UNIVERSITY OF ILLINOIS BULLETIN

ISSUED WEEKLY

Vol. XII JANUARY 25, 1915 No. 21

(Entered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912)

UNIVERSITY OF ILLINOIS SCHOOL OF EDUCATION

BULLETIN No. 13

Proceedings of the High School Conference of November 19, 20, 21, 1914

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

The 1915 Conference Will Be November 18, 19, 20

UNIVERSITY OF ILLINOIS
SCHOOL OF EDUCATION

BULLETIN No. 13

Proceedings of the High School Conference
of November 19, 20, 21, 1914

Edited by Horace A. Hollister

URBANA, ILLINOIS
PUBLISHED BY THE UNIVERSITY

INDEX OF CONTENTS

STATISTICS OF THE HIGH SCHOOL CONFERENCE, 1914

Total attendance	1200
Total registration exclusive of University community	1109
Number of public high schools represented in Conference	304
Number of teachers representing high schools	1013
Number of representatives of academies	6
Number of representatives of normal schools, colleges and universities	147
Number of county superintendents registered	7
Number of teachers present whose expenses were paid in full by their districts	139
Number whose expenses were paid in part	220
Number of high schools represented by delegates whose expenses were paid in full or in part	155
Registration by sections:	
Administrative	166
Agricultural	32
Biology	76
Classics	95
Commercial	43
County Superintendents and Village Principals	30
Domestic Science	16
English	157
Geography	18
Manual Arts	32
Mathematics	90
Modern Language	49
Music	24
Physical Science	52
Social Science	51
No section given and miscellaneous	178
Total	1109

CONFERENCE COMMITTEES, 1914-15

General Conference Committee:	H. A. Hollister, University, Chairman; J. Calvin Hanna, State Department, Springfield; B. H. Bode, University; H. L. Rietz, University; W. C. Bagley, University; A. P. Johnson, Urbana; W. W. Earnest, Champaign; J. G. Moore, Paris; L. F. Fulwiler, Mt. Pulaski; G. J. Koons, Murphysboro; Mary L. English, Decatur; A. L. Loring, Danville; B. C. Moore, Bloomington; Florence Harrison, University; Florence Skeffington, Charleston; J. L. Rich, University; Anna G. Brown, Jacksonville; Fiske Allen, Charleston; Augusta Krieger, Highland Park; Constance Barlow-Smith, University; C. M. Wirick, Crane Tech., Chicago; Silas Echols, Mt. Vernon.
Administrative Section:	J. G. Moore, Paris, Chairman, 1917; H. H. Edmunds, Clinton, 1915; W. L. Goble, Elgin, 1916.
Agricultural Section:	L. F. Fulwiler, Mt. Pulaski, Chairman, 1917; E. D. Lawrence, McNabb, 1916; E. B. Collett, DeKalb, 1917; A. W. Nolan, University, Secretary, 1915; Lorenzo Muckleroy, Carbondale, 1916.
Biology Section:	G. J. Koons, Murphysboro, Chairman, 1916; W. W. Whitney, Chicago, 1917; Faith McAuley, St. Charles, 1915.
Classics Section:	Mary L. English, Decatur, Chairman, 1915; Harriet L. Bouldin, Springfield, 1916; E. S. Lake, Benton, 1917.
Commercial Section:	A. L. Loring, Danville, Chairman, 1917; Charlotte Van Der Veen, Joliet, 1915; Cora Pryor, Bloomington, 1916.
County Superintendents' and Village Principals' Section:	B. C. Moore, Bloomington, Chairman, 1915; G. P. Chapman, Chatham, 1917; F. A. Gilbreath, Watseka, Secretary, 1916.
Domestic Science Section:	Florence Harrison, University, Chairman, 1917; Isabel Bevier, University, 1917; Alice Treganza, Bloomington, 1915; Elizabeth Stone, Decatur, 1915; Mabel Dunlap, Decatur, 1916; Esther Bedker Kenilworth, 1916.

English Section:	Florence Skeffington, Charleston, Chairman, 1915; J. M. Clapp, Lake Forest, 1915; Eva Mitchell, Centralia, 1915; H. G. Paul, University, 1915; C. H. Woolbert, University, 1915; Caroline Rice, Peoria, 1916; Ruth Moore, Bloomington, 1916; Willard M. Smith, Cicero, 1916; Zens Smith, Quincy, 1916; Margaret Wilson, Cairo, 1916.
Geography Section:	J. L. Rich, University, Chairman, 1917; George White, Saybrook, 1917; H. W. Clem, Chicago, 1915; F. W. Cox, Lawrenceville, 1915; James H. Smith, Chicago, 1916.
Manual Arts Section:	Anna G. Brown, Jacksonville, Chairman, 1915; A. P. Laughlin, Peoria, 1916; C. E. Howell, Decatur, 1917; A. F. Payne, Peoria, 1917.
Mathematics Section:	Fiske Allen, Charleston, Chairman, 1915; L. C. Irwin, Joliet, 1917; E. B. Lytle, University, 1916.
Modern Language Section:	Augusta Krieger, Highland Park, Chairman, 1915; Blenda Olson, Macomb, 1916; John D. Fitz-Gerald, University, 1917.
Music Section:	Constance Barlow-Smith, University, Chairman, 1916; Mrs. Elizabeth McNair, Mattoon, 1916; O. E. Robinson, Chicago ,1915; W. D. Armstrong, Alton, 1917; E. R. Lederman, Centralia, 1915.
Physical Science Section:	C. M. Wirick, Chicago, Chairman, 1916; F. R. Watson, University, 1915; T. M. Barger, Bloomington, 1917.
Social Science Section:	Silas Echols, Mt. Vernon, Chairman, 1917; U. S. Parker, Quincy, 1915; L. M. Larson, University, Secretary, 1916.

