Alexander:

Development of the quantitative method...
THE DEVELOPMENT OF THE QUANTITATIVE METHOD OF EVALUATION OF CREDIT FOR HIGH SCHOOL WORK

BY

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THE DEVELOPMENT OF THE QUANTITATIVE METHOD OF EVALUATION OF CREDIT FOR HIGH SCHOOL WORK.

I. Introduction.- An outline of the growth of method of giving credit, from the oral examination in certain fixed subjects to the certificate plan with few or no prescribed subjects using the unit as a measure, and the movement for some means of giving credit for quality.

II. The Examination System.

1. In England- a brief survey.
2. Growth in America.
   a. Before 1870.
   b. After 1870.
      2) The Committee of Ten.
      3) The Committee on College Entrance Requirements.
      4) The College Entrance Examination Board.

III. The Certificate System.

1. A survey of the German plan.
2. The introduction and growth in the United States.
   a. The state universities.
   c. The New England Board.
   d. Other associations.
   e. Chicago, Dartmouth, and California.
IV. Comparison of the two methods.

1. Advantages of the examination system.
2. Disadvantages of the examination system.
3. Advantages of the certificate system.
4. Disadvantages of the certificate system.

V. A study of the subjects introduced for admission to college.

1. The subjects and their definitions.
2. Prescribed subjects and electives.
3. The growth of the high school and the effect on the introduction of subjects.

VI. A study of the entrance requirements of representative institutions.

VII. The question of the conditioned student.

VIII. The reorganization of the high school.

IX. The high school unit.

1. A quantitative measure.
   a. General definition.
   b. Growth.
      1) The Committee of Ten.
      2) In different universities.
      3) The Committee on College Entrance Requirements.
      5) The Carnegie Foundation.
      6) Other associations.

2. The new conception of the unit.
   1) The dissatisfaction with the present definition of the unit.
   2) What the unit as now defined does not tell.
a) Year in which the high school work was done.
b) What has been taught or how the work was done.
c) Value of one subject in relation to others.
d) The character of the pupil's work.
e) The amount of outside work done.
f) Whether the pupil has devoted full time to the regular work or has engaged in extra-classroom activities.
g) The number of pupils in the class.
h) Whether the same standards are held for graduation and for entrance to college.

3) The movements toward redefining the unit in order to give credit for quality.
   b) Reed College.
   c) Among the high schools.

X. Summary.
THE DEVELOPMENT OF THE QUANTITATIVE METHOD OF EVALUATION OF CREDIT FOR HIGH SCHOOL WORK.

I. INTRODUCTION.

One of the greatest problems in American education today is the adjustment of the relations between the high school and the college, the chief solution of which depends upon the entrance requirements. A vital question in this problem is that of determining the value of credit for high school work. It shall be the purpose of this paper to show the development of the quantitative method of evaluating credit for the work of the high school pupil. A brief survey of the changes in college entrance requirements will aid in giving a setting to this problem.

Before 1870 admission to college could be secured only by examination. At first the examination was in certain prescribed subjects, Latin and Greek, which were prerequisites to the work in the college curriculum. The purpose of the examination was to determine the fitness of the applicant to pursue those subjects in college. The amounts in each subject were not specified and substitutions were freely permitted. Each college made out its own requirements but in time specifications came to be more or less fixed and requirements grew to be nearly uniform in character by the first quarter of the nineteenth century. By 1800 the subjects required were three, Latin, Greek, and mathematics (arithmetic). To these were added history, geography, English (composition and grammar), algebra, and geometry. These gradually in amounts and definiteness. The examinations in the entrance subjects were at first oral, but as the number of applicants became more
numerous and the number of subjects increased the written examination came into vogue. This was the sole test of the candidate's preparation. Little or no recognition was given the preparatory teacher or the training which the secondary school gave. However, colleges had gradually instituted courses parallel to that known as the classical course. This gave some option in making preparation as the newer courses permitted at least the omission of preparation in Greek and perhaps less preparation in Latin. Other prescribed subjects must be substituted.

The great changes in entrance requirements have come since about 1870. With the growth and spread of the high school and with the rise of the great state universities in the west, the idea of the mutual relationship between the secondary and higher institutions has become steadily clearer. Movements have been made to bring about conditions corresponding to the demands arising from this relationship. These changes may be grouped into five classes.

1. The colleges and universities requiring examinations have felt more and more the need of giving recognition to the work of the high schools. They have come to ask for the completion of four years of secondary school work. They have recognized the right of election of subjects to some extent. They now use uniform examinations for admission. They have even come to consider the preparatory school work in connection with the examination which is in four subjects only as satisfying a part of the entrance conditions.

2. The plan of admission to college by certificate has developed in the west and has spread into New England and the southern states. In the west and the south a system of inspection has developed with the certificate system. In New England the privi-
lege of certification is given to a school chiefly on the record of its pupils in college.

3. Along with these developments has come a great increase in the number of subjects required and accepted for entrance. From about eight in 1870, counting their subdivisions, the number has grown to about thirty-eight. The number prescribed has decreased, and now but few colleges prescribe more than nine subjects. Le-\footnote{of Chicago} ofland Stanford Junior University and the University\footnote{prescribe English only.}

4. As the relationship between the university and the high school grew the need of greater uniformity in entrance requirements became clearer. Specifications as to subject matter, length of recitation, the number of weeks in the year, and the time given to each subject became fixed. The credit for high school work came to be measured by "points" or "units" representing the quantity of the pupil's work.

5. The rigidly formal use of the unit, making the question of credit chiefly quantitative in character has led to much dissatisfaction and there has been started a movement to secure recognition of the quality of the pupil's training.

Treatment of the college entrance requirements in connection with the examination system and the five points mentioned above will be used to show the development of the quantitative method of evaluation of credit for the high school pupil's work.

II. THE EXAMINATION SYSTEM.

1. In England.

England, as no other country is in the grip of a rigidly
formal examination system. In former times, colleges and universities everywhere demanded some form of entrance examination and this was without regard to the nature of the training of the applicant. The secondary schools of England have for their chief purpose the preparation of their pupils for college. These schools are practically the same in type and function and relation to higher schools as in the time of the Reformation. Until recently there has been no direct control over these schools. They have merely catered to the demands of the universities for entrance and have otherwise made their own rules. But the public has come to demand an audit of those who leave these schools as well as of those who enter. The headmasters, to save their power and to test the work of their assistants have joined in this demand. A system of external examinations has been devised for this purpose. Now, in the greater majority of the English Public Schools, external examinations determine the entrance, the promotions, and the securing of a leaving certificate or matriculation into a university. A great number of prizes and scholarships won through competitive examinations also conducted by external authorities are used as incentives. It is true that the large universities such as the University of London now provide for inspection of secondary schools by examiners who are appointed by the universities. This means, generally, a review of the curriculum and a terminal examination of the pupils. Thus "the only purpose of school hours is the getting of marks,

1. Leach, Reformation in 1546-8 as quoted by Norwood and Hope, Higher Education for Boys in England, p. 4.
places, and removes with an ultimate view of an examination." As Brereton says, "External examinations once admitted within the walls of the schools have speedily ended by dominating the teaching, so that today examinations rather control the curricula whereas the curricula should control the examinations."

A few comments from English educators will serve to show the dissatisfaction over the conditions and the tendencies toward readjustment. Sadler says, "Large numbers of secondary schools are worried by a superfluity of examinations. It would be far better to have some well defined intellectual aim for each school and to allow the teacher to work steadily and quietly toward that aim. By regular and systematic inspection of all schools of every kind, the state could take sufficient guarantees for their educational efficiency without imposing the test of state examinations." Norwood and Hope declare that in no direction do secondary schools need readjustment so much as in the matter of examinations. They say that the best authorities advise two state certificates; one on the completion of four years of secondary instruction, and one on the completion of three years of advanced work. Entrance to the universities should be based upon the statement of the inspectors; first on the standard of teaching, and organization and equipment of the school; second on the boy's school record. The chief quali-

fication should be the completion of an all around course in education. "When once our masters are relieved of the burden of cramming their boys for the examinations, they will be able to teach as an end in itself, and make their teaching a fine art". Such public control is advocated as will insure efficient teachers and will leave them free "to train boys to thoughtfulness and expression" guided by the common standards of achievement. Thus is shown in English thought a tendency to overthrow the vicious examination system, and to recognize the value of a pupil's work beyond that of storing up knowledge and the justice of credit for growth under competent instruction.

2. Growth in America.

Before 1870.- The view of English conditions is of interest because of the force of English tradition upon the practice in our schools. We owe our public school system, our early colleges, and our Latin grammar schools founded chiefly as tributaries to the colleges, to those who had received their education in the grammar schools and universities of England. The entrance examination was naturally established and from the founding of Harvard College "the most powerful single agency affecting the course and methods of instruction in the better secondary schools for many years was the entrance examinations".

6 and 7.- Norwood and Hope, Higher Education for Boys in England, pp 191 and 288 respectively.

8. Brown, E. F.- The Making of Our Middle Schools, p. 370
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In regard to the growth in this country there might be two periods considered, the period before the last quarter of the nineteenth century, and the period after that time. During the first period the examination had no rival. Up to about 1850 it was generally oral and conducted by the college president perhaps with the assistance of the tutors. Quite often the examination did not cover all the required subjects. The direct personal contact with the candidate, the range of authors and the substitutions permitted, and the more or less secondary character of the college work itself gave the examination a fair claim of adequacy in measuring the value of the preparation. Up to 1880 the entrance requirements had varied but little except in making somewhat more definite the requirements in Latin and Greek. In some of the colleges arithmetic had been added as an entrance requirement. There was practically no flexibility in the college course. But public demands due to growth of the country and the influence of the academies and high schools caused the college curriculum to be extended to include more practical subjects and new courses parallel to the old classical course to be made out. It also led to the addition of subjects to the entrance requirements. As will be noted later, these requirements became more definite in their scope but varied in amount and number in the different colleges. The number of candidates increased and the written examination became a necessity. There was some option due to the establishment of the non-classical course which permitted some substitution for the Greek requirements. It was also true that conditioned students, that is, those not passing all the examinations were freely admitted. Before 1870 the high schools had not reached any appreciable degree
of efficiency and the academies had become almost entirely purely preparatory schools. The college had not felt any responsibility for the secondary school. There was however a strong feeling that more efficient instruction was needed. But the only test of their efficiency and means of maintaining a standard for them was the entrance examination.

Growth Since 1870.—Two lines of growth may be noted during the latter part of the nineteenth century. The increase in new fields of knowledge and the demands of industry brought an ever increasing demand for greater freedom of election of subjects in the secondary schools with their consequent demand for recognition as entrance subjects. This will be treated later to some extent in connection with the study of the different subjects introduced. The other line of growth is that toward uniformity in entrance requirements and the entrance examination. The written examination was held at each college and according to its own regulations. These regulations varied in the different colleges and as all pupils of a secondary school did not select the same college the task of preparation became burdensome. In 1885, the principal of Phillips Academy said, "Out of over forty boys for college next year we have over twenty senior classes". Naturally a cry for uniformity in entrance requirements went up from the secondary schools, and the struggle for a quarter of a century or more was for uniformity. The growth along this line is interesting to note. In 1874, Pres-

ident Porter said that an agreement should be reached on a uniform curriculum for secondary schools. In 1879 a conference of New England colleges resulted in the adoption of the Harvard principles of requirements in English. The first organization for the purpose of promoting uniformity was the New England Association of Colleges and Preparatory Schools in 1885. The work of this association has been mainly to secure uniformity in entrance requirements. There was no direct result except the formation of the Commission of Colleges of New England on Entrance Examinations. Its study helped to promote the agitation. In the report of the Commissioner of Education of 1896-1897 (p. 457 ff) there is given a list of twenty-three different organizations at work on the problem of uniformity.

One of the most important influences came from the report of the Committee of Ten appointed by the National Educational Association in 1892, the report of which was published in 1894. The report has become famous. It suggested that the examinations should be made "qualitative tests" because the test must show what the student is capable of doing as well as the thoroughness with which he has performed a fixed task. Recommendations were made concerning the selection of topics in each subject, the best methods of instruction, the apparatus needed, and the allotment of time in each subject. The committee said that the preparation for life and for college is the same and that the four main subjects for this were language, mathematics, history, and science. These should be regarded as of equal rank and the completion of four years of instruction according to one of the programs recommended, each of which contained provisions for the study of these four subjects, should admit to corresponding courses in college. The report had a great
influence on both the secondary school and college and gave the question of uniformity a nation wide significance. They not only gave a working basis to the secondary schools but gave suggestions whereby the higher institutions might carry out their part in the needed adjustment.

One of the results of the work of the Committee of Ten was the appointment of the Committee on College Entrance Requirements which made its report in 1899. This committee recognized the right of election of subjects to some extent but said that each pupil should study the constants which had been named by the Committee of Ten. They recommended the use of the "unit" as a measure of credit with the same value the country over. This measure of value was to be both quality and quantity of work done. Let the school have what program it will, but let the program be built up out of the units furnished by the separate courses of study. Before this, there was much confusion as to what the entrance requirements in a subject were unless the ground covered was outlined with some minuteness. The committee made attempts to formulate courses of study in each subject which should serve as units "worthy of national acceptance". In addition to the content required in each subject the unit indicated the time allotment in number of weeks and number of periods per week to be devoted to each subject. The unit or five as recommended meant a year of work of four periods per week under competent instruction. The suggestion of the unit as a measure of credit has been perhaps the most important work of this committee.

Here were some possible conditions for securing some degree of uniformity. But uniform regulations in both secondary work and entrance requirements would not yet uniformity in preparation
for examinations. For example, as Broome says that, although there was agreement among the New England colleges upon the entrance requirements in English it availed the candidate little unless he knew early in what college he was to take his examination in that subject. "To establish uniform requirements without uniform administration would leave the problem unsolved." In 1885, Dr. Eliot had suggested a common examining board. But it was not until 1900 his suggestion bore fruit when the College Entrance Examination Board was organized by the Association of Colleges and Preparatory Schools of the Middle States and Maryland. This Board provides for three examiners for each subject, two college men and one from the secondary schools. After the questions are made out a committee of the chief examiners and five men representing the secondary schools review the questions. Examinations are held all over this country and in many foreign countries. The papers are collected and given to readers chosen from both colleges and secondary schools. Each paper is read by at least two persons. The results of the examinations are accepted by every college and university in the United States. The aim of the Board is to increase the fairness of the tests and judgment of results, and to meet more nearly the demands of both secondary and higher institutions by letting the school choose what subjects it will teach and the col-

college choose what subjects it will require, and yet secure the uniformity desired. With men from both institutions on the Board cooperation is secured. However, to pass these examinations means special preparation and although the completion of a four years' course is required, yet the sole test of the candidate is the examination given by external authority. This was supposed to be the last word. Collar said that he believed the work of the Board was successful and that this work in connection with the work of the New England Association would put down forever the certificate system. But in 1902 the New England College Entrance Certificate Board was organized. The examination system seems to die hard. The examination is open to the charge of testing the extent of the pupil's knowledge rather than the quality of his training. There was also the feeling that the school and college were still far apart. The New England Board was an attempt at making the articulation real. In 1910 Harvard University, still clinging to the examination system, devised a new scheme whereby the school record of the candidate should count and the examination should be used merely to test the power and ability of the student. To adjust itself to the Harvard plan, the College Entrance Examination Board makes out a set of "Comprehensive Examination Questions". They are aimed:

1. To be adapted to the variety of school instruction in several subjects so that they do not prescribe methods but provide tests for results or power. 2. To be set to different stages of a subject

so that no matter whether the candidate has had a minimum or a maximum training in that subject he will have opportunity to show his power.

