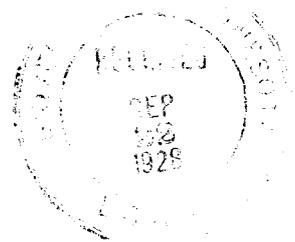


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September 1928

MINNESOTA CHATS



For a Better
Minnesota



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FOREWORD

WITH the reopening of the University year, MINNESOTA CHATS will again begin its efforts to interpret the University of Minnesota to the people of the state by giving them a literal account of some of the more interesting things that go on.

A slender monthly periodical can report only a very few of the enterprises, accomplishments and plans of the institution. So much goes on upon the campus that the student newspaper runs from four to six well-filled pages of news each day. MINNESOTA CHATS endeavors to get behind the purely ephemeral and show, here and there, a glimpse of the more substantial activities that help to keep Minnesota in the front rank.

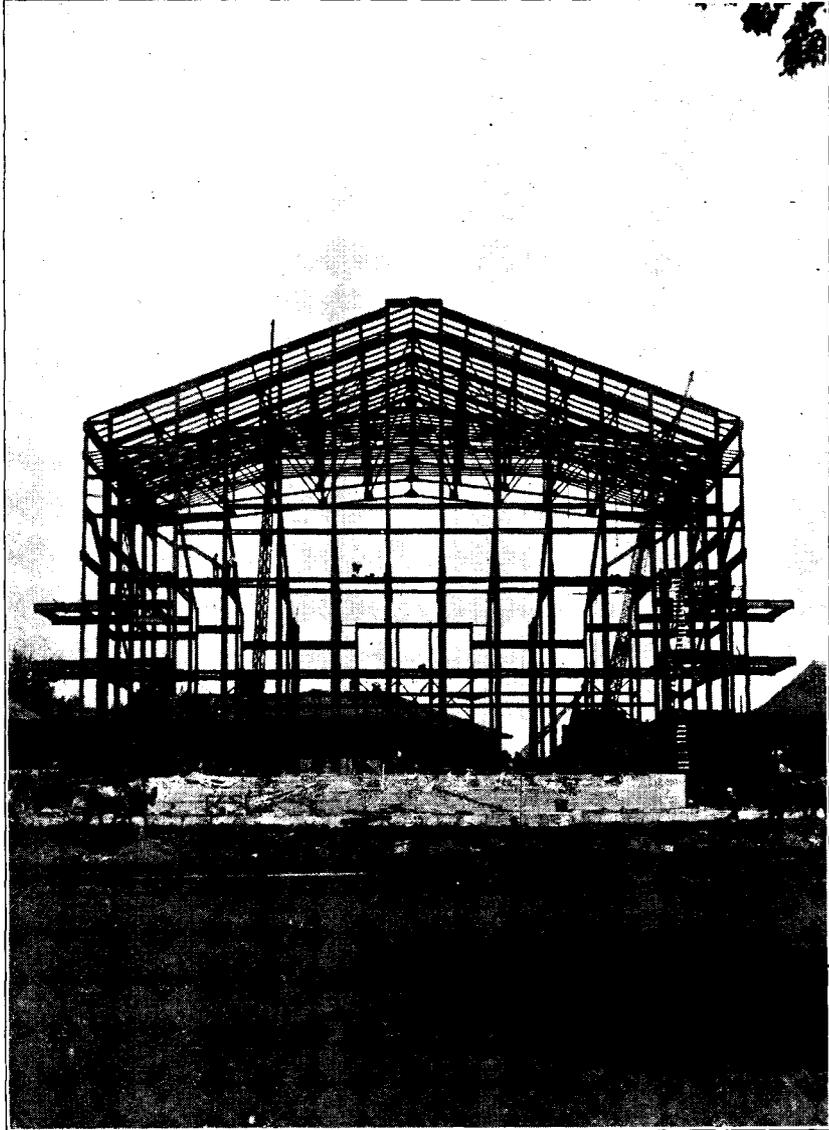
IN this first issue of the new year MINNESOTA CHATS has a request to make of its readers. This is that they help in straightening out any errors in addresses, initials, spelling of names, or duplication of names in the mailing list. A postal card calling attention to errors and giving carefully the correct manner of mailing is all that need be sent. If there is a mistake in your address and you will help set it right, the editor will be more than obliged.

MINNESOTA CHATS

Vol. 10, No. 109

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UNIVERSITY OF MINNESOTA



The Auditorium Framework Rises

Work on the Northrop Memorial structure has been going ahead rapidly

University Begins Its Sixtieth Year

Prospect That a Dormitory System Will Go Up Presents a Spot of Distinctive Brightness

WHEN activities of the University of Minnesota recommence for the regular college year late in September it will mark the sixtieth time that a group of young Minnesotans have flocked to the campus to enter upon the great adventure of higher education. Minnesota first opened its doors as a full-fledged university in the fall of 1869. The sixtieth year will begin October 1, when classes reopen, and the sixtieth anniversary of the opening will come a year later.

The Old Main building, which housed the entire institution in its infancy, has been gone for 25 years, and no structure of the earliest days now stands on the campus, the oldest on the main campus being the Mechanic Arts building, erected in 1886, which houses the School of Business Administration. The old Music building, housing the Institute of Child Welfare, was erected in 1888. Pillsbury Hall went up in 1889. Three buildings at University Farm also date back to the eighties, one of them, known as the original "Farm House" being the veteran of both campuses, with a history dating back almost 45 years, to 1884.

Classes have grown, during the period between 1869 and 1928, from the mere handful who graduated in the early seventies, when Regents George H. Partridge and Fred B. Snyder were undergraduates, until they have reached a size that led to the award last year of 2076 degrees and 37 certificates from the General Extension Division. Several of the larger colleges of the University grant more degrees than there were students in the entire institution in the early eighties. The demand of Minnesota people for advanced education has grown apace. The enrollment of 7500 students in the two summer sessions just past is an example of this. Most of those who enrolled were mature persons with the judgment of adults. They came to Minnesota seeking the benefits and advancements that are made possible by additional education. Probably not

one came for "social" reasons. There were no football games, no fraternity or sorority life, no student publications, debates, bonfires or class elections. Yet the enrollment was more than two thirds of what it is in the regular college year.

Numbers Are Incidental

Numbers, however, are no longer the objective of a university. Probably there is no greater difference between the size of the University of Minnesota sixty years ago and now than there is in the early experiences of students then and now.

This year for the third time Minnesota is inducting its new students under a "Freshman Week" plan. The purpose of Freshman Week, stated in simple terms, is to help the student select the courses best suited to his abilities, introduce him to college and university life so that he may make the most of his opportunities, and start him off with the feeling that he "belongs" and is "all set" rather than in the frame of mind of a man in knickers at a party where every one else has on dress clothes.

In the course of this week your average student gets himself placed in the college where he seems to belong, selects a course of studies suited to his needs and abilities, receives a physical examination and introduction to the Health Service, takes the psychological test, which is a key to help solve personal or academic problems he may encounter in the next four years, sees some of the leading campus figures, both faculty members and students, and visits a number of the campus places with which he should become familiar.

He hears lectures on such subjects as "What Is a University?" or "What Is a University Library?" or "How To Study." At a special convocation he meets the president of the University and hears Dr. Coffman's words of advice to entering students. He is welcome to

attend any of a series of lectures on the various professions, including Law, Teaching, Pharmacy, Medicine, Business, Dentistry, Mines and Metallurgy, Engineering and Chemistry, or Agriculture, Forestry, and Home Economics.

Things done for the entering student in Freshman Week are typical of the efforts Minnesota is making to give students a type of direction and help that is carefully thought out and intelligently presented. Besides activities already listed, there is a large committee of faculty counsellors whose aim, as outlined in the "Freshman Handbook," is to "bring about an effective adjustment of individual students to the opportunities available and to establish a friendly and constructive personal relationship between members of the faculty and students." The lectures on the professions are supplemented by opportunities to consult with members of the committee on educational and vocational guidance, and there is a special opportunity for women to obtain vocational advice through a part-time expert in occupations for women.

Plan To Build Dormitories

This fall Minnesota is taking another forward step which members of the Board of Regents and President Coffman have characterized as one of the most important in the entire history of the institution. It is beginning the erection of a series of dormitories. Land for the first of the dormitories has been in the possession of the University for some time, but work on the razing of old structures, preparatory to construction, was postponed until the decision by the Supreme Court made it certain that the Regents were within their legal rights in going ahead.

Minnesota is not rushing headlong into the dormitory project. Long consideration has preceded the determination to act, and the experiences of a large number of educational institutions have been considered. Last year Dean Edward E. Nicholson made a prolonged tour of colleges and universities with dormitories, and studied construction, operating methods and the like, besides conferring with college authorities on the problems that arise in the course of operation and supervision.

President Coffman's plans contemplate the eventual erection of a system of dormitories that will house most of the students who come to the University of Minnesota from outside the Twin Cities. The immediate objective is to build dormitories in which all freshman men who do not live at home shall be housed in university homes. When one considers that these dormitories will be built on lines indicated by the long experience of the finest educational institutions, that they will be planned with an eye to comfort, sanitation, good light, ventilation, and a saving of the student's time and transportation expense, it becomes apparent that they will be a benefit in every respect. And besides these physical advantages, the dormitories will provide the social benefits that come from democratic institutions in which young men from all walks of life enjoy a common home and lead sensible lives under intelligent supervision.

Once the greater part of its student body is housed in dormitories, the University of Minnesota will have taken the largest single stride it can ever take toward introducing that unity of feeling and common purpose which produce in the closely knit college the mysterious point of view that gives rise to "college spirit." It will then have ceased being a procession of corridors and classrooms and will have become true "fostering mother," the alma mater of its many students.

Linked with the dormitory plan in the movement for uniting the University point of view and creating a true Minnesota spirit, is the Memorial Auditorium. The Auditorium is now going up with all speed. The staccato drumming of riveting machines is almost never absent as the work is pushed ahead by supervisors who hope that its noisier aspects may have been completed by the time college work is resumed late in September.

The Auditorium stands at the head of the Mall that was laid out in the Cass Gilbert plan for a greater campus. Rising many feet above the surrounding buildings, which are the Library and School of Chemistry on the one hand and the Administration and Physics buildings on the other, it will dominate the new campus and give definite form to the cen-

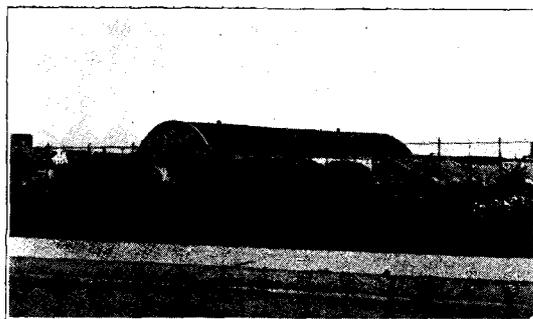
tral arrangement of buildings that has already become the heart of the institution.

Providing seating capacity for at least 5,000 persons, the Auditorium will make possible far larger indoor gatherings of the student body than have ever been assembled before. For gatherings of freshmen, commencements, debates, convocations, lectures by distinguished visitors, musical events, student plays, oratorical contests and the like, it will provide ideal facilities.

The University is completing one new building and beginning work on one other, besides the Auditorium, as the new college year begins. The Law School has been housed since 1888 in the picturesque, two story brick building that stands at the northwestern extremity of the campus. With the passing of years, the

growth of the Law School and the expansion of its library, new quarters became necessary. These have now been provided in a structure standing on the bank of the Mississippi river, between the School of Mines and Metallurgy building and the Pharmacy building. The older Law building will be given over to class rooms for other departments, principally the College of Education, Institute of Child Welfare and some departments of the College of Science, Literature, and the Arts.

Noteworthy improvements in the appearance of the university campus have been made during the past year as the gradual completion of the building program has put different areas into their final form. This has permitted the planting of flowers, shrubbery, and trees.



A View of the Field House

New Building Replaces 1888 Law School

Growth of Student Body, Activities, and Library Made New College Home Necessary

AFTER forty years of faithful service, Minnesota's pictureque old "red school house," the Law School building, has been relieved of the burden of housing an institution that had grown entirely beyond its capacity to accommodate. The new home of the Law School has been completed and occupied, opening a new era in the history of that important department of the University of Minnesota.

One other building on the main campus, that which houses the School of Business Administration, antedates by two years the old Law building which went up in 1888.

Minnesota's new Law building stands high up on the bank of the Mississippi river at almost exactly the spot where the railroad tracks came out toward the bridge prior to removal of the tracks and the filling of the cut. Unpretentious, both outside and in, it proves on inspection to be a building splendidly suited to the demands made upon it, one that will provide all that the Law School is likely to need for many years to come. It was built at a cost of \$240,000, to which \$18,000 was added for equipment.

Most impressive among the features of the Law building is the magnificently proportioned reading room which stretches across the entire front of its upper floor. This room measures 50 feet wide by 140 feet long and will seat a maximum of 260 potential lawyers as they toil over their books and lecture notes. Several thousand of the more important works to which student lawyers must refer frequently are ranged in cases around the walls. Light enters on three sides through high, artistically designed windows. Heavy linoleum protects the floor and silences footfalls. At the center of the inner wall stands the desk at which students may draw books from the law library. The five tier stack of the library opens directly behind this desk, giving direct access to something like 47,000 volumes.

From this point the stack room extends di-

rectly back to the rear wall, like the shaft of a "T" of which the cross piece is formed by the large reading room. And on each of the levels faculty offices and special rooms have been arranged beside the stacks. This gives each member of the faculty easy access to the books he needs, and also makes it possible for them to cut through the stacks to offices on the other side without making a half circuit of the building.

There are four classrooms. Two large ones, identical in every respect, open to the right and to the left as one enters the front door. Each seats 187 students and is in the form of a medium sized amphitheater, the rows of desks and seats curving slightly and rising gradually above the platform of the lecturer. Smaller classrooms seat 112 and 70 students, respectively, and there is a practice court room, fully equipped with judge's bench, jury box, tables for clerks and attorneys and all the appurtenances of a court room. Here will be conducted the moot court work in which the law students learn how to conduct a case once it has come to trial.

The study of law has become distinctly co-educational at Minnesota. Although there have never been more than six or seven women students at one time, their presence has been recognized by the architects, who have included two students rooms in the new building, one for women students and one for the men.

Dean Everett Fraser has taken much interest in assembling from the many corridors and rooms of the former building the collection of pictures of the various classes that have been graduated. These now hang on the walls of the men's room. All classes but six are now represented by pictures. One of those missing is an early class. The other five are a series of years in the nineteen hundreds. What has become of these pictures is a mystery, but the dean hopes to fill all of the gaps. Scores of persons prominent in the legal, political, and business

life of Minnesota and the Twin Cities may be seen looking out in all the innocent self-confidence of graduation time from the big collection of framed group pictures.

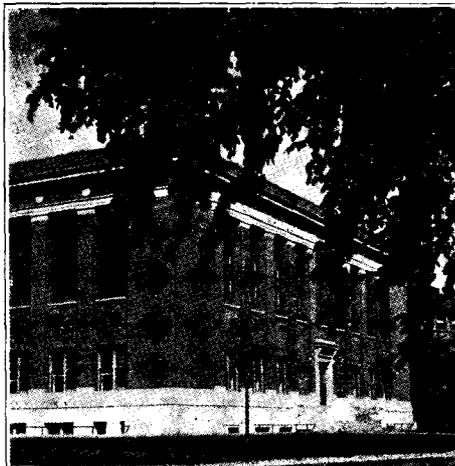
The pictures graphically represent the changes in attendance at the Law School. The first class, 1888, contained but three men. They were graduated before the college had been in existence for the three years required by a course in law, and presumably were students who had been reading law and had entered with advanced standing. The next year's class was much larger. With variations, classes then increased in size, especially after the night classes were instituted, until a sudden decrease came, marking the discontinuance of night classes during President Vincent's regime, about 1913. Following the war years, attendance again began to mount. Last year more students were graduated from the Law School than in any other year of its history.

In the offices of Professors James Paige and Henry Fletcher, veterans who have spent a lifetime teaching at Minnesota, pet pieces of furniture and desks they have used throughout their careers contrast with the simpler and more modern fittings in the other offices. In Professor Fletcher's room is the desk at which he first worked when he began his career as a lawyer. Professor Paige was graduated from Minnesota in 1890 and has been a member of the faculty of the Law School since that time.

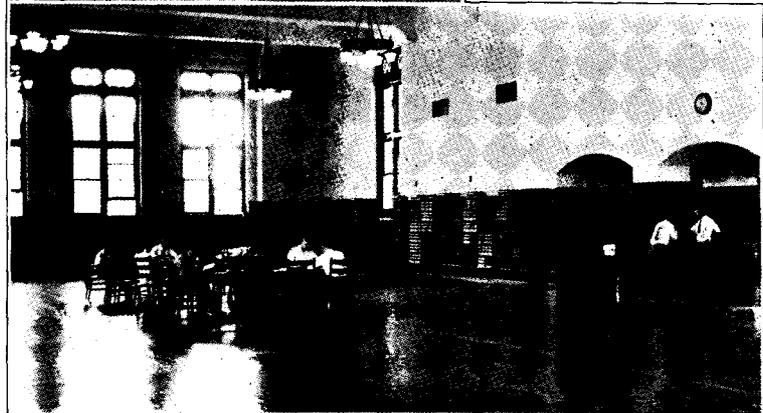
Comfortable quarters have been provided for *The Minnesota Law Review*, the publication directed by faculty and students of the Law School, which is also the official organ of the Minnesota State Bar Association. In a basement room extra copies of every back

issue of *The Law Review* are available to those who may wish to complete sets in their files. There is also a spacious locker room for student use.

Faculty members have moved into their new campus home during the summer and four classes a day have been conducted in the building during the summer sessions. It will be occupied by the entire school as soon as classes reopen on October 1.



LEFT—The new Law Building at Minnesota; CENTER—The reading room used for the first time; BELOW—The old Law Building, a monument in university history.



