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NEW REQUIREMENTS FOR ENTRANCE AND GRADUATION AT THE UNIVERSITY OF CHICAGO

THE University of Chicago faculty has just adopted a new plan for entrance to the colleges and a new set of requirements for graduation with the baccalaureate degree, which represent the results of some two years or more of careful study. The original motives for the investigation were several. On the one hand, it was felt that the university was in some essential particulars losing touch with the secondary schools from which its undergraduate student body is recruited. This feeling was not based upon loss of numbers, for these have steadily increased, but in part upon the expressions of the principals and teachers in these schools, and in part upon the considerable number of conditioned students who were received year by year. On the other hand, the faculty has been called upon constantly to consider requests from students to be relieved from certain of the requirements for the bachelor's degrees. The character of these requests made it clear that to some extent at least the curricula of the university were not meeting the reasonable needs of students, nor contributing in the most effective way to their serious education. Too little opportunity was afforded to meet the demands of training for special careers lying outside the usual forms of business and the learned professions. Especially was this maladaptation recognized in the case of women students, for whom it seemed at times desirable to devise special courses of study designed to fit them for particular lines of work. Other matters

might be mentioned which were responsible for the original determination to study the entire situation, but these will suffice to indicate the points of departure. As the work progressed it became increasingly evident that nothing short of a drastic reconstruction of the whole principle upon which the requirements of the university were based would adequately meet the necessities of the case.

For a number of years past the university has maintained a list of approved schools from which it admits students upon proper certification. The test which the schools have been obliged to meet has been that of personal inspection by a competent examining officer. This will still be the practise when a school is put upon the list for the first time. This is substantially the system in general use throughout the central portions of the country. The university proposes now to make a radical departure which involves shifting the emphasis from the examination of the school to a test of its work as judged by the records of its students after they come to the university. From this time on carefully tabulated records will be kept, showing the work of each student. The authorities of the school from which he comes will be periodically informed of these records and the teaching in the school will be judged accordingly. As an interesting supplement to this plan, it is hoped from time to time to bring teachers from the approved schools to the university to visit those classes which continue the work done in the schools. In this way it is expected to bring about a more intelligent cooperation than has hitherto been possible. Ordinarily the college inspects the schools. We propose, in addition to this, that the schools shall inspect the college. We believe that if this be done in the cordial spirit which has hitherto characterized our relations to the schools, both the university and the schools will be markedly benefited.

The university appreciates the vital significance of the development which has been in progress in the high schools of the country during the last decade. It sympathizes most cordially with the effort which these schools have been making to furnish, each to its own community, those things most essential to the betterment of the life of that community. It recognizes that amid the enormous variety of conditions in American life, schools in different localities, even schools in different portions of the same city, may face obligations in certain essentials widely divergent, to meet which successfully must involve considerable variation in curricula and methods of work. The university desires to do nothing which will in any way thwart the fullest success of this tendency in the modern high school. The period of sheer dictation by the college to the high school is forever passed. Possibly there is at the present time a danger that the schools may, in their turn, attempt to dictate to the college. However this may be, the University of Chicago desires and intends to put itself in the position of cooperating in the most effective way with those high schools which are earnestly striving to meet the needs of their communities. It desires to leave them the utmost flexibility in the arrangement of their curricula compatible with the carrying forward by the university of solid and serious work, which obviously must have its foundation in the achievements of the school. The college entrance plan shortly to be described has this end as perhaps its most important aim.

In compensation for the increased flexibility which the new arrangement permits, the university hereafter will expect to ad-

mit no student with less than fifteen units of entrance credits. In other words, entrance with condition is to be abolished.

The most striking change in the actual character of the requirements—matters of principle apart—is found in the substitution of certain specifications regarding the *amount* of work which a student must bring to the university as counter-distinguished from the particular subjects in which the credits must be offered. The *quality* of the work we expect to test chiefly by the college record of the students. Hitherto, following the practise of most colleges, the university has designated so much of this subject, and so much of that, as a requisite for entrance. With a single exception, this type of requirement now gives way to a demand for a certain amount of concentrated and continuous work in subjects selected by the student, or by the school, from among the standard academic subjects taught in all high schools. The one stipulated subject which must be presented is English, and this is required on the ground of its unique relation to all other subjects in the curriculum.

Quoting from the requirements themselves:

Students applying for entrance to the University of Chicago present by certificate from approved schools, or by examination, 15 units of entrance credits. Among these must be 3 units of English and in addition one principal group of 3 or more units, and at least one secondary group of 2 or more units. These additional groups may be selected from among the following subjects:

1. Ancient languages (Greek and Latin), it being understood that to make a group of 2 or of 3 units the work must be offered in a single language.