To gain admission by the new Harvard plan requires the 16 Comprehensive Examinations. A description of the Harvard plan will also make clear the plans of Yale and Princeton Universities of 1916. The candidate for admission must present a statement from his school giving in detail the following:— 1. The subjects studied and the ground covered. 2. The amount of time devoted to each subject. 3. The quality of work in each subject. 4. The fact that the candidate's school course has been four years and has been satisfactorily completed. 5. That the main subjects have been language, mathematics, history, and science; and that no one of these has been omitted. 6. That two of these have been carried beyond the elementary stages.

The examinations must be in the following subjects:—

For the A. B. degree

English
Latin
Mathematics

For the B. Sc. degree.

English
Latin, French, German or Spanish
Mathematics, Physics, or Chemistry.

Then, any other one subject not chosen above may be selected from the following list: Greek, French, German, Spanish, Latin, History, Mathematics, Physics, or Chemistry.

There will be no counting of subjects or crediting by

separate subjects, but the reader of the candidate's book will answer the following questions:-

1. Does the candidate show sufficient knowledge of the subject to continue it in college?

2. Does the book suggest a different kind of teaching from that on which the examination was based? Poor training? Or that the candidate has not made full use of the training he has received?

3. Does the candidate's book suggest capacity for honor work? Merely passable? Or failure?

4. What can the candidate do best?

5. Indicate by underlining words in the following list the characteristics of the book:-

Neatness, accuracy, spelling and punctuation, sense of order of arrangement, reasoning power, memory, ability to apply knowledge; or slovenly, inaccurate, careless in spelling and punctuation, illogical, poor memory, no ability to reason.

When the results of the examination and the record of the candidate is fully considered he is either admitted without condition or he is rejected.

The Harvard plan is the last word so far in the use of the examination for admission to college. But few colleges retain the examination requirement and it bids fair to pass into history. The schemes in use at Harvard, Yale, and Princeton Universities seem to be but a losing compromise with the certificate plan of accrediting. The evolution of the examination system in this country might be summed up as follows: 1. Oral examination of the individual pupil by the separate college, informal and personal. 2. Written examination of the individual pupil by the separate college
in increased number of subjects, formal, without personal contact, little or no recognition of the training or the preparatory teacher. 3. Written examination by a college board, uniform, without personal contact, questions made out and books read by persons who have neither trained the applicant nor will have him in college work, election of subjects permitted outside the "constants". 4. Comprehensive written examinations in four subjects, one of which may be elected, without personal contact, both examiners and readers unacquainted with the applicant, the applicant's school record to count as part of the entrance conditions. President Porter said in 1874 that the examination was not a true measure of a pupil's ability to take up college work. The belief in his claim is becoming nearly unanimous in this country. The examination had for its purpose the determination of the fitness of the candidate for college work. With the improvement of secondary education and with the articulation of the secondary and higher institutions growing better this claim for the examination is losing its force. The gradual elimination of the examination system and the adoption of the accrediting system is the best proof that the examination is no longer a satisfactory measure of the worth of the high school training. This leads us to the consideration of the certificate system.

III. THE CERTIFICATE SYSTEM.


In 1788 the Royal Edict to the Prussian Gymnasium stated

...
that youths came to the university intellectually immature. The entrance examination did not sufficiently test the student. So here-after the secondary school should see that each pupil be publicly examined and that those successful should be given a leaving certificate admitting to the university without an entrance examination. In 1812 this provision was extended to all secondary schools in Prussia. At first entrance examinations were given to those without a leaving certificate but this has been gradually curtailed until now the leaving certificate is the sole gate for entrance to the universities. One might say that since a public examination is required there is little difference between this and the system of examination in England. But further description will show that the German pupil is not held back or permitted to take up higher education by means of the examination as the sole measure. The schools are under the control of the state and by inspection they are kept up to standard. There is full play given to the individuality of the teacher and pupil. If at the close of the secondary school work the teachers judge a pupil is ready to take the leaving examination he may do so. The examination is both public and private; the public examination, however, is not considered as having a bearing on promotion. The state representative acts chiefly as counsellor in the private examination which is really in the hands of the faculty of the school. The faculty decides on the character of the examination. The faculty with the commissioner and the gymnasium director compose the examining committee. The examination is both oral and written. The latter is given first and if the pupil does not make a good showing he is given an oral test based upon his notebook, essays, and other written work. His school record is also
taken into consideration. It is well to note that in the first place the examination is not foreign to his regular school work and in the second place the nature of his school work counts. The university must accept the certificate as an evidence of his ability to do the work there. The credit has been given because of the quality of his work. The secondary school and the university are parts of one unified educational system under state control. One of the chief aims of this system is the proper articulation of its parts.

2. The Introduction and Growth in the United States.

It was undoubtedly the German plan upon which our plan of admission by certificate is based. The origin is due to President Frieze of Michigan University. The western states with their state universities had the opportunity to bring about educational unity from the elementary school to the university as is true of the Prussian system. In 1870 the universities in the west depended upon the high schools and academies for feeders. Here the academies were being locked upon with growing discredit by the public. The high schools were not very efficient as preparatory schools. President Frieze saw a need of making the work of the high schools of a higher grade in order that the university could best do its work. In 1870 in his report to the Board of Regents of the University he said that he was assured of the sympathy and cooperation of the high schools of the state in the plan that he proposed. This was a scheme for the inspection of the schools by members of the faculty of the university and the issuing of certificates of admission to the university without examination to their graduates who are successful in their examinations in the high schools. These
latter examinations perhaps had reference to ones which the inspectors were expected to hold at the schools. This part of the plan was never carried out. The plan was approved by the Regents and the faculty. The catalogue of the University of 1870-1871 (p. 27) gives the following announcement. "Whenever the Faculty shall be satisfied that the preparatory course in any school is conducted by a sufficient number of competent instructors, and has been brought up fully to the foregoing requirements, the diploma of such school, certifying that the holder has completed the preparatory course and sustained the examination in the same, shall entitle the candidate to be admitted to the university without further examination". The next year the university provided for annual inspection of the schools. Michigan University has changed this plan but little. In 1885 the accredited privilege was extended to schools beyond the state limits, and inspection was made every three years. In 1900 the work of inspection was put into the hands of a single person. In 1909 the control of the schools was placed in the hands of a high school commission composed of the University President, State Superintendent, and the President of the State Agricultural College. Provision was made for three inspectors.

It is interesting to note how the move made by Michigan was taken up in other states. In some of these the control of the inspectors was retained by the university and in some by the state. The growth in some states was very much retarded by jealousy and strife between the state department and the university. In 1873 the University of Illinois permitted county superintendents to hold examinations furnished by the university. In 1877 certain
schools in each county were permitted to set their own examinations but the papers were to be read by the university. There was also a list of schools which were to be accredited as long as the work of the schools was found to be satisfactory. In 1896 a special inspector was employed. In 1873 Indiana made provisions for admission by certificate from certain schools. In 1875 provisions were made for inspection of schools. In this state the control has been in the hands of the state and has thus been more or less political in character. In 1876 Iowa adopted the plan of accrediting schools. In this same year Wisconsin followed the example set. In 1880 Ohio began to admit to the university without examination upon the recommendation of the high school principal. Texas followed in 1885, Minnesota in 1886, and Missouri in 1888. In Minnesota the control of the schools and the inspection was in the hands of the state. By 1897 forty-two state institutions had adopted the certificate plan and about one hundred fifty other colleges had followed.

In the case of the adoption of the plan in the western and southern states there was also included the provision for some form of inspection of schools. The schools gauged their methods, their equipment, their programs and courses and daily and yearly schedules according to the university regulations and the counsel of inspector. Over the prescribed and elective subjects there was the same struggle as has been described in connection with the examination system, except there has been a tendency to be more liberal. The western states have been greatly helped in their development by the organization of the North Central Association of Colleges and Secondary Schools in 1895. This organization has aided in securing the interchange of accredited privileges and the establish-
ment of a plan of accrediting approved schools in all standard higher institutions in the association. It has helped to secure more nearly uniform entrance regulations and has increased the cooperation of college and secondary school men as both institutions are represented in the association. It has made attempts to define units of work in each subject in such a way that while the teacher's individuality is left free yet the value as far as credit is concerned shall be equal in all approved schools. Although in a way the high school curriculum has been dictated by the requirements of this association there has also been a strong tendency to adjust the requirements to high school conditions. As the high schools grew and introduced new courses into their curricula such as vocational subjects for example, the universities have been forced to recognize these subjects for admission. Representatives of the high schools have been influential in the work of committees in the North Central Association to define units of work in high school subjects and also in high school conferences in planning syllabi of different high school subjects. The use of the "unit" as a measure of value of credit is made in all higher institutions having the accrediting system and its use indicates a transfer from college standards to a high school basis in the announcement of entrance requirements.

The growth of the certificate system was not confined to western state institutions. In New England, where the college was not considered a part of the public school system, in 1902 nine colleges abandoned the examination plan and formed the New England Entrance Certificate Board for the purpose of cooperation and of receiving, examining, and acting upon applications from schools
asking for certification. By their regulations no member in the organization may accept students on certificate from schools unless such schools have been approved by the Board. The Board consists of one member from each of the colleges. Certificates from approved schools must be accepted for the work covered. The Board has no means for inspection of the schools. Schools desiring approval must present to the Board full details as to their equipment, teachers, and courses of study. Information obtained from the state superintendents' offices is considered also. Then the school is judged by the record of its students in the first year of college work. These students must have come with the consent of the principal. Formerly, the school taken on probation had to send at least two students who entered on examination. If these made good records the school was approved. But schools are now permitted to send students on probation. After the school has been on the trial list for one year it is approved for a period of three years if its trial students have made good records. To sum up the plan there is:—1. No inspection. 2. Approval is vested in the Board and not in the faculties of the individual colleges. 3. The approval is based chiefly upon the records of the students in the first year of college. It might be added that in the meetings of the Board the secondary schools are allowed two representatives.

The different southern states have adopted plans for accrediting and some of the states as Alabama and Kentucky have formed organizations of the colleges of the state to further the plans. In 1911 the Association of Colleges and Preparatory Schools of the Southern States appointed a commission similar to the one in the North Central Association for the purpose of making provi-
sion for accrediting schools outside the state. This commission sets the standards and the inspection is done by the different state inspectors.

There are some plans of individual colleges and universities which are distinct from the plans given above and worthy of note. Brief accounts will be given of the plans of the University of Chicago, Dartmouth College, and the University of California.

University of Chicago.- The university became dissatisfied with its number of conditioned students and in 1911 proposed a plan by which it hoped to improve the quality of its university work. The entrance requirements are as follows:—the subjects are arranged in six groups. 1. English. 2. Greek. 3. Latin. 4. History, civics, and economics. 5. Mathematics. 6. Physics, chemistry, botany, zoology, biology, physiology, physical geography, geology, and astronomy. Fifteen units are required for entrance of which three must be in English, three of some one subject from groups 2 to 6, two of some one subject from groups 2 to 6, seven selected from groups 2 to 6, and five in subjects given in any approved high school which count for graduation. No conditioned students are admitted. Accredited privileges are secured in one of the following ways:—1. Accredited schools in the North Central Association. 2. Schools connected with the university. 3. Schools approved by the university inspector. 4. Schools approved by the New England Certificate Board. 5. Schools outside the territories included in the above when approved by their state inspectors.

Dartmouth College.—Dartmouth College grants a certificate based upon the four following:—1. A report of a visit made by a

faculty representative to the school. 2. The rating of the school in the state department and other certificating bodies. 3. The information given by the principal of the school. 4. The record of the graduates in Dartmouth College. The college desires to know about the quality of instruction as influenced by the training of the teachers, pupils per teacher, classes per teacher, equipment of the school, course of study, length of year, length of the recitation period, number of recitation periods per week, provisions for concentration and opportunity for electives.

University of California.- The university provides for annual inspection. In his visits the inspector notes the quality of teaching; the spirit of the school; the average attainment and performance in class; the character and scope of study; the equipment in the way of buildings, laboratories, and libraries; the attitude of the community as shown by the moral and financial support. The course of study of the school must include subjects required for admission in at least one of the academic colleges. The candidate must present a statement from the principal of his school saying that he has satisfactorily completed four years of high school work, one year of which just preceding his graduation must have been in that school. The courses he pursued must have been regular courses, and courses passed by coaching or by special examinations cannot count. When a candidate is admitted into college for which he has prepared, he is taken on probation and credit is given for his high school work provided he makes good in his first year of college. There are five grades of scholarship given and the

the grades of each student from a high school are classified carefully. Grades IV and V are considered unsatisfactory and students with Grade V must repeat the courses. Schools are classified and ranked according to the grades of scholarship of its students.

The general discussion with the description of the plans of the institutions named above give the general situation as to the certificate plan. Some institutions tend to dominate the details of the high school work and accept the responsibility for the future of the student's work. Others as the New England Board would not only expect the school to be responsible for the pupil's secondary school work but also for his work in college. Others would regard the high schools and universities as dependent parts of an educational system and assume that full cooperation should characterize their relationship. Minnesota University comes nearest perhaps to considering the quality of the pupil's work as no one is admitted who has not attained the rank of passing with credit or honor.

It would be well before leaving the topic of the certificate plan to note some of its results or effects. It has increased the number of subjects recognized for admission. The average number accepted by Yale, Harvard, Princeton, and Columbia Universities is seventeen. The average number accepted by the Universities of California, Texas, Wisconsin, Minnesota, Missouri, Michigan, and Illinois is twenty-six. There is also greater election in the 20.

20. Report of the President of the University of California, 1910, p. 65.

in the latter universities and a greater opportunity for credit in history, sciences, and modern languages. Vocational subjects are readily accepted. The more or less free interchange of views between schools and colleges has had a vast influence not only on the teaching in the high school but also on the work of the college teacher. This interchange of ideas, plans, and methods has and been encouraged by the publication of bulletins, high school manuals by the universities and by conferences of high school and college teachers under the leadership of the university inspector as is found for example at the University of Illinois. The advantages mentioned here have not been found where the examination system has held sway. This leads us to make a fuller comparison of the two systems.

IV. A COMPARISON OF THE EXAMINATION AND CERTIFICATE SYSTEMS.

Advantages Of the Examination System.—Instead of attempting to quote from various writers who have upheld the examinations as the best test for college entrance it seems better to give the advantages claimed as found by gleanings from many different sources.

1. A concrete standard is set before the school. The teachers know their work is to be put to a test. The examination gives them a standard or guide to the quality of work demanded and the ground to be covered. The pupils have a set and definite goal as a spur to their efforts.

2. The examination compels the student to have at any particular time a comprehensive grasp of the subject studied for a considerable period of time. It causes the pupil to make careful reviews and to organize his knowledge. This must be done under a
a spur, for boys like men work only when they must.