The Business Background of the Twin Cities

A Collection of University Studies Analyzes the Commercial Development of That Center

PROBABLY there is no business man in the state of Minnesota who could not derive benefit from the detailed study of the Twin City market that has recently been issued by the University of Minnesota Press under the editorship of Dr. H. Bruce Price, professor of agricultural economics at the University.

Although most business men will find themselves thoroughly familiar with the material contained in one or more chapters, very few would be able to say that they could not find new information and understanding in the chapters devoted to commercial fields other than their own. The grain man will be interested in the chapters analyzing the butter and milk marketing of the area, and the man who knows a great deal about the marketing of fruit and vegetables will find valuable data in such chapters as those on the South St. Paul livestock market, the Twin City hay market, or the Minneapolis Grain Market.

"The Marketing of Farm Products" is a symposium of sixteen papers all written by careful students, fully qualified to discuss the subjects they have handled. More than half are by persons who are or have been connected with the University of Minnesota. The list includes the names of John D. Black, formerly professor of agricultural economics at Minnesota, now at Harvard; Holbrook Working, formerly of Minnesota and now economist of the Food Research Institute at Leland Stanford University; Dr. H. Bruce Price; C. M. Arthur, editor of scientific publications of the United States department of agriculture; Claude F. Clayton, of Michigan State College; Dr. Mildred Hartsough, formerly of Minnesota and now a professor in Smith College; Edmund G. Daggitt of the commercial research department, American Cotton Growers Exchange; Professor Warren C. Waite of the University of Minnesota; and several others. Maps, graphs, and statistical charts showing the areas from which Minneapolis and St. Paul draw the various

products marketed in those cities illustrate the book clearly and instructively.

Dr. Hartsough's discussion of the development of the Twin Cities as a market for farm products, rewritten from the thesis she prepared a few years ago under Professor N. S. B. Gras, should be invaluable to any business man as a means of clarifying and completing his understanding of the business background against which he is working. It discusses the development of the milling, grain storage and lumbering businesses in Minneapolis, of transportation to and through St. Paul and Minneapolis, the development of wholesaling and jobbing in the two centers, and the financial organization of the two city center.

The part of this chapter devoted to finance is reprinted here as a sample of the book:

Story of Northwest Finance

One of the last tests of the importance of a city as an economic center is the degree of its financial development. It is only when a city has large financial institutions of all types, able to care for most of its own needs and those of the area trading with it, that it may be termed a mature and well-developed center.

When settlement of the Northwest began, financial needs were not great. The American Fur Company agency acted as the financial medium between the Northwest and the outside world in the period before banks were established. It carried accounts for traders, missionaries and travellers, bought and sold drafts on eastern points, and even made collections.

By the time of the boom of the fifties, settlement of the country had progressed to a sufficient extent to justify the establishment of banking institutions. The term "bank" however, was at that time synonymous in the minds of most people with "note issue," to which they were very hostile; hence these financial institutions usually went by the name

of loan and discount, deposit, or exchange offices, their names giving a sufficient description of their functions. A number of these houses were established, many in St. Paul, before the panic of 1857.

Nothing could keep out the paper money from other districts, however, and the Northwest was flooded with more or less worthless notes from banks, some of them non-existent, mainly from the middle-western states. These notes supplemented the gold in circulation, which was brought in by travellers, or was sent in for the annual payments to Indians for their lands. It almost immediately flowed back east, to settle the debts of merchants, and the Northwest was left in need of an adequate currency to carry on its rapidly growing transactions. During all the fifties and especially just before the panic, the demand for money was so great that interest rates were very high. Speculation in real estate was rife and greatly increased the demand for loans, which were commonly at rates of two to five per cent a month. Exchange on the East commonly demanded a premium of one to two per cent.

One of the early acts passed by the first state legislature in 1858 was a general banking act which provided the conditions under which public banks could be chartered, subject to some supervision by the state. The law was immediately put into operation; by 1859 sixteen banks had been organized under its provisions, most of them in St. Paul, St. Anthony, and Stillwater. Weaknesses in the law very soon appeared. Most of the banks used as security for their notes a special series of state railroad bonds which had been issued in Minnesota, and these soon fell below par. The notes of the banks then became undesirable, and in 1859, of the sixteen banks that had been chartered, only seven were in operation. A few years later, at the time of the Civil War, Minnesota shared the experience of many other western states in seeing a large number of banks forced out of business because their capital had been invested in securities of the southern states.

Thus, up to the time the national banking system was established in 1863, Minnesota's experience with financial institutions had not been particularly fortunate, though she probably had not suffered more than her neighbor-

ing states. National banks were not established so rapidly as the earlier state banks had been, but in 1866 there were fifteen of them in the state, with a combined capital of more than \$1,500,000. Wildcat banking now gradually disappeared, and though state and private banks did not all go out of business, those that were left were chiefly sound institutions.

With the period of expansion that began after the Civil War the number and size of banking institutions in the Northwest increased rapidly. By 1880 the capital and surplus of national banks in the Twin Cities alone amounted to over \$4,000,000. Since then statistics show a notable increase, interrupted only by the panic of 1893, not only in the number of institutions, but in the volume of business done. The increasing figures for loans and discounts and for balances of other banks also serve to indicate the important place Twin City institutions have assumed in the financial enterprises of the Northwest, and as correspondent banks for country accounts. This latter function, which has developed rapidly, gave rise to an item of \$5,000,000 in 1890, nearly \$12,000,000 in 1900, \$39,500,000 in 1910, and passed the \$100,000,000 mark in 1918. In 1920, due to abnormal conditions, it had gone back to \$54,500,000. This growth appears to justify the statement of a Twin City banker who said that few country banks now carry an eastern account of any size; their surplus funds are deposited in the Twin Cities and most of their business is done through these places.

Something has been said as to the sources from which the Northwest drew its supplies of capital. During the period of the fur trade, St. Louis was the center through which most of the transactions were carried on. As needs grew, and as trade relations with the eastern centers were established, Boston and other New England points, and more especially New York, became the chief source. Records of early business men and financiers of the Twin Cities are filled with references to the investments made by eastern capitalists, and to the accounts kept by these men in eastern centers, principally New York. Lumbermen came here from New England, bringing some capital with them, to

develop the resources of the new country; some of the early bankers, coming from the older states, brought with them a few thousands with which to establish themselves. Amounts supplied in this way, however, were not nearly large enough to fill the needs of the rapidly growing community. Probably the bulk of the capital used to build up the Northwest came from reinvestments of profits made there.

The early dependence on New York as a financial nucleus was at a later date largely transferred to Chicago. This was most noticeable after 1900, when the Twin Cities began to rely on Chicago as a market for commercial paper, and a source of surplus funds at certain times of the year. This financial reliance came about at the time when Chicago was at the height of her importance as the economic center of the Northwest, after she had become fairly well developed, and before the Twin Cities had grown enough to assert their independence.

Within the past ten years, especially since the establishment of the Federal Reserve system, the Twin Cities have been less and less dependent on any outside center, either for supplies of long-time capital or for short-time funds. Considering particular industries, the lumber industry is largely financed in Minneapolis. Much, if not most, of the commercial paper of the milling industry is marketed in the Twin Cities. The early railroads were financed by English and Dutch capitalists and from the East. J. J. Hill obtained most of the original capital for his enterprises from the East and from England. Later, his closest financial relationships were with J. P. Morgan, who helped to finance him in his conflict with Harriman. The most important railroad that was financed locally was the Minneapolis, St. Paul, and Sault Sainte Marie, supported chiefly by Minneapolis millers to give them more favorable rates to the East. Dependence on other localities for railroad capital has tended to decrease as time goes on: as early as 1903 St. Paul laid claim to transactions amounting to \$90,000,000 a year, financing the current needs of railroads, at least four of which were said to do their business through that city.

Another very large demand, for both commercial and investment needs, is for agricul-

ture, which is the predominant interest of the district. In the fifties large amounts of eastern money were loaned on Northwest real estate, though it was mainly on urban property. Demands for investment funds for agriculture were not large at first, for land could be homesteaded with little capital investment, either in the land itself or in machinery. This condition has changed, especially since the eighties, with the steady increase in the price of land and the growing investment of capital in improvements, machinery and livestock. Now the farm mortgage business is a large one and is handled mainly through Twin City firms. In 1915, Minneapolis alone had invested in mortgages more than \$115,000,000, and since that time the Federal Land Bank has been established in St. Paul, and the demand upon it for long-time loans has been much greater than can be satisfied.

The farm mortgage business is handled in the Twin Cities partly through the banks and numerous farm mortgage houses, which act as agents through whose hands the mortgages reach investors. Partly, also, it is taken care of by insurance companies, whose agencies have been numerous in the Twin Cities since the fifties, and which constitute one of the largest markets for these securities. The mortgage companies at first sent most of their securities East, but as surplus capital for investment has grown up in the West mortgages have found a local market to a much greater extent.

An equally pressing need of the agricultural communities is for funds to facilitate the movement of crops in the fall. At one time millions of dollars were transferred from New York every fall to satisfy this need, and in the late fall and early winter were shipped back again. About 1900 this situation began to change, as the surplus funds of the West became considerable, and less and less dependence was placed upon New York. This reliance was largely transferred to Chicago, and the currency to finance the crop movement came mainly from that source. But gradually, and more rapidly since the establishment of the Federal Reserve System, with a regional bank in Minneapolis, even that dependence has become less marked.

Should a Young Man Study Medicine?*

By E. P. Lyon

*Dean of the Medical School
University of Minnesota*

MEDICINE is a very old profession. It began before there was any recorded history. Indeed it seems sure that some men skilled in the care of the sick and the treatment of wounds must have been found in the earliest tribes of men.

Of course primitive men knew nothing at all about the causes of the various diseases. These afflictions of mankind, and particularly the great pestilences which often swept away multitudes in a short time, were looked upon as the work of evil spirits or devils. The propitiation or driving away of these spirits was part of

the religion of early times and of savage tribes even to our own day. Hence medicine and religion were often united. The priests in Egypt in old Tutankamen's day were also doctors.

Gradually men came to know more about diseases and after a time there were physicians who were not priests and priests who were not physicians, but always there was a goodly mixture of religion and healing. In fact we haven't gotten entirely away from it yet.

Nowadays, however, we have a great body of knowledge that we call medical science. Science is knowledge that man has obtained for himself by observation of the various things and occurrences in the universe, by experimenting and by thinking about and properly relating what has been observed. Science is usually accounted as something different from religion,

although I think any truly religious man would echo the pious words of Agassiz, that science is "thinking again the thoughts of God."

I suppose there are about four fundamental natural sciences, astronomy, physics, chemistry,

and biology, although all these run into each other. Now the definition of medicine that I like best is this: "Medicine consists of those portions of biology, chemistry, and physics which can be applied to the prevention, or the diagnosis, or the cure or alleviation of human disease." You boys who are thinking of studying medicine and who may



The Anatomy Building at Minnesota

be having a hard time with your physics, or chemistry, or biology, probably never thought about medicine in that way. You don't recognize that you are studying medicine already, but you are. Take the bacteria and protozoa that cause disease. They are living things. The study of their life history, mode of growth, how they are transmitted, what conditions are good or bad for their life—all that's biology. For that matter, man himself is an organism or living thing, and all study of living things comes under biology. Anatomy is just one branch of biology.

Then take up physics—consider the heart. It is a pump with valves and chambers essentially like the force pumps described in a high school physics book. The blood meets with

* An address delivered before a vocational conference attended by several thousand high school boys.

friction in the vessels and friction is a physical phenomenon. The friction and the pump cause the blood pressure in the arteries, just as a fire engine and the resistance of the nozzle cause pressure in the hose. Your arms and legs are levers. Your muscles are engines. Think about the X-rays, very valuable in diagnosis and treatment. A physicist discovered them and they are a physical manifestation or phenomenon.

Or consider chemistry. The food is changed by digestion into substances different from the food. This is due to a series of complex chemical processes. We burn up food in our body and the final result is the same as if you burned it in a stove. All life is accompanied by chemical changes. Disease—diabetes for example—is often due to inability on the part of the body to carry on its normal chemical changes. Medicines are chemical substances. Often they are discovered by chemists. But here biology comes in again, for the aim is to get drugs that will kill disease germs and not kill the man himself, and that is a biological problem.

If you were to say "there are diseases of the mind and you haven't accounted for them," I should answer, "It is true, there are diseases of the mind. Moreover the mind has much to do with many diseases and with health as well. But the mind is related to an organ, the brain, and psychology is a biological science if it is anything." So you see my definition holds good after all.

Applies Science To Fight Disease

Now a physician is a man who applies this knowledge of biology, chemistry, and physics to cure, alleviate, or prevent disease. We usually speak of him as a "Doctor," but that is only his title or degree. The word "doctor" is interesting. It means teacher in Latin. Not many doctors think of it that way either, and this is unfortunate. For really the best that doctors can do for you is to teach you, that is, advise you. The drug end of it is very small and comparatively unimportant. Surgery is important, but advice as to whether an operation is needed is more important. It's the giving of sound advice that really marks a scientific physician. Tell that to your father when

he complains that he went to the doctor and all the doctor did was to give him some advice and charge him five dollars. About all a lawyer does is give advice. People pay for that without much complaint. But when it comes to advice about health they hesitate and complain—and ten chances to one they don't take the advice. They prefer some bad tasting stuff out of a bottle. That's part of the old superstition that goes back in the history of mankind. You know they used to think that bad tasting medicine would drive out those evil spirits! The worse it tasted the less the spirits liked it!

For these reasons it is rather unfortunate that the word "medicine" is still attached to the profession. It leads a good many people to think that doctors are nothing but drug venders and dope dispensers. Good doctors use few drugs and would undoubtedly use even less if it were not for the popular demand for something to "take."

Now if a doctor is a scientific man, practicing a profession founded on biology, chemistry, and physics, it is easy to see that he must have a good education. The course of study to prepare a physician is probably the most difficult as well as the longest of any of the professions. This is necessary, for nobody wants a doctor unless he is well trained and safe. An engineer may build a bad bridge; there is usually only a money loss. But if a doctor makes a mistake a human life may be lost. Moreover young engineers usually work under older men, whereas young doctors often go out by themselves and have to take full responsibility for life or death decisions.

Preparation Lasts Seven Years

The standard preparation for medicine in this country now includes seven years of work above the high school. Two of these years, immediately following graduation from high school, may be spent in any good college and are called the premedical college years. During these two years the student is required to take strong courses in biology (usually zoology), chemistry, and physics. These, as I have said, are really medical studies. In foreign universities they are taught in the medical schools

proper, but here we allow students to get their knowledge of these sciences in a college of science or liberal arts. In addition to these sciences the premedical student takes English; for surely every doctor, as a member of a learned profession, should know how to speak and write the language of the country.

The premedical two years in college are pretty crowded with required work. Still a medical man should get as much general education as possible. Psychology and sociology have direct bearing on medicine. History and economics give a cultural background and make better citizens. Other subjects might be mentioned. Boys and girls who get into college young may well consider doing three or four years of work there before going into a medical school. They will be broader and better men and women. The great drawback is the time required, the medical course itself being long and doctors arriving at self-support in the practice of their profession only at 26 or 27 years of age.

The standard course in medical colleges is four years. This is the time which the laws of all the states prescribe, and no one can get a license to practice if he studies less than four years.

The first two years of the medical course are often called the pre-clinical or laboratory years. During this time the student learns those sciences on which medicine is directly founded: anatomy, bacteriology, physiology, pathology, and pharmacology. These are really extensions of biology, chemistry, and physics. To teach these sciences properly the school must have good laboratories and a well-trained staff of scientists.

The second (or last) two years of the medical curriculum are called the clinical years or the practical years. The work is chiefly in connection with actual patients, with lectures, laboratory work, and demonstrations on actual medical procedures. In order to furnish good instruction the college must have large hospitals and dispensaries where the student not only can see medical work going on but can actually take part in it. For this reason most of the good medical schools are in large cities, but such states as Iowa and Michigan, by having large state

hospitals connected with their medical schools, are able to give good instruction in small towns.

At the end of the four year medical course most schools give their students the degree of Doctor of Medicine, and such graduates may be licensed to practice in most states. But really every doctor should spend at least one more year as interne or house doctor in a good hospital before he undertakes independent practice. About ten schools, including Minnesota, require the additional year of internship before the M.D. degree is granted.

Cost of Medical Education

MEDICAL education is expensive. The tuition fees for the four years of medicine usually range from \$700.00 to \$1000.00. Books and instruments cost somewhat more than in most professions. The cost of the premedical course will depend on the college attended. The largest items of actual expense are board, room, and clothing. This again varies widely with individual taste and the institution attended.

However, the student should bear in mind that his greatest investment is the time he puts in. He must face six or seven years of comparatively unproductive labor. This investment is worth something like \$10,000 on the average. But as has been well said, it is at a time "when the student earns with difficulty and learns easily." Any education in one sense is an outlay—a speculation if you will—for future returns.

In this respect it is to be borne in mind that great as is the expense of tuition, it is small compared with what the medical school gives the student. In several medical colleges the expense per student is as much as \$1000.00 more than the tuition fee. This is made up from income from endowment or state appropriation. Medical education is a joint business proposition in which the public is as much interested as the student himself. An obligation rests on the medical graduates on this account.

American Medical Colleges

I think I should tell you something about the medical colleges of our country. Fifteen

years ago medical education in America was in a deplorable condition. There were about 160 medical colleges in the United States, a greater number than in all the rest of the world combined. A number of these schools were miserable institutions, without good teachers, laboratories, equipment, or clinical facilities (by clinical facilities I mean hospitals and patients). There was no way—at any rate, no easy way—by which a prospective student could tell the good schools from the poor ones. The poorest schools advertised for students by abominable methods. The result was that thousands of young doctors were graduated without any real, thorough training for their life work. Though some of them, by their own efforts, became well qualified physicians, many never could do so; and the medical profession was at a low ebb in America.

