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# REPORT OF THE COMMITTEE OF TEN.

To THE NATIONAL COUNCIL OF EDUCATION:

The Committee of Ten appointed at the meeting of the National Educational Association at Saratoga on the 9th of July, 1892, have the honor to present the following report:—

At the meeting of the National Council of Education in 1891, a Committee appointed at a previous meeting made a valuable report through their Chairman, Mr. James H. Baker, then Principal of the Denver High School, on the general subject of uniformity in school programmes and in requirements for admission to college. The Committee was continued, and was authorized to procure a Conference on the subject of uniformity during the meeting of the National Council in 1892, the Conference to consist of representatives of leading colleges and secondary schools in different parts of the country. This Conference was duly summoned, and held meetings at Saratoga on July 7th, 8th, and 9th, 1892. There were present between twenty and thirty delegates. Their discussions took a wide range, but resulted in the following specific recommendations, which the Conference sent to the National Council of Education then in session.

1. That it is expedient to hold a conference of school and college teachers of each principal subject which enters into the programmes of secondary schools in the United States and into the requirements for admission to college—as, for example, of Latin, of geometry, or of American history—each conference to consider the proper limits of its subject, the best methods of instruction, the most desirable allotment of time for the subject, and the best methods of testing the pupils' attainments therein, and each conference to represent fairly the different parts of the country.

2. That a Committee be appointed with authority to select the members of these conferences and to arrange their meetings, the results of all the conferences to be reported to this Committee for such action as it may deem appropriate, and to form

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the basis of a report to be presented to the Council by this Committee.

3. That this Committee consist of the following gentlemen:

CHARLES W. ELIOT, President of Harvard University, Cambridge, Mass., *Chairman*.  
 WILLIAM T. HARRIS, Commissioner of Education, Washington, D. C.  
 JAMES B. ANGELL, President of the University of Michigan, Ann Arbor, Mich.  
 JOHN TETLOW, Head Master of the Girls' High School and the Girls' Latin School, Boston, Mass.  
 JAMES M. TAYLOR, President of Vassar College, Poughkeepsie, N. Y.  
 OSCAR D. ROBINSON, Principal of the High School, Albany, N. Y.  
 JAMES H. BAKER, President of the University of Colorado, Boulder, Colo.  
 RICHARD H. JESSE, President of the University of Missouri, Columbia, Mo.  
 JAMES C. MACKENZIE, Head Master of the Lawrenceville School, Lawrenceville, N. J.  
 HENRY C. KING, Professor in Oberlin College, Oberlin, Ohio.

These recommendations of the Conference were adopted by the National Council of Education on the 9th of July, and the Council communicated the recommendations to the Directors of the National Educational Association, with the further recommendation that an appropriation not exceeding \$2500 be made by the Association towards the expenses of these conferences. On the 12th of July the Directors adopted a series of resolutions under which a sum not exceeding \$2500 was made available for this undertaking during the academic year 1892-93.

Every gentleman named on the above Committee of Ten accepted his appointment; and the Committee met, with every member present, at Columbia College, New York City, from the 9th to the 11th of November, 1892, inclusive.

In preparation for this meeting, a table had been prepared by means of a prolonged correspondence with the principals of selected secondary schools in various parts of the country, which showed the subjects taught in forty leading secondary schools in the United States, and the total number of recitations, or exercises, allotted to each subject. Nearly two hundred schools were applied to for this information; but it did not prove practicable to obtain within three months verified statements from more than forty schools. This table proved conclusively, first, that the total number of subjects taught in these

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secondary schools was nearly forty, thirteen of which, however, were found in only a few schools; secondly, that many of these subjects were taught for such short periods that little training could be derived from them; and thirdly, that the time allotted to the same subject in the different schools varied widely. Even for the older subjects, like Latin and algebra, there appeared to be a wide diversity of practice with regard to the time allotted to them. Since this table was comparative in its nature,—that is, permitted comparisons to be made between different schools,—and could be easily misunderstood and misapplied by persons who had small acquaintance with school programmes, it was treated as a confidential document; and was issued at first only to the members of the Committee of Ten and the principals of the schools mentioned in the table. Later, it was sent—still as a confidential paper—to the members of the several conferences organized by the Committee of Ten.

The Committee of Ten, after a preliminary discussion on November 9th, decided on November 10th to organize conferences on the following subjects:— 1. Latin; 2. Greek; 3. English; 4. Other Modern Languages; 5. Mathematics; 6. Physics, Astronomy, and Chemistry; 7. Natural History (Biology, including Botany, Zoölogy, and Physiology); 8. History, Civil Government, and Political Economy; 9. Geography (Physical Geography, Geology, and Meteorology). They also decided that each Conference should consist of ten members. They then proceeded to select the members of each of these Conferences, having regard in the selection to the scholarship and experience of the gentlemen named, to the fair division of the members between colleges on the one hand and schools on the other, and to the proper geographical distribution of the total membership. After selecting ninety members for the nine Conferences, the Committee decided on an additional number of names to be used as substitutes for persons originally chosen who should decline to serve, from two to four substitutes being selected for

each Conference. In the selection of substitutes the Committee found it difficult to regard the geographical distribution of the persons selected with as much strictness as in the original

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## QUESTIONS FOR THE CONFERENCES.

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selection; and, accordingly, when it became necessary to call on a considerable number of substitutes, the accurate geographical distribution of membership was somewhat impaired. The lists of the members of the several Conferences were finally adopted at a meeting of the Committee on November 11th; and the Chairman and Secretary of the Committee were then empowered to fill any vacancies which might occur.

The Committee next adopted the following list of questions as a guide for the discussions of all the Conferences, and directed that the Conferences be called together on the 28th of December:—

1. In the school course of study extending approximately from the age of six years to eighteen years—a course including the periods of both elementary and secondary instruction—at what age should the study which is the subject of the Conference be first introduced?
2. After it is introduced, how many hours a week for how many years should be devoted to it?
3. How many hours a week for how many years should be devoted to it during the last four years of the complete course; that is, during the ordinary high school period?
4. What topics, or parts, of the subject may reasonably be covered during the whole course?
5. What topics, or parts, of the subject may best be reserved for the last four years?
6. In what form and to what extent should the subject enter into college requirements for admission? Such questions as the sufficiency of translation at sight as a test of knowledge of a language, or the superiority of a laboratory examination in a scientific subject to a written examination on a text-book, are intended to be suggested under this head by the phrase "in what form."
7. Should the subject be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who, presumably, are going to neither?
8. At what stage should this differentiation begin, if any be recommended?
9. Can any description be given of the best method of teaching this subject throughout the school course?
10. Can any description be given of the best mode of testing attainments in this subject at college admission examinations?

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## COMPOSITION OF THE CONFERENCES.

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11. For those cases in which colleges and universities permit a division of the admission examination into a preliminary and a final examination separated by at least a year, can the best limit between the preliminary and final examinations be approximately defined?

The Committee further voted that it was expedient that the Conferences on Latin and Greek meet at the same place. Finally, all further questions of detail with regard to the calling and the instruction of the Conferences were referred to the Chairman with full power.

During the ensuing six weeks, the composition of the nine Conferences was determined in accordance with the measures adopted by the Committee of Ten. Seventy persons originally selected by the Committee accepted the invitation of the Committee, and sixty-nine of these persons were present at the meetings of their respective Conferences on the 28th of December. Twenty substitutes accepted service, of whom twelve were persons selected by the Committee of Ten, and eight were selected under the authority granted to the Chairman and Secretary of the Committee in emergencies. One of these eight gentlemen was selected by a Conference at its first meeting. Two gentlemen who accepted service—one of the original members and one substitute—absented themselves from the meetings of their respective Conferences without giving any notice to the Chairman of the Committee of Ten, who was therefore unable to fill their places. With these two exceptions, all the Conferences met on December 28th with full membership.

The places of meeting were as follows:—for the Latin and Greek Conferences, the University of Michigan, Ann Arbor, Mich.; for the English Conference, Vassar College, Poughkeepsie, N. Y.; for the Conference on Other Modern Languages, the Bureau of Education, Washington, D. C.; for the Conference on Mathematics, Harvard University, Cambridge, Mass.; for the Conferences on Physics, Astronomy, and Chemistry, and on Natural History, the University of Chicago, Chicago, Ill.; for the Conference on History, Civil Government, and Political Economy, the University of Wisconsin, Madison, Wis., for the Conference on Geography, the Cook

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## MEMBERS OF THE CONFERENCES.

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County Normal School, Englewood, 111. The Committee of Ten and all the Conferences enjoyed the hospitality of the several institutions at which they met, and the members were made welcome at private houses during the sessions. Through the exertions of Mr. N. A. Calkins, Chairman of the Trustees of the National Educational Association, important reductions of railroad fares were procured for some members of the Committee and of the Conferences; but the reductions obtainable were less numerous and considerable than the National Council of Education had hoped. In filling a few vacancies of which notice was received shortly before December 28th, it was necessary to regard as one qualification nearness of residence to the appointed places of meeting; but on the whole the weight and effectiveness of the several Conferences were not impaired by the necessary replacement of twenty of the members originally selected by the Committee of Ten. The list of the members of the Conferences on the 28th of December was as follows:—

## 1. LATIN.

Professor CHARLES E. BENNETT, Cornell University, Ithaca, N. Y.  
 FREDERICK L. BLISS, Principal of the Detroit High School, Detroit, Mich. JNO.  
 T. BUCHANAN, Principal of the Kansas City High School, Kansas City, Mo.  
 WILLIAM C. COLLAR, Head Master of the Roxbury Latin School, Roxbury, Mass.  
 JOHN S. CROMBIE, Principal of the Adelphi Academy, Brooklyn, N. Y.  
 Professor JAMES H. DILLARD, Tulane University, New Orleans, La.  
 Rev. WILLIAM GALLAGHER, Principal of Williston Seminary, Easthampton, Mass.  
 Professor WILLIAM G. HALE, University of Chicago, Chicago, Ill.  
 Professor JOHN C. ROLFE, University of Michigan, Ann Arbor, Mich.  
 JULIUS SACHS, Principal of the Collegiate Institute for Boys, 38 West 59th Street, New York City.

## 2. GREEK.

E. W. COY, Principal of the Hughes High School, Cincinnati, O.  
 Professor MARTIN L. D'OUGE, University of Michigan, Ann Arbor, Mich.  
 A. F. FLEET, Superintendent of the Missouri Military Academy, Mexico, Mo.  
 ASHLEY D. HURT, Head Master of the High School, Tulane University, New Orleans, La.