3. The test is not only of knowledge but of self-control, judgment, and power to meet a critical moment with a steady nerve and a clear head. If the examination is comprehensive there is a test of ability and not mere knowledge.

4. When the certificate is based upon the student's record in college this places an unjust responsibility upon the high school principal. The comprehensive examination relieves him of this responsibility. It is the opinion of the advocates of the examination that the boy with ability usually passes and the one who is not capable fails. So in the case of the examination the college assumes all the responsibility for the student's college record. It seems to the opinion that none succeed in passing who are not able to go on with the work.

5. The examination, even in the colleges granting certificates, is needed to bolster up the accrediting system. When their plans fail in admitting a student they resort to the examination thereby acknowledging their faith in its merits. Some of these claims rest on no foundation and some of the disadvantages noted below seem to outweigh the advantages claimed.

Disadvantages of the Examination System.-

1. The system is conducive to cramming. "As long as the student is practically told; 'no matter whether your previous work has been good or bad, no matter how you have prepared yourself for this examination if you answer these questions you succeed, if you don't you fail', - the cramming system with all its evils is destined to remain". The charge is also made that the so-called

"comprehensive examinations" give chance for very hasty cramming. The teacher is induced, even compelled, to drill for the examination instead of using the time and energy in doing real teaching. The last year of the high school must be spent almost entirely in preparing for the examination, in getting use to writing on the work likely to be used, and in keeping the work fresh in the minds of the pupils. In schools which are preparing pupils for examinations the College Entrance Examination Board's questions are kept on file for reference.

2. The examination is really a game of chance in two ways. For the pupil it is a question of being familiar with the particular set of questions. With the college there is really no certainty of picking the applicants in order of their ability. Thorndike in his study of the records of 253 students in Columbia University says, "Had the passing mark been set the least bit higher, one of the very best students of the three college classes would have been debarred from entrance". The study led Thorndike to conclude that the examination indicated only to a slight degree the standing of the student in college. "If, knowing that fifty individuals ranked in the order, Jones, Smith, Brown, etc., in their entrance marks, one were to wager that in their college work of, say, junior year, they would rank Jones, Smith, Brown, etc., as before, he would lose his bet forty-seven cases out of fifty."


3. The teacher is limited in methods and in range of work. She must keep rigidly to training in ability to write on examinations and she must keep within the range of probability of the questions to be asked.

4. While it is perhaps possible to make out an examination which will test power and ability the chances are that the greater number of questions are tests of extent of knowledge only. The reader of the applicant's book knows nothing of the work and the training of the applicant. She has only the cold ink by which to judge. The whims of the examiner and the reader make an uncertain gauntlet for the applicant to run.

5. It takes away entirely the contact and relationship which the school and college should have due to the mutual interest in the student. The school feels that the college mistrusts its work and judgments. The college draws itself away from its responsibility to the high school and egotistically refuses to acknowledge its own probability of error in methods and requirements.

6. There is also the claim that the examination is a quantitative test. A pupil is given no credit for the quality of his work. One of the best proofs that it is inadequate as a test is that the majority of colleges are giving it up only as a means to substitute when none other is available. The certificate is used in almost every state in the union.

The Advantages of the Certificate System.

1. This system brings the school and college into close relationship. The growth in this system means the clearing away of the bearers and the bringing of the whole educational system into a single unit. The visits of the inspector stimulates the school to better
work, the teachers are encouraged, the school boards receive professional opinions, and the high school boys are encouraged to go on to college. Then, too, the college faculty is made to feel the necessity of considering the needs of the high school in making out the requirements for entrance.

2. The judgment of the pupil's ability is in the hands of the teachers who have had charge of his work. They know his full four years' work and that, too, under normal conditions. Thus the test is much fairer than the external examination.

3. The pupils not expecting to go to college receive their proper amount of attention. The teacher can give her time to the needs of the class and not just to those who are preparing to take an entrance examination.

4. The certificate system secures a better average grade of students than the examination system. The table given below is taken from Henderson's book on Admission to College by Certificate (p.144). The table is taken from the results of a study made in the University of Michigan by the faculty in 1880 after the certificate system had been in operation for nine years. The study covered the records of all students during that time. There were 1161 students of whom 647 were admitted by examination and 514 came from accredited schools. The comparison of the records is made in percentages.

<table>
<thead>
<tr>
<th></th>
<th>Certificated students</th>
<th>Examined</th>
<th>Advantage of examined students</th>
</tr>
</thead>
<tbody>
<tr>
<td>making bad records</td>
<td>10.15%</td>
<td>9.51</td>
<td>.64</td>
</tr>
<tr>
<td>making no record</td>
<td>10.89%</td>
<td>13.13</td>
<td>2.24</td>
</tr>
<tr>
<td>Success of certificated students 1878-1880</td>
<td>90.56%</td>
<td>89.61%</td>
<td>.95</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following data are given in Henderson's book mentioned above (p. 140). The study was made in New England Colleges for the years from 1906-1909 inclusive and the results are given in the Entrance annual reports of the New England Certificate Board for those years.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Examined 1905-6</td>
<td>319</td>
<td>246</td>
<td>74</td>
<td>125</td>
<td>318</td>
<td>1300</td>
</tr>
<tr>
<td>Failed</td>
<td>28</td>
<td>7</td>
<td>3</td>
<td>11</td>
<td>48</td>
<td>108</td>
</tr>
<tr>
<td>Per cent</td>
<td>8.8</td>
<td>2.8</td>
<td>4.1</td>
<td>8.8</td>
<td>15.1</td>
<td>8.3</td>
</tr>
<tr>
<td>Certificated 1905-6</td>
<td>361</td>
<td>724</td>
<td>324</td>
<td>417</td>
<td>927</td>
<td>4074</td>
</tr>
<tr>
<td>Failed</td>
<td>71</td>
<td>29</td>
<td>8</td>
<td>18</td>
<td>98</td>
<td>265</td>
</tr>
<tr>
<td>Per cent</td>
<td>7.4</td>
<td>3.7</td>
<td>2.5</td>
<td>4.3</td>
<td>10.6</td>
<td>6.5</td>
</tr>
<tr>
<td>Examined 1906-7</td>
<td>333</td>
<td>254</td>
<td>66</td>
<td>146</td>
<td>388</td>
<td>1432</td>
</tr>
<tr>
<td>Failed</td>
<td>27</td>
<td>16</td>
<td>6</td>
<td>12</td>
<td>61</td>
<td>139</td>
</tr>
<tr>
<td>Per cent</td>
<td>8.1</td>
<td>6.3</td>
<td>3.1</td>
<td>3.6</td>
<td>15.7</td>
<td>9.7</td>
</tr>
<tr>
<td>Certificated 1906/7</td>
<td>1021</td>
<td>807</td>
<td>274</td>
<td>478</td>
<td>340</td>
<td>4277</td>
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<tr>
<td>Failed</td>
<td>86</td>
<td>32</td>
<td>8</td>
<td>14</td>
<td>127</td>
<td>311</td>
</tr>
<tr>
<td>Per cent</td>
<td>8.4</td>
<td>4</td>
<td>2.9</td>
<td>2.9</td>
<td>13.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Examined 1907-8</td>
<td>314</td>
<td>238</td>
<td>56</td>
<td>139</td>
<td>347</td>
<td>1295</td>
</tr>
<tr>
<td>Failed</td>
<td>29</td>
<td>13</td>
<td>3</td>
<td>12</td>
<td>77</td>
<td>157</td>
</tr>
<tr>
<td>Per cent</td>
<td>9.2</td>
<td>5.5</td>
<td>3.1</td>
<td>9.0</td>
<td>22.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Certificated 1907/8</td>
<td>1047</td>
<td>870</td>
<td>242</td>
<td>521</td>
<td>1011</td>
<td>4520</td>
</tr>
<tr>
<td>Failed</td>
<td>82</td>
<td>32</td>
<td>7</td>
<td>41</td>
<td>138</td>
<td>355</td>
</tr>
<tr>
<td>Per cent</td>
<td>7.8</td>
<td>3.7</td>
<td>2.9</td>
<td>7.9</td>
<td>13.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Examined 1908-9</td>
<td>393</td>
<td>259</td>
<td>43</td>
<td>174</td>
<td>436</td>
<td>1631</td>
</tr>
<tr>
<td>Failed</td>
<td>35</td>
<td>11</td>
<td>1</td>
<td>6</td>
<td>84</td>
<td>171</td>
</tr>
<tr>
<td>Per cent</td>
<td>8.9</td>
<td>4.2</td>
<td>2.3</td>
<td>3.4</td>
<td>19.3</td>
<td>10.4</td>
</tr>
<tr>
<td>Certificated 1908/9</td>
<td>1161</td>
<td>960</td>
<td>275</td>
<td>621</td>
<td>1104</td>
<td>4967</td>
</tr>
<tr>
<td>Failed</td>
<td>85</td>
<td>33</td>
<td>4</td>
<td>39</td>
<td>136</td>
<td>335</td>
</tr>
<tr>
<td>Per cent</td>
<td>7.3</td>
<td>3.4</td>
<td>1.5</td>
<td>6.3</td>
<td>12.3</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Average per cent of failures of examined students 10.1
" " " " " " certificated students 7.1

Advantage of certificated students 3.0

The conclusions that are naturally drawn from the above tables are that the certificate plan secures the best students and
that the teacher's judgment is more reliable than the examination. A study of the students in the University of Wisconsin from six city high schools by W. F. Dearborn through a period of six years from 1900 to 1905 is described in Bulletin No. 6 of the university. The study was made to determine the relative standing of students in high school and their corresponding standing in the college. Dearborn concludes that seventy-five per cent of the students maintain approximately the same rank in college as they held in their high school work. This would lead more clearly to the conclusion stated that the quality of the high school work is a good indication of the ability of the pupil and should receive the greatest consideration in the question of credit.

Disadvantages of the Certificate System.- The disadvantages of the plan are in general those which may be overcome.

1. There are probabilities of its being abused. Teachers are not always competent and often allow outside influences to affect the records which are sent to the university concerning a pupil's work.

2. Inspection of the school is inadequate because of the lack of time of the inspectors and the great number of schools to be visited. The high school visitor cannot spend a sufficient length of time in a school. The burden of expense also hinders the most efficient work of inspection.

3. Schools not inspected frequently have a tendency to lower their standards.

The first disadvantage is being partially overcome by the increase in training and other qualifications demanded of the teacher. The third disadvantage is also lessened for the same reason.
Community standards and viewpoints are being broadened and the conferences of teachers tend to overcome the disadvantage of lack of proper inspection.

The certificate system is given credit for aiding the addition of subjects for admission and in making the number of electives greater. In this connection it will be well to consider these subjects and make a comparison of their definition for credit when introduced and a general definition of the subjects as accepted at the present time. The definitions accepted by the North Central Association may be regarded as typical of those in use at the present time.

V. A STUDY OF THE SUBJECTS INTRODUCED FOR COLLEGE ADMISSION.

The Subjects and Their Definitions.- At first all subjects accepted were prescribed. Now, if we study the catalogue of Reed College, we find none prescribed. When Harvard College was founded two subjects, Latin and Greek, were required. The following subjects are now offered by secondary schools for admission to various colleges and universities:—Latin; Greek; mathematics, including elementary and advanced algebra, plane and solid geometry, trigonometry, analytical geometry, and arithmetic; history, including ancient, medieval, modern European, English, and American history, civics, and economics; science, including physics, chemistry, botany, zoology, biology, physiology, physical geography, and astronomy; commercial geography; modern languages, including French, German, Spanish, and Scandinavian; bookkeeping; typewriting; stenography; agriculture; freehand drawing; mechanical drawing; woodwork; music; forge work; machine shop work; foundry work; and household arts.
The table given below, taken from Broome's study of college admission requirements, with some additions will give the approximate time of the introduction of most of the subjects and the college where they were introduced. The actual first appearance of the subjects may not be absolutely correct.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Date</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin and Greek</td>
<td>1640</td>
<td>Harvard</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>1745</td>
<td>Yale</td>
</tr>
<tr>
<td>Geography</td>
<td>1807</td>
<td>Harvard</td>
</tr>
<tr>
<td>English Grammar</td>
<td>1819</td>
<td>Princeton</td>
</tr>
<tr>
<td>Algebra</td>
<td>1820</td>
<td>Harvard</td>
</tr>
<tr>
<td>Geometry</td>
<td>1844</td>
<td>&quot;</td>
</tr>
<tr>
<td>Ancient History</td>
<td>1847</td>
<td>&quot; and Michigan</td>
</tr>
<tr>
<td>Modern History</td>
<td>1869</td>
<td>Michigan</td>
</tr>
<tr>
<td>Physical Geography</td>
<td>1870</td>
<td>&quot; and Harvard</td>
</tr>
<tr>
<td>English Composition</td>
<td>1870</td>
<td>Princeton</td>
</tr>
<tr>
<td>Physical Science</td>
<td>1872</td>
<td>Harvard</td>
</tr>
<tr>
<td>English Literature</td>
<td>1874</td>
<td>&quot;</td>
</tr>
<tr>
<td>Modern Science</td>
<td>1875</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

Botany, physics, and chemistry are included in the requirements of Harvard College in 1876. Cornell University required physiology in 1877. The vocational subjects have spread out to the various colleges as entrance subjects during the last decade of the nineteenth and in the twentieth century. Not all of these, of course, are required, but there has been a tendency in most colleges to retain some language, either ancient or modern; some science; some history; and some mathematics. Other requirements depend upon the college work the student wishes to pursue. The principle in any case has become generally accepted. The question as to whether the subjects are prescribed will be considered in the discussion of each general subject as to the general definition.

a. Latin and Greek.

These subjects were the only subjects required before 1800 in most of the colleges. In 1642 Harvard College expected the can-
didate to be able to read Tully and like authors and to speak and write Latin verse and prose, and to be able to give the paradigms of the Greek nouns and verbs. In time the requirements grew in amount and definiteness. By 1734 Virgil had been added to the Latin authors and translation from the Greek New Testament was required. Other Latin authors in the order of their introduction were Sallust, Cicero, Caesar, Ovid, and Livy. The two latter have usually been considered as advanced work. Caesar, Cicero, and Virgil have come to be known as the "three constants" and are the ones found in most high schools today if as much as four years are devoted to the subject. The work in Greek grew in the same way. By 1870 Xenophon's Anabasis was being read as was also selections from the Iliad, and later selections from the works of Herodotus were read. In both Latin and Greek the textbooks were given during the nineteenth century and by 1900 the exact number of pages were often designated. In order to offset these quantitative requirements, by 1890, sight translation was required and also some work in translating prose into Greek and Latin. Greek was dropped from the list of prescribed subjects in non-classical courses in the nineteenth century and is now offered in very few schools. Latin was a prescribed subject in all colleges before 1870 and it is only recently that Latin has been removed from the prescribed list in the A. B. courses. The definition of credit in Latin now generally accepted is measured in units in most colleges. The definitions by the North Central Association are typical. Latin may be offered four years; First Year; Caesar, four books; Cicero, six orations; Virgil, six books. One year is the minimum. Latin composition is expected in the last three years and sight reading is suggested. One year is the mini-
In the early definitions of the work in Latin and Greek the content of the work was outlined. This is true of the present definitions. There is added in the definition of the units in these subjects the element of time. For example, to secure a unit in the study of Greek, the pupil must have read from 2500 to 4000 lines of the Iliad in addition to practice in writing Greek and reading at sight. This work is expected to be done in one year of thirty-six weeks with five recitations per week.

b. Modern Language.