About 1910 a great campaign for the improvement of medical education began. The American Medical Association, which is the big and powerful society of all the doctors, caused all the colleges to be visited and classified. This was also done independently by Abraham Flexner, representing the Carnegie Foundation for the Advancement of Teaching, who in a monumental report, made clear to the world the condition of medical education in the United States.

As a result many of the weak schools went out of existence. Others combined and became real parts of universities, thus getting better standards and better support. The number of medical schools is now only eighty, and about 65 of these are placed in Class "A" by the Medical Association. Only a few disreputable medical colleges are left. Probably these will be closed as the result of the recent disclosures relative to untrained men who had gained licenses on fraudulent diplomas.

Prospective medical students nowadays can easily find out about the relative excellence of medical schools. While the schools still vary considerably in requirements, facilities and prestige, any student who attends a Class "A" medical college may be sure of a fairly good education. No student should be advised to go to a school not in Class "A."

I might add that a few universities which do

not have hospital facilities for practical teaching give adequate instruction in the first two years of medicine, the laboratory years. Students from these schools have to go to some four year school in order to get their clinical training, that is the last two years of the medical course.

What Lies Ahead?

Supposing now that a young man has completed his medical course and one year of internship in a hospital, what kinds of careers are open to him and what kind of a life will he lead? Of course most young doctors "go into general practice," by which is meant that they establish offices and offer their services to people who may desire them. A general practitioner takes charge of all the ordinary ailments of his patients. He has office hours during which he advises and prescribes for those who can move about. He makes calls at the homes of those who are sick in bed. He sets fractured bones and does other kinds of minor surgery. He takes care of women before and during child birth. In fact, he does anything which he considers himself prepared to do and he calls in specialists when some serious disease or surgical condition renders such help advisable. Such a general practitioner is often called a family doctor.

This is most engaging and interesting work for the doctor, and extremely valuable to the people among whom he lives. The right kind of family doctor is an honored and useful member of his community. Many beautiful stories are told of the family doctor. There is "The Doctor of the Old School" by Maclaren, much read a few years ago. "Main Street" pictures the life of Dr. Kennicott, a supposed graduate of Minnesota and a pretty good fellow. I will read to you the sketch of the actual life of such a doctor published recently by Dr. DeKruif:

"T. G. H. received his medical education in the early eighties at the University of Michigan, and settled down immediately afterward to practise in a village in the western part of that State. Here he remained for more than thirty-five years, as the principal physician and as a figure of importance, doing incalculable good

among the villagers and the inhabitants of the surrounding country-side. His appearance impressed one instantly with confidence. He was stockily built and of middle height. His head and shoulders were massive and his jaw clean-cut and strong. He gave the impression of crag-like solidity and simplicity. His expression was ordinarily thoughtful and stern, but his gray eyes twinkled, at intervals, with understanding of human sins and peccadillos, and his rare outbursts of chuckling laughter were hearty and inimitable.

* * * *

"His ability in diagnosis was of the first order. It showed that combination of careful observation, long experience, and rare good sense that led one to consider his judgments to be intuitive, rather than to be based on memory or principles rammed into him in his college courses. He made little use of modern diagnostic paraphernalia.

* * * *

"His apparatus of diagnosis consisted of a thermometer, a stethoscope, a few test-tubes and reagents for simple urinalysis. These alone aided his clear mind and intuitive judgment in arriving at diagnoses of astounding accuracy.

"At the same time, he was never afraid to admit that he was baffled in the study of some obscure malady. This characteristic, so much a part of his fundamental frankness and honesty, added to the confidence that every one had in him. He was no peddler of yarbs and simples, but was, on the other hand, a firm believer in the power of nature to cope successfully with many diseases. He reminded his patients constantly of this fact, and disdained to take the credit for cures that the universal mother had herself effected. Accordingly, it may be imagined that he scorned the great majority of his quacksalving colleagues, who administered innocuous concoctions, and then took the credit to themselves if their patients recovered.

"In addition to his merit as a diagnostician, T. G. H. was a general surgeon of more than ordinary ability, and was one of the first of the Americans to apply the principles of asepsis to his operations. These were performed, mind you, not in the immaculate and elaborately

equipped operating-room of modern hospitals, but in the home of the patient, with a single nurse, and frequently only with members of the family as his assistants. Despite these handicaps, his record of recoveries would do credit to a modern surgeon who has all of the modern apparatus and a veritable retinue of helpers at his command. Yet he was charmingly modest despite his success.

* * * *

"This practitioner was tireless in his ministrations to his clients. In the old days, with a horse and buggy, more recently in a clattering, mud-spattered Ford, he was to be seen, early and late, in the streets of the town or on the abominable roads of the surrounding country-side. Called in an emergency from a distance, he invariably responded. He did not make preliminary inquiries into the prosperity of the patient. In regard to remuneration, his schedule was anything but rigid. Those who could do so paid well for his services; the less fortunate rewarded him as they were able, or not at all.

"T. H. G. is dead, taken away too soon from a community that loved him and in the end killed him by its incessant demands upon his strength."

"General Practitioner" Needed

Some people think the general practitioner is going out and we shall have only specialists—that medicine will be divided, so to speak, into several more or less independent professions. I do not think this is true. I believe there will always be an important field for the family doctor, who should come more and more to be the "family health officer"; that is, he should labor quite as much to keep his patients well as to cure them when they are sick. One of the things that people need to be taught is to have periodic examinations even when they are feeling quite well. Thereby diseases can be caught in early stages, and by proper advice, averted or greatly lessened. It is really the shame of modern society no less than of the medical profession that the resources of modern sciences are used so little to prevent disease as compared to their use in attempting—often too late—to effect a cure.

This leads me to say a few words about public health as a field of work for physicians. Every large city has a health department. The United States has a public health service and there are private organizations employing physicians to guard and protect the health of the people. Positions on these services are usually salaried and the occupants need special training in addition to the M.D. degree. The public health movement is extending, and I hope to live to see the time when every county will have its full-time health officer as surely as it has a county superintendent of schools or a county farm agent. Is there anything more important than the health of the people, especially the children? Does not the state owe the children health as much as it owes them education?

Finally I might mention medical teaching and investigation in many respects the most satisfying career for a well-trained competent physician. There is ample room for young men in this field, either in one of the fundamental departments such as anatomy or physiology, or in the clinical departments such as internal medicine, surgery, or children's diseases. What is needed is strong young men willing to prepare themselves as full-time teachers and research men in the medical schools.

Probably you would like to know something of the financial rewards of medicine. Unfortunately these are so variable that little of value can be said. Anybody who goes into

medicine should make the financial side subordinate to the ideas of service and scientific development. Most doctors make a good living. Few get very rich. Most live in better than average comfort but few in luxury. So far I haven't observed any rich man who was able to take his money with him when he died. Isn't it better to choose a career that will use all the ability God has given you, that will permit of constant improvement and development, that will bring you into sympathetic *contact* with all classes of people, that will bring honor and respect, and that will leave a constant train of good deeds wherever you go? If you believe this, consider medicine as a career. It is one, at least, of the professions in which these larger satisfactions are possible.

Are there enough or too many doctors? We have in this country about one physician to every 750 people. Unfortunately the doctors aren't well distributed. Of late years they have tended too much to crowd into the large cities. There are many country places that need doctors. On the whole I do not think the profession is too crowded. Since the reforms in medical education of which I spoke, not so many but much better trained men are being graduated. If I felt a distinct "call" to be a doctor, if the physician's life appealed to me, if I thought I would rather do that than anything else, if I loved my fellow men and wished to help them, I would study medicine.

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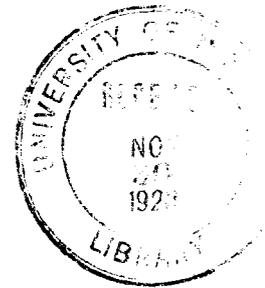
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216 Administration Building
University of Minnesota,
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MINNESOTA CHATS



**For a Better
Minnesota**

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FOREWORD

THE UNIVERSITY OF MINNESOTA'S BUDGET

A careful reading of the biennial estimate of the state support needed by the university as given to the commission of administration and finance, will convince fair-minded people that the university must have a larger appropriation if it is to continue its work. When people note that the enrolment between the years 1921-22 and 1927-28 has increased by 52 per cent while the legislative appropriation for maintenance and support has increased only 9.1 per cent, they will conclude that the appropriations are not keeping pace with the institution's growth.

On the face of it one might conclude that the estimate is high and that in this time of depression no increase should be made. But there is every reason why people should try to estimate the wealth that the university brings to the state. This, of course, cannot be calculated; it cannot be estimated. But by preparing people to enter the industrial, commercial and agricultural life of the state, as well as through experiments that give to the state inventions and processes that save a vast amount of money, the university is a real source of wealth.

THE idea that the university has far too many students and that higher education should be given to the specially equipped and unusually able, has its advocates. But the fact is that many young people don't begin to settle down until they get into the life of the university. Some of these become really outstanding in the line they finally enter, whereas if they were shut off from a higher education they would possibly drift along and amount to very little. And the test of democracy lies in its educational facilities. The country needs vastly more education. There is abundant evidence that it would be in a bad way if it had less.

Unless education is able to make people reasonable and accommodating, life is shot through with disputations of an embittered character. Education must bring people to the place where they see that there are two sides to all issues and that others are justified in taking the opposite side, for unless it does this it is indeed superficial. The University of Minnesota should have appropriations sufficient to allow it to extend its influence and to further the ends of true education. The nation's real asset may be its children, but another asset is its educated citizenry.

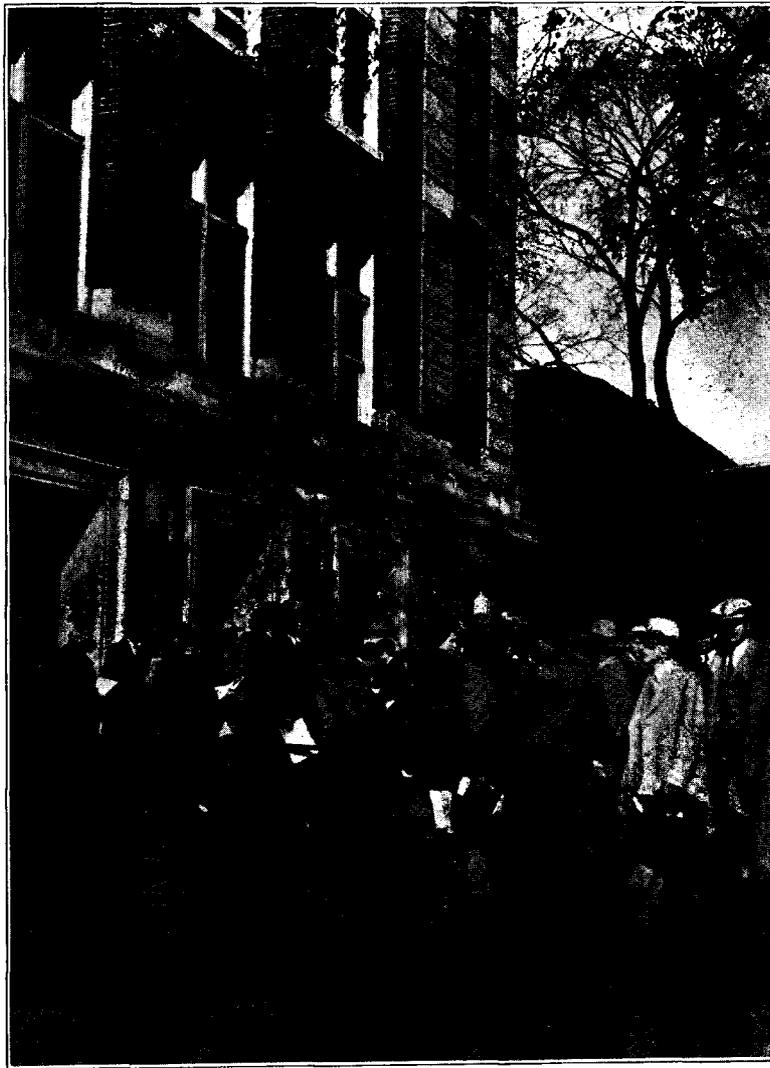
(An editorial from the Moorhead News)

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UNIVERSITY OF MINNESOTA



At the Door to the "P. O."

Men predominate in this group of students hurrying to the post office for their "Dailies" and other correspondence

The University Wires Home For Funds

Biennial Budget Estimates, Prepared for the Legislature, Contemplate Fewer Buildings, Better Paid Teachers

THE University of Minnesota has placed before the Commission of Administration and Finance its biennial estimate of necessary state support to be appropriated by the Legislature when it convenes in January. It is requesting a total of \$4,080,062, for each of the years 1929-30 and 1930-31. This figure represents an increase of only \$70,062 a year over the amount of state money that has been appropriated for the current year, ending June 30, 1929.

The University asks that its annual building appropriation, which has been \$560,000 a year since 1919, be reduced to \$300,000 a year, thus saving \$260,000 in building costs, and that the maintenance and support appropriation be increased from \$3,325,000 to \$3,650,062. It also asks an increase of \$5,000 a year in maintenance for the Grand Rapids School and agricultural substation. A footnote shows that if money to pay the state's share of caring for indigent patients in the Minnesota General Hospital is provided by other means the sum of \$100,000 may be subtracted from the proposed maintenance appropriation of \$3,650,062.

In a prepared statement accompanying the University's legislative askings, President L. D. Coffman points out that between the years 1921-22 and 1927-28, collegiate enrolment at the University of Minnesota increased 52 per cent, whereas the legislative appropriation for maintenance and support was increased only 9.16 per cent. He also points out that material increases in student fees have been necessary to meet operating costs as a result of this discrepancy. On this point he says:

"Forced by necessity to meet the needs of these thousands of students and to stem the tide of competition from other institutions for the members of the staff, the regents have from year to year placed an increasingly heavy burden of maintaining the University upon the students. While the state's support has increased 9.16 per cent, the load imposed upon the students has

increased 26.6 per cent. Even this has not provided sufficient funds to operate the University on a plane the regents believe desirable and imperative.

"A state or a public that deliberately transfers the burden of maintaining its social institutions to their immediate beneficiaries on the assumption that it does not get an equivalent for every dollar it invests in them should understand fully the social consequences of its act. Perhaps there may be sound reasons why some moderate fees should be charged for certain work, but it should never be forgotten that every proposal to increase fees tends to shut the door of opportunity, which the state should keep open to those qualified to use the opportunity."

A comparative table of statistics on biennial requests shows that between 1921-22 and 1927-28 collegiate enrolment gained 52.05 per cent; enrolment in schools of agriculture decreased 14.73 per cent; extension attendance gained 23.20 per cent; and enrolment in all branches grew 42.64 per cent. Meanwhile annual requests for maintenance appropriations actually voted by the Legislature increased from \$3,000,000 in 1921 to \$3,275,000 for 1927-28 and \$3,325,000 for 1928-29. Student fees collected grew from \$825,918 to \$1,045,733.

State's Share Is Decreasing

Other tables show that the percentage of University of Minnesota support coming from the state has decreased materially in ten years. In 1919-20 the state of Minnesota, through all avenues, provided 79.5 per cent of the University's income. In 1928-29 this is down to 67.7 per cent, the remainder coming from federal aid, 6.5 per cent, student fees 18.4 per cent, and sales and miscellaneous 7.4 per cent.

The cost of operating the University of Minnesota in 1929-30 is placed at \$6,354,762, of which it is estimated that \$2,274,700 will be met from the millage tax, permanent university

fund, student fees, federal aid, and miscellaneous sources.

The regents' statement shows that this leaves \$4,080,062 to be provided as follows: maintenance and support appropriation, \$3,650,062; county reimbursement to hospital, \$100,000; continued building program, \$300,000; Grand Rapids maintenance, \$30,000.

The step-up in requirements for 1929-30 and 1930-31 over the past biennium, as shown in the estimates, would go almost entirely into salaries to hold competent people at Minnesota and to bring in high class instructors. Salaries and wages in the university budget for the current year amount to \$4,041,241. Estimated requirements under this year for the next two years are given as \$4,344,762.

An Institution To Be Cherished

"The University of Minnesota is an institution of higher learning founded by the territorial Legislature and established on a secure foundation in 1868," says a foreword by President Coffman. "Since then it has granted more than 28,000 degrees and provided collegiate instruction for more than 60,000 persons. Its sphere of usefulness has been widened until it seeks to serve every fundamental interest of the state. Distinguished and able teachers like Northrop, Folwell, Maria Sanford, Eddy, Downey, Hutchinson, Shepardson, Flather, Pattee, and Nachtrieb, and many others, have given without stint, their youth, their strength and their devotion that the University might become a great center of intellectual and spiritual stimulation.

"Students, faculty, thousands of loving parents, generous donors, and the state itself have entered into a co-operating partnership to make the University of Minnesota a truly great university. Much has been accomplished; more remains to be done. If the partnership be not dissolved and faith and mutual solicitude in the welfare of the institution be unabated, we shall yet realize the hopes and live the dreams of the territorial fathers who founded the University. Indeed, we shall do more, for there rests upon us a heavier obligation; we shall each year build more firmly than the last, who shall set as our goal a university the equal of the best and, if possible, unrivaled

among the universities of the world. This dream can be realized if all parties work with a will."

Building Needs Are Fewer

Because available space for instruction and laboratory work has increased only 66 per cent at the University of Minnesota during a period that has brought about an increase of 136 per cent in student attendance, the Board of Regents is asking the Minnesota Legislature to continue the comprehensive building plan appropriation for 10 years more.

Requests placed in the hands of the Commission of Administration and Finance recently, seek a continuance of the building appropriation for a decade at the rate of \$300,000 a year, a decrease in building funds of \$260,000 annually. The ten-year annual fund voted in 1919 was for \$560,000 a year. Projects now under way and to be completed during 1919 will use up the remainder of this fund. Principal among these is the addition to the University Hospital.