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ROBERT D. KEEP, Principal of the Free Academy, Norwich, Conn.  
 Professor ABBY LEACH, Vassar College, Poughkeepsie, N. Y.  
 CLIFFORD H. MOORE, Phillips Academy, Andover, Mass.  
 WILLIAM H. SMILEY, Principal of the High School, Denver, Colo.  
 Professor CHARLES F. SMITH, Vanderbilt University, Nashville, Tenn.  
 Professor BENJAMIN I. WHEELER, Cornell University, Ithaca, N. Y.

## 3. ENGLISH.

Professor EDWARD A. ALLEN, University of Missouri, Columbia, Mo.  
 F. A. BARBOUR, Michigan State Normal School, Ypsilanti, Mich.  
 Professor FRANK A., BLACKBURN University of Chicago, Chicago, Ill.  
 Professor CORNELIUS B. BRADLEY, University of California, Berkeley, Calif.  
 Professor FRANCIS B. GUMMERE, Haverford College, Pa.  
 Professor EDWARD E. HALE, Jr., University of Iowa, Iowa City, Iowa.  
 Professor GEORGE L. KITTREDGE, Harvard University, Cambridge, Mass.  
 CHARLES L. LOOS, Jr., High School, Dayton, Ohio.  
 W. H. MAXWELL, Superintendent of Schools, Brooklyn, N. Y.  
 SAMUEL THURBER, Master in the Girls' High School, Boston, Mass.

## 4. OTHER MODERN LANGUAGES.

Professor JOSEPH L. ARMSTRONG, Trinity College, Durham, N. C.  
 THOMAS B. BRONSON, Lawrenceville School, Lawrenceville, N. J.  
 Professor ALPHONSE N. VAN DAELL, Massachusetts Institute of Technology, Boston, Mass.  
 CHARLES H. GRANDGENT, Director of Modern Language Instruction in the Public Schools, Boston, Mass.  
 Professor CHARLES HARRIS, Oberlin College, Oberlin, Ohio.  
 WILLIAM T. PECK, High School, Providence, R. I.  
 Professor SYLVESTER PRIMER, University of Texas, Austin, Texas.  
 JOHN J. SCHOBINGER, Principal of a Private School for Boys, Chicago, Ill.  
 ISIDORE H. B. SPIERS, William Penn Charter School, Philadelphia, Pa.  
 Professor WALTER D. TOY, University of North Carolina, Chapel Hill, N. C.

## 5. MATHEMATICS.

Professor WILLIAM E. BYERLY, Harvard University, Cambridge, Mass.  
 Professor FLORIAN CAJORI, Colorado College, Colorado Springs, Colo.  
 ARTHUR H. CUTLER, Principal of a Private School for Boys, New York City.  
 Professor HENRY B. FINE, College of New Jersey, Princeton, N. J.  
 VV. A. GREESON, Principal of the High School, Grand Rapids, Mich.  
 ANDREW INGRAHAM, Swain Free School, New Bedford, Mass.  
 Professor SIMON NEWCOMB, Johns Hopkins University, and Washington, D. C.

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Professor GEORGE D. OLDS, Amherst College, Amherst, Mass.  
 JAMES L. PATTERSON, Lawrenceville School, Lawrenceville, N. J.  
 Professor T. H. SAFFORD, Williams College, Williamstown, Mass.

## 6. PHYSICS, ASTRONOMY, AND CHEMISTRY.

Professor BROWN AYERS, Tulane University, New Orleans, La.  
 IRVING W. FAY, The Belmont School, Belmont, Calif.  
 ALFRED P. GAGE, English High School, Boston, Mass.  
 GEORGE WARREN KRALL, Manual Training School, Washington University, St. Louis, Mo.  
 Professor WILLIAM W. PAYNE, Carleton College, Northfield, Minn.

WILLIAM MCPHERSON, Jr., 2901 Collinwood Avenue, Toledo, Ohio.  
 Professor IRA REMSEN, Johns Hopkins University, Baltimore, Md.  
 Professor JAMES H. SHEPARD, South Dakota Agricultural College, Brookings, So. Dak.  
 Professor WILLIAM J. WAGGENER, University of Colorado, Boulder, Colo.  
 GEORGE R. WHITE, Phillips Exeter Academy, Exeter, N. H.

## 7. NATURAL HISTORY (BIOLOGY, INCLUDING BOTANY, ZOOLOGY, AND PHYSIOLOGY).

Professor CHARLES E. BESSEY, University of Nebraska, Lincoln, Neb.  
 ARTHUR C. BOYDEN, Normal School, Bridgewater, Mass.  
 Professor SAMUEL F. CLARKE, Williams College, Williamstown, Mass.  
 Professor DOUGLAS H. CAMPBELL, Leland Stanford Jr. University, Palo Alto, Calif.  
 President JOHN M. COULTER, Indiana University, Bloomington, Ind.  
 Principal S. A. MERRITT, Helena, Montana.  
 W. B. POWELL, Superintendent of Schools, Washington, D. C.  
 CHARLES B. SCOTT, High School, St. Paul, Minn.  
 Professor ALBERT H. TUTTLE, University of Virginia, Charlottesville, Va.  
 O. S. WESTCOTT, Principal of the North Division High School, Chicago, Ill.

## 8. HISTORY, CIVIL GOVERNMENT, AND POLITICAL ECONOMY.

President CHARLES K. ADAMS, University of Wisconsin, Madison, Wis.  
 Professor EDWARD G. BOURNE, Adelbert College, Cleveland, Ohio.  
 ABRAM BROWN, Principal of the Central High School, Columbus, Ohio.  
 Professor A. B. HART, Harvard University, Cambridge, Mass.  
 RAY GREENE HULING, Principal of the High School, New Bedford, Mass.  
 Professor JESSE MACY, Iowa College, Grinnell, Iowa.  
 Professor JAMES HARVEY ROBINSON, University of Pennsylvania, Philadelphia, Pa.  
 Professor WILLIAM A. SCOTT, University of Wisconsin, Madison, Wis.  
 HENRY P. WARREN, Head Master of the Albany Academy, Albany, N. Y.  
 Professor WOODROW WILSON, College of New Jersey, Princeton, N. J.

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## COMPOSITION OF THE CONFERENCES.

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## 9. GEOGRAPHY (PHYSICAL GEOGRAPHY, GEOLOGY, AND METEOROLOGY).

Professor THOMAS C. CHAMBERLIN, University of Chicago, Chicago, Ill.  
 Professor GEORGE L. COLLIE, Beloit College, Beloit, Wis.  
 Professor W. M. DAVIS, Harvard University, Cambridge, Mass.  
 DELWIN A. HAMLIN, Master of the Rice Training School, Boston, Mass.  
 Professor EDWIN J. HOUSTON, Central High School, Philadelphia, Pa.  
 Professor MARK W. HARRINGTON, The Weather Bureau, Washington, D. C.  
 CHARLES F. KING, Dearborn School, Boston, Mass.  
 FRANCIS W. PARKER, Principal of the Cook County Normal School, Englewood, Ill.  
 G. M. PHILIPS, Principal of the State Normal School, West Chester, Pa.  
 Professor ISRAEL C. RUSSELL, University of Michigan, Ann Arbor, Mich.

The ninety members of the Conferences were divided as follows,—forty-seven were in the service of colleges or universities, forty-two in the service of schools, and one was a government official formerly in the service of a university. A considerable number of the college men, however, had also had

experience in schools. Each Conference, in accordance with a recommendation of the Committee of Ten, chose its own Chairman and Secretary; and these two officers prepared the report of each Conference. Six of the Chairmen were college men, and three were school men; while of the Secretaries, two were college men and seven school men. The Committee of Ten requested that the reports of the Conferences should be sent to their Chairman by the 1st of April, 1893—three months being thus allowed for the preparation of the reports. Seven Conferences substantially conformed to this request of the Committee; but the reports from the Conferences on Natural History and Geography were delayed until the second week in July. The Committee of Ten, being of course unable to prepare their own report until all the reports of the December Conferences had been received, were prevented from presenting their report, as they had intended, at the Education Congress which met at Chicago July 27th-29th.

All the Conferences sat for three days; their discussions were frank, earnest, and thorough; but in every Conference an extraordinary unity of opinion was arrived at. The nine reports are characterized by an amount of agreement which

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## UNANIMITY OF THE CONFERENCES.

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quite surpasses the most sanguine anticipations. Only two Conferences present minority reports, namely, the Conference on Physics, Astronomy, and Chemistry, and the Conference on Geography; and in the first case, the dissenting opinions touch only two points in the report of the majority, one of which is unimportant. In the great majority of matters brought before each Conference, the decision of the Conference was unanimous. When one considers the different localities, institutions, professional experiences, and personalities represented in each of the Conferences, the unanimity developed is very striking, and should carry great weight.

Before the 1st of October, 1893, the reports of the Conferences had all been printed, after revision in proof by the chairmen of the Conferences respectively, and had been distributed to the members of the Committee of Ten, together with a preliminary draft of a report for the Committee. With the aid of comments and suggestions received from members of the Committee a second draft of this report was made ready in print to serve as the ground-work of the deliberations of the Committee at their final meeting. This meeting was held at Columbia College from the 8th to the 11th of November, 1893, inclusive, every member being present except Professor King, who is spending the current academic year in Europe. The points of view and the fields of work of the different members of the Committee being fortunately various, the discussions at this prolonged meeting were vigorous and comprehensive, and resulted in a thorough revision of the preliminary report. This third revise having been submitted to the members of the Committee, a cordial agreement on both the form and the substance of the present report, with the exceptions stated in the minority report of President Baker, was arrived at after a correspondence which extended over three weeks. The report itself embodies the numerous votes and resolutions adopted by the Committee.

Professor King, having received in Europe the Conference reports, the two preliminary drafts of the Committee's report, and the third revise, desired to have his name signed to the final report.

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## NUMBER AND VARIETY OF CHANGES URGED.

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The Council and the public will doubtless be impressed, at first sight, with the great number and variety of important changes urged by the Conferences; but on a careful reading of the appended reports it will appear that the spirit of the Conferences was distinctly conservative and moderate, although many of their recommendations are of a radical nature. The Conferences which found their tasks the most difficult were the Conferences on Physics, Astronomy, and Chemistry; Natural History; History, Civil Government, and Political Economy; and Geography; and these four Conferences make the longest and most elaborate reports, for the reason that these subjects are to-day more imperfectly dealt with in

primary and secondary schools than are the subjects of the first five Conferences. The experts who met to confer together concerning the teaching of the last four subjects in the list of Conferences all felt the need of setting forth in an ample way what ought to be taught, in what order, and by what method. They ardently desired to have their respective subjects made equal to Latin, Greek, and Mathematics in weight and influence in the schools; but they knew that educational tradition was adverse to this desire, and that many teachers and directors of education felt no confidence in these subjects as disciplinary material. Hence the length and elaboration of these reports. In less degree, the Conferences on English and Other Modern Languages felt the same difficulties, these subjects being relatively new as substantial elements in school programmes.