Modern language was not required for entrance to the A. B. courses before 1875 although it had been in the requirements for the literary and scientific courses at Columbia University in 1836. In 1875 Harvard College accepted French and German as elementary Courses. The examination was in sight translation of easy prose. The candidate was expected to be able to pronounce, and to speak and write easy sentences. He was also expected to know something of the grammar of the language. Later advanced courses were accepted and certain authors and selections were named to be used in preparation for the examinations. Now the common plan in schools is to offer two years, although three and four years are accepted. One year is the minimum for credit. The first year is spent on the rudiments of grammar, the paradigms, and the reading of simple prose and poetry. The other years are spent on the literature of the language and on prose composition work. In the first year 50 to
100 pages are to be read, in the second year 150 to 200 pages, in
the third year 200 to 250, and in the fourth year 300 to 400 pages.
The\textit{se} are the requirements in German. A greater number of pages
are required in French. Spanish is now being offered in many schools
and Scandinavian is found in some of the schools of the northwest.
The definitions in these subjects are similar to those of German
and French.

It will be noted that a statement of the requirements in
modern language at first and at the present time describes the
scope and material of the work. The use of the unit in its present
form makes the question of credit in these subjects one of quantity
of content and of time. There is no account taken of the methods
used, the year in which the subject is introduced, or the aims
and purposes of the work.

c. Mathematics.

\textbf{Mathematics} is prescribed in almost all colleges. Arithmetic
was introduced at Yale College in 1745. No clear definition
was given. The requirement called for "common arithmetic". In 1785
Columbia College called for the four fundamentals with the rule of
\textbf{Three}. In 1807 Harvard College required an acquaintance with notation, addition, subtraction, multiplication, division, reduction, and the rule of three. By 1880 complete arithmetic was required including the metric system. By this time however the subject was in the elementary schools and was presupposed as a part of the pre-secondary school work. It ceased to be required. It is seldom offered now except as a commercial subject.

The algebra listed at Harvard College in 1820 included simple equations, roots and powers, and progressions. In later cata-
logues the textbook to be used was named. By 1870 quadratics were required. Now one and one-half years may be offered. The topics to be covered are named. The one and one-half years of work are equal to one and one-half units of credit.

Geometry (plane) was introduced about 1844. It was very elementary and was then called an introduction to geometry. The textbook to be used was named. Otherwise the requirements were not made clear. Solid geometry was not introduced until after 1890. At first it was counted as a year of advanced of mathematics. Now plane geometry counts for one year. Advanced credits are given in solid geometry, one-half year; trigonometry, one-half year. In some schools one-half year of college algebra is offered. The topics in these courses are the usual topics given in texts.

As has been noted in the case of the foreign languages the question of content of subject-matter to be covered in a definite time has come to be the main consideration in the definition of units in the different subjects. Mathematics has been the subject of much attention by different organizations but the main results have been the framing of syllabi for the different branches.

d. History.

The subject of history was introduced at Michigan and Harvard Universities in the same year, 1847. The catalogue of Harvard of that year calls for a knowledge of Worcester's Elements of History, the ancient part. This was naturally to be used as an aid to the study of the classics. The catalogue of 1879 divides the work into Greek and Roman history. The Greek history was to the death of Alexander and the Roman history was to the death of Commodus. Modern history was introduced at Michigan University in 1869. This
was the history of the United States to the close of the Revolutionary War. Its introduction was doubtless due to the increased interest in our country created by the Civil War. The definitions in the different branches of history usually consisted in naming the text to be studied. Other branches introduced later are English, medieval and modern European history, civics, and economics. The courses now accepted are ancient history, one unit; medieval and modern history, one unit; English history, one or one-half units; American history, one or one-half unit; civics, one or one-half unit; economics, one or one-half unit. Until very recently at least one unit of history has been prescribed by all colleges and universities. The order in which the courses were named above give the distinction between the elementary and advanced courses. Civics and economics are usually considered as advanced courses. The High School Manual of the University of Illinois describes the courses in civics and economics as those indicated by any good texts in the subjects. The courses are indicated only by the scope of the branches. The North Central Association requires a certain amount of collateral reading.

In the case of history, the definitions make some reference to the method, preparation of the teacher, and the classroom equipment. But the chief elements considered are quantity of content and of time in which the work is to be done.

e. Science.

The sciences did not appear in the college entrance requirements until after 1870. In 1876 Harvard College required botany, and the rudiments of physics, chemistry, and astronomy. The work however was chiefly the use of the textbook. The examinations
were based on Gray's Botany with analysis of simple specimens, Rolfe and Gillet's Natural Philosophy or Arnott's parts I and II. In the advanced course Arnott's part IV or Nichol's Chemistry was required. In the next decade Harvard College required forty experiments in notebooks which must be presented to the university at the time of the examination. In the advanced course in physics and in chemistry sixty experiments were required. Rolfe and Gillet's Handbook of the Stars was required for the study of astronomy. Meteorology, physiology (chiefly anatomy), and zoology were introduced at Harvard University in the nineties. Physical geography was introduced in 1870. The name of the textbook usually indicated the definition of the courses at first. Now the following units may be offered for admission; general science, one-half or one unit; physical geography, one-half or one unit; zoology and botany, one-half or one unit each; biology, one unit; physics, one unit; chemistry, one unit; physiology, one-half or one unit. Physics and chemistry are regarded as the more advanced courses. The present definitions of these units usually give a list of topics essential in the study of the subjects. The Illinois High School Manual gives syllabi of the courses in science and some reference is made to the aims, methods, and equipment. The prominence given to the outline of topics makes the content a chief consideration.

Agriculture has received recognition since the beginning of the present century. The definitions of credit extend from one to four years. Many universities do not accept more than two units. the work is usually as follows with one-half or one year for each of the following: general agriculture, farm crops, animal husbandry, farm mechanics, farm management, or the latter two combined. One-
half year is given to each of the following: soils, horticulture, and farm accounts. There is no distinction between elementary and advanced courses except in the order in which they are usually given which is the order given above. Laboratory and field work is expected with all of the courses. The definitions of the units usually consist in brief outlines or syllabi of the courses. Thus it can be seen that the definitions are quantitative in character.


These are new subjects and have only recently received general recognition. Schools offer varying amounts, from one-half to seven or eight years in shopwork and from none to six or seven years in mechanical drawing. Many universities do not accept more than two of each. In the shopwork cabinet making, turning, pattern making, forging, molding, foundry, and machine shop work are advanced courses. In drawing, machine drawing and architectural drawing are advanced courses. The North Central Association defines these courses by giving outlines of the topics in the different fields. Two hundred forty sixty-minute periods per year are required for a unit of credit. Here again is seen the question of quantitative character of the definitions.

g. Domestic Science.

The range of work offered in domestic science varies from one to eight years. Cooking and sewing are the more elementary courses, each making one year or one year combined. Advanced courses include home management, fancy cooking, meal serving, marketing, sanitation, laundry, and nursing. There are also advanced courses in connection with sewing and house decoration. Rarely are
more than two units accepted by the higher institutions for admission. As in the case of Manual Training the North Central Association gives only the main topics in each branch and the time required is the same.

h. Commercial Subjects.

The commercial subjects have only recently received recognition although they have been offered by the secondary schools for some time. The subjects listed here are not accepted by all universities. Those offered are commercial arithmetic, one-half or one year; penmanship (seldom offered separately), one-half to two years; shorthand, one-half to four years; typewriting, one-half to two years; bookkeeping, one-half to three years; business English, one-half to two years; commercial geography, one-half to one year. Some schools also offer courses in salesmanship, office training, and business methods. There is no distinction made between elementary and advanced courses. However, commercial arithmetic, penmanship, and spelling are usually put early in the high school work. Stenography, typewriting, and business practice are in the later years. Bookkeeping is considered as an intermediate course. The definitions of the courses usually consist of a general outline of the essential topics in each course. Two daily periods in bookkeeping, stenography, and typewriting are required. The elements of content and time are the chief considerations in evaluating credit for the work in these subjects.

1. Drawing.

Freehand drawing and design are offered in most of the larger high schools. From one-half to four units are offered.
There seems to be no idea of sequence in building these courses. Not more than two units are usually accepted for college admission. The definitions given by the High School Manual of the University of Illinois are outlines of the topics in the four units of which one-half or one unit is accepted for admission. Each unit requires 240 hours of work.


These subjects are beginning to receive much attention in the high schools. But there has not been a general recognition for credit. Public speaking is often found as a part of the English work and correlated with history, civics, economics, and commercial courses and receiving no credit separately for admission.

The normal training subjects are usually in the form of reviews in English, history (American), arithmetic, geography, and civics, one-half year each. Then one-half year each is given to methods or elementary educational psychology, and practice teaching. As these subjects have not received general recognition there is no typical definition for any of them.

The subject of music has not been fully organized and no set standard of time spent and amount of credit has been fixed. One to two units are accepted by some universities. The definitions of the courses state the essential topics and thus represent the content of the subjects. Five hours of recitation and five hours of preparation for thirty-six weeks are required for one unit of credit.

k. English.

English Grammar was introduced at Princeton University in
1819. As late as 1870 a rudimentary knowledge of English grammar in English was considered as a sufficient preparation for admission to college. By 1870 Princeton University required English composition as an entrance subject. This requirement consisted of "short and simple composition". Later a knowledge of a text in rhetoric was required instead of composition. However, the requirement of rhetoric as a separate subject has been discontinued. In 1874 Harvard College introduced English literature as a required subject. Certain classics in American and English literature were selected some of which were to be read carefully and some studied in class. The test in composition was the requirement to write an English composition on some subject chosen from the classics studied. Although the list of classics has been extended the same plan is followed in a general way at the present time. In the advanced courses a study of the history of literature is required now. Then in the work in composition is taken in part from other sources than that of literature. Rhetoric is to be studied in connection with the work in composition. Work in oral and written composition is expected to be given throughout the high school course. The definitions generally accepted follow the recommendations of the National Conference on Uniform Entrance Requirements in English. The work to be covered in composition and the literary selections to be read and studied are outlined. A unit in English requires five recitations per week for thirty-six weeks. Thus as in other subjects the question of quantity of content and of time seem to be the main considerations in the definitions of the units of credit.

These definitions in most colleges and universities are the work of members of the faculties who have charge of the particular
subject in the college. But where this has not been the case the framing of syllabi has usually been the final result of the attempts to define the high school courses of study. Too little consideration has been given to conditions and practices in the high schools. In the work of the Committee on the Reorganization of the Secondary School and the Definition of the Unit attempts have been made to secure facts in regard to the practices in the teaching of the subjects to be defined. The bearing of the factors of the textbook, interrelation of subjects, distinctions between elementary and advanced work, the touch with life in the use of the real problems in the industrial and civic life surrounding the pupil and of which he is a part, and the factor of time in comparing of the work in one subject with another and the corresponding credits in those subjects are considered. These considerations as well as the one of content have some bearing in the definitions made out by the committee named above.

The increasing number of electives many of which find contact areas with life rather than with the road to college make the question of definition of units more important. The number of prescribed subjects are decreasing. A consideration of of prescribed and elective subjects would be of interest at this point.

k. Prescribed Subjects and Electives.

The following remarks on the question of prescribed and elective subjects are drawn from the United States Bureau of Education, Bulletin No. 7, 1913, on College Entrance Requirements by C. D. Kingsley. Ten colleges are named which made no prescriptions whatever. But four of these limit the selection of subjects to a defi-
Junior University, University of
nite list. Leland Stanford, Ohio, Clark College, Reed College,
macalester College, and Hamline University accept the work of an
approved high school graduate as sufficient guarantee of fitness
for college. Chicago University and Leland Stanford Junior Univer-
sity (First Method) prescribe three units in English. The majority
of the colleges studied require from 2 to 2½ units in mathematics,
seven required none, and seven required four units. There is a
great diversity in the requirement of foreign language. 16 re-
quire none for the college of liberal arts, 38 require two units,
27 require three units, 49 require four units, 16 require five
units, 13 require six units, and 16 require seven units. The av-
earage is four units. These however are not restricted to ancient
or to modern language. In general, if two units are offered, they
must be in the same language. 108 colleges prescribe no science
for the liberal arts course. 77 require one unit, 12 require two
units. 40 colleges make no prescription in history, 130 require
one unit, 27 prescribe two units. The average number of prescribed
units is 10.1 and the average number of electives is 4.1.

Of the 85 colleges of engineering in the study reported by
Kingsley, 74 require three units in English; 51 require three units
in mathematics; 15 require 3½ units, 7 require 4 units, and 9 re-
quire 2½ units; 17 require no foreign language, 2 require one unit,
46 require two units, 7 require three units, 11 require four units,
and two require six units. In science only one requires as much as
three units, 21 require two units, 38 require ½ unit, and 22
require none. In history 22 require none, 49 require one unit,
3 require 1½ units, and 11 require two units. The average number
prescribed is 10.1 and the number of electives is 4.6.
Kingsley gives a report of a study of 31 colleges of agriculture. Of these, one requires no English, 4 require two units, 23 require three units, and 3 require four units. In mathematics, 2 require none, 1 requires one unit, 11 require two units, 13 require 2½ units, and 4 require three units. In the foreign languages, 14 require none, 1 requires one unit, 13 require two units, 2 require three units, and 1 requires four units. In science, 9 require none, 14 require one unit, 7 require two units, and 1 requires three units. In history, 9 require none, 13 require one unit, 1 requires 1½ units, and 2 require two units. The average number prescribed is 8.1 and the average number of electives 6.6.

Flexibility has come through the decrease in the number of prescribed subjects. This has been aided by the increase in the number of subjects receiving credit. The evolution in this might be stated as follows:—1. Definite subjects with definite amounts in each subject were required. 2. Definite amounts in each of the constant groups were prescribed. These were English, foreign languages, history, mathematics, and science. In this case there was some choice of the language, science, and history permitted. 3. Fewer subjects were prescribed and a choice of groups was permitted. 4. The selection is left with high school when the school has shown by inspection that its work is of standard grade. The big question in this growth seems to be mainly how much the pupil should know and how much time he should spend in each subject. To secure uniformity in requirements and permit flexibility in the way of electives the unit has come to be used as a measure of credit to determine the value of the pupil's work. It will be interesting now to consider the growth of the high schools in relation to the
evolution in flexibility and the increase in the number of subjects.