The formal requests sent to the state capitol outline the University's present building needs under the title, "Projects in the original comprehensive list still needed." These are the following:

Training School for College of Education

A laboratory for the training of teachers. This is one of the important functions of the University for which adequate provision has not yet been made.

Completion of Physics Building

Some relief was obtained by the erection of a part of the Physics Building, but there was not enough money available to erect it all.

Astronomy

Present structure is old, inadequate, poorly located, and too small to be of much use.

Nurses' Building

Urgently needed. Nurses are now living scattered here and there, wherever the University is able to provide quarters for them.

Under the heading of new building proposals, not included in the list ten years ago are the following:

Classroom Building

A general classroom building, represents one of the most imperative needs of the University.

Forestry

The student body in forestry at University Farm is now the second largest in size in the United States. The present quarters and facilities are overcrowded and inadequate. A building for forestry is needed to provide for undergraduate students' needs, for research, and for the needs of graduate students.

Greenhouses

Part of the present plant is a very poor structure, not worth the cost of keeping it repaired for use.

School of Business Administration

The present building is a fire hazard and is overcrowded. Relief is imperative.

Land

120 acres of land near University Farm are needed. The present University Farm is so much too small that the University is renting land for some of its most important agricultural experiments.

At Grand Rapids.—It is desirable that a 57 acre tract adjoining the present North Central Experiment Station be purchased.

Main Campus.—Additional space for use of the Military Department and for purposes of recreation is imperatively needed.

Additions to plant at the Crookston, Morris, Grand Rapids, Duluth, and Waseca experiment stations and Schools of Agriculture are included in the program. Buildings for physical education at Crookston and Morris are proposed.

These projects would be carried out over a period of ten years, the plan of the Board of Regents suggests.

The increase in student enrolment of 136 per cent is arrived at by taking the period 1915-16 to 1927-28, because no new buildings were put up between 1915-16 and the year 1919, when the comprehensive building fund was voted. It is pointed out that, although floor space has increased 66 per cent in this period, student enrolment has grown by 136 per cent.

At the outset of the ten-year period the University had total floor space of 1,476,973 square feet, of which 1,010,110 was on the Main Campus and 466,863 at University Farm. At the close of the year 1927-28 these figures were: For the Main Campus 1,676,779, and at University Farm, 544,581, making a total of 2,221,360. The increase was 744,387 square feet. Additional space has been provided by the construction of the Field House and by finishing off space underneath the seats of Memorial Stadium. Neither of these areas, however, is available for classroom or laboratory use, both being given over entirely to athletics.

"A study of the probable growth of the University was made in 1920 at the request of the Legislature" President Coffman's report states. "According to this study it was estimated that the University would have a total enrolment in 1930 of 13,000 students. This number was exceeded in 1926 by 1,450 students and in 1927 by 2,851. In other words, the registration has increased more rapidly than was expected when the building program was first put into operation."

The State University and the State

President Coffman Discusses Some of the Fundamental Relationships That Should Be Recognized

Dr. Frederick James Kelly, for five years dean of administration of the University of Minnesota, was inaugurated as president of the University of Idaho early in September. The following address was delivered at the inauguration exercises by President L. D. Coffman of the University of Minnesota, whose assistant Dr. Kelly had been. His subject was "The Relation of a State University to the State."

THE theme of these exercises is "The Relation of a State University to the State." Upon such an occasion as this and with this theme in mind, the natural thing would be for one to discuss questions of finance and the responsibilities of the University as a teaching, research, and service institution. I have, however, decided to do something quite different. It is my purpose to discuss some of the significant tendencies and movements in American life that have a bearing upon universities in general.

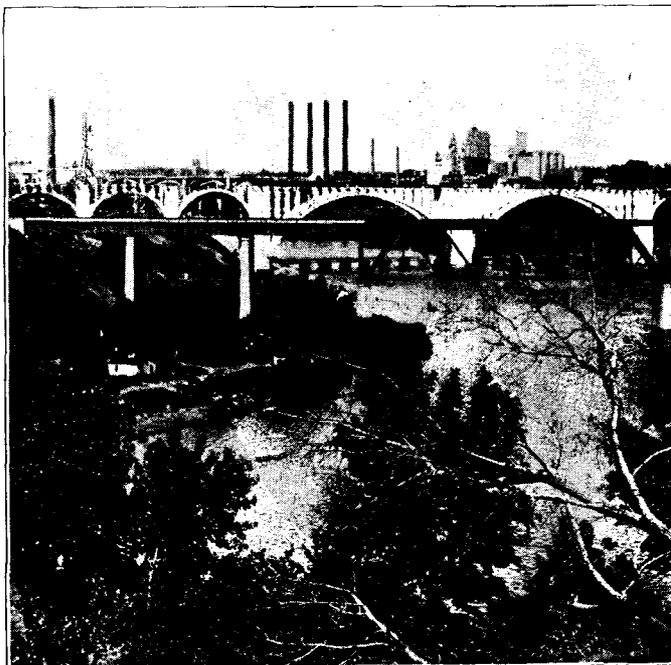
America is not a country of traditions. We are near the frontier in time and much of the blood of the pioneer still flows in our veins. We have acquired few national habits or attitudes of mind. We still believe that the road to progress is the road into the untravelled and the unknown, while the road to safety is the road of custom. Both men and nations who traverse the beaten paths of safety discover nothing new. The paths of safety reveal their goals from the very outset; they never lead beyond the plateaus into the undiscovered regions. When men assume that what they think is profoundly and irrevocably right and that what they do should set the standards of conduct and of action for all others, then we may be sure

that life has lost its charm for them. The blood of the adventurer, of the discoverer and of the inventor no longer warms them into action. The spirit of youth has ceased to beckon them on and the zest of the scientist does not disturb them. They sleep tranquilly on while the chariot of progress moves swiftly by.

America is a country in which change is the order of the day. The steam engine, the automobile, and the aeroplane, together with electricity and its offspring, the telephone and the radio, have practically annihilated both time and space. Transformations equally as revolutionary and quite as far-reaching are occurring in almost every field of human thought. The stories of modern science read like romance. One hundred years ago the following sciences did not exist or were known only superficially:

chemistry, biology, psychology, electricity, sociology, bacteriology, zoology, physical astronomy. Now disease has been almost, if not quite conquered, distance annihilated, and the forces of nature made docile under the hand of man.

And yet we are not satisfied. There is the constant urge for new achievements and particularly as they may contribute to our material comforts. We demand



The Mississippi from the University

better cars, improved means of transportation of all kinds; greater facility of communication; time and labor saving machinery for industry, agriculture, the home; mechanical devices of every imaginable use. The demand for improvements in these respects brings powerful, absorbing and consuming pressures to bear upon physical scientists everywhere. The whole social order, at present, in this country at least feels the impelling impacts of industry. Indeed it has reached its long arms, under the name of efficiency, into every institution. It has multiplied the products of life and improved their quality to such an extent as to modify profoundly our philosophy of living. We want "bigger and better" things because they add to our comfort and increase our dividends. Experiment for industry is the order of the day. Millions are spent in subsidizing it. We boastfully exploit it and then immediately impose additional tributes upon it.

It cannot be claimed, of course, that Americans are wholly neglectful of the spiritual rewards and values of life nor that they bow in constant worship before the gods of industry. Industry has contributed in numerous and subtle ways, and to an enormous extent, to the humanizing of life. We are living in an atmosphere of growing altruism, partly because industry is teaching us the lessons of co-operation. Many of the old values of life are being restated in social rather than in individual terms. Economic stability and industrial efficiency provide leisure and opportunity for the consideration of the more intangible values of life.

Industry Molds to a Pattern

Industry molds things according to a pattern. It seeks a standardized product. It prospers on mass production. Standard products have helped both the manufacturer and the consumer. They help the manufacturer because they enable him to produce more; they help the consumer because they cost less than other products and because they are easily remembered.

The movement for standardized products has extended far beyond industry. Although highly beneficial to infant industry it can be said that it is equally propitious in the fields of the more strictly social institutions. When

it reaches over into the educational field and insists that all children shall be fitted to a common mold, taught the same material and in the same way, it is probably destroying the goose, or at least one of the geese that lays the golden eggs of human progress. When the demands for economy, the introduction of similiar systems of accounting, and the comparison of one university with another on the basis of square feet or square unit of something or other, become the basis for university administration, then we may be reasonably sure that these things are standing in their own light. Whenever educational institutions become so industrialized that they think in terms of common units and common products, that day they will become the victim rather than the leaders of the social order they are supposed to serve.

While American industry is producing standardized articles in uncountable quantities, there is, nevertheless, a saving factor in the situation, a factor which is purely psychological in character. Although we like to secure things as cheaply as possible, we like to be different. One needs only to call attention to the hours of fatiguing shopping that women will undergo in order that their spring hats may be unlike those of their neighbors, to have incontrovertible evidence of the presence of this desire. What is true of spring hats is equally true of everything else. Even Henry Ford has discovered that men will not be satisfied with the Model T; they demanded a new car; and he is responding to the demand. This eternal conflict between efficiency on the one hand and initiative on the other, between sameness and dissimilarity, will continue to be waged. The battle will never be won. If it were, it would mean stagnation on the one hand or chaos on the other.

Must Experiment with the New

It must be clear that the greatest asset of standardization is also its greatest menace, for uniformity tends to destroy freedom and the right to experiment. Uniformity is more easily obtained in material than in spiritual things, but we will not submit to it indefinitely in any realm. While we reach out with one hand for the cheap standardized products, we reach out with the other for the new and the

uncopied. Constant experiment and uniformity, two antithetical things, must remain in close association. We shall live forever, we hope, in a world that is eternally trying to improve itself. We shall continue to foster and encourage experiment in everything which pertains to our physical comfort and needs. Whether we shall be equally open to experiment in the social and political fields is still subject to some doubt. When national affairs are considered we are disposed to view with suspicion and alarm many of the governmental practices of foreign countries and to view our own with certain pride and satisfaction in comparison. And yet it must be clear that if all art or all social theories or all governments were alike there would be no further progress.

Variation in the social and political fields is as essential to human progress as biological variation is essential to the improvement of the human race. Nations have always differed from each other enormously in their customs, economic life, religious practices, national ideals and forms of government. The world probably never saw a greater number of interesting social and political programs than exist today. Witness, for example, the League of Nations, the International Court of Justice, the dole for the unemployed in England, the marriage and divorce laws of Norway and Sweden, the socialistic theories of Austria, the dictatorships of Spain and of Italy, and the communistic government of Russia.

The Russian Situation

Of all these the one that seems to be attracting the most attention is Russia. Whether this is due to the fact that it seems so remote and its doctrines are so radically different from ours, I do not know. It was my privilege to visit this country recently, with a group of American educators and to see at first hand many of the novel features of this gigantic experiment. It is an attempt to impose a philosophy wholly foreign to American thought and untenable according to our opinion, upon one hundred and forty million people. It is no wonder that we have a deep interest in what is transpiring there.

For ten years now we have been expecting and predicting chaos in this stricken land.

Meantime the government apparently has grown more secure. The economic theories of the Russians are abhorrent to us, in fact, we can never reconcile ourselves to the confiscation of private property nor to the assumption that labor is of equal value and should be rewarded alike. This doctrine, we maintain, destroys competition and initiative, both of which are necessary for progress. And yet with these doctrines still prominent throughout Russia, American trade with her is increasing and she is paying her bills. We maintain, and with vigor, that art, science, industry, all progress, both spiritual and material, depend upon a clear recognition of individual differences and upon freeing those who possess such qualities to pursue genius where she listeth. We know that the great things of life flow from talent and genius rather than from the masses, and yet there never was such apparent interest in and knowledge of art in all of its forms among the populace as exists there today.

We do not countenance murder in any form of kings or queens or czars nor the execution of the ruling classes, we stand unreservedly against revolution by bloodshed in all of its forms everywhere. And yet we cannot fail to rejoice somewhat in the fact that the common man, who, for five centuries, has been the abject slave of these rulers, has freed himself from this enslavement and is now enjoying a new and an exalted status. Every American would, I presume, maintain that any country that teaches a social philosophy, the essence of which is world revolution and the ultimate destruction of capitalism, is inimical to our government and to the peace of the world. And yet one gets some satisfaction from the fact that education is becoming the great passion of this people, both old and young.

There are many strange theories and doctrines in this strange country. They are strange to us partly because we are not familiar with the background and other circumstances which explain them and partly because they are so remote from our accustomed modes of thinking. For example, we can scarcely imagine all of the lawyers of our country being suddenly disbarred and a committee of citizens, none of whom were informed in the technique of the law,

being chosen to hear and try cases as they arise. And yet that is exactly what has happened in Russia, and millions of the common people are laboring under the pleasant delusion that justice is now being expedited.

Suppose state medicine were suddenly introduced in America and the doctors were employed by the state at stipulated salaries to care for the health of the people, what a wave of protest would be heard from the representatives of this profession, and yet that very thing seems to be coming to pass in Russia.

Soviets Control Universities

Even in the field of university education, we find equally strange things happening. The universities are controlled by committees, consisting of professors, workmen and students. This arrangement might prove acceptable to many American students, for this committee chooses the professors, prepares the schedule of classes, determines the content of the courses and votes on whether a student shall or shall not be promoted. I hope this will not convert the students of the University of Idaho to the Russian system, for I have not told all of the story.

And so I might go on reciting inconsistencies and incongruities for, after all, Russia is a land of strange contradictions. She destroys or exiles many of her artists but saves her arts; she sustains a communistic government which confiscates private property but pays a wage to everybody; her government is autocratic but the right of assembly is recognized; the government suppresses the religion of the established church but seeks by subtle methods to cannonize Lenin. Men speak with bated breath about some things, while youth in the workingmen's theatres ridicules many communistic doctrines. A government perhaps as autocratic as any the world has ever seen is undermining itself and digging a grave for autocracy by providing the most democratic system of education the world has ever beheld.

A Great Experiment

My purpose in calling attention to these matters upon this occasion is simply to emphasize the fact that the greatest political experiment of a thousand years is probably unfolding itself

before our very eyes. The man who thinks it is all bad does not know his facts and the man who thinks it is all good has forgotten some of the important lessons of experience. There is in process here a gigantic struggle for the emancipation of the human spirit, to free it from ignorance and superstition, to acquire political liberties hitherto denied, and to possess more of the blessings of civilization.

The struggle is merciless, ruthless, terrible at times. Its instruments are the instruments of espionage, exile, destruction of property and of life itself. These are the implements of power and of force, of coercion and of authority. Here is a great experiment on a magnificent scale in the laboratory of human experience, pursuing its uncharted way; employing agencies we condemn; it is small wonder that we are skeptical of it. But if intelligent progress is to be made in the fields of the social and political sciences the same tolerant, sympathetic questioning attitude must be brought to bear upon such matters as these as is brought to bear upon problems in the field of the physical sciences. When standards, usage, habits and customs hold thought and guide action in any field, it will become intolerant of other forms of action and unprogressive within its own territory.

Acceptance of the opinions of others is not necessary for one to be tolerant of them. If the aim of life is to produce a better civilization, then every possibility and every problem should be considered in the light of experience and of the factors affecting it. And this is what education is for. It tries to make one open-minded, not the advocate of some half understood problem; it teaches tolerance; it exalts experiment.

Democratic Education Will Win

Whether the Russians have understood this I cannot say. Their philosophy is like that of a great dragon. Every time you cut off one of its heads, two spring forth in its place. The only way to destroy the animal is to strike at the body and the instrument with which to strike is education. The issues of democratic education must inevitably be popular government. The more widely distributed the schools, the freer the government will be. It is no mere accident of time and place that Russian despotism destroyed the schools for the people and

maintained a secret surveillance over a militant police. The chief means of control in a despotism has always been some form of coercive control, while the chief means of control in a democracy has always been some form of popular education.

One of the inherent faiths and fundamental principles of Americans from the pioneer fathers on has rested upon education. They believed it to be necessary to give strength and stability to their institutions. The brave men and women who settled on the eastern coast and their equally brave descendants who trekked across the plains and western mountains declared time and again that the common schools are the hope of the country. Wherever they settled they soon built a school and not long thereafter they founded a university in which the arts and sciences were to be taught.

The struggle which these institutions of learning have had at times to train free men for the intelligent exercise of their responsibilities in a free republic, has been heroic and sometimes, I regret to say, not without its victims. The efforts on the part of certain classes or groups and occasional powerful individuals to control and dictate the policies of these institutions for special rather than public purposes, to make of the students advocates rather than free thinking, free acting individuals,—some of these efforts would do credit to Russia in her palmiest czaristic or Soviet days.

Our Hope for the Future

America has staked her future on free and independent public education. This is the greatest social heritage, the most priceless pos-

session our fathers had to transmit. Now what is this thing we call education? We speak of it as freeing the mind, liberating the spirit, making one more cosmopolitan and catholic in his sympathies. Education cherishes and preserves that which experience has tested but it refuses to remain static. It is constantly undermining old faiths and establishing new points of view. By its very nature it is dependent upon liberty to search for the truth and its very essence is found in the right to teach the truth. Human happiness is resident in achievement but achievement is impossible in a satisfied world. The problem which the modern world has is that of maintaining her schools and universities in the spirit in which her founders conceived them.

A university, we like to think, is a laboratory of thought, a republic of scholars, a place where social theories are checked and tested, where everything that is of human interest and pertains to human welfare receives dispassionate consideration, where natural and social sciences proceed hand in hand and side by side in their study of all those problems and theories which are basic to human progress, to higher achievement, to better living. The test is whether we in this era of physical change, with its demand for more material comforts, its attempts to standardize the process of life, and its intolerance with unfamiliar social practices, will allow these institutions to pursue truth where truth leads and to teach it when it is found. If Idaho will do that and that alone, no matter what her shortcomings may be in other respects, she will be a truly distinguished university.