The Committee of Ten requested the Conferences to make their reports and recommendations as specific as possible. This request was generally complied with; but, very naturally, the reports and recommendations are more specific concerning the selection of topics in each subject, the best methods of instruction, and the desirable appliances or apparatus, than concerning the allotment of time to each subject. The allotment of time is a very important matter of administrative detail; but it presents great difficulties, requires a comprehensive survey of the comparative claims of many subjects, and in different parts of the country is necessarily affected by the various local conditions and historical developments. Nevertheless, there will be found in the Conference reports recommendations of a

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## TIME-ALLOTMENT BY SUBJECT.

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fundamental and far-reaching character concerning the allotment of programme time to each subject.

It might have been expected that every Conference would have demanded for its subject a larger proportion of time than is now commonly assigned to it in primary and secondary schools; but, as a matter of fact, the reports are noteworthy for their moderation in this respect,—especially the reports on the old and well-established subjects. The Latin Conference declares that,—“In view of the just demand for more and better work in several other subjects of the preparatory course, it seemed clear to the Conference that no increase in the quantity of the preparation in Latin should be asked for.” Among the votes passed by the Greek Conference will be noticed the following:—“That in making the following recommendations, this Conference desires that the average age at which pupils now enter college should be lowered rather than raised; and the Conference urges that no addition be made in the advanced requirements in Greek for admission to college.” The Mathematical Conference recommends that the course in arithmetic in elementary schools should be abridged, and recommends only a moderate assignment of time to algebra and geometry. The Conference on Geography says of the present assignment of time to geography in primary and secondary schools that “it is the judgment of the Conference that too much time is given to the subject in proportion to the results secured. It is not their judgment that more time is given to the subject than it merits, but that either more should be accomplished, or less time taken to attain it.”

Anyone who reads these nine reports consecutively will be struck with the fact that all these bodies of experts desire to have the elements of their several subjects taught earlier than they now are; and that the Conferences on all the subjects except the languages desire to have given in the elementary schools what may be called perspective views, or broad surveys, of their respective subjects—expecting that in later years of the school course parts of these same subjects will be taken up with more amplitude and detail. The Conferences on Latin, Greek, and the Modern Languages agree in desiring to have

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## EARLIER INTRODUCTION OF SUBJECTS.

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the study of foreign languages begin at a much earlier age than now,—the Latin Conference suggesting by a reference to European usage that Latin be begun from three to five years earlier than it commonly is now. The Conference on Mathematics wish to have given in elementary schools not only a general survey of arithmetic, but also the elements of algebra, and concrete geometry in connection with



drawing. The Conference on Physics, Chemistry, and Astronomy urge that nature studies should constitute an important part of the elementary school course from the very beginning. The Conference on Natural History wish the elements of botany and zoölogy to be taught in the primary schools. The Conference on History wish the systematic study of history to begin as early as the tenth year of age, and the first two years of study to be devoted to mythology and to biography for the illustration of general history as well as of American history. Finally, the Conference on Geography recommend that the earlier course treat broadly of the earth, its environment and inhabitants, extending freely into fields which in later years of study are recognized as belonging to separate sciences.

In thus claiming entrance for their subjects into the earlier years of school attendance, the Conferences on the newer subjects are only seeking an advantage which the oldest subjects have long possessed. The elements of language, number, and geography have long been imparted to young children. As things now are, the high school teacher finds in the pupils fresh from the grammar schools no foundation of elementary mathematical conceptions outside of arithmetic; no acquaintance with algebraic language; and no accurate knowledge of geometrical forms. As to botany, zoölogy, chemistry, and physics, the minds of pupils entering the high school are ordinarily blank on these subjects. When college professors endeavor to teach chemistry, physics, botany, zoölogy, meteorology, or geology to persons of eighteen or twenty years of age, they discover that in most instances new habits of observing, reflecting, and recording have to be painfully acquired by the students,—habits which they should have acquired in early childhood. The college teacher of history finds in like manner that his subject has never taken

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## CORRELATION OF SUBJECTS.

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any serious hold on the minds of pupils fresh from the secondary schools. He finds that they have devoted astonishingly little time to the subject; and that they have acquired no habit of historical investigation, or of the comparative examination of different historical narratives concerning the same periods or events. It is inevitable, therefore, that specialists in any one of the subjects which are pursued in the high schools or colleges should earnestly desire that the minds of young children be stored with some of the elementary facts and principles of their subject; and that all the mental habits, which the adult student will surely need, begin to be formed in the child's mind before the age of fourteen. It follows, as a matter of course, that all the Conferences except the Conference on Greek, make strong suggestions concerning the programmes of primary and grammar schools,—generally with some reference to the subsequent programmes of secondary schools. They desire important changes in the elementary grades; and the changes recommended are all in the direction of increasing simultaneously the interest and the substantial training quality of primary and grammar school studies.

If anyone feels dismayed at the number and variety of the subjects to be opened to children of tender age, let him observe that while these nine Conferences desire each their own subject to be brought into the courses of elementary schools, they all agree that these different subjects should be correlated and associated one with another by the programme and by the actual teaching. If the nine Conferences had sat all together as a single body, instead of sitting as detached and even isolated bodies, they could not have more forcibly expressed their conviction that every subject recommended for introduction into elementary and secondary schools should help every other; and that the teacher of each single subject should feel responsible for the advancement of the pupils in all subjects, and should distinctly contribute to this advancement.

On one very important question of general policy which affects profoundly the preparation of all school programmes, the Committee of Ten and all the Conferences are absolutely, unanimous. Among the questions suggested for discussion in each Conference were the following:—

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## A SIMPLIFICATION OF PROGRAMMES.

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7. Should the subject be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who, presumably, are going to neither?

8. At what age should this differentiation begin, if any be recommended?

The 7th question is answered unanimously in the negative by the Conferences, and the 8th therefore needs no answer. The Committee of Ten unanimously agree with the Conferences. Ninety-eight teachers, intimately concerned either with the actual work of American secondary schools, or with the results of that work as they appear in students who come to college, unanimously declare that every subject which is taught at all in a secondary school should be taught in the same way and to the same extent to every pupil so long as he pursues it, no matter what the probable destination of the pupil may be, or at what point his education is to cease. Thus, for all pupils who study Latin, or history, or algebra, for example, the allotment of time and the method of instruction in a given school should be the same year by year. Not that all the pupils should pursue every subject for the same number of years; but so long as they do pursue it, they should all be treated alike. It has been a very general custom in American high schools and academies to make up separate courses of study for pupils of supposed different destinations, the proportions of the several studies in the different courses being various. The principle laid down by the Conferences will, if logically carried out, make a great simplification in secondary school programmes. It will lead to each subject's being treated by the school in the same way by the year for all pupils, and this, whether the individual pupil be required to choose between courses which run through several years, or be allowed some choice among subjects year by year.

Persons who read all the appended reports will observe the frequent occurrence of the statement that, in order to introduce the changes recommended, teachers more highly trained will be needed in both the elementary and the secondary schools. There are frequent expressions to the effect that a higher grade of scholarship is needed in teachers of the lower classes, or that the general adoption of some method urged by a Conference

must depend upon the better preparation of teachers in the high schools, model schools, normal schools, or colleges in which they are trained. The experienced principal or superintendent in reading the reports will be apt to say to himself,—“This recommendation is sound, but cannot be carried out without teachers who have received a training superior to that of the teachers now at my command.” It must be remembered, in connection with these admissions, or expressions of anxiety, that the Conferences were urged by the Committee of Ten to advise the Committee concerning the best possible—almost the ideal—treatment of each subject taught in a secondary school course, without, however, losing sight of the actual condition of American schools, or pushing their recommendations beyond what might reasonably be considered attainable in a moderate number of years. The Committee believe that the Conferences have carried out wisely the desire of the Committee, in that they have recommended improvements, which, though great and seldom to be made at once and simultaneously, are by no means unattainable. The existing agencies for giving instruction to teachers already in service are numerous; and the normal schools and the colleges are capable of making prompt and successful efforts to supply the better trained and equipped teachers for whom the reports of the Conferences call.

Many recommendations will be found to be made by more than one Conference. Thus, all the Conferences on foreign languages seem to agree that the introduction of two foreign languages in the same year is inexpedient; and all of them insist on practice in reading the foreign language aloud, on the use of good English in translating, and on practice in translating the foreign language at sight, and in writing it. Again, all the Conferences on scientific subjects dwell on laboratory work by the pupils as the best means of instruction, and on the great utility of the genuine laboratory note-book; and they all protest that teachers of science need at least as thorough a special training as teachers of languages or mathematics receive. In reading the reports, many instances will be noticed in which different Conferences have reached similar conclusions without any consultation, or have followed a common

line of thought.

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## LATIN.—GREEK.

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Your Committee now proceed to give summaries of the most important recommendations made by the Conferences as regards topics and methods, reserving the subject of time-allotment. But in so doing, they desire to say that the reading of these summaries should not absolve anyone interested in the general subject from reading with care the entire report of every Conference. The several reports are so full of suggestions and recommendations concisely and cogently stated that it is impossible to present adequate abstracts of them.

## 1. LATIN.

An important recommendation of the Latin Conference is the recommendation that the study of Latin be introduced into American schools earlier than it now is. They recommend that translation at sight form a constant and increasing part of the examinations for admission to college and of the work of preparation. They next urge that practice in writing Latin should not be dissociated from practice in reading and translating; but, on the contrary, that the two should be carried on with equal steps. The Conference desire the schools to adopt a greater variety of Latin authors for beginners, and they give good reasons against the exclusive use of Caesar's Gallic War. They object to the common practice of putting the teaching of beginners into the hands of the youngest teachers, who have the slenderest equipment of knowledge and experience. They dwell on the importance of attending to pronunciation and reading aloud, to forms, vocabulary, syntax, and order, and to the means of learning to understand the Latin before translating it; and they describe and urge the importance of a higher ideal in translation than now prevails in secondary schools. The formal recommendations of the Conference, fourteen in number, will be found concisely stated in numbered paragraphs at the close of their report.

## 2. GREEK.

The Conference on Greek agree with the Conference on Latin in recommending the cultivation of reading at sight in schools, and in recommending that practice in translation into the foreign

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## GREEK.—ENGLISH.

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language should be continued throughout the school course. They urge that three years be the minimum time for the study of Greek in schools; provided that Latin be studied four years. They would not have a pupil begin the study of Greek without a knowledge of the elements of Latin. They recommend the substitution of portions of the Hellenica for two books of the Anabasis in the requirements for admission to college, and the use of some narrative portions of Thucydides in schools. They urge that Homer should continue to be studied in all schools which provide instruction in Greek through three years, and they suggest that the Odyssey is to be preferred to the Iliad. They regret "that so few colleges through their admission examinations encourage reading at sight in schools." Like the Latin Conference, the Greek Conference urge that the reading of the text be constantly practiced by both teacher and pupil, "and that teachers require from their pupils no less intelligent reading of the text than accurate translation of the same." The Greek Conference also adopted a vote "to concur with the Latin Conference as to the age at which the study of Latin should be begun." The specific recommendations of the Conference will be found in brief form in the paragraphs at the head of the eleven numbered sections into which their report is divided.