EDITORIAL COMMENT

As in the proceedings of last year the editor has taken the liberty to attempt to unify educational terminology. This has been done in most instances where the terms "course," "curriculum" or "program of studies" has occurred; also in the use of terms designating the high school grades or classes. It is possible, however, that, in some papers, the forms used have escaped notice, and so remain unchanged.

A strange heresy has taken hold of our educational meetings with regard to the functions of committees. It is the prevailing notion that the chairman *is the committee* and that other names are added merely for ornament. We are all prone to accept this heresy. But I am sure it is a harmful one. It may be well enough for one member of a committee to prepare a suggestive program or report; but its final adoption should be after thorough discussion and probably amendment, either in a meeting of the committee *after time for deliberation,* or through correspondence, or both.

Take the matter of preparing a syllabus. A speaker at Springfield the other day condemned syllabus making on the ground that a syllabus *is usually one man's idea, or else is made to fit a text book.*

Now we all know this to be too true. But note further: the same speaker said that we need especially to study each subject taught with a view to determining what are the essential educative materials which it is able to supply in such a form as to be most effective in the education of youth.

Now this would mean committees. It might better start with a well prepared syllabus than anything else, for a syllabus it would have to be until some one made of it a book. So there we are. The remedy is *in the method of doing our committee work.*

PART I

GENERAL SESSIONS

The First General Session of the Conference of 1914 assembled in Morrow Hall at 7:30 P. M. Thursday, November 19. Professor H. A. Hollister, Chairman of the General Conference Committee, presided.

Professor J. M. White, Supervising Architect of the University, was announced, and with the aid of a few lantern slides gave the audience of teachers a clear view of the present plan of the University Campus and of its proposed future development.

Dr. W. C. Bagley was then announced as the speaker of the evening. As Chairman of the Committee on Program of Studies he presented a discussion of "Principles Justifying Common Elements in the School Program." Dr. Bagley spoke as follows:

The topic that has been assigned to me for this evening implies in its very statement that the person who discusses it believes in a certain measure of uniformity in the school program,—believes, in other words, that all of the pupils should have some work in common. In the past, so far as what we call general education is concerned, uniformity has been the rule. A uniform curriculum is the line of least resistance. It costs less to administer. It is simpler pedagogically. Its materials can be standardized.

With the growth especially of the high schools, however, and with the increased funds at their disposal, uniformity has gradually given place to diversity, and the single curriculum has been differentiated into more or less specialized curriculums, adapted in some slight measure at least to differentiated tastes and abilities. This movement has been accelerated by several factors.

Arguments Against Uniformity

In the first place, the function of the high school in preparing the pupil for work and service in a highly organized social group has become more and more clearly recognized, and the necessity of differentiated curriculums has been forced home as a result of this recognition. The school must prepare, not only for life in general, but for specific occupations and modes of life. In the second place, an apparent lack of adjustment of a single curriculum to widely different grades of ability and innate capacity has been revealed by the studies in retardation and elimination. Innumerable investigations of other types have

emphasized, through compelling evidence, the existence of individual differences in taste, capacity, needs, and interests which it would be folly for the schoolmaster to neglect. Differentiated cirriculums have been justified, therefore, on the basis both of economic and social needs and of individual differences in mentality. In the third place, uniformity is clearly inconsistent with the current doctrine of interest, while this doctrine strongly supports differentiation.

Some of these contentions have naturally been over emphasized (or "overworked") in the effort to break away from the evils of uniformity. Thus, while retardation and elimination are doubtless due in part to the fact that school work has not been adjusted to individual needs and capacities, it is still true that the school enrollment has increased steadily relatively to the population, and that the proportion of each age group enrolled in the schools has shown a similar increase from decade to decade.[1] Thus, while elimination is a solid fact that must be reckoned with, there is no evidence that elimination is increasing and there is every evidence that the schools have been growing as rapidly as could be expected in spite of the readjustments referred to. This is not advanced as an argument against differentiated curriculums, or against the attempt to meet social needs more effectively. It is merely advanced as an antidote to the panicky hysteria which misinterpreted statistics of school enrollment are likely to induce both in the public at large and among the teachers of our schools.