A Study of Legal Education

The Carnegie Foundation for the Advancement of Teaching
Reports on Its Investigations

"Present-Day Law Schools in the United States and Canada," by Alfred Zantzinger Reed, is the fourth extended volume in a study of legal education begun by the Carnegie Foundation in 1913, under his general direction. The previous volumes were: "The Common Law and the Case Method in American University Law Schools," by Josef Redlich, in 1914; "Justice and the Poor," by Reginald Heber Smith, in 1919; and "Training for the Public Profession of the Law," by Mr. Reed, 1921. The author's point of view is that of the student of government, and layman, rather than of the practitioner or law teacher. As part of his preparation for the work, he personally visited, just before the War, every law school then in existence in the United States, and, in 1924, all of the Canadian law schools. The following article is an abstract released by the Carnegie Foundation.

THE fundamental weakness that Mr. Reed finds in the system of legal education and admission to legal practice in the United States today is that its formal organization has ceased to correspond to the facts of professional life. The activities in which individual lawyers engage differ from one another quite as markedly as do, for instance, the various branches of the healing arts; but while medicine, dentistry, professional nursing, etc., are separately organized, the theory of the law is that all lawyers are, or at least ought to be, prepared to become responsible members of a single undivided profession. This conception of the lawyer as a general practitioner of every branch of the law grew up naturally in a pioneer agricultural community, where the law was relatively simple and the amount of legal business slight. The inherent conservatism of the profession has perpetuated a theoretical unity that cannot be realized under the conditions of a highly specialized commercial age. The influence of selective bar associations and of diversified types of law schools, in dividing lawyers into socially disconnected and separately recruited professional groups, has converted the tradition of a unitary American "bar" into little more than a legalistic fiction.

Preface by Dr. Pritchett

In the preface to the Bulletin, Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching, writes as follows:

"Intelligent men appreciate clearly that the lawyer is a member of a public profession, that

he has responsibilities which can be effectively discharged only through a due appreciation of his public relation.

The people have a right to ask, in view of the privileged position of the lawyer, that every effort shall be made by the profession to maintain a high standard of character and of ability amongst its members.

Not only the bar but the whole body of the people have a direct interest in the conduct of law schools and in the process of law teaching.

"The author points out the transitory character of institutions, and of points of view, that most lawyers and law teachers had been inclined to accept as more or less permanent and inevitable. This attitude is in large part a necessary consequence of the conception that fit methods for training and testing lawyers constitute, at bottom, a problem of government as well as of education. Few of us would deny that our faith in our country's future transcends our pride in its present achievement. Democracy would not be working toward higher ends if we imagined that we had already solved all of its problems."

Imitation and Standardization

The development of American legal education since the Revolution may be roughly divided, Mr. Reed finds, into four periods. At first, rigorous bar admission requirements "crystallized the training within the traditional sphere of the lawyer's office, and thus retarded the development of law schools." A general relaxation of standards, which followed this, had its origin in two sources: democracy plus

laissez-faire. "A younger generation, and a new social element, forcing itself into power . . . demanded its share in all governmental privileges, including those of the lawyer.

The right of all economic classes to enjoy the lawyer's special privileges seemed to them a principle of no less importance under a democratic form of government than the older principle that those who enjoy governmental privileges shall be competent to discharge them.

Laissez-faire philosophy facilitated the process, in that it lulled the community into the belief that it was as needless, as it was difficult, to substitute other requirements for those that were abolished. It provided a plausible answer to the objection that lowered bar admission requirements necessarily meant incompetent lawyers." The third period, which lasted from the Civil War until about 1890, Mr. Reed calls a "Creative Period." It was marked by a reaction, not against democratic philosophy as such, but against its formerly associated spirit of ignorant optimism and *laissez-faire*. "A much greater sense of the value of consciously directed social effort" led to the invention of new machinery and methods, in the field both of bar admissions and of law schools. By contrast, the recent history of legal education is mainly one of attempts to consolidate and spread existing gains, through the machinery provided by the American Bar Association and its offshoots and affiliated organizations. "A loosely co-ordinated system of voluntary associations constitutes the organization upon which the legal profession now depends for the formulation and advocacy of an improved system of legal education. . . . It has operated primarily as an instrument for selecting, from among existing practices, those which are best suited to the development of competency and character in the legal profession, and as an agency for urging their more general adoption. Within these limits it has rendered an important service. . . . In proportion as the organization dedicated to this purpose becomes perfected, it will exercise still greater influence over future developments."

Relation to a College of Liberal Arts

The volume shows that of a total of 176 degree-conferring law schools, 38 are maintained

by state universities or colleges, 2 by municipal universities, 21 by Roman Catholic, and 50 by Protestant or non-sectarian endowed universities or colleges. In addition to these 111 schools that have contact, more or less close, with a college of liberal arts, 12 are connected with colleges or schools of business or commerce, 17 are maintained by Y. M. C. A. or K. of C., and 36 are frankly independent.

The universities or colleges that maintain law schools are shown to have an independent annual income, other than that derived from tuition fees or use of educational plant, ranging from little or nothing to over six million dollars. Some institutions are accordingly in a position to spend large sums upon legal education, irrespective of how many law students they have, while others rely upon law students' tuition fees to support the law school, or even other departments of the university.

General Increase in Preparatory Period

In 1890, out of a total of 61 law schools then in existence, only 7 had a course as long as three years. For admission into the school none required any college work, few demanded even a high school education. In 1927, largely as the result of the activities of the American Bar Association and of the Association of American Law Schools, out of 176 schools, 166 had a course lasting three years or more, and 100 had at least a nominal requirement of two college years for admission. The number of schools that combine these two characteristics, and also claim the entire time of their students while in the law school, grew from 2 in 1900, to 70 in 1927.

Increase in Night Law Schools

Corresponding to the general improvement that has been effected in law schools of the type specially favored by the Association of American Law Schools, there has been a striking increase in schools conducted at night, or at other hours convenient for self-supporting students. In 1890 these "part-time" schools constituted less than one-third of the total, and had an aggregate attendance of less than one-fourth. Today, part-time schools exceed full-time schools, both in number and in attendance. Including schools of a "mixed" type, part-time

law students now constitute over 58 per cent of the total. Mr. Reed points out that "the supervising associations have not been so successful in dealing with the problems created by the rise of part-time instruction as they have been in lengthening the course." A firm believer in night law schools, he nevertheless shows the evils that result from the notion that they either are, or can be made, "equivalent" to good full-time schools. Quoting the language used by a Special Committee on Legal Education, headed by Elihu Root, in 1921, "the democratic necessity for afternoon and evening schools compels a lifting of these schools to the highest standards which they can be expected to reach." Mr. Reed goes on to say: "When this task is undertaken by those who both appreciate its importance, and at the same time realize that, as regards organization, methods, curriculum, and other educational features, standardized qualifications that have been developed elsewhere are not necessarily appropriate here, we shall be on the high road toward developing a group of part-time law schools far better than any that we now have, more uniform among themselves than they are now, and yet increasingly different from institutions that command the full time of their students."

Schools Classified on Time Basis

As a basis for classifying law schools, the volume recognizes the total amount of time that students are expected to devote to their education, whether before or after they enter the law school. The following six groups are broadly distinguished: Full-time schools that require, after the high school, a total of,—I, More than five academic years (14 schools); II, Five academic years (56 schools); III, Four or three years (6 schools); IV, Part-time schools (70); V, Mixed full-time and part-time schools (20); VI, Schools having a course of less than three years (10). Within each group the schools are listed to show the numerous subordinate variations that exist as regards their entrance requirements, the length of their course, and the greater or less extent to which their schedule of classroom hours serves the convenience of self-supporting students.

It is recommended that attempts be made to control the content of the preliminary college

years, by instituting supplementary entrance examinations.

Development of Elective System

It is shown that the enormous complexity of American law, coupled with the tradition of an undivided profession, makes some sort of elective system desirable for schools that can afford this expense. The volume discusses the varying amount of instruction that is offered and required by full-time schools, what portion of the curriculum is prescribed, and the rules under which "credits" are computed in order to satisfy the remaining requirements for the degree. A detailed study of the working of the elective system at Harvard leads to the conclusion that "the exaggerated freedom of election now in favor offers too great opportunities to the 'slacker,' without any corresponding advantages to earnest students. These considerations have convinced the writer, not by any means that the principle of election should be abandoned, but that it should be more sparingly utilized than it now is in many schools."

Reasons are given for regarding the very large "mixed" law schools that are situated in or near New York City as essentially part-time schools that have established separate divisions for full-time students, instead of merging this minority in the general mass, as do part-time schools in general. Most Western "mixed" schools differ from these in lengthening the course of the part-time divisions, with the result usually of greatly reducing the total attendance.

Problem Simpler in Canada

The relative simplicity of Canadian law, and the greater stringency of Canadian bar admission requirements, are noted as greatly simplifying the problem of legal education in the Dominion. None of the ten law schools feels obliged to disintegrate its curriculum by introducing the elective principle. Self-supporting students complicate the situation, by encouraging either an unduly short academic year, or a spurious office clerkship served concurrently with law school study. A deficiency of full-time teachers shows itself in a tendency toward skimping or postponing part of the instruction, or placing an unduly heavy burden upon indi-

vidual instructors. The circumstance that these latter are recruited partly from this country, and partly, through the operation of Rhodes scholarships, from Oxford, Mr. Reed regards as fortunate. He says: "The vital spirit which is the most conspicuous feature of Canadian law schools today . . . will enable these youthful institutions to profit by experience in emulating the virtues, and in avoiding the faults, of legal education in other countries."

Following the four hundred pages of text summarized above, two hundred pages are devoted to detailed information as to the number

of lawyers and the principal features of bar admission systems and of law schools, presented separately for each state and Canadian province; comparative tables showing number of law schools and of law school students; analyses of law school curricula; standards of supervising associations; rules as to selected administrative problems; a bibliography; and a full index. Copies of the Bulletin may be had without charge on application by mail or in person to the office of the Carnegie Foundation, 522 Fifth Avenue, New York City.

Types of Football Players

Dr. Clarence W. Spears, Headcoach at Minnesota, Classifies and Describes His Athletes

By Arville W. Schaleben

“IF one wants to be entirely correct, I suppose he should say that there are as many different types of football players as there are football players. For each man who reports must be handled individually. Each is different from the others. In a broad sense, however, football players run to type just as business men do. There are plungers and conservatives, those who are inspired and those who are altogether calculating.” So says Dr. C. W. Spears, headcoach at Minnesota.

“Crowds divide grid men into two groups—the sensational and the non-sensational. All players fit into one of the two classes, but I believe a finer distinction should be made.”

I had long hoped for an opportunity to learn just what a successful football coach thought about the men with whom he worked. But interviewing a coach is no easy task. During the season he is tremendously busy. After the season has ended his life, for weeks, is one trip out of town after another. Dr. Spears could write a book on “The High School Banquet—Why—AND HOW.”

It was by luck that I had cornered the coach, and by more luck that I had started him talking. So I listened.

“There are some players who are naturally sensational,” he said. “That is because they possess some remarkable natural skill. And there is also the type who is sensational because he makes a conscious effort to be—the grandstand performer. Whereas the first is of the utmost value to a team, the latter is often a liability. The grandstand player makes a simple maneuver look exceedingly difficult. He leaps high and snatches a pass one-handed when

he could just as well keep his feet and receive the ball with both hands which, of course, is the surest way of completing the play. I have said that such a player is often a liability. He is, because sooner or later, while trying to make a play that will take the crowd’s fancy rather than be safe, he fails on an easy try. The sad part of it all is that even when the grandstand player does fail, he gets a cheer from the stands, applause for his gameness in attempting to make what they were led to believe was a hard play.”

It is difficult to differentiate between the thinking and the instinctively acting gridder, Dr. Spears has found.

There are, however, the two classes. The thinker is an analyst. He has things figured out one or two plays ahead; not always correctly, of course, but nevertheless he has some idea of how things are going to go. The instinctive player just does things without knowing why; he is not conscious, at the time, of what he is doing. A number of years ago,

McCoy, Yale fullback, aroused to a frenzy, played three quarters of a game marvelously well but remembered nothing about it. He followed signals, talked rationally with fellow players, and yet all the time was acting instinctively.

“Superstitious athletes always cause much merriment to squad members,” he went on. “At West Virginia I had a fellow who wouldn’t start a game without digging his cleats into a puddle of mud he made by slopping a pail of water just in front of the training-room door. He had worried along during his sophomore year without much success. But he starred, toward the end of the season, on a rain soaked field. Newspapers called him



“Cross-country”—Try this on your legs

a 'mud horse,' and he believed that he was. He bolstered his confidence by performing his peculiar mud puddle ritual before each game.

"Contrasted with the superstitious is the matter of fact fellow. The matter of fact player doesn't care whether the ground is wet or dry; whether he has number 13 jersey or number 77 jersey; whether his socks are on inside out. He takes things as they come, pays no attention to the so-called breaks of the game, just keeps going as best he can. Herb Joesting was that way. He absolutely worried about nothing."

Dr. Spears thinks the most interesting athletes are the men coaches know and recognize as "morale builders." This type is rarely possessed of more than average ability, but just as rarely are these men dropped from the squad. They are worth as much to a team as the most brilliant player. When a team is having a poor season, or when some piece of bad luck hits a squad, these fellows are around with their happy-go-lucky air telling players and coaches that a little hard luck never beat any good team. We believe them too. They accomplish their morale building by a funny story, a slap on the back, a foolish, nonsensical antic.

"At Dartmouth we had a tall, lean chap, about 30 years old or so, who had no more chance of making the team than did a grade school boy," he relates. "But not only was he allowed to stay on the squad, he was allowed to make the trips. When he was around, players had no time to think of the impending football clash, because all he ever had on his mind and all he ever talked of was eating. Further, he talked incessantly. Sometimes his chatter grew monotonous but the more monotonous it became the more effective its power to direct our minds away from the ball game.

"The temperamental boy is at times an absolutely harmful fellow to have around and at times of great aid. When things are not going just right, this kind of lad is likely to cuss everything from the trainer to the chalk lines.

Then coaches wish he were elsewhere. But when he is 'going good,' his way of conducting himself is an inspiration to fellow players. For my part, though, I'd rather have a morale builder on my team than a temperamentalist.

"All players are fighters. But there is the fighter who swears and curses and deals a blow for every blow taken, and there is the fighter who keeps battling in an 'unruffled' way. It might be said that a man of the first type loses his head. Often he gets ejected from the game because he slugs or trips or heels an opponent even though an official can't help but see him pull his rough stuff. A fellow of the second type gets cuffed around a lot but 'gets even' by cracking his antagonist with a fierce tackle or block."

Dr. Spears declares he has as much regard for the man who comes out for football in the fall, never makes the team, makes no trips, but still comes out for spring football and is always trying to learn, as he has for the most capable performer. The boy who drives along at practice after practice, taking bumps from more efficient varsity men, is a plugger who calls forth admiration from all who know him. On the present Minnesota squad there are at least a dozen such fellows.

"I suppose none of them will ever be good enough to play Western Conference football," says the doctor. "I know that most of them know that as well as I do. Yet I am certain that they will all be out, season after season, until they leave school. I do not know how to account for their tenacity. Perhaps they feel that sometime they will get their chance to shine.

"The opposite of the plugger is the man who comes out for the first month of practice and then quits. If they aren't taken on the first trip of the season, most of the 'quitters' cut themselves off the squad by turning in their equipment. More than likely they come out more than one season but they always quit after two weeks or a month. That's the sort of fellows they are."

NOTICE

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216 Administration Building
University of Minnesota,
Minneapolis, Minn.

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For a Better
Minnesota

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FOREWORD

“**A** university’s ability to discharge its functions on a level worthy of the people who entrust their children to it depends upon its success in maintaining a competent staff, and success in maintaining a competent staff depends upon the competition for staff members it must meet from other universities.”

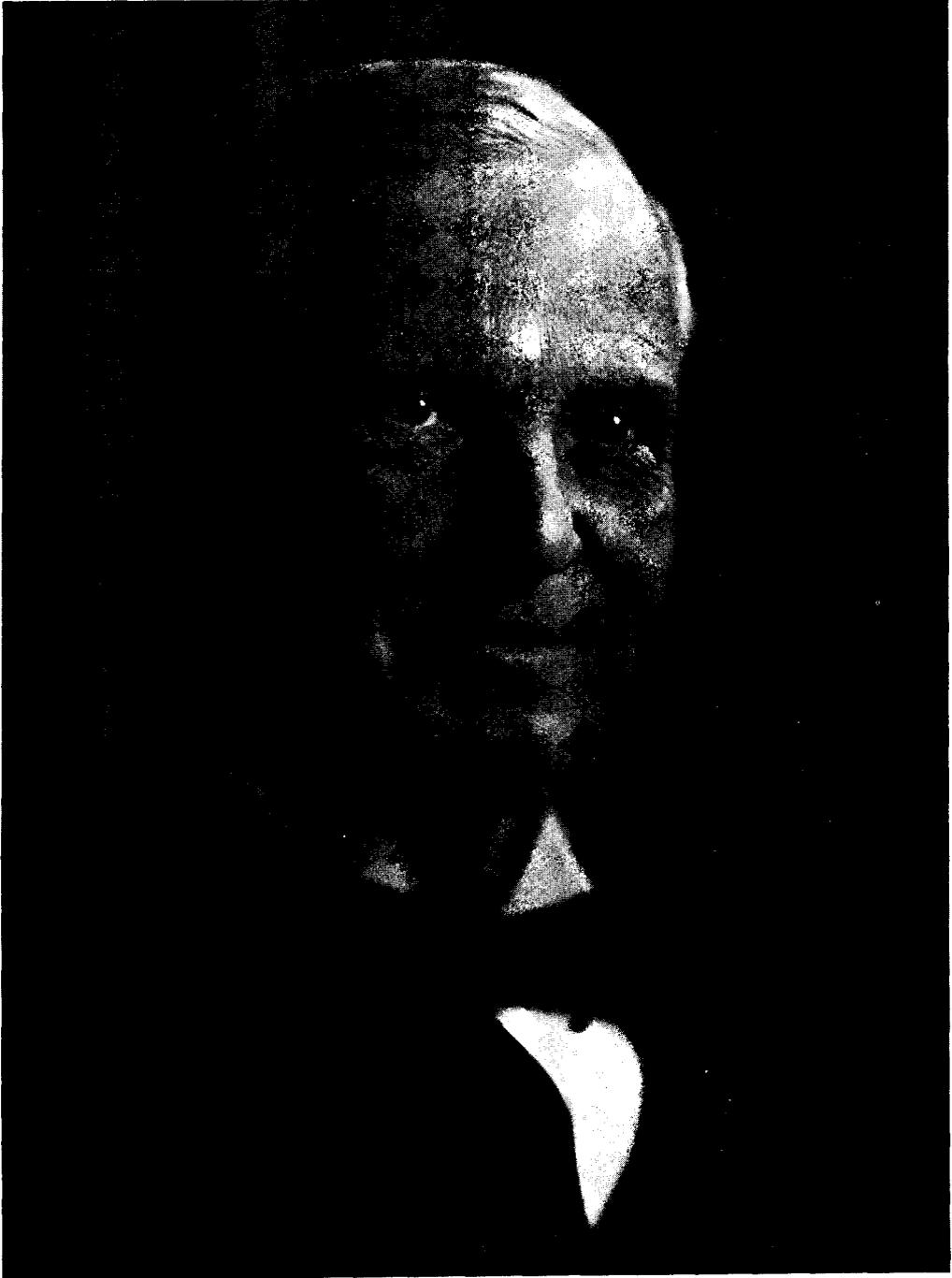
This is one of the emphatic statements in the booklet “Needs for the Biennium” recently issued by President Coffman of the University of Minnesota.