The Growth of the High School and the Influence on the Introduction of Subjects and Their Definitions. — The early academies had for their main purpose an education for the middle class of people who were not fitting themselves for the professions. Practical studies were introduced and fitting for college was a minor purpose of the institution. In the list of subjects of Phillips Academy were English, Latin, Greek, writing, arithmetic, practical geometry, music, logic, the art of public speaking, geography, and such other liberal arts, sciences, and languages as opportunity and ability permitted. However, in time, the academies became more and more mere fitting schools and the high schools were established as the "people's schools". The first high school was founded in Boston in 1821. The number of high schools grew slowly at first. By 1860 there were about forty; in 1870 about 160; in 1880 about 800; in 1890 about 2526; in 1900 about 6000; in 1910 about 10,213. In round numbers there are now about one million pupils in the high schools. As the academies had gradually shaped their courses to correspond to college entrance requirements so the high schools came to do the same. Brown says, "If the high schools had kept to the purpose originally proposed for the English Classical School at Boston, they would not have been affected by the earlier changes in college admission requirements.----None of the many protests raised against this movement could check it for any length of time. It was, in fact, a thoroughly American movement. It answered to that broad, American logic which maintained that since any youth might arise to the highest offices, every

youth should have the opportunity offered to him of rising to the highest education." There was also the idea that as the high school as an institution of the whole people it should prepare for college as well as for life. Colleges came to look upon the high schools as preparatory schools primarily and used their influence to develop preparatory courses even at the expense of everything else if necessary. But changes came in the ideas concerning the educational values of different subjects and the recognition of the fact that the high school was a part of a complete system of education and has a function of its own to fill regardless of its relation to the college. Although the universities dominated the courses of study of the high schools yet the cooperation also brought greater and greater recognition to the high school. The Committee of Ten stated that preparation for college and for life was the same, and that the training from any subject in a good high school should be regarded as the equal of that from any other subject. This principle has been interpreted in its own way by the high school in that what is good preparation for life is a good preparation for the college. This was reinforced by the public demand for a broader education for those who had graduated from high school without having taken the work which was supposed to prepare for college. A large per cent of many freshman classes were admitted to some of the colleges with conditions and the question of the conditioned student has become a prominent one for solution. Although the high school has been more or less dominated by college entrance requirements the high school enrollment has increased. There has been however a steady decline in the number of pupils preparing for college. In 1889 about 14.49% of the pupils
were expecting to go to college; in 1910 the per cent was 5.67. In 1909-1910 out of 915,061 pupils of whom 111,363 graduated 37,811 were prepared for college. The universities are coming to recognize that they have a duty to perform for those who have not met their requirements. The universities are decreasing their prescriptions, increasing the list of accepted subjects, and through the associations with the secondary schools are attempting to define the credits in the subjects accepted. The quantitative unit has come to be used practically everywhere as the measure of credit. The question of the unit will be treated later.

By way of comparison and contrast the course of study of the first high school will be given and below this a program of studies of a Chicago High School and also of a Chicago Manual Training High School.

The Boston high school of 1821 had the following courses:

First Year.- Composition; reading from approved authors; exercises in criticism comprising critical analyses of the language, grammar, and style of the best English authors, their errors and beauties; declamation; geography; arithmetic.

Second Year.- Composition; reading; exercises in criticism; declamation; algebra; ancient and modern history and chronology; logic; geometry; trigonometry and its application to mensuration of heights and distances; navigation; mensuration of supercices and solids; forensic discussions.

Third Year.- Composition; exercises in criticism; declaration; mathematics; logic; history, particularly of the United States; natural philosophy including astronomy; moral and political philosophy.

A program of studies of a Chicago High School:

First Year.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Recitations per week</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English; Classics, Gram., Comp., Phet.</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Latin</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>German</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>French</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Spanish</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Mathematics; elementary alg.</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Physiography (20 weeks)</td>
<td>6</td>
<td>.6</td>
</tr>
<tr>
<td>Physiology (10 weeks)</td>
<td>4</td>
<td>.2</td>
</tr>
<tr>
<td>Commercial subjects; Accounting, arith., bookkeeping, business forms, pen. each</td>
<td>6</td>
<td>.8</td>
</tr>
<tr>
<td>Drawing</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Physical training</td>
<td>1</td>
<td>.2</td>
</tr>
</tbody>
</table>

Second Year.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Recitations per week</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Latin; Caesar (4 books), prose composition</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>German</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>French</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Greek</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Spanish</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Plane geometry</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Biology; Botany or zoology either 20 or 40 weeks each</td>
<td>6</td>
<td>.8</td>
</tr>
<tr>
<td>Commercial subjects; Stenography and typing, and advanced accounting, each</td>
<td>6</td>
<td>.8</td>
</tr>
<tr>
<td>Drawing</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Physical training</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Ancient history</td>
<td>4</td>
<td>.8</td>
</tr>
</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Recitations per week</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English; Part of year on history of literature</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Latin; Cicero, or Virgil, prose composition</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>German</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>French</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Greek</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Spanish</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Advanced algebra (20 weeks)</td>
<td>4</td>
<td>.4</td>
</tr>
<tr>
<td>Solid geometry</td>
<td>4</td>
<td>.4</td>
</tr>
<tr>
<td>History; medieval and modern Europe</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>English</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Physics or chemistry</td>
<td>6</td>
<td>.8</td>
</tr>
<tr>
<td>Commercial geography</td>
<td>4</td>
<td>.8</td>
</tr>
<tr>
<td>Advanced stenography and typewriting</td>
<td>6</td>
<td>.8</td>
</tr>
</tbody>
</table>
Subjects

Recitations per week

Drawing
Music
Physical training

Fourth Year.

English; - Part of year on hist. of lit. 4 .8
Latin; Virgil or Cicero 5 1
German 5 1
French 5 1
Greek 5 1
Spanish 5 1
Trigonometry (20 weeks) 4 .4
Arithmetic " " 4 .4
American History 4 .4
Chemistry or physics 6 .8
Geology (20 weeks) 4 .4
Astronomy " " 4 .4
Commercial Law " " 4 .4
Economics " " 4 .4
Drawing 2 .4
Music 1 .2
Physical training 1 .2

The courses are for forty weeks unless otherwise stated.

The Manual Training High Schools give three courses.

First Year.

Latin Modern Language Scientific

English
Algebra
Physiology
Physiography
Mechanical Drawing
Woodwork
Freehand Drawing
Physical Training

Second Year

English Literature
Plane Geometry
Latin
Mechanical Drawing
Blacksmithing
Foundry and Pattern Work
Physical Training

Third Year

English
<table>
<thead>
<tr>
<th>Latin</th>
<th>Modern Language</th>
<th>Scientific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Geometry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Algebra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latin</td>
<td>Span., Fr., or Germ.</td>
<td>Mod. Hist.</td>
</tr>
<tr>
<td>Machine Shop Practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine or Arch. Drawing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freehand Drawing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fourth Year**

| American History |     |     |
| Civil Government |     |     |
| Trigonometry     |     |     |
| Engineering      |     |     |
| Chemistry        |     |     |
| Latin           | Span., Fr., or Germ. | Mach. or Arch. Design |
| Mach. or Arch. Design |     |     |
| English         |     |     |
| Freehand Drawing |     |     |
| Physical Training |     |     |

The blanks in the Modern Language and Scientific/mean that the subjects are the same as in the Latin course in the same line.

Although other high schools vary in their programs and some offer more mathematics, history, and household arts, these programs give an idea of the growth since the first high school was founded. There is shown one of the present methods of counting credits. It will be noted that the required subjects for entrance to college are prominent in the programs of both the first high school and of the high school today. The program of the latter however reaches farther into the interests of the life of the pupil and goes into many more fields of learning. Both attempt to give the children of all the people an opportunity for secondary instruction. The majority of the pupils did not in 1821, and do not now prepare for college. One might say that the program of the school of today is built largely upon that idea however. But, if so, it is largely because the colleges have come to accept what the high
school has to offer. Yet it is true that the growth of the subjects in the high schools has been due to a great extent to the growth of the colleges themselves. Many courses have been added to their curriculums. The higher institutions have become universities composed of several colleges the preparation for which varied. This gave opportunity for the admission of new subjects added to the high school courses. It seems well, therefore, to keep clear the basis of credit for high school work and to consider representative changes in the colleges themselves in regard to the admission requirements.

VI. A STUDY OF THE ENTRANCE REQUIREMENTS OF REPRESENTATIVE INSTITUTIONS.

The question of credit for preparatory work up to 1870 as has been said was determined solely by the entrance examination in all colleges. The early catalogues state the extent of work to be covered. So long as the examination was oral there was opportunity to tell in some degree the quality of the pupil's training. But later, with the written examination, although the requirements were stated in quantitative terms, there was no real test of the full extent of the field. The test was really on the amount of knowledge the student had at the time and on the extent of knowledge the questions required. In 1800 the requirements were very nearly uniform and a statement of these will show the method of the college in determining whom it should admit. The following table taken from Broome's Historical and Critical Discussion of College Admission Requirements, page 39 gives a comparison of the requirements in 1800.
Latin  | Greek  | Mathematics
--- | --- | ---
Tully  | New Testament  | (Arithmetic 18C7)
Virgil  |  |  
Grammar and Prosody  |  |  
Harvard  |  |  
1798  |  |  
Tully  |  |  
Virgil  |  |  
Composition  |  |  
Yale  |  |  
1800  |  |  
Tully  |  |  
Virgil  |  |  
Composition  |  |  
Sallust  | Evangelists in the Greek Testament and Grammar Analysis  |  
Caesar  |  |  
Virgil  |  |  
Composition  |  |  
Princeton  |  |  
1794  |  |  
Caesar  | Gospels from the Greek Testament vs Catiline  |  
Cicero's Orations  |  |  
Vulgarity  |  |  
Composition  |  |  
Columbia  |  |  
1786  |  |  
Aeneid, 4 books  |  |  
Composition  |  |  
Grammatical Construction  |  |  
Brown  |  |  
1793  |  |  
Cicero  | Greek Testament  | Rules of Vulgar Arithmetic  
Virgil's Aeneid  |  |  
Composition  |  |  
Williams  |  |  
1795  |  |  
Tully's Orations  |  |  
Virgil's Aeneid  | Greek Testament  | Rules of Vulgar Arithmetic  
Composition  |  |  

From about 1850 up to 1870 many of the colleges made an attempt to adapt themselves to the needs of the times by establishing semi-classical courses from which Greek was omitted and the requirement was not so rigid. This was to accommodate those who wished a college course but had not had the opportunity to prepare in the classics. These college courses for which they were prepared were to lead to a different degree from that of A. B. The usual term was Bachelor of Science or of Philosophy. Broome gives the date of the introduction of these courses as follows:

27. Broome, E. C. - Historical and Critical Discussion of College Admission Requirements, p. 77
This move for new courses went on. By 1890 most colleges offered in addition to that of the Bachelor of Arts course, two semi-classical courses, one leading to a Ph. B. degree or a degree of Letters, and a course leading to the degree of E. S. These courses have been, however, poorly defined. The majority required some Latin, but the other chief differences were that the E. S. degree called for more science and mathematics, and the Ph. B. and E. L. degree called for more language and history. The report of the Commissioner of Education in 1896-1897 gives the following results taken from the reports from 475 colleges:

<table>
<thead>
<tr>
<th>Type of Degree</th>
<th>No. of Institutions</th>
<th>Institutions Requiring Latin</th>
<th>Institutions Requiring Greek</th>
<th>Institutions Requiring Modern Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. B.</td>
<td>432</td>
<td>93</td>
<td>73-3/5</td>
<td>14</td>
</tr>
<tr>
<td>Ph. B.</td>
<td>123</td>
<td>81-3/10</td>
<td>7-3/5</td>
<td>41-3/5</td>
</tr>
<tr>
<td>B. L.</td>
<td>98</td>
<td>66-3/10</td>
<td>2</td>
<td>38-7/10</td>
</tr>
<tr>
<td>B. S.</td>
<td>318</td>
<td>55-3/10</td>
<td>2</td>
<td>38-3/5</td>
</tr>
</tbody>
</table>

These non-classical courses have certainly had much to do with the admission requirements; through the encouragement of other courses the traditional barrier of narrowness of the classical courses has been broken down. Yet at the same time the demands of the classical courses have helped to keep up the standards of excellence in other subjects than the classics. This was because the student who entered the course for his A. B. with a knowledge of Greek as well as Latin was a much better prepared student than those
In other courses. Instructors in the newer subjects in the secondary schools were not well prepared for the work and the schools were not sufficiently well equipped to make the work in those subjects equal to Greek and Latin. There was also another way in which the newer courses influenced the secondary school work. The requirements were quite varied. Those for Ph. B. courses in one institution differed greatly in subjects and amount required than in another institution. The following table will show the requirements for the Ph. B. degree in some of the institutions in 1899-1900:

<table>
<thead>
<tr>
<th>Language</th>
<th>Mathematics</th>
<th>History</th>
<th>English</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caes. 4</td>
<td>Alg.</td>
<td>Eng.</td>
<td>Col. Ent.</td>
<td>or</td>
</tr>
<tr>
<td>or</td>
<td>Scl.</td>
<td></td>
<td>Eng. Gram.</td>
<td>or</td>
</tr>
<tr>
<td>Yale</td>
<td>Cic. 5</td>
<td>Trig. and Log.</td>
<td></td>
<td>Chem.</td>
</tr>
<tr>
<td>El. Fr. or Germ.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caes. 4</td>
<td></td>
<td></td>
<td>Col.</td>
<td>or</td>
</tr>
<tr>
<td>El. Fr. or Germ.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>Alg. through quad.</td>
<td>Gk. and Rom.</td>
<td>New Eng.</td>
<td>None</td>
</tr>
<tr>
<td>Caes. 4</td>
<td></td>
<td>Fom.</td>
<td>Col.</td>
<td>or</td>
</tr>
<tr>
<td>Cic. 5</td>
<td>Pl. Geom.</td>
<td>or Am. and Eng.</td>
<td>Ent.</td>
<td>Req.</td>
</tr>
<tr>
<td>Virg. 6</td>
<td>Ovid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500 l.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>El. Fr. or Germ.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caes. 4</td>
<td></td>
<td>and Col.</td>
<td>Phys.</td>
<td></td>
</tr>
<tr>
<td>Virg. 6</td>
<td>Arith.</td>
<td></td>
<td>Pot.</td>
<td></td>
</tr>
<tr>
<td>El. Fr. and Germ.</td>
<td></td>
<td></td>
<td>Zool.</td>
<td></td>
</tr>
<tr>
<td>Syracuse</td>
<td>Adv. Fr. or Germ</td>
<td></td>
<td>Physi.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Col.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Physi-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>og.</td>
<td></td>
</tr>
</tbody>
</table>

28. Broome, E. C.- College Admission Requirements, p. 79
<table>
<thead>
<tr>
<th>Language</th>
<th>Mathematics</th>
<th>History</th>
<th>English</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caes. 4</td>
<td>Pl. and Sol.</td>
<td>from</td>
<td>Col.</td>
<td>Chem.</td>
</tr>
<tr>
<td>Cic. 6</td>
<td>Geom.</td>
<td>seven</td>
<td>Ent.</td>
<td>Biol.</td>
</tr>
<tr>
<td>Virg. 5</td>
<td></td>
<td>branch-</td>
<td>Feq.</td>
<td>Bot.</td>
</tr>
<tr>
<td>Oberlin</td>
<td></td>
<td>es.</td>
<td></td>
<td>Zool.</td>
</tr>
<tr>
<td>Fl. and Adv. Fr.</td>
<td></td>
<td></td>
<td></td>
<td>or Any 3 of</td>
</tr>
</tbody>
</table>