Again, the investigations of individual differences have made it clear that mental abilities are determined very largely by heredity or native endowment. This does not mean that innate abilities may not be improved by training, but it does mean that the training will vary in its effect on different individuals. It means that some pupils will reach given standards of attainment much more quickly than other pupils, and that we must probably always reckon with a small proportion who can never reach a reasonable standard of proficiency. But the fact that mental abilities are matters of native endowment does not mean that skill and knowledge and ideals are inherited; nor does it mean that the great proportion of individuals may not be put into possession of common ideas and common skills and common ideals if this should seem desirable. Education cannot make all members of the social group equal in ability or in capacity. The world would be extremely flat and uninteresting if this were the case. Differences in capacity are inevitable; but education can give to all, or to practically all, the same ideas and the same ideals if it wishes to do so. Some individuals will take a longer time and others a shorter time in acquiring these; and the manner of their employment after they have been acquired will vary infinitely; but the fact remains that individual differences do not preclude the fulfillment of this function. And *significant as individual differences are, it should not be*

[1]This is clearly shown in the report of the census of 1910, in which the figures include *all types of schools.* The figures given in the annual reports of the Commissioner of Education show a falling off in the per cent of total population enrolled in *public schools,* and in the per cent of all children of school age enrolled in these schools. Closer investigation, however, shows that this relative decrease is confined largely to the cities, and a comparison of figures indicates that it is to be explained *by the increase in the enrollment of the parochial schools and by the decrease in the average number of children to each family,* (which means a smaller proportion of children in the total population). That it does not mean *more elimination* the figures in the census report abundantly prove.

forgotten that, for social welfare, resemblances in ideals and standards are vastly more important than resemblances or differences in native capacity. You would, I am sure, find it more comfortable and more profitable to live in a group of individuals varying from you in ability, but possessed of common ideals and common standards of conduct than in a group of savages with a high grade of native ability parallel to your own, but with savage ideals and savage standards. The illustration is extreme, but it will serve to emphasize the kind of service that education can readily be made to render; and it may also suggest certain fallacies of contemporary educational theory, which has, in some quarters, permitted the undoubted and very valuable facts concerning native individual differences to play havoc with its common sense.

We may find in contemporary educational literature, indeed, illustrations of the extent to which the demand for differentiation has gone under the stress particularly of this notion of individual differences. I quote from a recent book that has had a very wide circulation:

"Shall, then, our public schools have no courses of study? I am asked. And I hasten to reply: No fixed and uniform courses, the same for all the children of all the people; no course that is 'that or nothing' for every child—nothing like that. Surely not. We shall simply carry out, in all departments of these schools, the principle of 'electives,' now so thoroughly established in the leading colleges and universities of this country.

"Then, instead of sticking to the idea that the children are made for the schools, we shall stand on the just and rational basis that the schools are made for the children.

"Then, in determining what studies each child shall pursue, in making up a course of study for each, we shall be guided by the natural aptitude and abilities of that child, by the way he is, and not by the demands of any institution, or set of institutions, or of men—parties who have never seen the child in question, and so know nothing of what he really needs to make the most of himself."

The author's apparent enthusiasm for the elective system as it operates in colleges and universities might be dampened a little by knowledge of the fact that it has failed lamentably in practice even with relatively mature students, and that it has been now replaced by a system of group requirements; his hope that the natural aptitudes and abilities of the child will not be interfered with by the "demands of any institution" is likely to run amuck of the most significant institution of all,—human society itself; and while his statement that the school is for the child and not the child for the school may not blind him, it has certainly blinded others to the fundamental fact that the school is for the public good, and for the realization of individual demands only insofar as these are consistent with social welfare and social progress. But his contention certainly expresses an important attitude toward the problem at issue.

A second quotation is from Superintendent Spaulding's criticism of the Portland high school program in the Report of the Portland School Survey. After naming the list of subjects which he believes should be taught in the high school, he says:

"By selecting and combining in varying proportions from these subjects, an indefinite number of 'courses' may be made * * * The making of such courses should be largely individual, and determined merely by convenience; they should aid and not hinder the adaptation of work to the individual needs of

every pupil. In practice there must be as many 'courses' as there are pupils." (P. 165).

Here, as in the preceding quotation, we have an expression of the principle of extreme differentiation which does not admit for a moment that any particular significance attaches to common elements in the secondary program.

The Justification of a Certain Measure of Uniformity

In view, then, of the apparently wide currency of this point of view toward the secondary program, it would seem incumbent upon one who is to discuss principles for determining constants first to justify common elements. And that, indeed, will be the first task of the present paper. Is the uniformity which has in the past been so striking a characteristic of our school programs an unmixed evil, or does it rest upon a rational basis? I shall attempt to show, first, that a certain measure of uniformity is essential, and for a reason vastly more fundamental than mere economy or expediency of administering a single curriculum as compared with administering differentiated curriculums; secondly, that the justification of a certain measure of uniformity furnishes one rather definite standard for selecting common elements; and, thirdly, that the essential uniformity may be insured without interfering unduly with desirable differentiation.

Common elements in the curriculums of the public schools are not only justified, they are demanded, by social needs, and particularly by the needs of a democracy. We hear a good deal today about the democratic basis of education. For this evening, I should prefer to reverse this statement and speak of the educational basis of a democracy. If democracy depends upon any one factor, it depends upon social solidarity,—it depends upon a certain community of ideas, standards, ideals, and aspirations among all of the members of the democratic society, and it is this necessity that lies at the basis of uniformity in the programs of a democratic school system.

So far as the common basis of standards, ideals, and aspirations is concerned, it will be taken care of in large part automatically, so to speak, by the forms of government and institutions of society, although even here there is need for some attention at the hands of formal education. In respect of a community of ideas, however, the need of a certain measure of uniformity in the program of formal education is clearly indicated. Democracy involves the collective consideration of common problems. There must be a basis for common discussion. The leaders must be able to appeal to the people in terms that will be understood, and if this appeal is to rise above the level of instinct or primitive interest or crass prejudice, there must be among all the people a common basis of knowledge.

