN HOSPITALS ON MAIN AND AGRICULTURAL CAMPUSES

Appendicitis, without operation	10	Tonsillectomies	211
Appendicitis, with appendectomy	7	Submucous resections	26
Diphtheria	1	Measles	1
Pneumonia	9	Scarlet fever	15
Septicemia, staphylococcic	3	Mumps	18
Influenza	3	Chickenpox	21
Herniotomy	4	Smallpox	0
Tuberculosis, active	8		

Contagious diseases.—Altho there were outbreaks of several of the contagious diseases among the students none of the diseases reached really epidemic proportions. Of diphtheria there was only 1 case; of scarlet fever, 15 cases; of measles, 1 case; of mumps, 18 cases; of chickenpox, 21 cases.

During the year, 1628 students were vaccinated against smallpox; 3678 received Schick tests to determine susceptibility to diphtheria; 350 were given toxin-antitoxin injections to produce a lasting immunity to diphtheria; and 152 were vaccinated against typhoid fever.

Excuses for illness.—A student who has been absent from classes on account of illness can obtain an excuse only from the Health Service. This makes it possible to examine all students who have been ill. On the basis of this examination the Health Service excludes from class those who might be a source of danger to others and those who for their own good should not be attending school. The excuses which were issued by the Health Service were for a total of 15,307 days.

Mental hygiene.—During the past year a special effort was made to discover and advise those freshmen who needed assistance in making their adjustments to university life. In this work personal conferences were held with over 200 freshmen, selected by means of a special questionnaire or referred by deans or advisers. A summary of this work which is being published elsewhere demonstrates that this type of work offers such great possibilities for helping students that universities should make adequate provision to carry it on.

Dental department.—The dental department which was authorized by the Board of Regents two years ago has been operating to capacity during most of the past year. Two chairs were assigned to dental prophylaxis and dental surgery, and four to reparative work. One dentist in this department is employed on full time and ten more are employed on part time.

The advantages which this department offers to the students are (1) high class dental care on a cost basis—this averages about twenty-five per cent less than the cost in private practice; (2) a saving of time because of work rapidly done and without the necessity of trips down town; (3) appointments made to suit the students' class schedules; and (4) a service of easy accessibility.

The use which students have been making of this new department has been most encouraging and there is every reason to believe that the work of the department will increase during subsequent years. The difficulty in collecting bills has been the most unsatisfactory feature of this service.

Laboratory and X-ray work.—The laboratory work which is performed at the Health Service consists of chemical, pathological, and bacteriological tests which are required for medical diagnoses and treatment. The following is a report of the examinations made during the year:

Urinalyses	2,021
Nose and throat cultures (for diphtheria)	559
Blood counts	380
Hemoglobin determinations	177
Widals (for typhoid)	20
Sputum examinations	44
Bleeding and coagulation time determinations	154
Wassermans	56
Direct throat and eye smears	43
Feces (direct or cultural)	38
Gastric contents	58
Blood chemistries	60
Basal metabolism tests	63
Miscellaneous	520
TOTAL	4,193

The small Roentgen ray outfit which was installed a year ago has proven most valuable in our work. During the year Roentgen ray pictures were taken of 715 dental patients and 411 medical and surgical patients. The work which required a larger machine was referred to the University Hospital. This amounted to 312 cases for diagnosis and 12 cases for treatment.

Financial statement.—On July 1, 1923, for the first time since the organization of the service, the comptroller's statement showed a balance in the Health Service budget. The dental department closed the year with a deficit of $4450, due in part to the large expenditures which were necessary to start the department and in part to the considerable number of outstanding bills. The medical department, however, had a balance sufficient to cover this deficit and still show a small credit for the service as a whole.

Cost of service.—The gross total and per capita costs in the two largest stations of the Health Service are shown in the following table:

TABLE VI. GROSS AND PER CAPITA COSTS

	SALARIES	SUPPLIES AND EQUIPMENT	TOTAL	COST PER HOSPITAL DAY
A. Hospitals				
Main campus	$10,600	$9,280	$19,800	$5.57
Agricultural campus	3,780	1,920	5,700	
				COST PER VISIT
B. Dispensaries				
Main campus	$26,820	$7,250	$34,070	$0.58
Agricultural campus	2,280	1,560	3,840	

This table shows a lower cost per hospital day and per dispensary visit than was shown last year; but in spite of this the total cost of the department increased.