Before 1870 there was really no attempt to define the work expected of the secondary schools in the different subjects. The textbooks were named and the amount to be covered was usually given. Later catalogues attempted to make some definitions by designating in a very general way what the nature of the work in each subject should be. The explanation however was slight and indefinite. The English Composition requirement of Harvard University in 1879 called for a short composition correct in spelling, punctuation, grammar, paragraphing, and expression on subjects drawn from the following selections: Much Abo about Nothing, King Lear, Elegy in the Country Churchyard, Johnson's Chief Lives of Poets with Matthew Arnold's preface, Macaulay's Life of Johnson, Carlyle's Essay on Johnson, Dickens's Tales of Two Cities, and Scott's Quentin Durward. This plan of English requirements has continued up to the present time, except that the range of selections is broader and substitutes are permitted. In 1886 Harvard University adopted a scheme in order to make the option greater and to insure a better indication of the training of the candidate. A statement from the principal that the applicant was ready to be examined were in the subjects he chose was required. There then four plans where-
by he might satisfy the requirements. He must pass successfully the 
examinations in the subjects indicated in one of the following plans:-

1. All elementary subjects and two advanced subjects.

2. All elementary subjects except German or French and at 
least three of the advanced subjects.

3. All the elementary subjects except Greek or Latin and at 
least four of the advanced subjects.

4. All the elementary subjects except Greek or Latin and 
German or French and at least five of the advanced subjects.

The elementary and advanced subjects are listed as follows:

<table>
<thead>
<tr>
<th>Elementary</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, composition and correc-</td>
<td>Greek, sight translation of Homer, or easier passages</td>
</tr>
<tr>
<td>tion of specimens of bad English</td>
<td>from Homer and Herodotus</td>
</tr>
<tr>
<td>Greek, translation at sight of Attic prose</td>
<td>Latin, sight translation from Cicero and Virgil</td>
</tr>
<tr>
<td>Latin, sight translation of easy prose</td>
<td>Greek and Latin, prose composition</td>
</tr>
<tr>
<td>German, sight translation of easy prose</td>
<td>German, German classics, sight translation, grammar,</td>
</tr>
<tr>
<td>French, sight translation of easy prose</td>
<td>and composition</td>
</tr>
<tr>
<td>History (and geography), Greek, and Roman or</td>
<td>French, same as German</td>
</tr>
<tr>
<td>English and American</td>
<td>Mathematics, logarithms, plane</td>
</tr>
<tr>
<td>Mathematics, algebra through quadratics and</td>
<td>trigonometry, and solid geometry or analytic</td>
</tr>
<tr>
<td>plane geometry</td>
<td>geometry, or either solid geometry or analytic</td>
</tr>
<tr>
<td>Physical Science, astronomy, and physics or a</td>
<td>geometry and elementary mechanics</td>
</tr>
<tr>
<td>course of experiments in Physics</td>
<td>Physical Science, 60 additional experiments in Physics</td>
</tr>
<tr>
<td></td>
<td>Chemistry, 60 experiments</td>
</tr>
</tbody>
</table>

The third and fourth plans require the first group of mathematics and one of the last three groups of advanced subjects.

This method was retained until 1898 and was used in some form in many other institutions. The change was made on the above date to the use of the point system of counting credits. Twenty-six
points of which four must be advanced were required for entrance. A point represented one-half year's work of four or five recitations a week. The following were prescribed:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>Greek or Latin</td>
<td>4</td>
</tr>
<tr>
<td>German or French</td>
<td>2</td>
</tr>
<tr>
<td>Elementary history</td>
<td>2</td>
</tr>
<tr>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td>Geometry</td>
<td>3 or 2</td>
</tr>
</tbody>
</table>

From the following sciences:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics (elementary)</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Physiography</td>
<td>2</td>
</tr>
<tr>
<td>Anatomy, or physiology</td>
<td>2</td>
</tr>
</tbody>
</table>

Total prescribed 19 or 18

The points which may be offered in each subjects are as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Elementary</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Greek</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Latin</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>French</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ancient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English, or American</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Algebra</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Geometry</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Plane Geometry</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Physics</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Physiography</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Physiology</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

It is well to note that in the counting of the credits by points the time the applicant has spent in the preparatory work is an item of consideration. The improvements made may be summed up in the words of President Eliot as follows: "Nearly three quarters of his (the student's) preparation may be just as it was one hundred years ago, or fifty years ago - namely, in Latin, Greek, elementary mathematics, and ancient history; or, on the other hand, these traditional subjects may be represented by less than one-third of his secondary school studies - namely, by Latin, algebra, and geometry. Again, nearly half of his preparatory studies..."
may be English and the modern languages; or the natural sciences, which thirty years ago were not accepted at all for admission to college, may constitute a little more than one-third of his preparatory studies. Further, at a small additional cost of offering three advanced subjects instead of two, the candidate, may present himself in modern languages and history for sixteen out of the twenty-six points required; whereas thirty years ago the modern languages were not accepted at all, and history was represented only by a fragmentary and fleeting acquaintance with Greek and Roman history, such as a boy might easily acquire in a day or two from a primer of ancient history. At the present time Harvard University uses the unit for the measure of credit and requires 16.5 units for entrance. The new plan of Harvard has been described on pages 13 and 14 above. For the degree of B. S. credit is given for free-hand and mechanical drawing and shopwork.

The changes at Harvard University are typical and indicate especially the changes in the eastern universities. The western universities have not been tied down so closely by tradition and have been built up as a part of the educational system of the state; hence the changes have been easier and more rapid. With the adoption of the accrediting system, four years of high school work was required and in recent years attempts have been made to define the credits in the entrance subjects. These definitions have in general consisted in naming the authors in English and foreign languages, in giving an outline of topics in science or of giving a list of experiments, and in giving the field to be covered in

the

history. But the main thing is to designate units accepted and thus indicate the time to be devoted to each subject. The western universities prescribe fewer units than do the eastern universities. Illinois University may be taken as one of the more conservative of the western institutions. We may note the following requirements in the years given which indicate the changes made.

In 1878 arithmetic, geography, English grammar, and United States history were required.

In 1884 the above named subjects were prescribed for all colleges as was also algebra through radicals, and plane and solid geometry. In addition to these physiology, botany, natural philosophy, and rhetoric were required for the colleges of agriculture, engineering, and science; physiology, botany, natural philosophy, and Latin grammar and reader, Caesar, Cicero, Virgil; Latin prose composition were required for the School of English and Modern Languages; the Latin just mentioned, Greek grammar and reader, four books of The Arabasis, and Greek prose composition were required for the School of Ancient Languages.

The subjects were defined in the same general way as at Harvard University. By 1898 chemistry, astronomy, zoology, French, and German had been added to the list of accepted subjects. In this year the term "credits" was used to measure the work accepted. Nine credits stood for a year's normal work. Thirty-six were required for entrance. Those prescribed were algebra through quadratics 4; English composition 3; English literature 6; history 3; French or German, or Greek or Latin 6; plane geometry 3; physics or biology 3; a total of 28. The elective list included astronomy, botany, zoology, physiology, physics, chemistry, physiography,
geology, Latin, Greek, German, French, history, and drawing.

The unit was adopted as a measure of credit in 1906. At the present time 6 units are prescribed by all colleges, namely, English 3, algebra 1, geometry 1, and science 1. The College of Liberal Arts and Sciences prescribes 2 units of foreign language, and for a degree in Chemistry requires an extra unit in science and two in French or German. The College of Agriculture requires an extra unit in science, the College of Engineering an extra unit in mathematics, and the College of Commerce and Business Administration an extra unit in language or science, and one in mathematics. New subjects now accepted are agriculture, bookkeeping, business law, typewriting, stenography, domestic science, manual training, music, and different units in drawing. A high school manual issued by the university aids the catalogue in defining the units. The syllabi worked out at the high school conferences and the committees of the North Central Association have defined the units as used by most universities and high schools in the association. These are too lengthy to consider in detail but their bearing upon the credit for high school work is brought out in their discussion above, pages 33 to 44 and in connection with the consideration of the high school unit below.

In considering the moves in the western universities it is well to note the requirements where some more recent steps have been made. A study of the recent catalogues of the Universities of Michigan and Ohio will give some of these. Michigan gives two plans for entrance, A and B, each requiring 15 units. Plan A requires 3 units in English, 2 in foreign languages, 1 in algebra, 1 in geometry, 1 in science, 3 each from two subjects of Groups I, and
not more than 3 from Group II. Plan B requires 12 units from Group I, otherwise there are no prescriptions. Group I includes the English, mathematics, languages, and the sciences. Group II includes agriculture 1 to 2 units, domestic science 1 to 2 units, drawing ½ to 1 unit, manual training 1 to 2 units, and commercial subjects 1 to 2 units.

Ohio University requires 15 units of which none are prescribed. Certain combinations are recommended as being especially suited to prepare for the different colleges of the university. These recommendations include English, History, languages, mathematics, and science. But any subject given in an approved high school will be accepted for entrance requirements. Leland Stanford Junior University, according to one method, admits without any prescription of subjects. This means there is a tendency to allow the secondary school to solve the problem of proper coordination of subjects.

This study shows that in 1800 the entrance requirements were nearly uniform. The classics were the chief subjects required. A description of the requirements consisted in naming the subjects with perhaps a note of the amount of work to be covered. After 1850 colleges began to establish semi-classical and non-classical courses. Then new subjects were accepted for entrance. As the new college courses varied the requirements varied. Students were not as well prepared in the new subjects as in the classics. The colleges attempted to help bring the work up to a higher standard by defining the courses. These definitions usually stated the content of the subject matter and perhaps indicated the nature of the work in the subject. In recent catalogues the outlines are
fuller than in the earlier statements but the plan of defining the courses is the same. The use of the unit is now made in almost all higher institutions and this makes the time the pupil spends in his preparatory work an item in the definition of the different courses. There is a stronger tendency in the west than in the east to prescribe only a few if any subjects. This means that there is a tendency to leave the question of definition of courses to a greater extent in the hands of the high schools.

VII. THE QUESTION OF THE CONDITIONED STUDENT.

It is well worth while for the universities to secure the help of the secondary schools if along with the solution of proper coordination of subjects the matter of the conditioned be settled satisfactorily. All institutions have admitted students every year who have not met the requirements. The explanation for this is that the university eliminates the necessity of the loss of a year to students who fail by a small margin to meet the requirements. At Harvard in 1907 58% of the Freshmen presented less than the required number of points. Some of them had less than 17 out of the 26 required. At Yale 57% had less than the required credits for admission. Out of 145 at Columbia 75 had from 1 to 7 units less than the stated requirements. 19 lacked four or more units, equal to at least a year's work. Similar conditions are found in other universities. In Illinois, for example, many of the conditioned students are only technically deficient because all of their secondary work has not been accepted. It is questionable for an institution to accept students deficient in credits and expect them to make up the work outside while carrying their college work. This places the student in class with those prepared
and assumes he can do equal work and make up his deficiency. Many institutions allow persons over twenty-one years of age to take two years of work even though they cannot satisfy the entrance conditions. Then, after they have demonstrated by their classroom work that they are abundantly able to do the college work, are not allowed to go on without satisfying the entrance requirements. In the correspondence courses of Columbia and Chicago Universities students equipped for the work are allowed to take up courses without an entrance examination or without even being questioned as to their qualifications. Now if such student does as well in the evening outside of the college walls as a student does in the daytime inside the walls, why should he not be allowed to take regular day work? He has demonstrated his ability and training. The question arises, what does the university want? Is it a certain amount of time spent on preparatory work as counting by units would require? Or is it a certain amount of information as the examination requires? If a person has the training and ability to get the education from the college courses without meeting the full requirements the withholding or granting a degree does not alter his proficiency. Harvard and Chicago Universities have attempted the question of conditioned students by saying that hereafter by their new plans students must enter without conditions or not at all. The University of Illinois says that it admits no students on condition but prefaces this with the statement that one who has the six prescribed units may enter if he lacks not more than two units prescribed by the college he wishes to enter. These must be made up before he registers for his second year's work. It is doubtful if these universities will be able to hold rigidly to
their regulations. If the universities would adopt the plan of Leland Stanford Junior and Ohio Universities and if the high schools would adopt the scheme suggested by Dr. Johnston whereby the pupil in his choice of work in high school were guided by these principles:—1. Specification, to insure the pursuit of those subjects which would function as tool subjects. 2. Distribution, to insure work in different important fields offered. 3. Concentration, to insure the attention of the pupil to one field or allied group in order to become fairly proficient in that group. 4. Continuity, to insure the proper sequence and to give a sense of accomplishment or individual power in that line:—then it seems that the problem would cease to exist.

It was the question of the conditioned student which led the University of Chicago to adopt its new plan for admission. Other universities are facing similar situations. The acceptance of conditioned students indicates that the entrance requirements are not wholly satisfactory. The rule that/conditioned student must make up his deficiency even though he proves his ability to do college work shows the force of the traditional requirement for a measure of the quantity of the pupil's work. There is need of closer articulation between the high school and the university. A revision of the definition of the unit to include the element of quality would lessen the number of students entering on condition.

VIII. THE REORGANIZATION OF THE HIGH SCHOOL.

The movement of reorganization bids fair to insure the principles of Dr. Johnston's being incorporated in high school adminis-

tration. Through the articulation of the junior and senior high schools these principles will function so that the pupil will know one field well because of proper sequence and concentration, he will have his work sufficiently distributed to acquaint him with other fields and to find wherein his abilities lie, and he will have sufficient choice to give him opportunity for educational judgments. A pupil is admitted to the junior and thence to the senior high school on the nature of his previous work and the evidence shown of the ability to do the work. The North Central Association has decided to leave the evaluation of credits for the work of the junior high school in the hands of the high school. The problem is recognized as one for the high school to solve. The University of Michigan encourages high schools to incorporate the seventh and eighth grades as a part of the high school. In this case at least 8 of the 15 units must be gained during the last three years and two must be in the senior year. The movement toward the formation of the junior college tends to insure easy articulation between the high school and the junior college. It can then be hoped that credits will be chiefly a question of quality of work done. So much time spent under certain specified environment thought to be favorable for the growth of the pupil together with the judgment of the teacher that the passing grade has been attained in order to obtain the unit of credit will no longer be the measure of the value of the pupil's work. There will be a new conception of the unit. This will be brought out in the next topic treated.
IX. THE HIGH SCHOOL UNIT.

1. A Quantitative Measure.

General Definition.—The high school, as defined at present, is quantitative in character. If a high school student does passing work for the requisite number of forty-minute recitation periods per week for a year of thirty-six weeks, he earns a unit of credit. The unit is the amount of work represented by the pursuit of one preparatory subject, with the equivalent of five forty-minute recitations a week through thirty-six weeks. A laboratory or shop period to be equivalent must be an eighty-minute period. The high school visitor wants to know about the quality of the teaching, the quality of the training of the teachers, the quality of the buildings and equipment, the kind of environment to which the pupil "film" is exposed. If the quality seems good and the time exposure is standard, the university accepts the negative. Poor and good negatives are accepted upon equal terms. No consideration is given to the quality of the "film" or to the brilliancy of the light. The claim may be made with good foundation that the high school visitor looks for quality of all parts of the school machine, but the university in counting credits measures the quantity of the product in terms of the high school unit.