This general principle may, I think, be embodied in two statements, the first of which, at least, is so axiomatic as to claim the title of a law. It may be formulated as follows:

The efficiency of a democracy is directly dependent upon the number of ideas that are common to all of the members of the democratic group.

The second principle, while perhaps not axiomatic, may be substantiated by inferences from facts. It may be formulated in this way:

The level upon which a democratic society does its collective thinking is dependent upon the level to which formal education has raised the great majority of its members; or, to put it in another way, *a high level of common ideas is essential to collective thinking on a high plane.*

In support of the latter principle, it would be generally agreed, I believe, that the current evils that we find in democratic government are due, in part, to the fact that ignorance, superstition, and prejudice may be exploited and capitalized by those who seek power; and that this exploitation is the more frequent, the lower the level of common intelligence. When only a few ideas are common to all of the members of a social group, a leader who would derive his power from the people is forced to make his appeal upon a plane that is common to all,—and this inevitably is the plane of instinct, of primitive prejudice, or of crass emotion.

A High Level of Collective Thinking Depends Upon a High Level of Common Ideas

This general contention may be illustrated by reference to some facts which we came across quite by accident in making an investigation for quite another purpose. In order to determine the relative value of a knowledge of certain facts of geography and history as a basis for interpreting current happenings, I asked a group of graduate students to help me by checking up the geographical and historical references in newspapers and magazines extending over a period of ten or more years. The outcome of this investigation as related to the problem that we set out to solve need not detain us at the present time. We did, however, very early in the inquiry, lay bare some facts that are quite pertinent to the present discussion. We found that there were certain newspapers and magazines in which geographical and historical references and allusions were very few and far between. The emphasis, even in news items, and more particularly in comment on current events, was distinctly upon the transitory and the superficial,—generally, indeed, upon what would be called the sensational and the spectacular. These newspapers and magazines revealing what could be legitimately called a poverty of ideas were, in general, those that made their appeal to the masses,—those, in other words, of very wide circulation. On the other hand, the newspapers and magazines that related and discussed the events and problems of the day on a broad and comprehensive plane, with interpretations and references that involved for their understanding a certain capital of formal knowledge, appealed in general to a smaller clientele, and had, in consequence, a limited circulation.

All of this, of course, might have been inferred from what we know of current literature. It serves to illustrate, however, the point that I wished to make: namely, that the level upon which the members of a democracy do their collective thinking depends upon the level to which education has lifted the group. It is a favorite theory of those who have recognized the importance of a community of ideas in a democracy, that if only we give all of the people the tools of knowledge, this dissemination of common ideas will be adequately taken care of through newspapers and other forms of current literature. If the facts above referred to show anything, they show that this hope is futile, and that the level

upon which newspapers and magazines make their appeal is pretty clearly dependent upon the extent to which the intelligence of their readers has been trained through formal education.

One case that we discovered deserves particular notice as substantiating this conclusion. A certain magazine that had had an honorable but not very successful career was taken over by a publisher with the avowed intention of "making it pay." He succeeded in a short time in giving the magazine a very wide circulation. We took the files of this journal and catalogued the geographical, historical, and literary references for five years before and five years after it changed hands. The secret of the increased circulation was apparent; as the circulation went up the references diminished, and the appeal was made in larger and larger measure to immediate, transitory, and primitive interests. This man achieved his aim by impoverishing the ideas that he gave to his readers, and by making his appeal upon a more primitive plane.

I believe that we may say with confidence that a very important function of education in a democracy is to furnish a common basis of ideas or a common basis of knowledge. It is not that all are to think alike on every question. Far from it. It is rather that all shall have certain common terms in which to think and in which to discuss their common problems. Just as the worth of gold is greatly increased because of its universality as a common denominator of value, so the worth of ideas, concepts, and meanings is greatly increased when they become common denominators of experience among larger and larger groups of people. It President Wilson wishes to discuss with the people an important policy of government, the very fact that he can refer to events in our past history or in the history of other countries with confidence that the people can understand him, gives to the common knowledge of these events a very large and significant value. If it would serve his purpose to sum up in the name of some great character of the world's literature a certain thought that he wished to convey, it would be of advantage to him to know that those to whom he made his appeal would understand him. Lacking this basis, his appeals would necsesarily be limited in content and scope, and they would necessarily approximate the plane of primitive thinking.

One should not imply, of course, that mental growth stops with the end of formal education. The average man increases very markedly during his work-a-day life the number of his ideas and his facility in using them in his thinking. But, because his work is necessarily specialized, his new ideas are very largely limited to the special field in which he works, and the efficiency of his thinking grows apace in this field, *but not necessarily in other fields,*—except in individual cases where there is a strong desire for systematic study beyond one's immediate needs. Under average conditions, however, the struggle for success is usually so keen as effectually to preclude such broadening study, and the general level of common intelligence is, consequently, pretty clearly indicated by the extent of the common elements in the school program.

High School Education Will Soon Be Practically Universal

Accepting this principle (at least for the sake of the argument), let us see how the development of the high school affects the problem. The most significant

triumph of American public education during the past half century is expressed in the growth of the public high school. From fewer than forty high schools in 1860, the number has increased until there are now within the United States twelve thousand of these secondary institutions supported by the people. And the rate of growth shows no signs of diminishing. From an enrollment of two hundred thousand in 1890, the increases for the past twenty-four years have brought the present total close to one million, two hundred thousand, an increase of six fold during a period when the population has increased only about 51 per cent.,—a growth, that has been at least ten times as fast as that of the population. Not only is this true, but we have in the public secondary schools of the United States almost as many pupils as there are enrolled in the secondary schools of all the rest of the civilized countries combined,—in spite of the fact that our period of secondary training covers only four years as against six, eight, or nine years in most other countries.