Sanitation.—1. Swimming pools. The swimming pools have been examined regularly as to their bacterial content. At first, while the chlorine treatment was being regulated, this was done twice a week; during the rest of the year, once each week.

Summary.—During the past year the Health Service has had a more adequate staff and has been able to render to the students better medical service than ever before. More students visited the dispensary but less were admitted to the hospital even than during the year 1922-23. Numerous students with very serious illness were cared for, of whom four died. Many students received vaccinations against smallpox, diphtheria, and typhoid fever but during the year the Health Service admitted to its hospital only one student with diphtheria, and none with smallpox or typhoid fever. Excuses issued for illness were for a total of 15,307 days. Some preliminary work was begun in the field of mental hygiene and deemed very worth while. The opportunities, which the Health Service has for educating students in regard to disease prevention and healthful living, are unique and should be taken advantage of more fully than is possible under present conditions. The inadequacy of the dispensary and hospital facilities of the Health Service on the main campus makes it impossible to provide for some of the students the care that they should have.

Respectfully submitted,

H. S. DIEHL, *Director*

THE BUREAU FOR RESEARCH IN GOVERNMENT

To the President of the University:

SIR: I submit herewith the annual report of the Bureau for Research in Government for the year 1923-24.

PUBLICATIONS

The bureau issued this year, as the third in its series of publications, *The Constitution of Minnesota Annotated,* by Harold F. Kumm. This is a volume of 311 pages in which the student will find a digest of practically every important decision of the state supreme court down to 1922 in which the court has interpreted any part of the state constitution. The information contained in this work is, of course, indispensable to a full understanding of the government of the state. Already the volume has been favorably reviewed, and we have no hesitation in saying that it is one of the best works of the kind to be found in print.

RESEARCH PROJECTS

With the aid of Mr. Bryce Lehman, research assistant, the bureau carried on during the past year an intensive study of the government and administration of the three most populous counties in the state, namely Hennepin, Ramsey, and St. Louis. This is but the beginning of a study which will be carried on for some time in the field of county government, but already the results are of notable value. Publication of the findings of this research will not be attempted immediately, altho a by-product of the work has already been printed by the League of Minnesota Municipalities under the title "Statutory Limits on Property Taxation in Minnesota."

Another project worthy of mention has been the preparation for publication in the summer of 1924 of a political and historical calendar of Minnesota for the year 1925. This work, which will be useful not only for reference but also as a means of political education, will include information, under correct dates, (1) concerning all important events in the governmental history of the state such as the adoption of the state constitution, the admission of the state to the Union, etc.; (2) concerning the meetings of the legislature, of the important courts and boards, and of county, village, town, and city authorities; (3) concerning registration and election days, and times for assuming office; (4) concerning the times at which taxes of different kinds fall due; and (5) concerning important holidays, anniversaries, etc. The aim is not to publish such a calendar each year, but to make one calendar so complete that it will serve as a reference work for a long time.

Studies in the law and practice of city-planning, in the organization of the state administration, and in certain other fields are also being carried forward under the direction of the bureau by students in the political science seminar.

In addition to keeping the very closest contact with advanced students in political science, the bureau is also endeavoring to establish similar contacts with students and faculty members in history, economics, sociology, and anthropology, and in the various colleges of the University which in any way touch upon the work of this bureau. A fairly complete list of important topics for research in the field of Minnesota government and politics has been prepared and is being forwarded to allied departments and colleges. The aim is to encourage the making of a series of intensive studies which, without overlapping, will cover as much as possible of the designated field, and will ultimately furnish the basis for a complete treatise on the government of Minnesota.

CATALOG OF THE BUREAU'S COLLECTION

During the past few months the bureau has also completed a tentative but comprehensive classification of its entire collection of materials. The work of cataloging the collection is also going forward and as it progresses the system of classification is being perfected by adaptation to the nature of the materials in hand. This project, which should be finished by October, 1924, will make the materials more accessible to students and faculty.

Respectfully submitted,

WILLIAM ANDERSON, *Director*

THE UNIVERSITY OF MINNESOTA NEWS SERVICE

To the President of the University:

SIR: I herewith submit the report of the News Service for the year 1923-24.