“**M**ANY of the private universities are receiving large benefactions,” the booklet goes on to say. “These gifts have enabled them to advance the salaries for the abler members of their staffs so that many of them are now receiving from 50 to 100 per cent more than they would get at any of the state universities, including Minnesota. Yale has just concluded a campaign for \$21,000,000, Princeton for \$13,000,000, Chicago has one for \$50,000,000 under way, and the Harvard endowment is increasing at the rate of several millions a year.

“Columbia’s endowment has made it possible to establish a minimum salary scale of \$7,500 for full professors, and to establish three other groups, one at \$9,000, one at \$10,000 and one at \$12,000, to which persons of exceptional service or distinction may be appointed. Under its new salary scale Princeton pays its professors from \$7,500 to \$9,000.

“**H**ERETOFORE, differences in standards of living have helped to equalize Minnesota salaries with those paid by the more aggressive private institutions. But the gap between the salary levels of such institutions and of Minnesota has now become too wide to be offset by anything except some readjustment of the Minnesota salary level. . . . A University must pay the market price for its staff if it is to get and to keep the best. It is all very well to talk of loyalty to an institution, but loyalty must work both ways.”

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William Henry Eustis

July 1845—November 1928

**Whose noble spirit and splendid example
are perpetuated through his benefactions**

The Place of Physics in the Modern World

Address at the Dedication of the University of Minnesota Physics Building

By John Zeleny

Professor of Physics, Yale University

THE subject on which I am to speak is without doubt a very appropriate one for this occasion. It has the one drawback that I cannot hope to say anything upon it that will be new to this audience. Under these circumstances I could wish myself to be a word artist having powers to clothe familiar figures in a new imagery. As it is, I shall have to content myself with passing before you in parade some old facts, bare and unadorned.

We are living at a time when science has won for itself a prominent place on the stage of human interests. The great benefits conferred upon the world by scientific discovery are generally recognized. The applications of science touch our lives at every point and at every turn. It is not

too much to say that science has not only transformed the manner in which we live but has changed also in good measure the very subject of our daily thoughts.

The last fifty years are without precedent in physics in the number of far reaching discoveries which have been made and in the new insight gained into the processes of nature. These years are unequaled in the number and importance of the applications of science which have been perfected.

One not conversant with the situation might well ask, can this expansion go on indefinitely

and are we not now approaching the end. The same question could have been asked with even greater force thirty years ago. No one can look

far into the future.

Our answer to the question must be read in the fact that never before in all time has science invaded the realms of the unknown at so great a pace as it is now doing. There are no limits in sight. So rapidly does advance follow on advance that new achievements are proclaimed daily by the press. A special news service has been organized to interpret the significance of new scientific findings to the people. Moreover industry has never before leaned so heavily on what science has to tell.

It is not my purpose to allot credit for what has been accomplished, among the different sci-

ences, nor as between science and its applications. The different branches of science all contribute greatly to our welfare. There is much interdependence among them and their fields overlap to such an extent that it is impossible to say where one science ends and another begins.

If I shall in my remarks assign to physics credit for what more rightly belongs elsewhere, or if I shall seem to imply that when all is said and done physics serves man most, you will understand, I feel certain, that this is an occasion when it is expected of me to extol



Dr. John Zeleny

*Who delivered the address dedicating the
New Physics Building*

the science whose newest temple we have come here to dedicate.

Modern life stands in marked contrast with the old largely because of what science and invention have evolved in the intervening years. These agencies have given us a new outlook on life. They have brought invaluable aids with which to carry on the work of the world. They have surrounded us with innumerable comforts and luxuries with which to enjoy our daily life. So accustomed are we to these advantages that we scarcely ever stop to think what it would mean to be without them.

It is a noteworthy characteristic of science that the discoveries of one generation are passed on to the next and thus become a permanent heritage of mankind. The things of most value are not all the consequences of recent labors. Some, though old and simple, are nevertheless of paramount importance.

I may cite as an example, the magnetic compass. Before its invention, the peril of the sea was a real peril. By this simple device for these hundreds of years myriads of vessels bearing people and commerce have been guided safely in their course and gone with full assurance where previously it would not have been prudent to venture.

As another example of a simple discovery of far reaching effect I shall mention the invention of spectacles, which occurred some six hundred years ago. It would be difficult to estimate even the commercial value of this invention as measured by the increased efficiency of those millions who without glasses would not have been able to undertake many of the tasks they have done. Who, then, could evaluate the increased enjoyment of life that spectacles have brought to these same individuals, and more especially since the advent of the printing press?

I intend to dwell at some length on these commonplace practical values of science. These values mean so very much to the modern world that unless emphasis is placed upon them we shall get a distorted view of the place that science holds. It is by these values, too, that we must mainly justify the expenditures necessary for further scientific progress. Moreover it is the industries that are calling for a constantly increasing number of scientific men. The universities, in laboratories like this, must be pre-

pared to train for this purpose more men than they are now doing. These men must be taught the principles involved in the processes now in operation. They must be trained so that they can improve and extend these processes. In laboratories like this, under the guidance and by the example of experienced investigators, men must acquire the spirit of research.

Steam Engine the Great Invention

There is to my mind no single invention that has made so great a contribution to our modern world as has the steam engine. With its coming man entered upon a new era. It introduced into the world of industry a great giant of almost unlimited power. This giant has relieved man of many of his most arduous labors. He does much that previously had been impossible of accomplishment.

As a direct consequence of this new power, the use of machinery has multiplied and multiplied up to its present stupendous scale.

The industries which use this machinery are deeply rooted in scientific soil. As new discoveries call for improvement in present methods, or call for new processes, industry seeks more and more aid from science. Manufacturers are constantly knocking at university gates for knowledge. More significant still is the fact that industrial organizations are finding it advantageous to maintain at great expense, large research laboratories of their own.

Science has become the guide and mainstay of industry.

Equally important is the service that science does for industry in creating for it by basic discoveries great opportunities in new fields.

The steam engine made possible the railroad and the steamship. These in turn opened up markets which before could only be reached with difficulty, if at all.

The invention of the dynamo and the general utilization of the electric current have given birth to a great host of new industries. The electric light has dispelled gloom from street and building, and brought everywhere increased comfort and efficiency.

The telephone, the telegraph, and wireless knit community to community, country to country. Business is vitally affected by them. Our personal contacts are extended to wide

limits. We are constantly seeing new marvels in the field of communication. Some of them would have been considered beyond man's reach less than a generation ago. It is no exaggeration to say that a dog baying at the moon may soon hear the echo of his reflected voice.

Power of Electric Communication

To my mind one of the most wholesome influences in our lives today comes from this opportunity we possess through electric communication of keeping in close touch with what is going on in the world. This intimacy increases our interest. It broadens our outlook. It deepens our sympathies. It helps us get away from the narrowing effect of single lines of endeavor. When great problems are agitating nations, we follow the course of events in their solution. In times of war we live through the battles. When adventures are afoot we join the expeditions—at our fireside. A short time ago we all flew thus over the north pole in an airship and looked down upon the masses of ice almost at the same time as did those aboard. More recently we lived for weeks with men lost on the polar ice. We listened to a recital of their plight and watched the heroic attempts at their rescue.

We are even now looking forward to the great adventure at the south pole. We shall follow the progress of events day by day and we shall thus feel a personal interest in the whole undertaking.

It is well within my memory that gasoline was looked upon as a dangerous substance. It had a habit on occasion of exploding with great violence. Its main use was as a cleansing agent. Then in 1885 along came a man to whom violence meant power. He learned how to tame the fluid and the internal combustion engine was invented. The once shunned liquid is now sought so eagerly in every quarter of the globe that international peace is at times threatened.

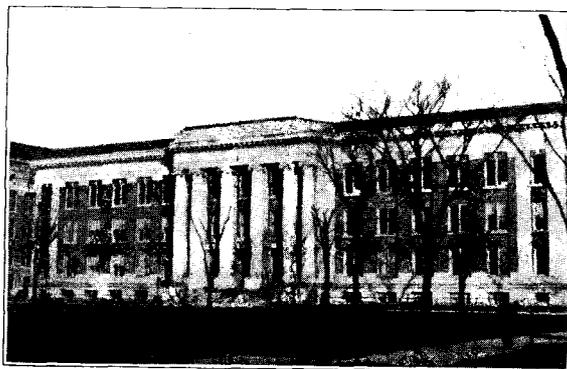
The new engine was found adaptable to many new uses. With it, for example, the farmer pumps water, saws wood, tills the soil, harvests and threshes his grain. By its use, the town and its markets are brought within his easy reach. The extent to which the automobile has come into use is nothing short of amazing. With it our nation seems to have gained a new freedom. It is a victory over space. A single invention has transformed markedly the habits of a people.

The internal combustion engine has also made possible human flight. Man has long dreamed that some day he might duplicate in a measure the unique performance of birds. Now in a few years aided by most intensive scientific study he has made such advances that he can fly much faster and much higher than any bird known. The airplane is assuming a place of responsibility in human affairs. Aside from the rapid transport of passengers and mail we are seeing it used, for example, in mapping a country, as a forest fire patrol, and as a rapid means of protecting crops against harmful insects. A pressing need of the airplane for long flights is a less bulky fuel. Gasoline is not powerful enough. In recent years we have been hearing of how rockets were to be sent to the moon. We have heard of an automobile run by a rocket motor. We must not be surprised therefore if the future brings us motors run by materials more powerful than dynamite or T.N.T. Indeed there are men today searching for a means to bring material of a very high energy content under control, for motor use. When this search succeeds, as it doubtless will, it

may be possible to course around the world on a few pounds of fuel.

Power's Labor Equivalent

One of the far reaching consequences of man's utilization of the various forms of mechanical power may be seen in what has thereby been brought



Minnesota's New Physics Building

within the reach of the average man. By the use of this power even a relatively poor man has the means to command the labor equivalent of a large number of skilled hand workmen. Owing to this circumstance he can live in a better home, he can eat more wholesome food, he can give his children better advantages than ever before, and still have some leisure for whatsoever his nature craves. The world may confidently look to science for the discovery of even greater powers by the aid of which the effort necessary for healthful existence may be lessened still more.

What I have said serves to show that physics has played a leading part in the advancement of our prosperity.

It must be admitted that the men who brought to light the basic principles which made these great material gains possible did not have in view as a rule any utilitarian ends. The scientist delves but to learn the truth. He seeks to unravel the secrets of nature because the quest fascinates him. He is doubtless pleased to learn that the things he has discovered are of some use in the world.

It is interesting to note how often the unearthing of a single abstruse fact in one branch of physics proves to be of great service in other branches of the same science and equally so in fields apparently not related. The discovering of X-rays is a case in point. This discovery stimulated work on electrical discharges in gases from which the electron emerged as a common constituent of atoms. The X-rays inspired experiments that led to the discovery of radioactivity which overthrew the old idea about the permanence of atoms and made us accept transmutation of elements as a fact.

The X-Ray in Health Service

Today the physician uses the X-rays to explore the inner regions of our anatomy. He uses them to destroy unhealthy tissue and to stimulate the growth of new. The surgeon uses the rays to locate foreign objects in our bodies and to determine the nature of fractures in our bones. Calculate if you can the value of this last service to the millions injured in war and in the accidents of peace. The dentist uses X-rays to decide when or where to pull.

The rays are used to locate flaws in metal castings. The plumber uses them to locate pipes in the partitions of our buildings. With them the customs officer looks for contraband in trunks. The rays are used to determine the ways in which the constituent parts of crystals arrange themselves. The regular sequence in the frequency of certain X-rays when they originate within different chemical elements disclosed the importance and meaning of atomic number, and told us how many elements remained undiscovered. I shall mention but one more thing in this connection and that is the very important discovery by Arthur Compton of a change of frequency suffered by these rays on reflection from electrons—work which gives us direct evidence of a change of momentum of a light quantum and has important bearing on the corpuscular aspect of radiation.

I can only allude in passing to the important influence that physics has had and is having on the other sciences.

The subject-matter with which physics deals is of such a basic character it necessarily follows that new discoveries in our science find immediate application in the other sciences. Even our hypotheses and speculations are not without interest to them. The instruments and apparatus they use come from the physical laboratory or are special adaptations of such apparatus. The compound microscope, for example, finds important use in every science. One may safely say that whole fields of biology and medicine are built around its revelations.

Physics has a large problem in seeking to understand the universe. Experience has taught that most if not all of our so-called physical laws have only a limited range of validity. Physics must therefore have a broad vision, penetrating, on the one hand, to infinitesimal magnitudes and, on the other, stretching its imagination to the infinite.

We have in recent years been much concerned about radiation. This interest made it imperative that we know something more about the atom where the radiation originates. We finally arrived at a picture in which each atom is thought to be a miniature universe having parts separated by distances which compared to their size resemble the proportions between the

sizes and distances involved in our own solar system. Among these new worlds the physicist wanders in spirit and seeks to learn what relations govern their actions. He strives especially to find where the atom keeps hidden those quantum packages of energy that are so characteristic a part of it. Why are these quanta of energy so closely associated with frequency? What does it all mean? There lies the mystery.

A Mystery of Architecture

In an ancient city of India stands what is often called the most splendidly poetic building of the world. It is the far-famed Taj Mahal, which was built by the emperor Shah Jahan as a final resting place for his favorite wife Mumtaz Mahal. One of the princes of India some years ago told me the following story regarding it. When the mausoleum was being built the architect was authorized to embody in the structure some memorial to himself. He kept his own counsel and when the edifice was completed it was found that his memorial consisted in this—that whenever it rains, from high up in one of the domes three drops of water fall in succession to the floor below. No matter how hard it rains nor for how long, three drops and only three descend and bear testimony of the architect's wisdom. For nearly three hundred years men have puzzled in vain to learn by what artifice this result was accomplished and the secret still lies hidden within the marble masonry of that dome.

In a like manner the Great Architect has so built the atoms of which the universe is composed that under excitation, regardless of its magnitude, radiant energy is given out in definite quanta. Men have labored for years to learn the secret of the process but it rests hidden within the atom. It is more than likely that a search of three hundred years will solve the mystery. A solution will, however, only open up new problems still more mysterious. The search is endless. The ultimate is ever beyond our grasp. The scientist works towards a final goal that he well knows can never be reached, but this only makes the search more enticing.

As a boy I used to roam through the, then, primeval forests of this state. The farther I penetrated the more wonderful it all seemed. Had I ever come out on the other side I should

have felt keen disappointment and loss. Most of the fascination would have disappeared.

The best laboratory does not always satisfy the needs of the physicist. He wishes to know how things behave under greater pressures and at higher temperatures than those under his command. He goes to seek these in the heavens. The aid of the astronomer is sought, since he is also looking for the very things we want to know. Let us enter a great observatory. We stand in a mighty presence. The mysteries of unmeasured space look down upon us. That greatest of telescopes, soon to be surpassed, has a light gathering power nearly a half million times that of our eye. Aided by the cumulative action of the photographic plate it reveals for study in our own galaxy some 40 billion burning suns. In these suns, are in progress physical experiments on a scale incomparably more vast than we can here hope to imitate. The record of their progress is being rushed into the object glass of the telescope at the greatest speed the law allows, inscribed indelibly on a discredited ether. We stop to read the latest message from a certain nebula and behold, our news is nearly a million years old, so long has our fleet and tireless messenger been on his way. How can our finite minds comprehend these immense stretches of space? Does space go on forever or does it have a definite but colossal limit? What are we, in all of this gigantic vastness?