In Illinois our high school enrollment has increased 800 per cent. since 1880, —during a period when the population of the state just about doubled. In Illinois, as in the rest of the country, the recent increases in the second and third year enrollments also indicate very clearly that the high school is holding a larger and larger proportion of its pupils for a longer period, and is graduating each year increasingly larger proportions of the classes that entered four years previously. The proportion of boys to girls is also increasing steadily. In the face of these figures, the sweeping charges that public secondary education has been a complete and total failure are too absurd to merit consideration.

From our present point of view,—from the point of view of common elements in the secondary program,—these facts of the past and present growth of our high schools have a peculiar significance. We can, I believe, look forward to a time, not far in the future, when the high school will be, to all intents and purposes, an institution of universal education, as the elementary school is today. At the present time, according to the computations of the statistician in the office of the Federal Commissioner of Education, about twenty-six per cent. of all pupils entering the first grade go on into the high school. This figure is perhaps a little high, but the proportion must be well over one in every five. In fifty years, the proportion will, at the present rate of increase, be sufficient to insure in the general population a fair preponderance of men and women who have had the advantages of secondary instruction.

The Opportunity and the Responsibility

What this may be made to mean to the future of our state and of our country will depend very largely upon the breadth of vision and the steadfastness of purpose among those who are today determining the destinies of our high schools. It has been my privilege to read fairly carefully through the files of the early school journals of Illinois,—and especially the first teachers' journal which was published in the 'thirties, and *The Illinois Teacher,* which was published in the 'fifties as the organ of the State Teachers' Association. I have been greatly impressed with the fact that our predecessors in this field were men who were looking into the future. They were thinking and planning in terms of a state system of education. Their ideals were broad and comprehensive, rather than

narrow, local, and partisan. And one who lives vicariously with them through the arduous struggles which they underwent to establish our school system; to put on a sure and certain basis the principle of tax-support for public education; to insure for all the children of all the people a type of training that would redound to the benefit of the state as a whole and of the country as a whole; one who does this and then studies our present schools cannot escape the conclusion that these men had a vision the like of which we might well struggle to attain, and that if they could come to life again at the present day, they would see about them the realization of many of their dreams.

With the anticipation of the future that our present situation and our recent growth permit, it is distinctly for us to catch something of their spirit,—to build in a broad and comprehensive way for the future. If our vision is narrow; if our ideals are local or partisan; if we fall prey to the insidious fallacy of the immediate; if we let amateurs bungle our work; then we may be very sure that the generations that are to come will hold us responsible. It is for those who are in direct charge of the schools today to assume, as did their predecessors, the responsibility of advising and counseling with the people regarding the policies of the people's schools. Our predecessors in this great work did this and did it effectively, although at the cost of stupendous toil and effort. Democracy does not mean that the collective will of the people operates automatically toward the best and the wisest courses of collective action. Democracy means rather that the collective will must be determined by a collective intelligence and that this must be stimulated and informed by those who, through hard-won experience and through the travail of hard thinking, are qualified to give to the people wise counsel regarding their collective problems. It is in this position that the schoolmen stand toward the future of the schools.

And to my mind there is nothing fraught with greater significance to the service which the high school may be made to render in the near future than to make the common elements in the high school program realize their fullest measure of value in insuring this essential basis of social solidarity. The tendency in the past in our high schools toward uniformity is unfortunate because the uniformity that has prevailed has been more or less accidental,—at least, it was not always nor often determined by a clear vision of social needs. I have not the slightest doubt in my own mind that some of the basic traditional subjects of the old uniform secondary curriculum will remain as constants in our modern differentiated programs. We cannot jump out of our skins as an old teacher of mine was wont to say; and the educational pabulum of the past is too closely woven into the warp and woof of our intellectual life to be discarded. As I suggested a while back, the very fact that an idea or set of ideas has been a part of the educational program gives it an educational significance that it would be folly to neglect. Those who would cast aside the garb that the past has woven are probably sincere in their motives, but they forget that the divestiture would leave the race as naked although perhaps not so unashamed as the primitive savage. The prominent gentleman who recently said that the best thing for humanity would be to cut itself off completely from its past forgot that we should still be left with the primitive instincts, and that to conquer and refine and sublimate these instincts the same tortuous paths would have to be

retraversed, the same old mistakes and blunders repeated, the same old blind-alleys followed up to their cul-de-sacs of disappointment and despair. Not long ago I talked with a so-called educational expert who had been commissioned to reconstruct a school system. He was slashing away at the program of studies with a cross-cut saw and a cleaver. History was the especial object of his blows. "Why," he said, "any current event has vastly more educational value than any fact of history! Anything that is farther back than twenty-five or thirty years ago ought to go from the common curriculum. The child must not deal with dead and musty facts; he must deal with vital, present, contemporary, interesting life-problems!" Education certainly needs some kind of protection against this type of reformer.