2. Modern languages other than English; to make a group of 2 or of 3 units work must be offered in a single language as under group one.

3. Ancient history, medieval and modern history, English history, United States history, civics, economics.

4. Mathematics.

5. Physics, chemistry, botany, zoology, general biology, physiology, physiography, general astronomy.

Not less than 1 unit may be offered in either physics or chemistry. Any combination of the subjects within each group is permitted.

Of the 15 units offered for entrance not less than 7 must be chosen from subjects in groups 1–5 (or 10 including English). Not less than one half unit may be offered in any subject.

The remaining 5 units may be selected from any subjects for which credit toward graduation is given by the approved school from which the student receives his diploma; but Greek, Latin, French, German (and all modern languages other than English), mathematics, physics and chemistry, if offered, but not as above under 1 and 5, must each consist of at least 1 unit. Latin may not be continued in college unless at least 2 units be offered.

It will be noted that a student may be admitted without having taken any work in three of the groups, provided he has had enough work in the other two, and that the content of 5 units is left entirely to the secondary schools, the only restriction being that they accredit the work toward their own diploma. The university is confident that such freedom in admission will in no way impair the standard of its degrees, because for several years a rigid method of grading has been in force, by which inefficient students are inevitably eliminated very early in the course.

The first two years of the college course are designed to articulate in the most intimate way with the high school course, and to assure certain results by the end of the second year of college residence, such as may enable the student at, or before that time, to enter with the greatest advantage upon professional specialization of one kind or another, and to make certain that each student, whether consciously aiming at a particular vocation or not, shall before graduation have acquired a reasonable mastery of one or more fields of knowledge.

To secure an effective correlation of

the high school and the college work it is provided that throughout the first year of his college residence the student shall pursue one subject which he has pursued in the high school either for two or for three years, or which he has pursued throughout the whole of the final year of his school course. The student will be encouraged to choose the last alternative only in cases where it is fairly certain that this subject is to constitute one of the important lines of specialization in his college work. Were either of the first two alternatives adopted, which would perhaps most often occur, the result would be to assure by the end of the first year a considerable proficiency in some one subject. It will be remembered that the entrance requirements were designed primarily to assure the gaining of a satisfactory amount of concentration in some two or more lines of work without particular reference to the special subjects in which such concentration was demanded. The requirement just described for the first year of college is intended to carry forward this principle of concentration, and to secure the two-fold result of bridging the gap between the college and the high school in a subject with which the student is already reasonably familiar, and also to secure at a relatively early stage of the college course the intellectual advantages which are gained by a considerable mastery of some one topic.

The college requirements fall into two main groups; those which are to be fulfilled during the first two years of the course, and those which are to be fulfilled before graduation, and chiefly during the final two years of residence. For a number of years the university has conferred a title known as the associate's title upon students who have completed with a certain degree of excellence the first two years of the college course. This title will still be conferred in accordance with the following plan.

In conjunction with the requirements for the "continuation work" in the first year are those now to be described which extend over the first and second years. During this period two courses in English and one in public speaking must be taken. The student is also obligated so to arrange his work that either in the high school or in the first two years of college he shall have completed the equivalent of two units in each of the following four groups of subjects: (1) Philosophy, history, social science; (2) modern language other than English; (3) mathematics; (4) science, physical or biological.

The English requirement is simply a continuation of the one which the university has administered for a number of years, and which experience apparently justifies. It is designed primarily to equip the student with a satisfactory command over the written and the spoken form of his mother tongue.

The distributive "group" requirement is obviously designed to assure the possession by each student of at least a rudimentary acquaintance with each of the great typical fields of knowledge. It will be readily understood by those familiar with high school curricula, that a student in a well equipped school might easily fulfill this group requirement before entering college. If this be not done, however, the discrepancy must then be made good before the end of the second college year.

The requirement in modern language is intended to assure the student a practical reading knowledge of some one modern language. This capacity will be tested by suitable examinations in the case of students who enter the university with credits for the required amount of language; or the successful passing of an advanced

course with a standard of excellence distinctly above the passing mark will be regarded as satisfying the requirement.

In general, then, it is intended that by the end of the second college year the student shall have secured a reasonable mastery over some one field of the work which he brings in from the high school; that he shall have come in contact with all the main divisions of knowledge; and that he shall be in possession, for purposes of practical use in his work, of at least one of the modern languages other than English.