Stars Give Up Their Secrets

But one by one, the stars are giving up their secrets. We know much about their distance, their motions, their composition, their relative ages, their masses and sizes and densities. One as large as the whole orbit of Mars is as tenuous as a high vacuum. One, though gaseous, is more than 2,000 times as dense as our most dense earthly substance, platinum. Astonished we may be but we must not quarrel with facts. Some of the stars have surface temperatures of nearly 20,000 degrees C. and computed internal temperatures of 40 million degrees C. This internal heat energy creeps to the surface whence as radiant energy it passes out into space. What is the source of this energy? That is an old problem concerning which there has been much speculation. Various answers have been proposed in the past. A new conception is now

taking root that energy is so intimately related to mass it is possible for one to be transformed into the other. It is supposed that under the extraordinary conditions of temperature and pressure in the interior of a star we are having such a direct transformation of mass into heat energy. Accordingly the stars and our sun as well are losing their own substance in this process of radiation. The fact has been expressed by saying that our sun loses four million tons of heat every second. Even at this enormous rate of loss so great is the mass of the sun that in the last billion years it would have radiated away only 0.01 per cent of itself. Such ideas as this strike deep at the meaning of our fundamental physical concepts. For a long time matter was supreme and indestructible. It was supposed to be made of impenetrable atoms. The space between them became permeated with caloric and with the light bearing ether and with electric fluids. The caloric vanished into molecular motion, the ether got to be regarded as an unnecessary luxury, and the electric fluids condensed themselves into units of electricity, attached like leeches to the material atom. Not long since, the parasitic atoms of electricity consumed completely their material hosts, bringing the advent of the electrical theory of matter. According to this, all material is made up simply of the two kinds of electricity, the positive proton and the negative electron. Are these then the ultimate entities? No. We must go at least one step farther. Recent experiments on the scattering of electrons by matter have shown that electrons have associated with them systems of waves. These waves are now on the way to sinking the old electron out of sight. Some scientists are led to think of electrons, now, as mere singularities in space, places where wave systems of infinite extent meet in the same phase. Others there are who would not leave us the comfort even of this indefinite picture of an electron. They seem to fear that if we draw any picture at all we are almost certain of putting something into it that does not belong there, which later will hamper us in our race after the truth.

And finally we are to contemplate the spectacle of the proton and electron dissolving into each other and reappearing in the form of radiant energy. What was their former sub-

stance is scattered to the ends of space. Since we have become accustomed to the wave aspect of electrons, this action need not surprise us greatly. And now that our glorious universe is slowly wasting away, we may again ask what is this radiant energy that is to be the end of all. We know that it is related to a frequency through a certain universal constant, designated as h . That is all we know, and that isn't much. Still, it is a beginning.

The Origin of Energy

But must we lose our universe forever, once it is gone? Is there no way to bring it back or still better to prevent its going? Millikan and Cameron by a recent pronouncement are showing a way out of our difficulty. They conclude that cosmic rays which they have been studying must originate in the cold regions of interstellar space. The rays are of such frequencies that they may consistently be supposed to arise from a union of electrons and protons into atoms of our well-known chemical elements. And how do the electrons and protons get out there into space? It is supposed that they themselves are formed in the same region, somehow, by a coagulation of radiant energy.

In these cold regions, then, our material universe is thought to be rebuilding itself. Unfortunately the whole process involves the absorption of heat at a cold source and its evolution in a hot region. We should have to disregard for these regions the second law of thermodynamics which has always held before us the sad specter of a universe in its final state, cold and dead.

Let us be frank and admit that in some of these speculations we are as yet skating on very thin ice.

The leaning tower of Pisa has long been looked upon as a shrine for the physicist. Here Galileo started a new science by finding that different objects dropped from the top all reached the ground in the same time. Recently Italian engineers have discovered that the foundations of the famous building are water-soaked and weakened. Concrete is being injected into them to ensure the tower's safety.

The science of physics has been building a wonderful structure. With the passage of time we have added a wing here and a tower there.

As we viewed the structure from the outside we have admired its noble conception and its grand proportions. As we walked through its halls and chambers we rejoiced at the richness and splendor of their appointments.

In recent years, however, some of our suspicious members began to dig around the foundations and discovered that the whole structure was built on sand. The breadth of the building is all that has kept it from showing a tilt long ago. The engineers have been getting their heads together to see what should be done. Much concrete has been injected into the sand and yet all is not well. The fundamental concepts of space and time and mass and energy have been carefully scrutinized. Under the pressure of this process, space first became somewhat warped. Now it has started to turn into a mathematical matrix. Time has lost some of its individuality, and mass and energy, as already stated, are thought to be related and mutually transmutable. The air is filled with speculations. We have even begun to wonder whether our finite minds are equal to the task of a full understanding.

The philosophers have become actively interested in our foundation problem because they live next door on the same lot and so our problem is also their problem. Not long ago the physicist was inclined to think that there was not much in common between physics and philosophy. Many felt that one was dealing with real things whereas the other was quibbling over imagined niceties. Now those imagined niceties have loomed into importance and we realize that involved in them somewhere may be elements necessary for further advance. Here the two fields have come to overlap. The philosopher now talks about relativity and the physicist ponders over the relation of sense impressions and objective reality.

Some years ago during the heat of a discussion with one of my former colleagues, having exhausted what arguments I had in defense of a stand I had taken, I was driven to say that somehow I felt the truth of my position from the very depth of my bones. Ever since that day these poor old bones of mine have been carted from one end of this country to the other and exhibited unnamed for public ridicule. Well, I again need the support of those

same bones and so I have brought them with me.

The argument I wish to make is this. We all realize the fact that our knowledge of things external to us comes to us through our senses. I am ready to admit that the interpretation of our sense perceptions is often faulty. It may be that only as a most plausible hypothesis can we assume there is really anything external to us which corresponds to our sense impressions. But when exact proof is lacking one may still have a conviction. So somehow deep in my bones I feel that there is a real world corresponding to our perceptions. I feel that out beyond my touch there is a real audience. I believe that Minneapolis is a real city and not simply a city of my dreams.

It is not surprising that the applications of science, spectacular as some of them are, should excite popular interest. It is more significant that this interest extends to discoveries having at present academic value only. We do not wonder that X-rays created a great stir when discovered because their application to surgery was immediate. It is remarkable, however that the theory of relativity should have caught the public fancy, and that today it becomes of interest as international news to announce that a renowned scientist is on the verge of a great discovery in theoretical physics.

The world is looking for new visions to serve as guiding stars and physics is constantly supplying these new visions. Visions stir men to great effort and they lead the mind to a contemplation of eternal truths. In this sense physics is a great spiritual force. Looking at the universe from its minutest detail to its infinite magnitudes we see amid the great complexity, an order whose source we cannot fathom. The knowledge that this law and order has served as a safe guide for science, has had a steadying influence on mankind. Superstition has been dissipated. There is in the world a profound respect for physical laws. This respect has matured because the consequences of physical action are so sure and prompt and definite. In contrast, people constantly think they can evade the laws of biology. They do not have full faith in them because the consequences of these laws follow less promptly and less definitely.

There are some who believe that the great material advancement made possible by science has resulted in less attention being paid to the higher things of life.

Education Helps Adjustment

Some new evils have indeed come, but these always accompany radical changes in the habits of people. We must learn how best to counteract them. So much has been added to the world in a short time that it is difficult for us as yet to put each thing in its proper place. We shall have to learn to accommodate ourselves more quickly to new conditions. If necessary, we must by education and organization see to it that old activities of lasting value are not crowded out of our leisure hours by mere useless pleasures. The ways of the world have changed, but in the great essentials of life we have gone forward and not back. The millennium has by no means arrived. I believe, however, that there is now less selfishness and more love of man for man than ever before. Charity, though organized, is no less real—and more effective. Men have never given so freely for

purposes designed for the common good. When tested by the measure of service placed before self the world dominated by science is not found wanting.

Dissatisfaction often arises because methods of getting things done have changed rather than from lack of accomplishment. The churches have learned to extend their influence by broadcasting their services by radio. They realize that if a human soul is moved to repentance by words entering the home from space, the result is fully as valuable as it would have been were the message received amid the beautiful surroundings of a consecrated temple. Let those who decry the present, instead of railing at it, adopt its methods and use them for whatever noble ends they have in view.

The tide of scientific progress sweeps relentlessly on. It will engulf any who oppose its flow. The old world is gone, never to return. So long as men exist there will be those among them who will sacrifice all to search for truth and there will be others who will apply new truths to their own ends and to the benefit of mankind.

A "Festschrift" for Professor Klaeber

Scholars from Many Parts of the World Contribute Articles Honoring Scholar's Anniversary

By Elizabeth Bond

Assistant in the University of Minnesota Press

PROFESSOR FREDERICK KLAEBER, long a member of the Department of English at the University of Minnesota, celebrated on October 1 the sixty-fifth anniversary of his birth and thirty-fifth anniversary of his connection with the University. Few of Minnesota's faculty members have served her so long and so illustriously. Coming to the University from Germany in 1893, a year after he had received his Ph.D. degree from the University of Berlin, Mr. Klaeber became an instructor of Old and Middle English; since 1898 he has been professor of comparative and English philology at the University of Minnesota. During this time he has established his position as one of the leading scholars of all time in the field of English philology. The culmination of his life

of study and research came in 1922, when he published his edition of *Beowulf*, which is recognized the world over as the authoritative edition of the Anglo-Saxon epic.

It is fitting that the University should celebrate this anniversary in some notable way. The anniversary volume, or *Festschrift*, as it is called in Germany, is a favorite and gracious method of honoring scholarship. Accordingly, the University has published, through the agency of the University Press, a volume of

literary and philological studies in Professor Klaeber's honor. *Studies in English Philology, An English Miscellany in Honor of Professor*

Frederick Klaeber, edited by Professors Kemp Malone, of Johns Hopkins University, and Martin B. Ruud, of the University of Minnesota, is one of the most important of the University of Minnesota Press publications of this year.

This volume consists of thirty-eight important studies in the fields of English literature and philology, by as many contributors, who are leading authorities in their various fields, and who represent the foremost universities of this country and of Europe. Fourteen of these articles come from foreign scholars; the remainder from American writers.

Among the contributors from across the Atlantic is Alois Brandl,

professor of English philology at the University of Berlin. Dr. Brandl is well known for his studies in the sources of Old and Middle English literature, for his translations, for his editions of early English texts, and for his work in the Shakespeare field. Of especial interest to modern readers is his edition, over thirty years ago, of the so-called "Gutsch Memorandum Book," of Coleridge, the notebook that was the inspiration of John Livingston Lowes' *Road to Xanadu, a Study in the Ways of the Imagina-*



Dr. Frederick Klaeber

Honored by the publication of a "Festschrift"

tion, which appeared in 1927. Mr. Lowes, in his preface, says that to Dr. Brandl "belongs the honor of first recognizing the potential value of a priceless document."

Levin Ludwig Schucking, of Leipsic, is another continental scholar who has written for the *Miscellany*. He, too, is a versatile scholar who has published in many fields, among which Old and Middle English have claimed their share of attention. Minnesotans will be interested in the fact that Dr. Schucking is the protagonist of Dr. Elmer E. Stoll, of Minnesota, in his theory of Shakespeare's character delineation.

Professor of English and Scandinavian literature at the University of Ghent, Henri Logeman is known for his work in editing early English texts and for his Ibsen studies. He is the author of a *Commentary, Critical and Explanatory, on the Norwegian Text of Henrik Ibsen's Peer Gynt, Its Language, Literary Associations and Folk Lore*, a work peculiar in that it is written in English, about a Norwegian writer, and published in Holland by a Dutch professor in a Belgian university.

Oxford University's representative is Professor Henry Cecil Wyld, professor of English language and literature at Merton College. Perhaps Professor Wyld's best known works are *A Short History of English* and *A History of Modern Colloquial English*. He has also written studies in the English dialects and on rhyme.

Other foreign contributors are: Aage Brusendorff, Jespersen's successor at the University of Copenhagen; Ernst Kock and Eilert Ekwall of Lund; Lorenz Marsbach of Gottingen; Max Forster of Munich; Anton Gustav Van Hamel of Utrecht; Helen Buckhurst of Oxford; R. E. Zacchrisson of Upsala; S. B. Liljegren of Greifswald; and R. W. Chambers and F. Norman of the University of London.

The name of William Ellery Leonard will be familiar to many, as his *Two Lives*, a long poem of 1925, and *The Locomotive God*, a psychological autobiography published in 1927, were widely read. A poet of note, Mr. Leonard has written much original work. A translation of *Beowulf* in rhymed verse is one of his accomplishments. He is also the author of a

chapter on "Bryant and the Minor Poets" in the *Cambridge History of American Literature*.

Morris W. Croll, professor of English at Princeton University, is known to all students of English literature for his studies in the seventeenth century and especially for his *Attic Prose in the Seventeenth Century*.

Among the contributors whose names are especially familiar to Minnesotans is Kemp Malone, formerly of the English Department here, now of Johns Hopkins University. Hardin Craig, too, was at one time a member of the English Department at the University of Minnesota. Now he is professor of English in Stanford University. Samuel Kroesch is a member of the University of Minnesota faculty in German at the present time, and A. H. Krappe has just left the Romance language faculty here for Columbia University. Carleton Brown, now of Bryn Mawr, was for several years a member of the Department of English at the University of Minnesota. He is well known as a student and an editor of Middle English verse.

Many of the studies in the *Miscellany* are directly concerned with the *Beowulf* itself, textual notes, criticisms, and comparative studies. This is fitting, as Professor Klaeber's great single contribution to the field of Old English scholarship is his edition of the great epic. The entire field of English literature and philology is represented, however, and a few articles are more modern in scope and character. A glance over the names of the contributors is sufficient to indicate the value of the *Miscellany* to scholars. It contains much of interest to the general reader who is interested in literature, too.

Among the studies that will be especially interesting to the average reader are: Morris W. Croll's *The Baroque Style in Prose*; H. Logeman's *Etymology of "Yankee"*; J. R. Hulbert's *A Note on the Psychology of the Beowulf Poet*; and H. C. Wyld's *Experiments in Translating Beowulf*. Professor Wyld revolts against the established conventions of *Beowulf*, or, in fact, any Old English translations, and suggests new ways of approaching the Old English atmosphere in modern English diction and meter.

Minnesota Begins Library Instruction

New Teaching Division Opens Its First Year With an Enrolment of 92 Students

By Frank K. Walter

Librarian, the University of Minnesota

ON April 5, 1928, the Regents of the University of Minnesota established a Division of Library Instruction. Their reasons are admirably stated in the first two paragraphs of the resolutions accompanying the establishment of the division.

"For years the University has recognized the importance of training for library work. Fourteen or fifteen years ago it co-operated with the State Department of Public Instruction in providing opportunities and facilities on the campus during the summer for the training of librarians in the public schools, and later, in co-operation with the state department, it offered training on the campus during the regular year. The work was always more or less sporadic, never closely organized, and the demand for it was never very insistent.

"In more recent years, however, the State Library Association has been adopting annually resolutions requesting the establishment of regular courses for training in library work. The school librarian is recognized as being indispensable to the school organization, and the growth of the public libraries and the differentiation of the administrative and teaching functions of their personnel require highly specialized training."

By this action the University of Minnesota became the fifth state supported university to establish such a division or school. The four other universities, in the order of the establishment of similar projects, are: Illinois, Washington, California, and Michigan.

Instruction in the professional aspect of librarianship is not a new project. More than fifty-one years ago a library school was established at Columbia University under the directorship of Melvil Dewey, then librarian of Columbia College. Two years later Mr. Dewey was appointed director of the New York State Library and secretary of the Board of Regents of the University of the State of New York.

Feeling that his library school was not flourishing under the conditions then existing at Columbia, he secured the consent of the regents of the University of the State of New York to have the school continued at Albany as a division of their work. As this university is not a university in the modern sense of the word, but is a corporate name given more than a century ago to the division which has charge of all the educational interests of the state, the first library school may very fairly be called an integral part of a school system. At present there are about twenty institutions offering at least a year's work in professional training for librarianship.

There have been two main lines of library development in the United States. The earlier was in the formation of public libraries open primarily for adults, sometimes supported by public funds and sometimes by private donations and endowments. With these should be included, of course, the college and university libraries which were always considered a necessary part of each institution. The very obvious need of the college and university library in the work of the institution to a considerable degree hampered its development along the lines of popular education. Its field was clearly defined and its limits, therefore, tended to remain somewhat fixed. The public library, on the other hand, as soon as it began to ask for public support from public taxes, was obliged to meet measurably the cultural needs of the community it served. Its development has been surprising. In no other part of the world has this particular type of educational institution gone ahead so fast or apparently done so well as in the United States of America. Practically every European country is at present remodeling or establishing publicly supported library systems which in most cases copy directly certain features of the American system adapted to the peculiar needs of the nationality which adopts them.

School Library Development

The development of school libraries came a little later. It would be practically out of the question to state just when their importance in popular education below the college began. In 1876 Charles Francis Adams, speaking as a member of the Quincy, Massachusetts, school board, asserted that he knew of no school library anywhere which attempted the kind of work which school libraries now consider part of their duty. Perhaps the famous report of the Committee of Ten, issued in 1893, in its insistence on the correlation of studies and the consequent conclusion that the textbook was only an aid and not an end in popular education, did as much as any single thing to hasten the present method of teaching practically every subject through the use of collateral reading and material to be used outside the classroom. Whatever the cause, there can be no question about the importance which is now being given the school library, in almost every type of school, in virtually every part of the country.

The function of the school library is not always clearly understood. Sometimes it is considered a mere adjunct to a class recitation. At other times it is considered a supplement to a class recitation, but, like other parts of the school, to be dominated exclusively by the recitation room. In other instances it is considered an auxiliary to be used by the students in getting facilities to use books for other than merely class purposes. In many instances, particularly in small communities, the public and school libraries are combined in an institution which attempts to give service to all classes of the community in all types of educational progress.

Public Library's Situation

The public library, too, is an institution with purposes and methods constantly changing. It must decide whether its purpose is directly educational, or largely recreational, or a combination of the two. Its books must be selected with a view to the industrial needs, the vocational necessities, and the use which people make of their leisure time. It has passed the period when it puts its books on the shelves and waits for people to come to get them. Like the school, it has gone into the highways and

hedges; it attempts to induce, if not to compel, its actual and possible patrons to come in. It is not usually the most obtrusive feature of the community, but it is one which is almost always spoken of with approval and considered an asset.

Like the school, the public library has been somewhat embarrassed by the generous response which has been made to its requests. In virtually every place where the public library is conducted even in part as well as it should be, the demands made upon it far exceed its resources.

The work of the librarian is threefold. First, he must get the kind of books which are best suited to the community. Second, he must be able to organize these books in such a way that the greatest number of people can get the largest number of books in the least possible time with the smallest amount of effort and expense. In the third place, he must convince the community of the value of the work done by the public library to such an extent that it will support him more or less liberally with the funds necessary to carry on its work.