Uniformity in the Past has been Largely Accidental and Imitative

But, while the traditional secondary program must furnish many elements to the programs of the future, it has, as I have suggested, been determined not always by a clear recognition of its function. The uniformity of the past has been largely imitative; the uniformity of the future must be rational, intelligent, and clear-visioned. The time is past when we can safely put all of our pupils through the same mill. The time has already arrived when different mills are being constructed and tested. Before these have had time to crystallize into a static and permanent form (as they must do ultimately), the time is opportune and the need imperative to canvass most carefully and thoughtfully the whole situation; to recognize the social significance of some measure of uniformity; and to ask in what that uniformity may most effectively consist.

The principles that I stated earlier in the discussion appear to justify a certain degree of uniformity; they give us no index as to how much uniformity is desirable or in which subjects it is most desirable,—to say nothing of what particular topics of each particular subject shall be chosen. These problems, it is clear, cannot be solved in a day, nor can they be solved by a single individual. Two years ago, at the request of the Committee on Economy of Time of the Department of Superintendence of the N. E. A., I thoughtlessly said that I would attempt a determination of "constants" or "minima" in two elementary school subjects, geography and history. Fools sometimes rush in where angels fear to tread; and this was a case in point. I have not only given to this problem a good deal of the time and energy that the University expects each man to give to research in his especial field, but I have enlisted the efforts of our graduate students and of some of my colleagues, and I have made bold to call upon special workers in the field of history, especially, and, if our present plans mature, shall request many more services of them and of geographers as well. And this in connection with two fields in which it might be supposed that there is already an overplus of uniformity. Now the results of these two years of work are far from large and still farther from conclusive. As a matter of fact, we very quickly found that the uniformity was not so marked as had been expected, and we also found that what uniformity there is, while obviously justified in some cases, was in others just as obviously the result of a blind following of tradition. Many things have got into the common pabulum in both geography and history that everyone would agree ought to be there; and there are other things for which I have in vain sought a rational explanation.

When we reflect for a moment upon the really superlative honor that we are doing a topic, a character, or an event by insisting that everyone shall know it, the injustice of making out a list of minimal essentials without the most careful and conscientious study is plainly apparent. And this is all the more forcibly impressed when we remember that the time at our disposal is limited and that the number of facts that can be so clearly presented and so richly illustrated and so adequately reviewed as to become permanent possessions of our pupils is relatively small. We have attempted, in connection with elementary geography and history, to get some adequate standard for determining whether a given fact or a given event or a given character should receive this very high honor. As I have suggested, we have analyzed current literature with this end in view, and have a little light on the kinds and amounts of geographical and historical knowledge that are essential to an adequate understanding of current problems and current discussions. Just now, we are having an analysis made of twenty-four text-books in American history, to determine the elements that have been common in the past and are common in the text-books today, and to learn all that we can regarding the text-book as a means of teaching this subject. When this task is completed, we shall submit the results to specialists in American history, and to teachers and superintendents, and have the topics listed in the order of their importance by these men and women, one group of whom are spending their lives in historical study and research, and the other group in adjusting history to the capacities of children and to the multitudinous claims of other subjects. We are finding from our school survey here in Illinois how much time is actually being devoted to history and geography in different types of schools, and the amount of ground covered in the time given. We already have summaries of course-of-study requirements and time allotments, and we are checking these up with the work actually accomplished.

It is clear, then, that a task of this type, even with subjects usually supposed to be fairly well standardized, is stupendous. But I can see no way to accomplish the end except through some such process as this. Is the game worth the candle? Personally I am convinced that it is. If the principles that were laid down earlier in the discussion are valid,—if social solidarity depends upon a community of ideas, and if the value of any idea is increased immeasurably by the fact that it is a common denominator in the exchange of thought,—then it is surely worth while to spend time and energy in seeing to it that the common elements of knowledge are worthy of the high honor that is being conferred upon them. There is no Hall of Fame to compare for a moment with the common pabulum of elementary and secondary education. Should we not see to it that whatever finds a niche here richly deserves the honor and that the facts which we require every one to know are the most important facts, from one point of view or another, that can be selected? The line of least resistance in our educational system is toward uniformity; from the point of view of administrative expediency, from the point of view of curriculum-making, from the point of view of text-book construction, from the point of view of the preparation of teachers, a certain measure of uniformity is inevitable. Well, let us make a virtue of necessity, and see to it that the uniformity that is inevitable richly realizes the value that it may be made to realize.

Desirable Differentiation Will be Promoted by Intelligent Uniformity

And when this is done, there will be all the greater opportunity for needed adjustments to individuals, to groups, and to localities. From the point of view of teaching and administration, this is the permanently difficult task. Once the common elements are fairly well standardized, however, these adjustments may be made much more readily than they can be made now.