Growth of the Unit.—The unit has been formulated because of the attempts of the colleges and secondary school men to come to some understanding on the question of counting high school work toward admission to college. No matter what method of admission a college uses, all colleges demand graduation or the equivalent from a four year high school. In order to have some method of recognition which would be of service in general it was early seen...
there must be some uniformity in the high school work and in the entrance requirements of the college. At the National Educational Association in 1889, E. W. Coy, Principal of the Hughes High School of Cincinnati made a report of a study of a great number of high schools over the country in order to determine the uniformity of subjects taught, the arrangement of these in the course of study, and the results obtained. With the exception of Latin, Greek, and mathematics, he found no uniformity in arrangement of subjects in the course. Studies taught in the first or second year in some high schools were placed in the third or fourth year in other schools. In some schools geometry was taught in the first year. The content of the subjects varied somewhat and the time given to each subject was not always the same. Coy said there was no way to tell about the question of uniformity of results. He found two things standing in the way of uniformity. One was the ideas of local self-government. The direction of school matters was in the hands of the officers of the local community. The second was that these local communities worked under widely differing conditions and had different tastes, wants, and views. Coy believed, however, that uniformity was desirable and proposed a general course for high schools in which he indicated the number of times per week and the number of weeks each subject should be pursued. He said that uniformity in the high school work demanded uniformity in college entrance requirements.

The Committee on Secondary Schools of which Mr. Coy was a member made a study of the entrance requirements of colleges and in the report of this committee to the National Educational Association in 1891, Mr. Baker, then Principal of the Denver High School
plead for uniformity in admission requirements. He said that so far, the main steps had been made by the New England Association of Colleges and Preparatory Schools in recommending uniform requirements in English, Greek, Latin, and modern languages. His committee suggested a committee be appointed to be represented in a convention to consider the problems of secondary and higher education for the following purposes:—1. To recommend a classical preparatory course for general adoption. 2. To recommend a preparatory course in which Greek is omitted. 3. To recommend a standard preparatory course for scientific schools. 4. To consider a plan for complete adjustment between colleges and secondary schools so that any good high school may be considered a good preparatory course for college. 5. To consider the feasibility of building a university upon the complete high school course. Through the influence of these suggestions Mr. Baker's committee was continued another year and in 1892 in order that a more complete study might be made and in order to formulate the work of different subjects so that each should be the equal of the others, the famous Committee of Ten was appointed.

The Committee of Ten appointed nine sub-committees of ten members each. Each of these sub-committees made a study of one subject or group of subjects. With reference to the work of the high schools the main points considered were as follows: 1. How many hours a week and how many years should be devoted to each subject. 2. What topics or parts of the subject may be reasonably covered. 3. In what form and to what extent should subjects enter into entrance requirements. 4. Should subjects be treated differently for pupils going to college, those going to scientific schools
and those going to neither? 5. At what stage differentiation should begin. 6. If possible a description of the best mode of testing attainments in the subjects in entrance examinations. 7. If possible a description of the best method of teaching subjects throughout the course. In the report of the Committee of Ten made in 1894 each subject was treated in detail. Table 1 as copied below gives the recommendations of the committee with reference to the arrangement of subjects and the time each should receive. The year should be from thirty-six to forty weeks. The numbers in the table represent the number of periods per week.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>1st yr.</th>
<th>2d yr.</th>
<th>3d yr.</th>
<th>4th yr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Greek</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>English Literature</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Composition</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rhetoric</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Grammar</td>
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<tr>
<td>Modern Language (1st)</td>
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<td>(2d lang) 4</td>
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<tr>
<td>Mathematics Alg.</td>
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<td>21/2</td>
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<tr>
<td>Geomet.</td>
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<td>21/2</td>
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<tr>
<td>History</td>
<td>3</td>
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<td>3</td>
<td>4 Civic</td>
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<tr>
<td>French</td>
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<td>5 or 1</td>
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<tr>
<td>Geology</td>
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<tr>
<td>Meteorology</td>
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<tr>
<td>Astronomy (12 weeks)</td>
<td>3</td>
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<tr>
<td>Chemistry</td>
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<tr>
<td>Physics</td>
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</tbody>
</table>
| Botany and Zoology, one year, year not specified, to be followed by one-half year of anatomy, physiology, and hygiene, 5 periods per week.

In the place of algebra in the second year, bookkeeping and commercial arithmetic may be substituted. Physiography may be elected instead of geology in the fourth year. It is recommended that a pupil recite not more than 20 periods per week. The table copied below is taken from table IV of the Committee's report and gives the different courses recommended and the time required for each sub-
ject. The numbers refer to the number of periods per week.

<table>
<thead>
<tr>
<th>Year</th>
<th>Classical</th>
<th>Latin-Scientific</th>
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<th>English</th>
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<td>Latin 5</td>
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<td>Eng. 4</td>
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<td>Germ. 5</td>
<td>Others same as the Classical</td>
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<tr>
<td></td>
<td>Alg. 4</td>
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<td></td>
<td>omitting Latin</td>
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<td></td>
<td>Hist. 4</td>
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<td>Phys'1</td>
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<td></td>
<td>Geog. 3</td>
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<tr>
<td>2.</td>
<td>Latin 5</td>
<td>Latin 5</td>
<td>Fr. or Germ. 4</td>
<td>Fr., Germ. or Lat. 4</td>
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<td></td>
<td>Germ.</td>
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<td>or Fr. 5</td>
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<td>Eng. 2</td>
<td>Eng. 2</td>
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<td>Phys. 3</td>
<td>Phys. 3</td>
<td>Geom. 3</td>
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<td>Hist. 3</td>
<td>Bot. or Zool 3</td>
<td>Phys. 3</td>
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<td></td>
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<td>Bot. or Zool 3</td>
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<tr>
<td>3.</td>
<td>Latin 4</td>
<td>Latin 4</td>
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<td>Fr., Germ. or Lat. 4</td>
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<tr>
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<td>and Alg. or Alg. or Alg. or</td>
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<td>and Hist. 3</td>
<td></td>
<td>Hist. 3</td>
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<tr>
<td></td>
<td>Hist. 3</td>
<td>Anatomy, physiology, and hygiene, and</td>
<td>Phys. 3</td>
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<tr>
<td></td>
<td></td>
<td>geology, or physiography, one half year</td>
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</table>

The main subjects taught in the secondary schools were to be considered of equal rank for the purpose of admission to college. The Committee in its report on page 52 made this significant statement: "Colleges and scientific schools should accept for admission to appropriate courses of their instruction, the attainments of
any youth who has passed creditably through a good secondary school course, no matter to what group of subjects he may have devoted himself in the secondary school." President Butler in an address before the Illinois High School Conference in 1898 said that this statement was the greatest contribution made by the Committee of Ten. The study of any subject if pursued creditably the required time will give as good preparation for college as will the study of any other subject. President Baker of the University of Colorado refused to sign the Committee's report without being allowed to write a minority report in protest against this statement which he declared implied the acceptance of the doctrine of formal discipline.

The quotation from the Committee's report given above seems the even more significant when the spread of elective system is considered. The Committee made no reference to manual training and other vocational subjects. But on that principle that is implied by the Committee high schools have demanded recognition of work done in these subjects if pursued the required time in the high school. Universities and colleges are coming more and more to the custom of limiting the number of prescribed units. The average number given by Kingsley is 10.7. A few, as for example, the University of Chicago, prescribe units in English only. And as has been stated Leland Stanford Junior University and the University of Ohio prescribe none for the course which the student's high school work has prepared him to take up. The subjects, however, in order to be counted as units, must have been studied the re-

quired amount of time in an approved high school.

So far as the writer was able to discover, the term "unit" was first mentioned in 1894 in a meeting of the New England Association. President Hyde of Bowdoin College recommended the use of some such measure for the purpose of a better understanding between colleges and secondary schools. The University of Chicago was about the first, if not the first, to make use of the unit with reference to credit for high school work. The plan to require thirteen units for admission from the affiliated high school was adopted in 1894. The University of Missouri rated its requirements in "units" in 1895. In 1898, the University of Illinois required 36 credits which was about the equivalent of 12 units. In 1906, the University of Illinois changed the term or name to the word "unit" and required 15 for admission. Other universities, especially in the central west were gradually adopting the scheme of counting credits by units. In the report of the Committee on College Entrance Requirements in 1899, it was recommended that the unit be adopted by all colleges and universities. Then there would be something of definite and national value as a measure for entrance requirements. In the opinion of Dr. Proome this is the greatest contribution of this Committee.

However, so far, the unit had no uniform definition. Each institution defined it in its own way. The number of recitations varied from 3 to 5 per week. The number of minutes per recitation varied also. Some colleges permitted work to count as a unit when extended over two or more years of one or two periods per week. If the unit was to become national in use it seemed necessary that its definition be made uniform.
A move was made in this direction in 1901 when Dr. Forbes of the University of Illinois moved in the North Central Association that a committee be appointed to formulate a definition of the unit to be put in force by the Association. This committee worked out the following general definition: A unit shall equal the work in any subject carried on for 5 periods of forty-five minutes each per week for a year of 36 weeks or 120 hours per year of classroom work. Later committees were appointed to work out definitions of units in the different subjects. These were put into administrative operation in 1910.

The unit idea was adopted by the Southern Association of Colleges and Preparatory Schools in 1908 and by the College Entrance Examination Board in 1909. The Fourth Annual Report of the Carnegie Foundation states that the unit is universally used. The unit as defined by the Carnegie Foundation equals a year's work in any subject pursued for 5 periods a week, or practically one-fourth of a year's work. This is the definition in general use over the country. The Carnegie Foundation regarded the unit as of great value and gave the following comment on it: "The function of the unit is simply to recognize a well ordered high school course. It does not touch the pedagogical problem. It gives a process of calculating in easy and natural terms college entrance requirements. The number of units indicate the relation of the high school to college, the numerical value of each indicates the relation to the total high school scheme. It is simply an effort to find a counter for the relation between the high school and the college and is the inevitable consequence of the acceptance of the four year high school as a basis for preparation for college, especially in case of those
admitting on certificate. The unit involves no limitation of freedom upon either the school or college. The use of such a common unit will make for unity and freedom. The unit is easy to administer and it leaves the high school free within the limits specified to regulate the choice of subjects as it sees best. Practically every subject in a good high school is recognized for college entrance.

2. The New Conception of the Unit.

The Dissatisfaction with the Present Definition of the Unit.- Uniformity in one sense has arrived. But it does not seem to meet with satisfaction. Brown says, "It will be seen that one tendency is to substitute a quantitative consideration for a qualitative consideration of the curriculum. The most diverse subjects are held to be equivalent for the purposes of general culture if pursued for equal periods of time under equally favorable conditions. A high school course under this system would consist of a fixed number of units of study to be chosen at will from the whole number of studies to be taught in the school." "The amount of study and the excellence of instruction are taken as elements of first importance, while the content of the studies pursued is treated as relatively unimportant." Pearson in a paper before the Association of Colleges and Preparatory Schools of the Middle States and Maryland in 1914 expressed a doubt as to

whether the unit has been a force for good in the advancement of education. He said that we have the unit but what does it mean? What does a unit in history or English mean? So far it merely specifies the number of hours that the student recites. We know little or nothing of what the pupil has accomplished in his work. Up to the present year, perhaps, the best attempts to define the units in each subject is given in the 1910 report of the North Central Association. In some of the subjects the end to be accomplished is stated; what work will do this, and how we may know when the end is attained is not given. In some subjects the topics to be covered are enumerated, but where shall the emphasis be placed? This is an especially important question in case the topics are too many to be covered in a year of thorough work.

The unit has been formulated because of the question of admission to college. So many units of work satisfy the college. The high school wants to know when a unit's work has been done. The use of the unit according to Judd has placed the high school in the "grip of quantitative formalism". No one asks the pupil what he has been doing, what he has learned, what certain phases have meant to him? The big question, how many units has he? This brings up the question of the real purpose of college entrance requirements. The old notion which the colleges formerly gave was that they were to insure the college that the candidates had a common foundation in what was considered to be the fundamental subject-matter and that they had a sufficient amount of mental discipline. But few would consider this a valid purpose now. Perhaps the best statement of the viewpoint of the majority at the present

time was given by McVey. "What the college wants to know is that
the student is able to go on with his work, that he has reached
such mental development in his advancement that he is capable of tak-
ing up his work in college. It does not matter a great deal to the
authorities at college what subjects have been taken, provided that they can be
sure that the student has mental equipment, earnestness, and ability
to go on with his studies in the higher school." The number that
a student has is not necessarily an indication of his ability to
go on with his studies. The content of the subject he has studied
and the quality of his work are much better bases for judgment as
to the student's ability to follow up his work in the higher
schools.

What the Unit as Defined at Present Does not Reveal.--
There a number of things about the student's work that the unit
does not tell. It is thought better to enumerate these and to com-
ment upon them than to attempt to give in detail the comments of
those who are dissatisfied with the present use of the unit as a
purely quantitative measure.

1. It is a common occurrence in many good high school to
find a third or fourth year pupil in classes with the first or
second year pupils. In most cases there is the same demand made
upon each member of the class. Here advanced students are getting
credit for elementary work and it may be that most of the fifteen
units of some pupils are elementary. A statement of the credits
earned does not show whether the pupil is able to do advanced work.

2. As ordinarily defined the units in the different sub-
jects consist of a series of topics with no agreement as to which

deserves the most emphasis, and as to the proportion of time each
should have. The work under a poor teacher receives the same recog-
nition as that done under an excellent teacher. There is no indi-
cation of how the subject has been organized. Methods are not con-
sidered. The student may have done the work under a plan of super-
vised? The "project" method may have been employed. The class may
have covered the ground in some detail. Mere textbook recital may
have characterized the work. The unit does not tell what has been
taught in the subject or the way in which the work has been done.

3. There is a wide variation in the standards of different
subjects. A poorly organized course gets the same credit as a
good course. Then, one course may contain a majority of pupils who
are not going higher in education; another may contain a majority
who expect to go to college. One subject may be so organized that
the work takes less effort and time outside than another. The
unit of credit is given without distinction.

4. The pupil who barely passes receives the same reward,
a unit of credit, as the pupil whose work has been excellent. This
tends to put a premium on the credit and not on the value of the
course. The unit does not indicate so far as the credit given
whether the pupil's work has been done at a high level or low
level.

5. A unit is supposed to represent one-fourth of a year's
work. But it is getting to be common for a pupil to carry five or
even six subjects at the same time. It is also true that it is not
always the most able students who do this, but often those who
have failed in some of their previous work and are trying to make
up by carrying one or two extra subjects. Certainly such pupils
cannot devote the same amount of outside work to the subjects as those who are only carrying four subjects. The unit does not indicate the amount of outside work done.

6. In many schools it is the custom to encourage efforts in literary societies, in debates, in literary contests, in music, and in athletics by giving credit in some or all of the subjects pursued by the pupil at the time. These activities are not recognized for credit by colleges and the high schools do not give separate credits for such work. Some students may devote all their time to the regular work. Others may give much of their time to extra-classroom activities. In either case the unit of credit is the reward. The statement of the high school to the university does not tell fully how the credit has been earned.

7. The number of pupils in a class naturally varies. A small advanced class should be able to get more benefit from forty minutes of a live recitation than a large class could. Personal supervision could be readily given to individual work in a small class, and more work could be done in less time. The unit does not indicate the number of pupils in the class.