The University News Service devotes itself to placing information on worth-while activities of the University of Minnesota in channels that will bring them to public notice. While it is often referred to as a publicity service and fills the function of a publicity agency, a more truthful description would be to consider its output as a system of supplementary reports in which an effort is made to popularize more formal statements by the University. It also brings to public notice some things which ordinary reports do not touch.

During the past year the News Service has supplied University of Minnesota news to Minnesota newspapers outside the Twin Cities by co-operating with the Associated Press and the United Press, also by sending some individual stories directly to the newspapers and by mailing every other week a printed clipsheet of University news. During the football season a weekly letter on athletics was sent to sports editors. A series of matrices from which newspapers can cast "cuts" also was sent out. The cost of these "mats" was borne by the Committee on Intercollegiate Athletics. In many cases, also, tho not in all, brief mention of individual students who won honors was sent to their home town papers. Cap and Gown Day honors were covered in this way, for example.

Twin City papers have been helped in various ways. Obtaining manuscripts and advance stories is probably most important of these. Pictures of University activities have been supplied and some feature stories have been turned in. The News Service aims to be informed on matters that are to go before the regents so that reporters can get information on these things when they come up in the meetings.

The News Service has endeavored also to serve papers outside Minnesota. Athletic pictures have been supplied to papers in Chicago, Detroit, Cleveland, Milwaukee, Madison, Ann Arbor, etc. The picture of Martineau used in Collier's "All-American" story came from this department. The co-operation of the Minneapolis correspondent of the *Christian Science Monitor* has been obtained. A feature article written by the director of the News Service on the "Mortality" report of the Survey Commission appeared in the *New York Times*. The *Detroit Times, Ohio State Journal, Cleveland Plain Dealer,* also papers in the Dakotas, Iowa, Nebraska, and Wisconsin have used material from the News Service.

A considerable service has been performed occasionally throughout the year by the department in obtaining advance copies of manuscripts by faculty members who are to speak at national meetings in distant cities. These manuscripts were sent to the national press services for release at the points of meeting. In some cases stories released in this way as far away as

Buffalo, N. Y., have been reprinted in the near-by territory. This is a true service to the press and more thoro faculty co-operation in it is desirable.

The News Service has made an effort to supply notes and brief reports of University of Minnesota affairs to educational magazines. Fairly regular notes have been sent to such papers as *School and Society,* or *Science.* This is a branch of its work which the department is striving constantly to expand. Its items have appeared in "What the Colleges Are Doing," in *School,* the organ of the New York City public school teachers, in the *Boston Transcript,* and in various class publications. Material has been supplied to the *Big Ten Magazine* and the *Big Ten Weekly.*

Minnesota Chats, a weekly publication which in each issue presents a unified article about some single University department, policy, or activity, has been started this year and has run through forty-two issues at the date of writing. This is sent in an average week to 7500 persons, the great majority of them in Minnesota, altho copies are sent to many libraries and some University officers outside the state. Perhaps 30 or 40 letters expressing appreciation of *Minnesota Chats* have been received from educators and librarians in all parts of the United States. Not infrequently institutions elsewhere send in requests for extra copies of certain numbers. These are met promptly.

In the fall of 1923 the News Service co-operated with the Minnesota Editorial Association in the establishment of that body's first annual newspaper, issued on the Minnesota State Fair grounds during the week of the fair.

The department has made every effort to co-operate with student publications on the campus.

The great need of the University News Service is for greater co-operation by the faculty, especially in the matter of addresses to be delivered outside the Twin Cities. Manuscripts of addresses to be delivered at distant points, if prepared far enough in advance, are always desired by the national news services, which appreciate the co-operation given when copies of these are supplied.

It is the opinion of the director of this service that the University of Minnesota greatly needs a unified publication that represents the whole. No one of the present publications seems quite to serve the need. This publication should be periodical. It should represent all phases of University life. It should be readable and attractively produced. Direction of it should be in the hands of a small committee.