With particular reference to the secondary program, this matter of determining constants is perhaps not so vital as it is to the elementary program. But I believe that a certain core of materials can, in the interest of this function of social solidarity, be made common to all high school curriculums. There will possibly be exceptions, even here. In the readjustment of our high school programs to meet the needs of vocational education, it is quite possible that some very highly specialized curriculums will be essential. Personally, I do not like to think of any curriculum so highly specialized with reference to vocational demands as to preclude all liberal or cultural studies. This is a matter upon which opinions may differ, but it is clear to me that the state is just as vitally concerned wtih the liberating of the individual's mind as it is with the development of his technical skill. That is, assuming that democracy really means what it implies; if democracy is a failure we might as well go to work to reorganize our educational system on the European basis without further ado,—we might as well establish our separate system of industrial schools for the masses, and leave our present schools for the classes. But unless we are willing to go the whole length, we should best keep our present system until it has more clearly demonstrated its failure. Certainly there is no evidence now that it is failing so seriously, that perfectly feasible readjustments within the present organization will not correct existing evils. With our high schools growing ten times as fast as the population, and with increasingly larger proportions of pupils remaining to graduate, it would not, in my opinion, check this growth unduly to make a few common demands. Perhaps we could say to our pupils, Here are certain differentiated curriculums, some of which are more or less specialized with reference to bread-winning occupations; but common to all of these curriculums are certain subjects. Some of these subjects may not attract you now, but they have been carefully selected because it has been found that these represent the elements of knowledge that should be common to all. It is for you, after careful consultation to select a curriculum that will meet your interests and your needs. This privilege the state offers to you. In return, you are to do your best with these subjects that are common to all of our work. You may not want to take these subjects; they may not seem valuable to you now; but this is the price that we ask you to pay for the other privileges.

Uniformity and the Doctrine of Interest

Is the price too heavy? Surely if our boys and girls cannot sacrifice so little as this for the common good we are in a pretty bad way. If a war impended, and the call to arms were issued, the boys would flock to the recruiting offices and the girls would volunteer as nurses, each deeming life itself a very trifling gift to offer to one's country. Are we to conclude that the kind of sacrifice and effort that democracy demands in the way of general intelligence and a reason-

ably liberal culture common to all is beyond our boys and girls? Shall we yield the palm so readily to that other country toward which our eyes are now so often turned? In that country boys and girls have been taught from their earliest school days that the welfare of their Fatherland depended upon their intelligence and their skill, and that their education was something more than gratification of evanescent interests or a means of realizing individual ambitions. Just a little of this attitude would not hurt our pupils or our schools,—just a little feeling on the part of the adolescent that for him to be ignorant when he might know, for him to lack the basis of intelligent judgment and valuable opinion, when he might have this basis with a little effort, is just as likely to imperil his country's welfare as would his failure to do his duty on the field of battle. Individualism is a splendid thing to contemplate, but the price of individualism carried to an extreme is paid in national decadence. Contemporary educational theory, in spite of its prating about social efficiency, is individualistic at basis. It talks of the social spirit, but it has read the word sacrifice out of its vocabulary; it talks of the common good, but it has no place for the concept of duty. With its constant dread lest the child may by accident be required to do something that he does not want to do, it is generating among our boys and girls individualistic doctrines that no amount of pupil self-government, and no multiplicity of socializing devices in the recitation can counteract or cover up. Madame Montessori stands as the most radical exponent of the current educational theory; and yet her radicalism is only a consistent carrying through of its tenets. When she tells us that only weak nations have glorified restraint and only weak individuals need to cultivate sacrifice and duty, we at last see the true inwardness of "soft pedagogy."

One thing is certain: contemporary educational theory will condemn at once any proposal to justify or indorse uniformity in the school program beyond the merest tools of reading, writing, and the number of arts.

The Problem of Determining Constants in the Secondary Program

When it comes to determining what shall be the content of this common core in the secondary program, opinions will inevitably differ; and here is the place and here is the opportunity for the debate and discussion, the investigation and research, which a body like this High School Conference is particularly competent to undertake. It would be presumptuous for me even to volunteer a tentative opinion on the specific materials that should be included or excluded. Indeed, when I look over the present high school program with this question in mind, it is the difficulty rather than the ease of choice that the more strongly impresses me. There are those who maintain that algebra and geometry, for example, have no place among these constant elements; and yet when I note in every-day thinking and in every-day discussion the importance of the concepts and meanings that elementary mathematics involves,—when I see how generally useful are such terms, for example, as *axiom* and *axiomatic, constancy, limits, equivalence, demonstration, hypothesis,* to say nothing of the clear-cut methods of thinking and the definite criteria of truth represented by this study,—I believe that I could make out a case on the other side.

It may be that these terms are not sufficiently valuable to warrant their inclusion in the common pabulum. It may be that they can be adequately mastered without the discipline that mathematics involves—but this I doubt very seriously. In any case, there is room here for that kind of discussion and investigation which will clarify our conception of functions and values, and consequently make our teaching of these subjects much more efficient whether or not they are ultimately chosen as common elements in the program.

In connection with literature, we have the important question as to the classics that shall be read by all of our pupils. It may or may not be that certain books should be known by all. Certainly, if my theory is valid, the value of any item of knowledge is greatly increased if it is universal. There are characters in literature that so clearly crystallize human types that one is handicapped in conveying thought if one cannot use them; and there are portrayals of situations and events so compact, so representative, and so universal in their appeal that we might well conclude that these certainly should be constants in our secondary program.

In the field of science, there is abundant opportunity for determining the basic facts and principles that everyone should know; and a course in general science that does not involve some of these would, I believe, fall far short of its possibilities.

And so we might go through with the entire list of high school studies with this single principle in mind, and we should find, I am sure, that each could be made to realize a value from the point of view that I have taken. The task would then be to determine which would be the most important; and this again would not be an impossible task. Collective judgments based on rankings made by as many competent individuals as could be induced to undertake the task would at least be a far safer guide than any criterion that we now possess.