## 3. ENGLISH.

The Conference on English found it necessary to deal with the study of English in schools below the high school grade as well as in the high school. Their opening recommendations deal with the very first years of school, and one of the most interesting and admirable parts of their report relates to English in the primary and the grammar schools.

The Conference are of the opinion that English should be pursued in the high school during the entire course of four years; but in making this recommendation the Conference have in mind both study of literature and training in the expression of thought. To the study of rhetoric they assign one hour a week in the third year of the high school course. To the subject of historical and systematic grammar they assign one hour a week

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## ENGLISH.

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in the fourth year of the high school course. The intelligent reader of the report of this Conference will find described in it the means by which the study of English in secondary schools is to be made the equal of any other study in disciplinary or developing power. The Conference claim for English as much time as the Latin Conference claim for Latin in secondary schools; and it is clear that they intend that the study shall be in all respects as serious and informing as the study of Latin. One of the most interesting opinions expressed by the Conference is "that the best results in the teaching of English in high schools cannot be secured without the aid given by the study of some other language; and that Latin and German, by reason of their fuller inflectional system, are especially suited to this end." In the case of high schools, as well as in schools of lower grade, the Conference declare that every teacher, whatever his department, should feel responsible for the use of good English on the part of his pupils. In several passages of this report the idea recurs that training in English must go hand in hand with the study of other subjects. Thus the Conference hope for the study of the history and geography of the English-speaking people, so far as these illustrate the development of the English language. They mention that "the extent to which the study of the sources of English words can be carried in any school or class will depend on the acquaintance the pupils possess with Latin, French, and German." They say that the study of words should be so pursued as to illustrate the political, social, intellectual, and religious development of the English race; and they urge that the admission of a student to college should be made to depend largely on his ability to write English, as shown in his examination books on other subjects. It is a fundamental idea in this report that the study of every other subject should contribute to the pupil's training in English; and that the pupil's capacity to write English should be made available, and be developed, in every other department. The very specific recommendations of the Conference as to English requirements for admission to colleges and scientific s, tools are especially wise and valuable.

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## OTHER MODERN LANGUAGES.

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## 4. OTHER MODERN LANGUAGES.

The most novel and striking recommendation made by the Conference on Modern Languages is that an elective course in German or French be provided in the grammar school, the instruction to be open to children at about ten years of age. The Conference made this recommendation "in the firm belief that the educational effects of modern language study will be of immense benefit to all who are able to pursue it under proper guidance." They admit that the study of Latin presents the same advantages; but living languages seem to them better adapted to grammar school work. The recommendations of this Conference with regard to the number of lessons a week are specific. They even construct a table showing the time which should be devoted to modern languages in each of the last four years of the

elementary schools and in each year of the high school. They plead that "all pupils of the same intelligence and the same degree of maturity be instructed alike, no matter whether they are subsequently to enter a college or scientific school, or intend to pursue their studies no farther." The Conference also state with great precision what in their judgment may be expected of pupils in German and French at the various stages of their progress. An important passage of the report treats of the best way to facilitate the progress of beginners;—pupils should be lifted over hard places; frequent reviews are not to be recommended; new texts stimulate interest and enlarge the vocabulary. Their recommendations concerning translation into English, reading aloud, habituating the ear to the sounds of the foreign language, and translating into the foreign language, closely resemble the recommendations of the Conferences on Latin, Greek, and English regarding the best methods of instruction in those languages. In regard to college requirements, the Conference agree with several other Conferences in stating "that college requirements for admission should coincide with the high school requirements for graduation." Finally, they declare that "the worst obstacle to modern language study is the lack of properly equipped instructors; and that it is the duty of universities, states, and cities to provide opportunities for the special preparation of modern language teachers."

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## MATHEMATICS.

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## 5. MATHEMATICS.

The form of the report of the Conference on Mathematics differs somewhat from that of the other reports. This report is subdivided under five headings:—1st, General Conclusions. 2nd, The Teaching of Arithmetic. 3rd, The Teaching of Concrete Geometry. 4th, The Teaching of Algebra. 5th, The Teaching of Formal or Demonstrative Geometry.

The first general conclusion of the Conference was arrived at unanimously. The Conference consisted of one government official and university professor, five professors of mathematics in as many colleges, one principal of a high school, two teachers of mathematics in endowed schools, and one proprietor of a private school for boys. The professional experience of these gentlemen and their several fields of work were various, and they came from widely separated parts of the country; yet they were unanimously of opinion "that a radical change in the teaching of arithmetic was necessary." They recommend "that the course in arithmetic be at once abridged and enriched; abridged by omitting entirely those subjects which perplex and exhaust the pupil without affording any really valuable mental discipline, and enriched by a greater number of exercises in simple calculation, and in the solution of concrete problems." They specify in detail the subjects which they think should be curtailed, or entirely omitted; and they give in their special report on the teaching of arithmetic a full statement of the reasons on which their conclusion is based. They map out a course in arithmetic which, in their judgment, should begin about the age of six years, and be completed at about the thirteenth year of age.

The Conference next recommend that a course of instruction in concrete geometry with numerous exercises be introduced into the grammar schools; and that this instruction should, during the earlier years, be given in connection with drawing. They recommend that the study of systematic algebra should be begun at the age of fourteen; but that, in connection with the study of arithmetic, the pupils should earlier be made familiar with algebraic expressions and symbols, including the method of solving simple equations. "The Conference

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## GEOMETRY.— ALGEBRA.

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believe that the study of demonstrative geometry should begin at the end of the first year's study of algebra, and be carried on by the side of algebra for the next two years, occupying about two hours and a half a week." They are also of opinion "that if the introductory course in concrete geometry has been well taught, both plane and solid geometry can be mastered at this time." Most of the improvements in

teaching arithmetic which the Conference suggest "can be summed up under the two heads of giving the teaching a more concrete form, and paying more attention to facility and correctness in work. The concrete system should not be confined to principles, but be extended to practical applications in measuring and in physics."

In regard to the teaching of concrete geometry, the Conference urge that while the student's geometrical education should begin in the kindergarten, or at the latest in the primary school, systematic instruction in concrete or experimental geometry should begin at about the age of ten for the average student, and should occupy about one school hour a week for at least three years. From the outset of this course, the pupil should be required to express himself verbally as well as by drawing and modelling. He should learn to estimate by the eye, and to measure with some degree of accuracy, lengths, angular magnitudes, and areas; to make accurate plans from his own measurements and estimates; and to make models of simple geometrical solids. The whole work in concrete geometry will connect itself on the one side with the work in arithmetic, and on the other with elementary instruction in physics. With the study of arithmetic is therefore to be intimately associated the study of algebraic signs and forms, of concrete geometry, and of elementary physics. Here is a striking instance of the interlacing of subjects which seems so desirable to every one of the nine Conferences.

Under the head of teaching algebra, the Conference set forth in detail the method of familiarizing the pupil with the use of algebraic language during the study of arithmetic. This part of the report also deals clearly with the question of the time required for the thorough mastery of algebra through quadratic equations. The report on the teaching of demonstrative geometry is a clear and concise statement of the best method of

teaching this subject. It insists on the importance of elegance and finish in geometrical demonstration, for the reason that the discipline for which geometrical demonstration is to be chiefly prized is a discipline in complete, exact, and logical statement. If slovenliness of expression, or awkwardness of form, is tolerated, this admirable discipline is lost. The Conference therefore recommend an abundance of oral exercises in geometry—for which there is no proper substitute—and the rejection of all demonstrations which are not exact and formally perfect. Indeed throughout all the teaching of mathematics the Conference deem it important that great stress be laid by the teacher on accuracy of statement and elegance of form as well as on clear and rigorous reasoning. Another very important recommendation in this part of the report is to be found the following passage,—"As soon as the student has acquired the art of rigorous demonstration, his work should cease to be merely receptive. He should begin to devise constructions and demonstrations for himself. Geometry cannot be mastered, by reading the demonstrations of a text-book, and while there is no branch of elementary mathematics in which purely receptive work, if continued too long, may lose its interest more completely, there is also none in which independent work can be made more attractive and stimulating." These observations are entirely in accordance with the recent practice of some colleges in setting admission examination papers in geometry which demand of the candidates some capacity to solve new problems, or rather to make new application of familiar principles.

#### 6. PHYSICS, CHEMISTRY, AND ASTRONOMY.

The Conference on this subject were urgent that the study of simple natural phenomena be introduced into elementary schools; and it was the sense of the Conference that at least one period a day from the first year of the primary school should be given to such study. Apparently the Conference entertained the opinion that the present teachers in elementary schools are ill prepared to teach children how to observe simple natural phenomena; for their second recommendation was that special science teachers or superintendents be appointed to

instruct the teachers of elementary schools in the methods of teaching natural phenomena. The Conference was clearly of opinion that from the beginning this study should be pursued by the pupil chiefly, though not exclusively, by means of experiments and by practice in the use of simple instruments for making physical measurements. The report dwells repeatedly on the importance of the study of things and phenomena by direct contact. It emphasizes the necessity of a large proportion of laboratory work in the study of physics and chemistry, and advocates the keeping of laboratory note-books by the pupils, and the use of such note-books as part of the test for admission to college. At the same time the report points out that laboratory work must be conjoined with the study of a text-book and with attendance at lectures or demonstrations; and that intelligent direction by a good teacher is as necessary in a laboratory as it is in the ordinary recitation or lecture room. The great utility of the laboratory note-book is emphatically stated. To the objection that the kind of instruction described requires much time and effort on the part of the teacher, the Conference reply that to give good instruction in the sciences requires of the teacher more work than to give good instruction in mathematics or the languages; and that the sooner this fact is recognized by those who have the management of schools the better for all concerned. The science teacher must regularly spend much time in collecting materials, preparing experiments, and keeping collections in order; and this indispensable labor should be allowed for in programmes and salaries. As regards the means of testing the progress of the pupils in physics and chemistry, the Conference were unanimously of opinion that a laboratory examination should always be combined with an oral or written examination, neither test taken singly being sufficient. There was a difference of opinion in the Conference on the question whether physics should precede chemistry, or chemistry physics. The logical order would place physics first; but all the members of the Conference but one advised that chemistry be put first for practical reasons which are stated in the majority report. A sub-committee of the Conference has prepared lists of experiments in physics and chemistry for the use of second-

ary schools,—not, of course, as a prescription, but only as a suggestion, and a somewhat precise indication of the topics which the Conference had in mind, and of the limits of the instruction.