Respectfully submitted,

T. E. STEWARD, *Director*

FINANCIAL REPORT

To the President of the University:

SIR: I submit herewith a summary of the financial operations of the University of Minnesota covering the period from July 1, 1923, to June 30, 1924. Full detailed statistics covering this period are included in the *Report of the Comptroller.*

Respectfully submitted,

ALBERT J. LOBB, *Comptroller.*

COMPTROLLER'S REPORT

FINANCIAL STATEMENT

INCOME SUMMARY*

	1922-1923		Per Cent	1923-1924		Per Cent
FROM INTEREST						
Swamp Land Interest	$ 65,539.50			$ 66,498.16		
Land Grant Income	85,621.23			92,581.78		
Mayo Foundation	90,599.06			86,207.27		
		$ 241,759.79	4.5		$ 245,287.21	4.5
FROM FEDERAL FUNDS						
Morrill Fund	25,000.00			25,000.00		
Nelson Fund	25,000.00			25,000.00		
Adams Fund	15,000.00			15,000.00		
Hatch Fund	15,000.00			15,000.00		
Smith-Lever Fund	150,319.33			150,319.33		
Smith-Hughes Fund	19,033.83			19,043.96		
		249,353.16	4.6		249,363.29	4.5

FROM STATE						
23/100 Mill Tax	470,408.82			426,825.04		
Maintenance Appropriation	3,000,000.00			3,150,000.00		
County Agents	84,000.00			85,000.00		
Investigations						
Peat Soils	5,000.00			6,000.00		
Sandy Lands	5,000.00			7,000.00		
Low Lime	3,000.00			5,000.00		
Marl	5,000.00			6,000.00		
Drainage Tile	5,000.00					
Manganiferous Ores	5,000.00			5,000.00		
Peat Fuel	10,000.00			5,000.00		
Cornstalk Syrup	5,000.00					
Soils Survey	.....			6,000.00		
State Entomologist	5,000.00					
Agriculture Extension	40,000.00			30,000.00		
Psychopathic Dept.	.....			7,500.00		
		3,642,308.82	67.2		3,739,325.04	68.2
FROM STUDENT FEES (Net)						
University Regular	588,061.84			642,218.23		
Agriculture	55,709.97					
Summer Session	103,006.11			103,540.70		
Crookston	6,009.53			1,943.45		
Morris	5,123.17			3,739.09		
Federal Board Agriculture	29,740.77			7,377.80		
Extension Division	92,173.56			87,727.91		
Students Deposits	50,957.22			26,001.27		
		930,872.17	17.2		872,548.45	15.9

From Sales						
Dental Infirmary	53,906.53			58,924.75		
Elliot Hospital and Free Dispensary	24,444.67			37,871.30		
Minn. General Hospital Reimbursement	.....			10,733.65		
Agriculture Products	78,715.08			89,231.06		
Lyceum Lectures	37,126.39			31,796.35		
Advance Registry Testing	25,398.96			16,680.45		
Campus Building Rents and Sales	4,845.00			21,981.93		
Sundry Income	129,574.38			113,959.57		
		354,011.01	6.5		381,179.06	6.9
		$5,418,214.95	100.0		$5,487,703.05	100.0
Building Fund Tax Collection		609,664.94			539,023.59	
Proceeds—Bldg. Fund Certificates		190,000.00			560,000.00	
Service Enterprises		770,312.63			806,246.68	
Senate Com. on Intercollegiate Athletics		.....			207,152.24	
Sundry Trust Funds		78,442.53			75,329.74	
Mayo Foundation Investments		43,336.83			45,136.40	
Wm. J. Murphy Endowment for the School of Journalism		.....			350,225.00	
Todd Memorial Bequests		.....			45,020.25	
Minnesota Hospital and Home for Crippled Children		.....			17,661.00	
Cancer Institute Building and Equipment		.....			250,000.00	
General Storehouse Sales		.....			13,342.25	
Overhead on Service Enterprises		.....			10,239.91	
Overhead on Authorization Repairs		.....			24,873.76	
Interest on State Funds		.....			1,015.55	
		$7,109,971.88			$8,432,969.42	

Note: The above statement is net as refunds in the amount of $132,763.65 have been deducted.