In earlier times this complicated problem was not generally recognized. The library was looked upon as a quiet place to which a person of bookish taste could retire to pursue his personal reading with relatively little interruption. Books were selected which the trustees of the library thought the public ought to read rather than the best books which the public could be induced to read. In other words, it was an institution devoted to conscious reform, that is, to reform of the other person.

With the passing of this old type of library and the emergence of the newer type, both in the school and in the public library, of the institution which changes its policy to meet the preferences and policies of the institution it serves, has come the necessity for a new type of librarian. Personal friendship with trustees, the need of a lucrative position to fill in a gap until a better paying one turns up, and many of the older types of alleged qualifications no longer are considered adequate. The school librarian now, in order to do her best work, must be fully conversant with modern educational methods as well as with the best new books. The public librarian must have an intelligent

knowledge of the industries and organization of his community. It has been a disputed question for many years which is the more important qualification for the successful librarian, a knowledge and love of books or a liking for people and ability to get along well with them. Perhaps the best answer is that neither is the more important, but both are essential.

Minnesota's Program

The organization of the Division of Library Instruction of the University of Minnesota plans its training along both these lines. It recognizes the great probability of unnecessary and expensive duplication if different university units carry out library training projects each in terms of its own curriculum. It recognizes that there is a basic element in all types of library work, while at the same time there are certain modifications which prospective students who desire to go into special types of work must know in order to do their work well.

Unlike other departments of the kind in an American university, this division is not a separate degree granting unit or a part of any such unit. It is, on the other hand, a sort of intellectual holding company working with all of the degree granting units which desire its services, but at the same time not dependent on the rules of the organization of any one of them. Another quotation from the Regents' resolutions will explain its organization:

"The University of Minnesota hereby creates a Division of Library Instruction, the administration of which shall be independent of any of the existing colleges and schools of the University and shall be in charge of a Chief of the Division of Library Instruction. It shall be the duty of the Division of Library Instruction to co-operate with the several degree granting colleges and schools in formulating curricula for the preparation of librarians for the several types of library work now demanded throughout the State, and to organize courses and offer instruction to meet the professional requirements called for by the curricula thus formulated."

At present, the College of Science, Literature, and the Arts, and the College of Education are the only two units of the University incorporating in their own curricula the professional

training courses offered by the Division of Library Instruction. Each of these colleges will grant the degree bachelor of science at the completion of four years of approved college work, including at least a full year (forty-five quarter credits) of work in the Division of Library Instruction. Students of recognized ability and experience, who can satisfy the Students' Work Committee of these colleges of their ability to carry on professional courses in library instruction satisfactorily, may be admitted on exactly the same terms as unclassified students in any other line of work offered by these two colleges. This does not put an undue handicap in the way of those experienced librarians who have real ability. At the same time it does discourage the unfit and the untrained from entering into a line of work in which failure would be almost certain and the service they could render their public likely to be not of high quality.

The curriculum does not differ materially from that offered in other one-year library schools of equivalent grade. If there is any difference, perhaps it is in the increased facilities for work with children and adolescents, or in a certain amount of latitude given to students who intend to go into school library work or into children's library work. These latter are urged to spend more time on book selection and the administrative principles underlying the special kinds of work in which they desire to engage. On the other hand those desiring to go into reference work or to become catalogers or to enter the service of large university or reference libraries are given an opportunity to take more cataloging, classification, and reference work than is ordinarily given in schools offering only a one-year course. Three credits are given for the completion of an amount of supervised practice work equivalent to a three-hour laboratory course. With the hearty cooperation of the libraries of Minneapolis and St. Paul, a great variety of experience will be offered to students who desire to engage in this work. It will be conducted under very much the same conditions and subject to about the same rules as practice work in colleges of education. An honest attempt will be made to discover the aptitudes as well as the desires of those intending to go into library work.

The faculty is composed entirely of experienced librarians, practically all of whom have had library school training in addition to their academic and professional experience. The only exceptions to this latter rule are in the case of librarians of national reputation in their respective lines whose work is in itself sufficient guarantee of their ability to present it.

At present the division has its quarters in a section of the general library building of the University which was especially designed for it in 1921-22.

In passing it might be noted that there are few places in the United States which are better fitted for observing various types of library work than at the University of Minnesota. There are two excellent public library systems, Minneapolis and St. Paul, each conducted along rather different lines from the other, and with considerable diversity in the details of their administrative work. There are nearly a half dozen near-by college libraries of various sizes and in various degrees of development. There are two excellent county library systems, a state library, one of the best historical society libraries in the country, and the privately endowed Hill Reference Library, within a short distance of the University. The library division of the State Department of Education is one of the most efficient and best known library commissions in the country. Surrounding St. Paul and Minneapolis are many smaller village libraries. There are perhaps a score of special libraries, including hospital libraries of all kinds. Finally there is the University of Minnesota Library, which is rapidly coming to be recognized as a collection worth the serious attention of scholars in almost any line of work. The difficulty will not be so much to provide facilities for observation and study as to find the time in which to conduct these studies.

The Librarian's Qualifications

It is sometimes erroneously imagined that about the only qualification necessary for a certificate for librarianship is a liking for books and a desire to read them. This is a good starting point, but only a starting point. As indicated at the beginning of this article, personal qualities which make for executive ability and business efficiency, are of even more importance.

No library budget was ever large enough for the library's needs, and its deficiencies must be met by the most rigid economy which can be effected without seriously interfering with the service due to readers. Contact with the users of the library is so close that diplomacy, good nature, and a willingness to help without being meddlesome are absolutely necessary. In a busy library the staff is active almost all day, so that good health is essential. No library can get along well with a staff which cannot be depended upon to be present when there is work to be done. It is no place for invalids or for those who are physically unfit to engage in active work, excepting in a very few cases of very special character in which vacancies seldom occur.

Moreover, library work is changing so rapidly that the librarian must be constantly alert to change his method and even his viewpoint, in view of changing conditions, changing character of population, and even of a change in the amount of assets available to the library. One of the most disagreeable as well as the most necessary duties of a vocational adviser who knows library work is that of discouraging elderly persons with no knowledge of, or pertinent experience in, this kind of work but who desires to take up a library course with the hope that it will give a short cut to a congenial, easy, and well-paid position.

Practically every library school which has the power to limit its enrolment discourages applicants who are more than thirty or thirty-five years of age at the time they desire to begin their course of professional training. There are exceptions, of course, but exceptions are so few that they can safely be made only after careful study of the individual case involved.

The rewards of library work, unfortunately, are not yet as prominent in the matter of salary as they are in the consciousness of worth while social service. In most cases the salary scale for library staffs is still a little below that paid to school teachers of equivalent and oftentimes of less educational training. This situation is improving, but rather slowly. Salaries vary so much in different localities and with different kinds of work that no statement regarding them can be made which is likely to prove accurate in very many cases. One of the largest

of the library schools places \$1,800 as the minimum salary which it advises its students to accept on graduation. Inasmuch as this is above the maximum paid the staff of most of the smaller libraries it is quite evident that it cannot be accepted as a general principle. A number of the other library schools have adopted \$1,500 as an average minimum for satisfactory completion of their course. This again is subject to all sorts of variations. In one school, which has adopted this minimum, the members of the class of 1928 received salaries ranging all the way from \$1,500 to \$2,500 on the completion of their year's course.

Perhaps the widest field and the one offering the most probable openings at present is that of school libraries. This is due to the fact that it is scarcely touched as yet in comparison with its possibilities. The kind of librarian who is selected for the school will depend almost entirely on the opinion the school principal or superintendent has of library work. If he considers this simply a sort of glorified clerical job it is not likely he will insist on much professional training for his librarian. If, on the other hand, he recognizes library work as a special field, or at least a special adaptation of educational work, he will be more than likely to insist on special training and special aptitude and, as an almost necessary accompaniment, a salary equivalent to that paid his teachers or department heads. The Minnesota Department of Education through its library division, has established standards of training for teachers who wish to be recognized as part time librarians, that is, who divide their time between library work and classroom teaching. It has also established standards for full time librarians, who devote their entire time to the work of the school library. These requirements may be obtained by addressing Miss Clara F. Baldwin, director of the Library Division, Minnesota State Department of Education, St. Paul. The Division of Library Instruction of the University, is working in close harmony with the State Education Department in its attempt to fit the training it gives to the library conditions in Minnesota, and, incidentally, to those which prevail elsewhere, since there is little essential difference in good library work in most places.

Trained Librarians Are Needed

The demand for the right kind of librarians is still somewhat greater than the number of competent candidates available. The number of library training agencies and the number of students attending them has increased so rapidly within the past three years that the demand and supply are rapidly becoming equalized. There is no longer the same chance that libraries in desperation will employ the unsatisfactory or mediocre student because no better ones are obtainable. There is still an opportunity for the candidate who can make contacts with all kinds of people, who has a good general education, common sense, and mental alertness, and who is willing to work a little harder for the same or less money than her colleague in some other lines of social and educational work. The tenure of office is usually secure for good workers and the right kind of people find the work pleasant and usually leave it with reluctance and only for good reasons. Nevertheless, the library now is an opportunity, not a rest cure or pensioned sinecure. It is public service and the public has a right to safeguard its interests by insisting on high standards of performance as it does at least in theory in almost every other line of public work. It is becoming more and more a waste of time and money for the poorly equipped to attempt to enter library service.

The division at Minnesota was established so late that the necessary administrative adjustments could not possibly be made until after the registration period at the close of the spring quarter of the year 1927-28 had ended. Practically no widespread announcement was possible. It is gratifying as well as surprising to find that in spite of all these handicaps, forty-five full time students enrolled at the beginning of the fall quarter of this year. The total number, including those who are taking one or more courses in order to qualify for various grades of library work as established by the State Education Department, is 92. Thirty-two of these are graduates of the following colleges: Gustavus Adolphus, Hamline, Macalester, Milwaukee Downer, University of Minnesota, North Dakota State College, Parker College, Radcliffe, College of St. Catherine, St. Olaf, Ripon, Vassar, and the University of Wisconsin.

Most of the students are, as might be expected, from Minnesota. The following states are also represented in the enrolment: Iowa, Montana, North Dakota, Oklahoma, Texas, and Wisconsin.

The students of most library schools find the work of their library training course as exacting as any they have met in their academic careers. Conditions are the same at the University of Minnesota. Many of the students have stated they are working harder than they have ever worked before, but few have dropped out. The average of work done by the class is high, and, from all available tests, they rank well with the students in other institutions. In common with almost every other activity in the University, this division is badly in need of a larger teaching force. It also needs a little more time to assemble practice material and other laboratory facilities and, of course, the establishment of a school tradition. With reasonable support in the future and the continuance of the same type

of students we have had this first quarter, the results seem promising.

The American Library Association, through its Board of Education for Librarianship, recently established recommended standards for library schools. The schools which met these standards were placed on a list accredited by the Library Association and its recommendations have been rather generally approved by the universities conducting these departments. The question is often asked whether the Division of Library Instruction of the University of Minnesota is also accredited. Inasmuch as it is in its first year and full accrediting is not possible until at least two years of operation of a library school, this answer must wait for the future. What concerns us most at the present time is the giving of a course broad enough and intensive enough, and closely enough correlated with actual conditions, so that those who take it will go out fitted at least to begin service in the various types of libraries for which the course is intended to train them.

Football Versus Scholarship

A Minnesota Report That Shows Your Football Player To Be Just an Average College Youth

AN entirely new light has been thrown on the old question of participation in football versus classroom scholarship by an investigation at the University of Minnesota, which reaches the conclusion that if you are seriously interested in football and really devote yourself to it, the chances are you are just as good a student as the average in a "random sampling" of your fellows.

It's the men who don't take their football seriously, turn out irregularly for practice, and aren't much in earnest about anything who are the football "flunkers," this study concludes. They pull down the average for all football men below the "random sampling," but they can't keep the sincere athletes down.

The Minnesota Psychology Department has made the study at the suggestion of the Committee on Intercollegiate Athletics. Professor Donald G. Paterson directed it, the actual work being done by I. Emerick Peterson, as a thesis for the master of arts degree.

Furthermore, as shown by Mr. Peterson's results, the earnest football man is less likely to drop out of college. Again, his college ability is just about the same as that of the average male student at Minnesota. He didn't do quite so well in high school class work as did the non-athlete, and although the football group as a whole is well below non-athletes in scholarship, "the poor scholastic record of the football candidates is due solely to the poor scholarship of those who practiced less than 25 times and apparently were least interested in football."

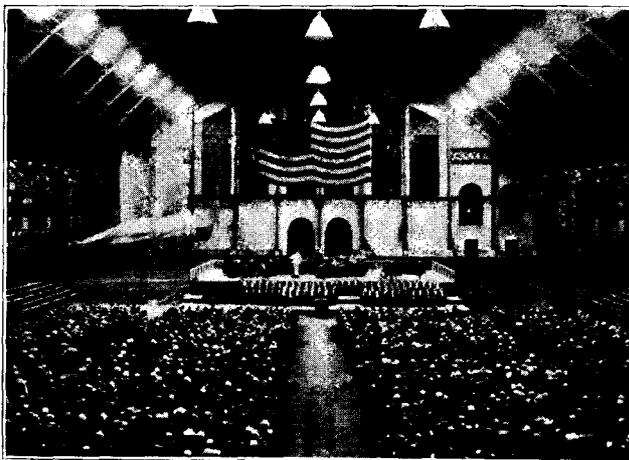
The Minnesota study was based on the freshman football squad of the fall of 1927 and

its main purpose was to answer this question:

"Are forces operative inside and outside a university such as Minnesota tending to select football candidates who are not really representative of bona fide freshman students?"

When all is said and done in the report, this inquiry is answered by a most decisive "NO."

The report shows, for instance, that in age, the football group and the random sampling vary hardly at all. A smaller percentage of football men come from outside the state than of the



A Ceremony in the New Field House

group chosen for purposes of comparison. Fewer of them come from the two large cities of Minnesota, Minneapolis and St. Paul, and a larger percentage from the smaller communities than in the case of the compared group.

Statistics of self-support are almost exactly comparable between the two groups, showing, according to Mr. Peterson, that: "There is no evidence that football men are all job-seekers or that they are in need of jobs to any greater extent than a random sampling of students. Were football men lured to the university with lavish promises of jobs, it is certain that a much larger percentage of the squad would be engaged in self-supporting work. This is not the case."

The statistical table on self-support shows the following situation:

	Football Candidates		Random Group	
	No.	%	No.	%
Wholly self-supporting . . .	19	17.6	50	16.6
Partially self-supporting . .	54	50	156	51.6
Not at all self-supporting	35	32.4	96	31.8
Total	108	100	302	100

Inquiry was also made to determine whether football candidates were men who had been doing more work before entering college than others. It was found that 108 football men had done an average of 14.9 months of work, while the 302 men not out for football had worked, on an average, a total of 14.7 months apiece. The difference was called negligible.

Only a small difference was discovered in the distribution among colleges of the football men and the non-football men. In the Arts college were 58.5 per cent of the football men and 61.9 per cent of the non-athletes. In Engineering the percentages were 18.9 per cent and 22.2 per cent; College of Education, 11.3 and 6.6 per cent; Agriculture and Forestry 7.5 and 4.7 per cent; Mines 1.9 and 2.3 per cent; Chemistry 1.9 and 2.3 per cent. The report finds an undue percentage of football candidates only in the College of Education, and explains this fact by pointing out that men who choose physical education as a career are thereby enrolled in the College of Education. Among these there are always many who turn out for football, either with the hope of making the team, or to learn the game.

Another table which shows there is little difference between the football candidate and the student selected at random relates to the economic status of parents. Nine and three-tenths per cent of the football candidates are sons of professional men, 10.7 per cent of the others; 50 per cent of the football men come from homes with a semi-professional or business background, 47.4 per cent of the others. Thirty-five per cent of the football fathers are skilled laborers, and 38.8 per cent of the fathers of others. Semi-skilled labor occupies the fathers of 3.8 per cent of football men and of 1.7 per cent of other fathers. Into the unskilled labor group fall 1.9 per cent of football fathers, and 1.4 per cent of fathers at random sampling.

The degree of parents' schooling and the vocational choice for the future of the young men in question run so nearly the same for the two groups that no distinction can be perceived. In the professions of engineer, doctor, and lawyer there are a few more football men, as there are in business, speaking of future hopes.

Non-football men in greater numbers look to teaching as a career.

The vocational hopes of freshman football players at Minnesota are worth recording. Eighteen look to business, 16 to engineering, 11 hope to become doctors, the same number, coaches; 10, lawyers; four, teachers, and two each, architects, accountants, chemists, dentists, and pharmacists. Journalism, farming, construction, landscape gardening, city management, advertising, forestry take one each. Some of the categories stated by non-athletes which have no representation among athletic aspirants are: authorship, mining engineering, music, commercial art, airplane designing, contracting, or geology. Nineteen of the athletes are undecided, or 17.92 per cent. Of the others, 52 have yet to make up their minds, even for the first time.

Says the final summary: "On practically every count, we find that freshman football men are typical of university men in general. They constitute a genuine cross-section of the student body. There is every reason to believe that no influences are at work to produce anything but a legitimate student enterprise, entirely in keeping with the intellectual and academic purposes for which the university is maintained."

Mr. Peterson's Minnesota report also quotes the study of "Athletics and Scholarship in Columbia College" included in the study of college athletics made by Dr. Howard J. Savage for the Carnegie Foundation for the Advancement of Teaching. Its main conclusions were:

I. Athletes compare very favorably with non-athletes in intelligence tests.

II. In course grades there is a slight superiority of the non-athletes.

III. However, a much larger proportion of athletes than of non-athletes were on probation at some time or other during their college careers.

IV. In all other comparisons, such as time required to obtain a degree, hours carried per semester, and election of hard and easy courses, the differences between the two groups are negligible.

At Minnesota, college ability tests came out about the same for the two groups, the non-athletes having a negligible advantage.

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216 Administration Building
University of Minnesota,
Minneapolis, Minn.

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