### 7. NATURAL HISTORY.

The Conference on Natural History unanimously agreed that the study of botany and zoölogy ought to be introduced into the primary schools at the very beginning of the school course, and be pursued steadily, with not less than two periods a week, throughout the whole course below the high school. In the next place they agreed that in these early lessons in natural science no text-book should be used; but that the study should constantly be associated with the study of literature, language, and drawing. It was their opinion that the study of physiology should be postponed to the later years of the high school course; but that in the high school, some branch of natural history proper should be pursued every day throughout at least one year. Like the report on Physics, Chemistry, and Astronomy, the report on Natural History emphasizes the absolute necessity of laboratory work by the pupils on plants and animals; and would have careful drawing insisted on from the beginning of the instruction. As the laboratory note-book is recommended by the Conference on Physics, so the Conference on Natural History recommends that the pupils should be made to express themselves clearly and exactly in words, or by drawings, in describing the objects which they observe; and they believe that this practice will be found a valuable aid in training the pupils in the art of expression. They agree with the Conference on Physics, Chemistry, and Astronomy that science examinations should include both a written and a laboratory test, and that the laboratory note-books of the pupils should be produced at the examination.



The recommendations of this Conference are therefore very similar to those of the sixth Conference, so far as methods go; but there are appended to the general report of the Conference on Natural History sub-reports which describe the proper topics, the best order of topics, and the right methods of instruction in botany for schools below the high school, and for the high

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## HISTORY AND CIVIL GOVERNMENT.

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school itself, and in zoölogy for the secondary schools. Inasmuch as both the subject matter and the methods of instruction in natural history are much less familiar to ordinary school teachers than the matter and the methods in the languages and mathematics, the Conference believed that descriptive details were necessary in order to give a clear view of the intentions of the Conference. In another sub-report the Conference give their reasons for recommending the postponement to the latest possible time of the study of physiology and hygiene. Like the sixth Conference, the Conference on Natural History protest that no person should be regarded as qualified to teach natural science who has not had special training for this work,—a preparation at least as thorough as that of their fellow teachers of mathematics and the languages.

The Conference on History, Civil Government, and Political Economy had a task different in some respects from those of other Conferences. It is now-a-days admitted that language, natural science, and mathematics should each make a substantial part of education; but the function of history in education is still very imperfectly apprehended. Accordingly, the eighth Conference were at pains to declare their conception of the object of studying history and civil government in schools, and their belief in the efficiency of these studies in training the judgment, and in preparing children for intellectual enjoyments in after years, and for the exercise at maturity of a salutary influence upon national affairs. They believed that the time devoted in schools to history and the allied subjects should be materially increased; and they have therefore presented arguments in favor of that increase. At the same time, they state strongly their conviction that they have recommended "nothing that was not already being done in some good schools, and that might not reasonably be attained wherever there is an efficient system of graded schools." This Conference state quite as strongly as any other their desire to associate the study of their particular subject with that of other subjects which enter into every school programme. They declare that the teaching of

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## HISTORY WITH ENGLISH AND GEOGRAPHY.

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history should be intimately connected with the teaching of English; that pupils should be encouraged to avail themselves of their knowledge of ancient and modern languages; and that their study of history should be associated with the study of topography and political geography, and should be supplemented by the study of historical and commercial geography, and the drawing of historical maps. They desire that historical works should be used for reading in schools, and that subjects of English composition should be drawn from the lessons in history. They would have historical poems committed to memory, and the reading of biographies and historical novels encouraged. While they are of opinion that political economy should not be taught in secondary schools, they urge that, in connection with United States history, civil government, and commercial geography, instruction should be given in the most important economic topics. The Conference would therefore have the instruction in history made contributory to the work in three other school departments, namely, English, geography, and drawing. The subject of civil government they would associate with both history and geography. They would introduce it into the grammar school by means of oral lessons, and into the high school by means of a text-book with collateral reading and oral lessons. In the high school they believe that the study of civil government may be made comparative,—that is, that the American method may be compared with foreign systems.

Although the Conference was made up of very diverse elements, every member of the Conference



was heartily in favor of every vote adopted. This remarkable unanimity was not obtained by the silence of dissentients, or the withdrawal of opposition on disputed points. It was the natural result of the strong conviction of all the members, that history, when taught by the methods advocated in their report, deserves a position in school programmes which would give it equal dignity and importance with any of the most favored subjects, and that the advantages for all children of the rational study of history ought to be diffused as widely as possible. On one point they made a clearer declaration than any other Conference; although several other Conferences indicate similar

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## TIME TO BE GIVEN TO HISTORY.

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opinions. They declared that their interest was chiefly "in the school children who have no expectation of going to college, the larger number of whom will not even enter a high school," and that their "recommendations are in no way directed to building up the colleges, or increasing the number of college students." Like every other Conference, they felt anxious about the qualifications of the teachers who are to be entrusted with the teaching of history, and they urged that only teachers who have had adequate special training should be employed to teach history and civil government. In their specific recommendations they strongly urge that the historical course be made continuous from year to year, and extend through eight years, and in this respect be placed upon the same footing with other substantial subjects.

The answers of this Conference to the questions contained in the memorandum sent to the Conferences by the Committee of Ten were specific and clear. They

In regard to the time to be devoted to history in school programmes, this Conference ask for not less than three periods a week throughout a course of eight years; and they suggest that some of this time can be found by contracting the course in arithmetic, and using for history a part of the time now given to political geography and to language study. Of these eight years they suggest that four should be in the high school and four in the grammar school. They "especially recommend such a choice of subjects as will give pupils in the grammar schools an opportunity of studying the history of other countries, and to the high schools one year's study on the intensive method."

A large portion of the report is necessarily taken up with the description of what the Conference consider the most suitable historical topics and the best methods of teaching history. This portion of the report does not admit of any useful presentation in outline; it must be read in full.

With regard to examinations in history for admission to college, the Conference protest "against the present lax and inefficient system," and seem to sum up their own desires on this subject in the statement that "the requirements for college

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## GEOGRAPHY.

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ought to be so framed that the methods of teaching best adapted to meet them will also be best for all pupils."

Like the Conferences on scientific subjects the Conference on History insist on note-books, abstracts, special reports, and other written work, as desirable means of teaching. If the recommendations of the nine Conferences should be carried out in grammar and high schools, there would certainly be at least one written exercise a day for every pupil,—a result which persons interested in training children to write English deem it important to accomplish.

The observations of the Conference on geographical training in connection with history are interesting and suggestive, as are also the recurring remarks on the need of proper apparatus for teaching history, such as maps, reference-libraries, historical pictures, and photographs. It is not the natural sciences alone which need school apparatus.

## 9. GEOGRAPHY.

Considering that geography has been a subject of recognized value in elementary schools for many generations, and that a considerable portion of the whole school time of children has long been devoted to a study called by this name, it is somewhat startling to find that the report of the Conference on Geography deals with more novelties than any other report; exhibits more dissatisfaction with prevailing methods; and makes, on the whole, the most revolutionary suggestions. This Conference had but nine members present at its sessions; and before the final revision of its report had been accomplished, one of the most valued of its members died. Seven members sign the majority report, and the minority report is presented by one member. The dissenting member, however, while protesting against the views of the majority on many points, concurs with the majority in some of the most important conclusions arrived at by the Conference.

It is obvious on even a cursory reading of the majority and minority reports that geography means for all the members of this Conference something entirely different from the term geography as generally used in school programmes. Their definition of the word makes it embrace not only a description

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## COMPREHENSIVENESS OF GEOGRAPHY.

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of the surface of the earth, but also the elements of botany, zoölogy, astronomy, and meteorology, as well as many considerations pertaining to commerce, government, and ethnology. "The physical environment of man" expresses as well as any single phrase can the Conference's conception of the principal subject which they wish to have taught. No one can read the reports without perceiving that the advanced instruction in geography which the Conference conceive to be desirable and feasible in high schools cannot be given until the pupils have mastered many of the elementary facts of botany, zoölogy, geometry, and physics. It is noteworthy also that this ninth Conference, like the seventh, dealt avowedly and unreservedly with the whole range of instruction in primary and secondary schools. They did not pretend to treat chiefly instruction in secondary schools, and incidentally instruction in the lower schools; but, on the contrary, grasped at once the whole problem, and described the topics, methods, and apparatus appropriate to the entire course of twelve years. They recognized that complete descriptions would be necessary in all three branches of the subject,—topics, methods, and equipment; and they have given these descriptions with an amplitude and force which leave little to be desired. More distinctly than any other Conference, they recognized that they were presenting an ideal course which could not be carried into effect everywhere or immediately. Indeed at several points they frankly state that the means of carrying out their recommendations are not at present readily accessible; and they exhibit the same anxiety which is felt by several other Conferences about training teachers for the kind of work which the Conference believe to be desirable. After the full and interesting descriptions of the relations and divisions of geographical science, as the Conference define it, the most important sections of their report relate to the methods and means of presenting the subject in schools, and to the right order in developing it. The methods which they advocate require not only better equipped teachers, but better means of illustrating geographical facts in the schoolroom, such as charts, maps, globes, photographs, models, lantern slides, and lanterns. Like all the other Conferences on scientific subjects, the ninth Conference dwell on the im-

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## METEOROLOGY.

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portance of forming from the start good habits of observing correctly and stating accurately the facts observed. They also wish that the instruction in geography may be connected with the instruction in drawing, history, and English. They believe that meteorology may be taught as an observational study in the earliest years of the grammar school, the scholars being even then made familiar with the use of the thermometer, the wind-vane, and the rain-gauge; and that it may be carried much farther in the high school years, after physics has been studied, so that the pupils may then attain a general understanding

of topographical maps, of pressure and wind charts, of isothermal charts, and of such complicated subjects as weather prediction, rainfall and the distribution of rain, storms, and the seasonal variations of the atmosphere. Their conception of physiography is a very comprehensive one. In short, they recommend a study of physical geography which would embrace in its scope the elements of half-a-dozen natural sciences, and would bind together in one sheaf the various gleanings which the pupils would have gathered from widely separated fields. There can be no doubt that the study would be interesting, informing, and developing, or that it would be difficult and in every sense substantial.

It already appears that the nine Conferences have attended carefully to three out of the five subjects which it was the intention of the National Council of Education that they should examine. They have discussed fully the proper limits of the several subjects of instruction in secondary schools, the best methods of instruction, and the best methods of testing pupils' attainments. The Conferences were equally faithful in discussing the other two subjects committed to them by the Council, namely, the most desirable allotment of time for each subject, and the requirements for admission to college.