DISBURSEMENT SUMMARY, 1923-1924

	Salaries and Wages	Supplies and Expenses	Plant* Maintenance	Capital Outlay	Totals	Per Cent
Administration	$ 133,607.17	$ 13,991.13		$ 3,114.98	$150,713.28	3.1
General University	145,275.21	48,434.36		54,236.66	247,946.23	5.0
Physical Education	36,678.66	1,137.62		633.31	38,449.59	.8
Science, Literature, and the Arts	613,816.61	20,067.30		4,471.99	638,355.90	13.0
College of Engineering	243,093.26	14,775.36		11,546.68	269,415.30	5.5
Department of Agriculture	840,422.33	179,405.03		43,372.81	1,063,200.17	21.7
Medical School	230,375.39	24,613.34		7,227.46	262,216.19	5.4
Medical School—Graduate	79,913.30	215.71			80,129.01†	1.6
Elliot Hospital	93,609.80	81,720.13	$ 24,299.39	2,790.42	202,419.74	4.1
School of Chemistry	106,895.12	30,535.04		5,019.81	142,449.97	2.9
School of Mines	86,908.29	15,301.77		10,188.63	112,398.69	2.3
College of Dentistry	99,908.07	39,296.75		2,573.96	141,778.78	2.9
Law School	54,212.95	1,072.57		6,343.00	61,628.52	1.3
College of Pharmacy	31,749.10	5,444.87		5.85	37,199.82	.8
College of Education	113,104.98	6,851.55		541.60	120,498.13	2.5
High School	31,807.19	1,201.14		1,007.89	34,016.22	.7
Summer Session	94,924.55	7,717.09		80.00	102,721.64	2.1
University Extension	150,353.69	17,503.80		788.93	168,646.42	3.4
Graduate School	13,586.40	1,902.98		1,544.29	17,033.67	.3
School of Business	89,182.30	1,073.82		508.68	90,764.80	1.9
Physical Plant—University	101,802.91	38,019.71	261,730.38	24,187.57	425,740.57	8.7
Agriculture	44,306.65	1,318.44	82,660.70	2,609.04	130,894.83	2.7
Crookston	68,707.26	18,510.90	10,594.41	44,732.55	142,545.12	2.9
Morris	57,702.21	12,993.47	9,767.05	45,556.53	126,019.26	2.6
Grand Rapids	16,329.08	11,517.33	2,580.63	1,388.35	31,815.39	.7
Duluth	11,501.27	5,342.00	970.89	3,060.11	20,874.27	.4
Waseca	8,441.67	3,996.73	1,282.51	6,606.74	20,327.65	.4
Zumbra Heights	10,152.42	1,168.43	1,153.14	111.40	12,585.39	.3
Totals	$3,608,367.84	605,128.37	$395,039.10	$284,249.24	$4,892,784.55	100.0

Improvements and Special Repairs	1,015,030.86
Building Fund	851,592.56
Buildings and Repair Fund	59,625.04
Service Enterprises	792,100.89
Senate Com. on Intercollegiate Athletics	183,050.92
National Research Council Refund	504.47
Sundry Trust Funds	72,568.14
Mayo Foundation Investments	45,469.14
Collection Fees—County Treasurers	87.99
Purchase Discounts—Correction	206.81
Senate Com.—Charges in Transit	4,221.81
Senate Com.—Contingent Fund	1,000.00
Wm. J. Murphy Endowment Fund	349,932.32
Minn. Hospital and Home for Crippled Children	17,661.00
	$8,285,836.50

† Supported by Mayo Foundation.

* Includes Gas, Electricity, Water, Ice, Building Repairs, Janitor Supplies, Laundry Telephone and Fuel. Refunds totaling $132,763.65 have been deducted.

STUDENT LOANS

New Loans	No.	Aggregate Amount	Average Amount	Loans Of Over $200	Over $100	$100	Under $100	Balance July 1, 1924
Gilfillan Trust Fund	217	$13,638.00	$62.85	2	9	18	183	$1,877.72
Ludden Trust Fund	21	1,294.25	61.63			2	19	4,923.44
Ludden Estate Fund	36	2,312.50	64.24		1	3	32	186.71
Ludden Real Estate Fund	237	7,934.41	33.48		7	21	209	248.77
Elliot Trust Fund	3	575.00	191.67	2			1	2,118.99
Caleb Dorr Loan Fund	21	1,105.00	52.62			1	20	170.11
Cosmopolitan Club Loan Fund	4	200.00	50.00				4	49.36
Law Alumni Loan Fund	13	1,598.00	122.92	3	3	4	3	1.24
Totals	552	$28,657.16	$51.92	7	20	49	476	$9 576.34
Totals of 1922-23	504	$32,198.34	$63.88	6	17	55	426	$7,812.56

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