Requirements for the bachelor's degree, in addition to those for the associate's title, involve the completion by the student of a principal and a secondary sequence of coherent and progressive courses. The principal sequence must consist of nine such courses, each occupying either 48 or 60 hours of class work [double this amount in the case of laboratory courses]. The secondary sequence must contain six such courses in another subject. It will be understood that the student is obliged to present a full four years of work at a certain standard grade. It may also be added that should a student decide to choose one of his sequences in the subject which he pursued as a continuation course in his first year, the three courses taken at that time may be included in the total number required to make up the sequence. This requirement is intended to secure a high degree of specialization in at least one subject of the university curriculum, with a lesser degree of concentration in some secondary topic, which might often be distinctly supplementary to the first. The university has for a number of years had a nine major requirement for its S.B. degree, and its experience with this plan affords a high measure of confidence that the new proposals will prove extremely efficient in obtaining substantial results.

Under normal circumstances, students will be left slightly less than one third of their courses in high school and in college open to free election. The more judiciously the school course were arranged, the larger would be the number of free electives in college. Ordinarily not more than fifteen full courses may be taken in college in any one department.

When the principal sequence is taken in the department of science the S.B. degree is conferred. When it is in the modern languages, or the social and historical sciences, or in philosophy, the Ph.B degree is conferred. The A.B. degree is conferred when the two sequences are respectively in Latin and Greek. In this case the exact amount required varies somewhat from the other instances, and the requirement must be in part fulfilled in the preparatory school. The general plan, however, is exactly the same as in the case of the other degrees, and the detailed provisions need not be explained in this place. The university has conferred these three degrees for a number of years.

A large number of alternative sequences will be worked out, designed to meet in the most effective way a variety of student needs. Students contemplating a professional career in law or in medicine will have sequences offered to them prepared with special reference to these professions. The same thing will be done for students whose needs are of a different character. It is also contemplated that any student who is able to present to his dean at an early stage in his college work sequences of an educationally defensible kind, other than those prepared by the faculty, may, upon securing permission from the college board, be allowed to pursue such courses. It is hoped that in this

way adequate provision may be made for the larger vocational interests represented by college students of serious purpose and well matured plans. An inspection of the provisions will at once make clear that the conception of vocational training is broad and catholic, and not in any way to be identified with the occasionally narrow and shallow training afforded by so-called vocational schools.

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THE MAN OF SCIENCE AND HIS DUTIES[1]

I have been laboring with some uncertainty, in an effort to determine what would be most suitable for an occasion of this kind. Shall I read a text, or shall I sound a key-note? Perhaps either or both would be in harmony with the occasion. For it is the aim of this society to promote what I consider the highest interests of mankind. We are to give every possible encouragement to those who seek to widen the boundaries of human knowledge. The world is beginning to learn how all-important it is that this should be done. We no longer need to spend any time in contending for such ideas. We only need to ask the doubter to read history, and to open his eyes to his surroundings. The boundary of human knowledge has been widening in a way that must excite our wonder. Like the four sages, of whom Dante has given us a beautiful picture, we stand in the hemisphere of light that has been kindled in our midst, and which slowly pushes back the surrounding darkness. But this only serves to reveal, more and more, the immensity of the region of darkness which still lies beyond. I wish to emphasize on every proper occasion, and certainly on this occasion, that the men who have earned and deserve the peculiar and special gratitude of their successors, are the men who could by no means foresee the value of their work.

Think for a moment of what the world owes to Michael Faraday. He never suspected the value of his work. The most learned men of his day were interested in his results, but they could not foresee their value. He was a man who had none of the advantages which a college student of to-day so often neglects. The son of a blacksmith, he was apprenticed to a bookbinder. While at this labor, he attracted the attention of Sir Humphry Davy, who was in charge of the laboratories of the Royal Institution. And this institution, by the way, was founded by a former teacher in a New England school, who became Count Rumford, and who was one of the greatest men that America has produced.

Faraday became the assistant of Davy, and he remained in the institution for fifty-four years. At the age of forty-two his merits were recognized by the governing board, in an action which relieved him of all lecture and instruction work. This was also a recognition of an obligation which they owed to the world.

Consider the results of one fragment of his work: On September 22, 1831, two years before he was relieved of instruction duties, Faraday wrote in his note-book as follows:

> I have had an iron ring made (soft iron), iron round and ⅞ of an inch thick, and ring six inches in external diameter. Wound many coils of copper round one half of the ring, being separated by twine and calico. There were three lengths of wire, each about 24 feet long, and they could be connected as one length or as separate lengths. By trial with a trough, each was insulated from the other. We will call this side of the ring *A*. On the other side, but separated by an interval, was wound wire in two pieces, together amounting

[1] Address of the president of Washington Chapter Sigma Xi.