The next subject which the Committee of Ten, following the guidance of the Conferences, desire to present to the Council is, therefore, the allotment of school time among the various subjects of study. It is the obvious duty of the Committee, in the first place, to group together in tabular form the numerous suggestions on this subject made by the Conferences.

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## TIME DEMANDS OF THE CONFERENCES.

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Table I

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## PROPER SECONDARY SCHOOL SUBJECTS.

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Having exhibited the programme-time suggestions of the Conferences, it will remain for the Committee to construct a flexible and comprehensive schedule of studies, based on the recommendations of the Conferences.

The preceding table exhibits the demands for programme time made by all the Conferences. It will be seen at once that this table does not yield, without modification, a practical programme. The nine Conferences acted separately, and were studying each its own needs, and not the comparative needs of all the subjects. It was not for them to balance the different interests, but for each to present strongly one interest. It will further be noticed that some of their demands are not specific,—that is, they do not call for any specified number of recitation periods for a definite number of weeks during a stated number of years. The Conferences on Languages and History are the most definite in their recommendations, the Conferences on Mathematics and the Sciences being much less definite. Table I. is therefore not a programme, but the materials from which serviceable programmes may be constructed.

The Committee of Ten deliberately placed in this one table the recommendations of the Conferences for the elementary grades and the recommendations for secondary schools, in order that the sequence of the recommendations for each subject might be clearly brought out. The recommendations made for the secondary schools presuppose in many cases that the recommendations made for the elementary schools have been fulfilled; or, at least, in many cases the Conferences would have made different recommendations for the secondary schools, if they had been compelled to act on the assumption that things must remain just as they are in the elementary schools.

At this point it is well to call attention to the list of subjects which the Conferences deal with as proper for secondary schools. They are: 1. languages—Latin, Greek, English, German, and French, (and locally Spanish); 2. mathematics—algebra, geometry, and trigonometry; 3. general history, and the

intensive study of special epochs; 4. natural history—including descriptive astronomy, meteorology, botany, zoölogy, physiology, geology, and ethnology, most of which subjects may be conveniently grouped under the title of physical

37 TOTAL INSTRUCTION RECOMMENDED. 37

geography; and 5. physics and chemistry. The Committee of Ten assent to this list, both for what it includes and for what it excludes, with some practical qualifications to be mentioned below.

Table II. exhibits the total amount of instruction (estimated by the number of weekly periods assigned to each subject) to be given in a secondary school during each year of a four years' course, on the supposition that the recommendations of the Conferences are all carried out.

### Table II

38 NUMBER OF WEEKLY RECITATION PERIODS. 38

The method of estimating the amount of instruction offered in any subject by the number of recitation periods assigned to it each week for a given number of years or half years is in some respects an inadequate one, for it takes no account of the scope and intensity of the instruction given during the periods; but so far as it goes, it is trustworthy and instructive. It represents with tolerable accuracy the proportional expenditure which a school is making on a given subject, and therefore the proportional importance which the school attaches to that subject. It also represents roughly the proportion of the pupil's entire school time which he can devote to a given subject, provided he is free to take all the instruction offered in that subject. All experience shows that subjects deemed important get a large number of weekly periods, while those deemed unimportant get a small number. Moreover, if the programme time assigned to a given subject be insufficient, the value of that subject as training cannot be got, no matter how good the quality of the instruction.

Every one of these years, except the first, contains much more instruction than any one pupil can follow; but, looking at the bearing of the table on the important question of educational expenditure, it is encouraging to observe that there are already many secondary schools in this country in which quite as many subjects are taught as are mentioned in this table, and in which there are more weekly periods of instruction provided for separate classes than are found in any year of the table. In some urban high schools which provide from five to nine different courses of three to five years each, and in some endowed secondary schools which maintain two or three separate courses called Classical, Latin-scientific, and English, or designated by similar titles, the total number of weekly periods of unrepeatd instruction given to distinct classes is even now larger than the largest total of weekly periods found in Table II. The annual expenditure in such schools is sufficient to provide all the instruction called for by Table II. The suggestions of the Conferences presuppose that all the pupils of like intelligence and maturity in any subject study it in the same way and to the same extent, so long as they study it at all,—this being a point on which all the

39 ONE QUARTER OF SCHOOL TIME FOR SCIENCE. 39

Conferences insist strongly. No provision is made, therefore, for teaching Latin, or algebra, or history to one portion of a class four times a week, and to another portion of the same class only thrice or twice a

week. Such provisions are very common in American schools; but the recommendations of the Conferences, if put into effect, would do away with all expenditures of this sort.

It clearly appears from Table II. that the recommendations of the Conferences on scientific subjects have been moderate so far as the proposed allotment of time to them is concerned. The Conferences on Physics, Chemistry and Astronomy, Natural History, and Geography held one combined session in Chicago, and passed a resolution that one-fourth of the whole high school course ought to be devoted to natural science, their intention doubtless being that each pupil should devote one quarter of his time to science; yet if all the time asked for in secondary schools by the scientific Conferences be added together, it will appear, first, that the rare pupil who should take all the scientific instruction provided would need for it only one quarter of his time, and secondly, that less than one-sixth of the whole instruction to be given in accordance with the combined recommendations of all the Conferences is devoted to subjects of natural science. The first year of the secondary school course according to Table II. will contain no science at all; and it is only in the last year of the secondary school that the proportion of natural science teaching rises to one-fourth of the whole instruction.

In studying these two tables which result from the recommendations of the Conferences, the Committee of Ten perceived at once, that if the recommendations are to be carried out, so far as offering the instruction proposed is concerned, a selection of studies for the individual pupil must be made in the second, third, and fourth years of the secondary school course. This selection will obviously be made in different ways in different schools. Any school principal may say,—“With the staff at my command I can teach only five subjects out of those proposed by the Conferences in the manner proposed. My school shall therefore be limited to these five.” Another school may be able to teach in the thorough manner proposed five subjects, but

some or all of these five may be different from those selected by the first school. A larger or richer school may be able to teach all the subjects mentioned, and by the methods and with the apparatus described. In the last case, each pupil, under the supervision of the teachers, and with the advice of parents or friends, may make choice between several different four-years' courses arranged by the school; or, if the school authorities prefer, the pupil may be allowed to make year by year a carefully guided choice among a limited number of subjects; or these two methods may be combined. Selection for the individual is necessary to thoroughness, and to the imparting of power as distinguished from information; for any large subject whatever, to yield its training value, must be pursued through several years and be studied from three to five times a week, and if each subject studied is thus to claim a considerable fraction of the pupil's school time, then clearly the individual pupil can give attention to only a moderate number of subjects.

In Table II. the number of weekly periods assigned to a single subject varies from two to five, about half of the assignments being made for five periods a week. There is an obvious convenience in the number five because it ordinarily gives one period a day for five days in the week; but there is also an obvious disadvantage in making too free use of the number five. It practically limits to three or, at most, four, the number of subjects which the individual pupil may pursue simultaneously; and this limit is inexpedient in a four years' programme.

The Committee have therefore prepared the following modification of Table II., using four as the standard number of weekly periods, excepting the first year of a new language, and in the few cases in which the Conferences advise a number smaller than four. By this means the total number of periods is somewhat reduced, except in the first year, and the numbers of periods allotted to different subjects are made more consonant, each with the others. The result is only a correlation and adjustment of the recommendations of the Conferences, no judgment or recommendation of the Committee being expressed in it.

Table III

The adoption of the number four as the standard number of weekly periods will not make it impossible to carry into effect the fundamental conception of all the Conferences, namely,— that all the subjects which make part of the secondary school course should be taught consecutively enough and extensively enough to make every subject yield that training which it is best fitted to yield,—provided that the proposed correlation and association of subjects are carried out in practice. With regard to the arrangement or sequence of subjects, the Committee follow in this table the recommendations of the Conferences with only slight modifications. They insert in the first year applied geography, using the term in the sense in which it is used by the Conference on Geography; and they

make this insertion in order that natural science may be represented in the programme of that year, and that a complete break of continuity, as regards science subjects, between the eighth grade and the second year of the secondary school may be avoided. They have felt obliged to put physics into the third year, and chemistry into the fourth, in order that the subject of physics may precede meteorology and physiography; and they have slightly increased the number of lessons in astronomy. With regard to the proportions of school time to be devoted to the different subjects, Table III. reduces somewhat the proportional time devoted to Latin, English, and mathematics, and increases the proportional time to be devoted to natural science. In a secondary school which teaches all the subjects recommended by the Conferences, and to the extent contemplated in Table III., nearly one-fifth of the whole instruction given will be devoted to natural science.

The Committee regard Table III. not, of course, as a feasible programme, but as the possible source of a great variety of good secondary school programmes. It would be difficult to make a bad programme out of the materials contained in this table, unless indeed the fundamental principles advocated by the Conferences should be neglected. With some reference to Table I., excellent six years' and five years' programmes for secondary schools can readily be constructed by spreading the subjects contained in Table III. over six or five years instead of four,—of course with some changes in the time-allotment.

The details of the time-allotment for the several studies which enter into the secondary school programme may seem to some persons mechanical, or even trivial—a technical matter to be dealt with by each superintendent of schools, or by each principal of a secondary school, acting on his own individual experience and judgment; but such is not the opinion of the Committee of Ten. The Committee believe that to establish just proportions between the several subjects, or groups of allied subjects, on which the Conferences were held, it is essential that each principal subject shall be taught thoroughly and extensively, and therefore for an adequate number of periods a week on the school programme. If twice as much time is given in a school to Latin is given to mathematics,

the attainments of the pupils in Latin ought to be twice as great as they are in mathematics, provided that equally good work is done in the two subjects; and Latin will have twice the educational value of mathematics. Again, if in a secondary school Latin is steadily pursued for four years with four or five hours a week devoted to it, that subject will be worth more to the pupil than the sum of half a dozen other subjects, each of which has one sixth of the time allotted to Latin. The good effects of continuous

study in one subject will be won for the pupil through the Latin, and they will not be won through the six other subjects among which only so much time as is devoted to the single language has been divided. If every subject studied at all is to be studied thoroughly and consecutively, every subject must receive an adequate time-allotment. If every subject is to provide a substantial mental training, it must have a time-allotment sufficient to produce that fruit. Finally, since selection must be exercised by or on behalf of the individual pupil, all the subjects between which choice is allowed should be approximately equivalent to each other in seriousness, dignity, and efficacy. Therefore they should have approximately equal time-allotments. The Conferences have abundantly shown how every subject which they recommend can be made a serious subject of instruction, well fitted to train the pupil's powers of observation, expression, and reasoning. It remains for makers of school programmes to give every subject the chance of developing a good training capacity by giving it an adequate time-allotment.