8. The scholastic attainments of those not expecting to go to college cannot be pushed so high as for the prospective college student. Many schools permit graduation at a lower standard for those who are not preparing for college. However, these may be in the same class with those who expect to go higher in education, and hence the work may not be of the same standard as in classes having a majority preparing for college. Then, too, the student who graduates without a college preparation in view may change his mind. He presents his units of credit and these do not
tell whether the same standards are held for graduation and for college entrance.

In the Annual Report of the Carnegie Foundation in 1912, it is stated that the "units have served their purpose. They were never intended to constitute a rigid form of college admission but as a means of comparing high schools. The general conception of college admission no longer contemplates a certain number of units, but the completion of a satisfactory four year high school course." But this view is not really general, although it is growing. At present few colleges show any interest in the student's high school record unless it be perhaps his athletic prowess.

The Movements Toward Redefining the Unit in order to Give Credit for Quality.—There have been some attempts to redefine the unit. In 1910, Bliss, who was delegate to the National Conference Committee on Standards of Colleges and Secondary Schools, made a report to the North Central Association. He said there was a strong feeling in the committee that a rigid time element definition of the unit was unwise and unreasonable, and that the element of content and quality of work done was more important than the mere time devoted to doing the work. Bliss recommended three classes of units, major of senior units for work done in the fourth year; minor or junior units for work done in the first year; and intermediate units for the work of the second and third years. The University of California distinguishes its fifteen units and says that at least four must be advanced. The University of Chicago believes that the quality is lessened by scattering the work over many subjects and not in any definite sequence. Therefore, the university requires in addition to three prescribed units of English, one ma-
tor of three units, and two minors of two units each. The latest report of the Committee of the North Central Association of Re-organization of the High School and the Definition of the Unit made in 1916 makes a number of recommendations as to the general definition of the unit in the different subjects, which will undoubtedly have a great influence on the movement toward a redefinition of a unit. The general recommendations copied from the report are given below:—

1. A unit is a series of recitations or exercises in a given subject pursued continuously throughout the school year.

2. The school year must be at least thirty-six weeks of five school days each.

3. The number of class exercises in a week for a unit shall be five. However, if the advanced character of the work or the small size of the class insures a direct personal supervision of the work of each student a smaller number of recitations per week than five may be accepted.

4. Class periods may not fall below forty minutes with the exceptions of the cases cited above. Longer periods should be provided in case of supervised study.

5. A standard unit should provide for individual work on the part of the pupil to such an extent that the elementary courses shall involve, including the recitation at least one and one-half hours for the average member of the class. Advanced courses shall require more time.

6. Shop and laboratory courses are made up largely of individual work. Double periods should be provided unless provision is made for outside work on the part of the pupil.
7. Fractional courses may be accepted; but in all cases where such courses are administered, credit for each shall be recorded separately. Fractional courses running through a period of years shall not be recorded with the aggregate of credit at the end of the whole period.

8. Each definition should include provision for students of varying ability. There should be a margin of extra work which the better students of the class may take. It is recommended that special requirements be imposed upon students who elect in the later years of their high school career courses which are classified as first or second year courses. Such mature students taking elementary courses should be required to carry a larger quantity of work at a higher level than the students of the earlier classes who take the same work. If the advanced and elementary students cannot be grouped separately, it is recommended that they be separated for a certain number of exercises a week.

9. No unit is well organized unless it explicitly articulates with courses pursued by the student in earlier years.

10. No unit is well organized unless it explicitly trains the student to carry forward the same type of thinking and practice, either in more advanced work or in some form of individual activity, either of an artistic or productive type.

11. No unit is well organized unless there is some clear definition of more mature types of thought or action to which the student attains in its progress. A mere enumeration of topics does not constitute a definition of the progression within the course.

12. At least two-thirds of the courses pursued by the students in the last two years of the high school curriculum shall be
of a type which is explicitly defined as advanced. In order to
make the enforcement of this rule possible, each definition of a
unit should ultimately include a discriminating discussion of the
advanced and elementary character of the work it defines.

13. To rank as a standard school of the first class, a school must provide and conduct courses in English, history and
civics, science, mathematics, languages other than English, and the
fine and practical arts.

14. It is recommended that the Association instruct the
inspectors to make a report at a subsequent meeting defining the
number of courses in each of these fields which shall constitute
a minimum acceptable to the Association. At the same time there
should be a definition of the range of courses necessary to make
up a satisfactory curriculum for the individual student.

15. It is recommended that the Association instruct the
inspectors to inquire into the feasibility of giving different
credits to high grade and low grade students in the same class.

16. It is recommended that the Association instruct the
inspectors to investigate the number of units taken by the students
in one year and to report at a subsequent meeting proper regula-
tions governing this matter.

This Committee makes some excellent recommendations as to
the units in each subject. It does not seem necessary to include
these in this paper. It is well to note however that the aim and
and scope of each subject is stated and distinction is made be-
tween elementary and advanced courses in each.

With reference to the recommendation as to the feasibility
of giving different credits to high grade and low grade students
it might be noted that there have been some recent attempts in high schools to give different credits according to the grade of the work done. These moves are from the standpoint of the high school curriculums and not from the viewpoint of preparation for college. But if the moves succeed in raising the standard of work in the high school and prove that credit for quality can be administered to advantage they are steps toward securing a restatement of the definition of the unit for college admission which shall include credit for quality. An attempt will be made to give a brief survey of some of these schemes in the high schools.

Hoblit of the State College of New Mexico has worked out the following scheme: Let 15 units be required for graduation and for college entrance the same as at present, and let a unit equal 5 recitations a week of one hour each. Let the unit equal 200 points and let 2400 points be required for graduation. Then qualitatively evaluate the student's work as A, B, C, D, and E; A merit ing 100 points; B, 30 points; C, 80 points; D, 70 points; and E, 60 points. A student who gets below C is limited in the amount he is permitted to carry the next semester. No grade higher than C is to be given for work done in advance or in arrear of the pupil's proper class year. A pupil getting all A's will be able to graduate in three years. It must be noted that the unit should be defined quantitatively with respect to extent and content, qualitatively with respect to the work of the pupil and teacher, and the credit for work should be by both quantitative and qualitative evaluation of these factors.

Principal F. W. Johnson of the University of Chicago High School has described the scheme used there in the School Review
for December, 1915. 16 units are required for graduation. 3 of these are prescribed as follows, 3 in English, 1 in foreign languages, 1 in mathematics, 1 in history, 1 in science, 1 in physical training, 1 in shopwork, drawing, domestic science, or household arts. The other 7 units are elective. 8 marks are given as indicated below with their corresponding credits.

| Grade | Score | Credit
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<tbody>
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<td>95</td>
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<tr>
<td>A</td>
<td>90</td>
<td>1.20</td>
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<tr>
<td>B+</td>
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<td>1.15</td>
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<td>B</td>
<td>80</td>
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<tr>
<td>D+</td>
<td>60</td>
<td>.85</td>
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</table>

The passing mark is 60. There are certain fixed limitations upon the pupil's work. 1. Pupils with extra credit may not take more than 4 units of work on a C plus mark. Physical training is excepted. 2. Pupils may take with the maximum of 4½ units on a C plus mark in case the excess is shop work, drawing, domestic science, or household arts; debate, drawing, or music. No extra credit will be given for a high mark. 3. Pupils taking in excess of 4 units on the basis of a C plus mark will receive a penalty for low marks. 4. Pupils will be allowed to take work in excess of 4 units on a C plus mark only when the average mark of the previous semester has been at least B. 5. The total excess should not be more than two times the amount earned in the last one-half of the course.

Johnson says that the plan was devised to reward those whose work was above the median standard. Bright pupils may obtain 5 units in a year, but they must meet the prescribed requirements. He believes that the limitations keep down the growing tendency to take an excessive number of courses. So far in the school no pupil has graduated in three years but several have
earned twenty units. These have asked for advanced standing in the University and their university career will be watched with interest.

The scheme used in the Decatur High School is much simpler. 15 units are required for graduation. All pupils must take the prescribed subjects; otherwise there is no attempt to make the credits for graduation and for college entrance count for the same. The scheme for giving credit for the quality of the work is simply to add 10% of the credit for the average work. In case of poor work 10% is deducted. Credit is reckoned in hours, one hour being credit for the work of one hour a week for a semester. In case of a subject meeting 5 times a week 5 hours of credit are given. In that case a good student would earn 5.5 hours of credit. For a year's work reduced to the unit basis, a good pupil would receive 1.1 units. There are seven marks given: - F, F-, G, G-, M, M-, and F standing for failure. The mark of F merits an extra credit of 10%. The marks of M and M- receive a penalty of 10%. The marks of F-, G, and G- receive straight hour for hour credit. It is the judgment of Mr. Jesse H. Newlon, former Principal, that there has been a very substantial increase in scholarship since the introduction of the scheme.

Principal H. V. Church of the Township High School at Cicero is using a plan similar to that outlined by Hoblit and described above. Five marks above passing are given. Each mark earns a definite number of credits. 170 credits are required for graduation and for certification to college. All studies that require less than 10 periods/are rated in proportion. The marks with their corresponding credits are as follows:
Studies with 9C and above earn 1C credits.
- 95 to 9C = 5
- 80 to 95 = 4
- 70 to 80 = 3
- 60 to 70 = 2
- 59 or below = 1

Mr. Church believes that his plan is a success. He says that under the old orthodox plan a pupil either fails or passes. Parents are encouraged to interfere in order to push the pupil from failure to passing. According to the new scheme a pupil may range from 60 to 100 and still earn credit. The point of attack becomes scattered and there is but little pressure upon the teachers by the parents. Mr. Church says that in the first semester of the school year of 1915-1916 29% of the pupils received the highest mark and credit. Over 50% earned 4 or more credits.

It is charged that credit for quality gives a vicious incentive, shifts the attention from the work to the gaining of credit, creates faulty methods of study, causes unwise selection of courses, and brings unwholesome pressure upon the faculty. But it can be shown that these faults may be found in any system and cannot be laid to the giving credit for quality. Proper supervision will take care of most of these faults. It is also charged that a pupil will if earning extra credit for quality omit some of the important subjects of the high school work. This need not be true for the pupil is not excused from the prescribed courses in his particular curriculum. The biggest drawback is the relationship with the higher institutions who do not as a rule recognize credit for quality earned in the high school. If some understanding could be made with reference to entrance requirements there is no doubt but that the idea of recognition of the quality of the student's work would receive more general attention in the high schools.
Reed College has taken an advanced stand along this line. The general requirement for admission is based upon three things. 1. Scholarship, the completion (creditably) of a four year high school course of a standard grade or its equivalent. The college, however, prefers students who have done the work in three years rather than in four. The work need not be done in a conventional manner. Any subject well taught may count for admission. The college does not believe that a pupil should early decide on going to college. The high school is to help the pupil to decide. The college does not want the mere grade of the pupil in the high school, but wants to know also the median grade, the number in the class, and the relative standing of the student in the last year as compared with previous years. 2. The standing of the student in a physical examination. 3. The character of the pupil as given by the statement from his teachers.

With the growth of the junior high school the question of administering credit becomes more important. The pupil's ability as shown by the character of his work in the elementary grades is the chief basis for promotion and permission to enter the high school. The junior high school, not being so nearly under the dominance of the college entrance requirements, can to a greater extent set its own standards. The senior high school will receive its students upon the same basis as the junior high schools do their pupils. The University of Chicago promises to consider the quality of the pupil's work in the high school in admitting him to the University. Judd says, "Let the high schools define the value of their units. Let both the school and the college study the prob-

lem of the value of the work done. Let the teacher and the student alike give up the purely formal estimation of credits and recognize values in something like their true relation." High schools are ready to act, for they realize that the formal and mechanical unit has become meaningless. The schemes for credit for quality have proved clumsy, but the successes secured seem to show that the efforts have been made in the right direction. It is hoped that the report of the Committee of the North Central Association of the High School on the Reorganization, and the Definition of the Unit will have much influence. It is probably true there will always be a need for some quantitative definition of the unit in order that mathematical measures may be made. But it is hoped that this paper has made clear the need that the unit shall be qualitatively determined.

X. SUMMARY.

This paper has attempted to indicate the historical phases of the question of the giving credit for secondary school work. Up to 1870 under the examination system the pupil himself was tested by the entrance examination. From that time there grew up the accrediting system whereby the school was tested instead of the pupil. Both of these systems are still in use, although Columbia University is the only large university which holds closely entrance to the examination. We have variations, as in Harvard University where the student is examined in four subjects; as in the New England College Entrance Certificate Board where the school is tested by the work of the student in the first year at the college; as in the University of California where the school is inspected and the record of the student in the first year of college is also considered.
The number of subjects required and accepted have increased. This has been due to the growth of the college courses which naturally caused the increase of prerequisites and to the demands of the public for training in fields more closely related to life.

Along with these demands of the public came the growth of the high schools and the realization that there was more in the aim and purpose of the high school than mere preparation for college work. There has come also the realization that it is just as important that the university make adjustments as it is that the high school make its courses correspond to the ideals of culture set up by the university. Adjustment to university requirements meant uniformity in entrance conditions and adjustment of the university toward the high school meant a uniform measure of some sort to determine the work of the high school. The answer to these problems was the unit as a measure both for the high school and the college.

The big question of the college to the applicant has been, what can you do? By the examination method the college attempted to determine this by trying through questions to find out what he knew in certain subjects. When the written examination came into vogue, the quantity of information the applicant could give was the chief answer to the problem. In the accrediting system the college expected to determine if the student could go on with his college work by asking the school about the equipment, as to what subjects were being taught and how much of the subject was studied, and as to the ability of the teachers. If these questions were answered satisfactorily the college asked the pupil the length of time he had spent in school under the conditions indicated by the
answers to the above questions. These questions were difficult to answer because of lack of uniformity in the work of the high schools and the requirements in subject-matter demanded by the colleges. The significance of the work of the Committee of Ten in trying to equate the work in the high schools has been pointed out. The move for uniformity and the attempts to evaluate the different subjects upon an equal basis have led to an insufficient consideration of some important factors. The varying abilities of the high school pupils, the methods of teaching, the growth in the ability and mental equipment of the pupil, and the need of careful planning of the arrangement and content of the subject-matter to secure the proper articulation and organization to fulfill the needs of the pupil in his development, are important factors needing proper attention. Because of its giving a chance for uniformity and because of its ease as an administrative measure the unit has come into use. The elements of time and content have been practically the only elements considered in the definition of the unit for determining the relation of high schools and colleges.

The reasons for dissatisfaction in this formal definition have been pointed out. The question of elementary and advanced courses, the actual content of the classroom work and how the subject-matter is taught, the relation of one subject to another in the curriculum, the actual time the pupil gives to the preparation of the work in the different subjects, the standards set for the pupils to attain, the recognition of work done at a high level -- these questions the unit fails to answer.

Such universities as Leland Stanford Junior University are
eliminating prescribed subjects from their entrance requirements and are thus leaving the high schools free to coordinate their own courses. The North Central Association is considering definitions of the unit in the different subjects which will involve the points mentioned above. High schools are beginning to use schemes for credit for quality to help solve their own administrative problems. The University of Chicago has promised to consider credit given for quality of high school in admission to college work. It seems safe to conclude that the majority of higher institutions will cease to prescribe any certain subjects and that clearer definitions of the units will leave the high schools freer to administer these units in their own way. Then credit for quality will take the place of credit for quantity.
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