The schedule of studies contained in Table m. permits flexibility and variety in three respects. First, it is not necessary that any school should teach all the subjects which it contains, or any particular set of subjects. Secondly, it is not necessary that the individual pupil should everywhere and always have the same number of periods of instruction per week. In one school the pupils might have but sixteen periods a week, in another twenty; or in some years of the course the pupils might have more periods a week than in other years. Within the schedule many particular arrangements for the convenience of a school, or for the welfare of an individual pupil would be possible. Thirdly, it is not necessary that every secondary school should

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## SPECIMEN PROGRAMMES.

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begin its work at the level which is assumed as the starting point of secondary instruction in Tables I., II., and III. If in any community the high school has no such grammar school foundation beneath it as is imagined in Table I. it will simply have to begin its work lower down in the table. The sequence of studies recommended by the Conferences would still serve as a guide; but the demarcation between the elementary schools and the high school would occur in that community at a lower point. From this point of view, Tables I., II., and III. may be considered to set a standard towards which secondary schools should tend; and not a standard to which they can at once conform.

The adoption of a programme based on Table III. would not necessarily change at all the relation of a school to the colleges or universities to which it habitually sends pupils. Any such programme would lend itself either to the examination method of admission to college, or to the certificate method; and it could be slightly modified in such a way as to meet the present admission requirements of any college in the country. Future changes in admission requirements might fairly be made with a view to the capabilities of programmes based on Table III.

As samples of school programmes constructed within the schedules of Table III., the Committee present the following working programmes, which they recommend for trial wherever the secondary school period is limited to four years. All four combined might, of course, be tabulated as one programme with options by subject.

These four programmes taken together use all the subjects mentioned in Table III., and usually, but not always, to about the amounts there indicated. History and English suffer serious contraction in the Classical programme. All four programmes conform to the general recommendations of the Conferences, that is,—they treat each subject in the same way for all pupils with trifling exceptions; they give time enough to each subject to win from it the kind of mental training it is fitted to supply; they put the different principal subjects on an approximate equality so far as time-allotment is concerned; they omit all short information courses; and they make sufficiently continuous the instruction in each of the main

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## PROLONGING THE SECONDARY SCHOOL PERIOD.

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lines, namely, language, science, history and mathematics. With slight modifications, they would prepare the pupils for admission to appropriate courses in any American college or university on the existing requirements; and they would also meet the new college requirements which are suggested below.

In preparing these programmes, the Committee were perfectly aware that it is impossible to make a satisfactory secondary school programme, limited to a period of four years, and founded on the present elementary school subjects and methods. In the opinion of the Committee, several subjects now reserved for high schools,—such as algebra, geometry, natural science, and foreign languages,—should be begun earlier than now, and therefore within the schools classified as elementary; or, as an alternative, the secondary school period should be made to begin two years earlier than at present, leaving six years instead of eight for the elementary school period. Under the present organization, elementary subjects and elementary methods are, in the judgment of the Committee, kept in use too long.

The most striking differences in the four programmes will be found, as is intimated in the headings, in the relative amounts of time given to foreign languages. In the Classical programme the foreign languages get a large share of time; in the English programme a small share. In compensation, English and history are more developed in the English programme than in the Classical.

Many teachers will say, at first sight, that physics comes too early in these programmes and Greek too late. One member of the Committee is firmly of the opinion that Greek comes too late. The explanation of the positions assigned to these subjects is that the Committee of Ten attached great importance to two general principles in programme making:—In the first place they endeavored to postpone till the third year the grave choice between the Classical course and the Latin-Scientific. They believed that this bifurcation should occur as late as possible, since the choice between these two roads often determines for life the youth's career. Moreover, they believed that it is possible to make this important decision for a boy on good grounds, only when he has had opportunity to exhibit his quality and

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## POSTPONING BIFURCATION.

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discover his tastes by making excursions into all the principal fields of knowledge. The youth who has never studied any but his native language cannot know his own capacity for linguistic acquisition; and the youth who has never made a chemical or physical experiment cannot know whether or not

Table IV

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## REPRESENTATIVE SUBJECTS IN THE FIRST TWO YEARS.

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he has a taste for exact science. The wisest teacher, or the most observant parent, can hardly predict with confidence a boy's gift for a subject which he has never touched. In these considerations the Committee found strong reasons for postponing bifurcation, and making the subjects of the first two

Table IV, (continued)

years as truly representative as possible. Secondly, inasmuch as many boys and girls who begin the secondary school course



## EXPLANATION OF THE SAMPLE PROGRAMMES.

do not stay in school more than two years, the Committee thought it important to select the studies of the first two years in such a way that linguistic, historical, mathematical, and scientific subjects should all be properly represented. Natural history being represented by physical geography, the Committee wished physics to represent the inorganic sciences of precision. The first two years of any one of the four programmes presented above will, in the judgment of the Committee, be highly profitable by themselves to children who can go no farther.

Although the Committee thought it expedient to include among the four programmes, one which included neither Latin nor Greek, and one which included only one foreign language (which might be either ancient or modern), they desired to affirm explicitly their unanimous opinion that, under existing conditions in the United States as to the training of teachers and the provision of necessary means of instruction, the two programmes called respectively Modern Languages and English must in practice be distinctly inferior to the other two.

In the construction of the sample programmes the Committee adopted twenty as the maximum number of weekly periods, but with two qualifications, namely, that at least five of the twenty periods should be given to unprepared work, and that laboratory subjects should have double periods whenever that prolongation should be possible.

The omission of music, drawing, and elocution from the programmes offered by the Committee was not intended to imply that these subjects ought to receive no systematic attention. It was merely thought best to leave it to local school authorities to determine, without suggestions from the Committee, how these subjects should be introduced into the programmes in addition to the subjects reported on by the Conferences.

The Committee were governed in the construction of the first three programmes by the rule laid down by the language Conferences, namely, that two foreign languages should not be begun at the same time. To obey this rule is to accept strict limitations in the construction of a four years' Classical programme. A five years' or six years' programme can be made

## ECONOMY OF THE PROGRAMMES—MISSING SUBJECTS.

much more easily under this restriction. The Committee were anxious to give five weekly periods to every foreign language in the year when it was first attacked; but did not find it possible to do so in every case.

The four programmes can be carried out economically in a single school; because, with a few inevitable exceptions, the several subjects occur simultaneously in at least three programmes and with the same number of weekly periods.

Numerous possible transpositions of subjects will occur to every experienced teacher who examines these specimen programmes. Thus, in some localities it would be better to transpose French and German; the selection and order of science subjects might be varied considerably to suit the needs or circumstances of different schools; and the selection and order of historical subjects admit of large variety.

Many subjects now familiar in secondary school courses of study do not appear in Table III or in the specimen programmes given above; but it must be supposed that the omitted subjects are necessarily to be neglected. If the recommendations of the Conference were carried out, some of the omitted subjects would be better dealt with under any one of the above programmes than they are now. Under familiar high school and academy programmes in which they figure as separate subjects. Thus, drawing does not appear as a separate subject in the specimen programmes; but the careful reader of the Conference reports will notice that drawing, both mechanical and free-hand, is to be used in the study of history, botany, zoölogy, astronomy, meteorology, physics, geography, and physiography, and that the kind of drawing recommended by the Conferences is the most useful kind,—namely, that which is

applied to recording, describing, and discussing observations. This abundant use of drawing might not prevent the need of some special instruction in drawing, but it ought to diminish the number of periods devoted exclusively to drawing. Again, neither ethics nor economics, neither metaphysics nor aesthetics appear in the programmes; but in the large number of periods devoted to English and history there would be some time for incidental instruction in the elements of these subjects. It is through the reading and writing required of pupils, or

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## SATURDAY WORK—ASSISTANTS.

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recommended to them, that the fundamental ideas on these important topics are to be inculcated. Again, the industrial and commercial subjects do not appear in these programmes; but book-keeping and commercial arithmetic are provided for by the option for algebra designated in Table III; and if it were desired to provide more amply for subjects thought to have practical importance in trade or the useful arts, it would be easy to provide options in such subjects for some of the science contained in the third and fourth years of the "English" programme.

The Committee of Ten think much would be gained if, in addition to the usual programme hours, a portion of Saturday morning should be regularly used for laboratory work in the scientific subjects. Laboratory work requires more consecutive time than the ordinary period of recitation affords; so that an hour and a half is about the shortest advantageous period for a laboratory exercise. The Committee venture to suggest further that, in addition to the regular school sessions in the morning, one afternoon in every week should be used for out-of-door instruction in geography, botany, zoölogy, and geology, these afternoon and Saturday morning exercises being counted as regular work for the teachers who conduct them. In all laboratory and field work, the Committee believe that it will be found profitable to employ as assistants to the regular teachers,—particularly at the beginning of laboratory and field work in each subject,—recent graduates of the secondary schools who have themselves followed the laboratory and field courses; for at the beginning the pupil will need a large amount of individual instruction in the manipulation of specimens, the use of instruments, and the prompt recording of observations. One teacher without assistants cannot supervise effectively the work of thirty or forty pupils, either in the laboratory or in the field. The laboratory work on Saturday mornings could be maintained throughout the school year; the afternoon excursions would of course be difficult, or impossible, for perhaps a third of the school year.

In general, the Committee of Ten have endeavored to emphasize the principles which should govern all secondary school programmes, and to show how the main recommendations of

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## REQUIREMENTS FOR ADMISSION TO COLLEGE.

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the several Conferences may be carried out in a variety of feasible programmes.

One of the subjects which the Committee of Ten were directed to consider was requirements for admission to college; and particularly they were expected to report on uniform requirements for admission to colleges, as well as on a uniform secondary school programme. Almost all the Conferences have something to say about the best mode of testing the attainments of candidates at college admission examinations; and some of them, notably the Conferences on History and Geography, make very explicit declarations concerning the nature of college examinations. The improvements desired in the mode of testing the attainments of pupils who have pursued in the secondary schools the various subjects which enter into the course will be found clearly described under each subject in the several Conference reports; but there is a general principle concerning the relation of the secondary schools to colleges which the Committee of Ten, inspired and guided by the Conferences, feel it their duty to set forth with all possible distinctness.

The secondary schools of the United States, taken as a whole, do not exist for the purpose of

preparing boys and girls for colleges. Only an insignificant percentage of the graduates of these schools go to colleges or scientific schools. Their main function is to prepare for the duties of life that small proportion of all the children in the country—a proportion small in number, but very important to the welfare of the nation—who show themselves able to profit by an education prolonged to the eighteenth year, and whose parents are able to support them while they remain so long at school. There are, to be sure, a few private or endowed secondary schools in the country, which make it their principal object to prepare students for the colleges and universities; but the number of these schools is relatively small. A secondary school programme intended for national use must therefore be made for those children whose education is not to be pursued beyond the secondary school. The preparation of a few pupils for college or scientific school should in the ordinary secondary school be the

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## THE PASSAGE FROM SCHOOL TO COLLEGE.

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incidental, and not the principal object. At the same time, it is obviously desirable that the colleges and scientific schools should be accessible to all boys or girls who have completed creditably the secondary school course. Their parents often do not decide for them, four years before the college age, that they shall go to college, and they themselves may not, perhaps, feel the desire to continue their education until near the end of their school course. In order that any successful graduate of a good secondary school should be free to present himself at the gates of the college or scientific school of his choice, it is necessary that the colleges and scientific schools of the country 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 mainly devoted himself in the secondary school. As secondary school courses are now too often arranged, this is not a reasonable request to prefer to the colleges and scientific schools; because the pupil may now go through a secondary school course of a very feeble and scrappy nature—studying a little of many subjects and not much of any one, getting, perhaps, a little information in a variety of fields, but nothing which can be called a thorough training. Now the recommendations of the nine Conferences, if well carried out, might fairly be held to make all the main subjects taught in the secondary schools of equal rank for the purposes of admission to college or scientific school. They would all be taught consecutively and thoroughly, and would all be carried on in the same spirit; they would all be used for training the powers of observation, memory, expression, and reasoning; and they would all be good to that end, although differing among themselves in quality and substance. In preparing the programmes of Table IV, the Committee had in mind that the requirements for admission to colleges might, for schools which adopted a programme derived from that table, be simplified to a considerable extent, though not reduced. A college might say,—We will accept for admission any groups of studies taken from the secondary school programme, provided that the sum of the studies in each of the four years amounts to sixteen, or eighteen, or twenty periods a week,—as may be thought best,—and

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## ARTICULATING SCHOOLS AND COLLEGES.

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provided, further, that in each year at least four of the subjects presented shall have been pursued at least three periods a week, and that at least three of the subjects shall have been pursued three years or more. For the purposes of this reckoning, natural history, geography, meteorology, and astronomy might be grouped together as one subject. Every youth who entered college would have spent four years in studying a few subjects thoroughly; and, on the theory that all the subjects are to be considered equivalent in educational rank for the purposes of admission to college, it would make no difference which subjects he had chosen from the programme—he would have had four years of strong and effective mental training. The Conferences on Geography and Modern Languages make the most explicit statement to the effect that college requirements for admission should coincide with high-school requirements for graduation. The Conference on English is of opinion “that no student should be

admitted to college who shows in his English examination and his other examinations that he is very deficient in ability to write good English." This recommendation suggests that an ample English course in the secondary school should be required of all persons who intend to enter college. It would of course be possible for any college to require for admission any one subject, or any group of subjects, in the table, and the requirements of different colleges, while all kept within the table, might differ in many respects; but the Committee are of opinion that the satisfactory completion of any one of the four years' courses of study embodied in the foregoing programmes should admit to corresponding courses in colleges and scientific schools. They believe that this close articulation between the secondary schools and the higher institutions would be advantageous alike for the schools, the colleges, and the country.

Every reader of this report and of the reports of the nine Conferences will be satisfied that to carry out the improvements proposed more highly trained teachers will be needed than are now ordinarily to be found for the service of the elementary and secondary schools. The Committee of Ten desire to point out some of the means of procuring these better

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## GETTING TEACHERS MORE HIGHLY TRAINED.

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trained teachers. For the further instruction of teachers in actual service, three agencies already in existence may be much better utilized than they now are. The Summer Schools which many universities now maintain might be resorted to by much larger numbers of teachers, particularly if some aid, such as the payment of tuition fees and travelling expenses, should be given to teachers who are willing to devote half of their vacations to study, by the cities and towns which these teachers serve. Secondly, in all the towns and cities in which colleges and universities are planted, these colleges or universities may usefully give stated courses of instruction in the main subjects used in the elementary and secondary schools to teachers employed in those towns and cities. This is a reasonable service which the colleges and universities may render to their own communities. Thirdly, a superintendent who has himself become familiar with the best mode of teaching any one of the subjects which enter into the school course can always be a very useful instructor for the whole body of teachers under his charge. A real master of any one subject will always have many suggestions to make to teachers of other subjects. The same is true of the principal of a high school, or other leading teacher in a town or city. In every considerable city school system the best teacher in each department of instruction should be enabled to give part of his time to helping the other teachers by inspecting and criticising their work, and showing them, both by precept and example, how to do it better.

In regard to preparing young men and women for the business of teaching, the country has a right to expect much more than it has yet obtained from the colleges and normal schools. The common expectation of attainment for pupils of the normal schools has been altogether too low the country over. The normal schools, as a class, themselves need better apparatus, libraries, programmes, and teachers. As to the colleges, it is quite as much an enlargement of sympathies as an improvement of apparatus or of teaching that they need. They ought to take more interest than they have heretofore done, not only in the secondary, but in the elementary schools; and they ought to take pains to fit men well for the duties

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## UNIFORM DATES FOR ADMISSION EXAMINATIONS.

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of a school superintendent. They already train a considerable number of the best principals of high schools and academies; but this is not sufficient. They should take an active interest, through their presidents, professors, and other teachers, in improving the schools in their respective localities, and in contributing to the thorough discussion of all questions affecting the welfare of both the elementary and the secondary schools.

Finally, the Committee venture to suggest, in the interest of secondary schools, that uniform dates—such as the last Thursday, Friday, and Saturday, or the third Monday, Tuesday, and Wednesday of June

and September—be established for the admission examinations of colleges and scientific schools throughout the United States. It is a serious inconvenience for secondary schools which habitually prepare candidates for several different colleges or scientific schools that the admission examinations of different institutions are apt to occur on different dates, sometimes rather widely separated.

The Committee also wish to call attention to the service which Schools of Law, Medicine, Engineering, and Technology, whether connected with universities or not, can render to secondary education by arranging their requirements for admission, as regards selection and range of subjects, in conformity with the courses of study recommended by the Committee. By bringing their entrance requirements into close relation with any or all of the programmes recommended for secondary schools, these professional schools can give valuable support to high schools, academies, and preparatory schools.

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JAMES C. MACKENZIE,  
HENRY C. KING.

4 December, 1893.

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MINORITY REPORT.

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President Baker signs the above report, but adds the following statement:—

TO THE NATIONAL COUNCIL OF EDUCATION:

I beg leave to note some exceptions taken to parts of the report of the Committee of Ten. Had the Committee not been limited in time, doubtless fuller discussion would have resulted in modifying some statements embodied in the report. The great value of the reports of the Conferences upon the subjects referred to them, as to matter, place, time, methods, adequate and continuous work for each subject, and identity of work in different courses, and the masterly summary and tabulation of their recommendations, made by the Chairman of the Committee of Ten, can but invite cordial commendation. Objections are raised to parts of the special work of the Committee.

1. I cannot endorse expressions that appear to sanction the idea that the choice of subjects in secondary schools may be a matter of comparative indifference. I note especially the following sentences, referring the reader to their context for accurate interpretation.

“Any school principal may say:—‘With the staff at my command I can teach only five subjects out of those proposed by the Conferences in the manner proposed. My school shall, therefore, be limited to these five.’ Another school may be able to teach in the thorough manner proposed five subjects, but some or all of these five may be different from those selected by the first school.”

“If twice as much time is given in a school to Latin as is given to mathematics, the attainments of the pupils in Latin ought to be twice as great as they are in mathematics, provided that equally good work is done in the two subjects; and Latin will have twice the educational value of mathematics.”

“The schedule of studies contained in Table III. permits flexibility and variety in three respects. First, it is not necessary that any school should teach all the subjects which it contains, or any particular set of subjects.”

“Every youth who entered college would have spent four years in studying a few subjects thoroughly; and on the theory that all the subjects are to be considered equivalent in educational rank for the purpose of admission to college, it would make no difference which subjects he had chosen from the programme—he would have had four years of strong and effective mental training.”

All such statements are based upon the theory that, for the purposes of general education, one study is as good as another,—a theory which appears to me to ignore Philosophy, Psychology and Science of Education. It is a theory which makes education formal and does not consider the nature and value of the content. Power comes through knowledge; we can not conceive of observation and memory in the abstract. The world which offers to the human mind several distinct views is the world in which our power that comes through knowledge is to be used, the world which we are to understand and enjoy. The relation between the subjective power and the objective—or subjective—knowledge is inseparable and vital. On any other theory, for general education, we might well consider the study of Egyptian hieroglyphics as valuable as that of physics, and Choctaw as important as Latin. Secondary school programmes can not well omit mathematics, or science, or history, or literature, or the culture of the ancient classics. An education which gives a view in all directions is the work of elementary and secondary schools. Such an education is the necessary preparation for the special work of the university student. If I rightly understood, the majority of the Committee rejected the theory of equivalence of studies for general education.

Studies vary in value for the training of the different powers, and for this additional reason the choice can not be regarded as a matter of indifference.

The training of “observation, memory, expression and reasoning” (inductive) is a very important part of education, but is not all of education. The imagination, deductive reasoning, the rich possibilities of emotional life, the education of the will through ethical ideas and correct habit, all are to be con-

sidered in a scheme of learning. Ideals are to be added to the scientific method.

The dilemma which appears on an examination of the time demands of the various conferences offers to the programme maker the alternatives of omitting essential subjects and of a rational adjustment of the time element, while retaining all essential subjects. Reason and experience point toward the latter alternative. By wise selection of matter within the lines of study adequate and consecutive time can be given to each.

2. The language of the second paragraph following Table II. might be misconstrued to mean that the Committee favor the multiplication of courses with a loss of the thoroughness attainable when the teaching force is devoted to one or two courses. Intension rather than extension of effort, both in respect to the number of courses and in respect to the number of studies or topics under each principal subject, is to be strongly recommended.

3. It may seem trivial to offer criticism of the specimen programmes made by the Committee, and yet I believe that each member felt that with ample deliberation results somewhat different would have been reached. Note for instance that in some of the programmes history is entirely omitted in the second year, and physics is given only three hours per week, —no more time than is allowed for botany or zoölogy. There are many symmetrical secondary school programmes in actual operation today which furnish continuous instruction in all important subjects throughout the four years, allowing to each an amount of time adequate to good results. For most high schools the first, the Classical programme, and the last programme, the one offering one foreign language, will commend themselves because they are economical, and they combine a good finishing course with adequate college preparation.

4. On the basis of the tabulated results of the Conferences I believe that by earnest scientific examination

a scheme of work can be formulated that will meet the views of the members of the Committee and of most educators. As an afterthought it may be an occasion for regret that the strength of the discussion was not devoted to Table III. Instead of con-

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sidering the work of the Committee as ended, I would recommend that the National Council hold itself responsible for further examination of the data furnished by the Conferences. I have not presumed to offer a substitute report, because I believe that the importance of the work demands further effort of an entire Committee.

Respectfully submitted,

JAMES H. BAKER.