In conclusion, my proposal is that we should look upon common or fundamental education as something more than a mere mastery of the tools of knowledge. The common pabulum should include the most priceless elements of the heritage of race experience. It should be meat and not milk and water. It should aim primarily to furnish the concepts, the meanings, the facts and the principles that are fundamentally essential to collective thinking upon a relatively high plane. It is bound to be prodigal,—*all liberal education is in its very essence prodigal.* It looks beyond the needs of the moment. It furnishes some materials that will probably never be used. But its prodigality is like that of nature itself. It prepares against crises. And when social crises come in a democracy, there is nothing that is more keenly needed than a high level of general intelligence among the people as a whole. The price that we need to pay for the common basis of this collective intelligence, as I have tried to point out, is not a high price. It will not imperil our high school growth, nor will it preclude the offering of specialized work adapted to individual tastes and individual needs, and calculated to enhance individual efficiency. But it will furnish a basis of mutual intercourse, mutual understanding, and mutual sympathy, and this is not only worth while; it is absolutely essential to a successful democracy.

The Second General Session was convened in the Auditorium Friday evening, November 20, at 8 o'clock.

President Livingston C. Lord of the Normal School, Charleston, presided.

An explanatory statement of the plan of the Conference program for the present session was presented by Professor Hollister as Chairman of the Conference Committee. The statement was, in substance, as follows:

As announced, the chief topic for our General Sessions and for the Joint Session of Science Groups is a consideration of the adjustments needed in the Program of Studies of our schools. Last year a committee was created to investigate the subject of general science as to its desirability, feasibility, and the kind of course which should be offered. As a by-product of its investigation this committee recommended back to the General Committee of the Conference that, in order to deal fairly with the problem which a discussion of general science involved, the whole matter of readjustment of the science curriculum should be considered. Evidently, such consideration of the science curriculum would involve, also, the consideration of the readjustment of all curricula, or the entire program of studies, since, among other things, science work is closely correlated with many vocational lines of work.

For these reasons, it seemed best to the General Committee that we should devote the time of the general sessions, as well as the time of the joint session above referred to, to a discussion of various fundamental aspects of the problem of readjustment of the program of studies. An introduction to this discussion was given on Thursday evening by Dr. W. C. Bagley, Chairman of the General Program Committee. He, in his characteristically clear and concise manner, undertook to set forth the principles which underlie the determination of maxima and minima or constants and variables in the program of studies. This afternoon (Friday) was held the joint session of the science groups. The committee reported that for the present any definite recommendation as to the feasibility of general science, or as to a course which should be offered, is not deemed advisable. Following this report a discussion of the problem was presented by F. D. Barber, of Normal, who spoke in favor of general science; by Professor J. M. Coulter, of the University of Chicago, who presented the claims of particular or special sciences to a place in our scheme of secondary education; and by Professor J. J. Woodhull, Columbia University, who undertook to maintain the proposition that all science work in high school should be presented through a series of projects involving the application of scientific principles. This evening we are to have a presentation, by one who has been actively engaged in the work, of the results of a year's study of the problems of readjustment by the leading educators of St. Louis; and the Saturday morning session will present, first, a report by a subcommittee of the general program committee, headed by Dr. C. H. Johnston, on the administrative factors involved in the problem. This committee report will be followed by an address

by Principal M. H. Stuart, of Indianapolis, who will give us his experience in undertaking to correlate academic and vocational subjects in high schools. Thus we have presented at this time at least two distinct aspects of the general problem. First, the principles involved in adjustments as concerns the subject matter of the program, and, second, the question of adjustment as relates to administration of the program.

We all readily recognize the need of a readjustment. There is a tendency in institutions to become static, and thus to drop behind the social and industrial progress of the time. That seems to have happened with us. We have simply failed to keep our school programs adjusted to social and industrial needs. What we need to do is to bring them up abreast with present movements in society. Among other things, we need to consider economy in education. This is true not only as to the cost of education, but as to the time factor as it concerns the individual to be educated. But in all our plans for reform we must remember that there is the problem of the teacher involved. We cannot hope to revise our program of study once for all, for that will need to change as social and industrial conditions change, rather than to become fixed and immutable. Then, again, it is one thing to propose reforms, and another to get the teachers who are qualified to carry them into effect. This is illustrated in our own educational history. In 1821 the Boston Fathers projected the high school with the idea that it was to fit more directly and completely for the ordinary vocations of life. They felt that the Latin Schools of the time failed in this, although they furnished a satisfactory preparation for college training. But not until within the last decade have we begun, in any very full sense, to realize the ideals of the Boston Fathers. The reason, chiefly, was that when the high school for boys had been projected it soon became apparent that the only source of supply for teachers was from those same institutions which trained the teachers for the Latin Schools. The point is that whenever a state undertakes to reform, or readjust the program of studies of a school it should also make provision for the training of teachers who are qualified to do the kinds of work which it is proposed to establish in place of, or in addition to, what has already been taught in the schools.

It seems evident that something should be done here in Illinois toward settling this question. The N. E. A. has taken up the matter of readjustments, but does not seem to be making very great headway. The North Central Association has also taken up some phases of the work. We are especially in need of such readjustments in order to meet the urgent requirements of the educational situation in our state. The General Committee has felt that a very proper approach to this problem would be, first, to lay the foundation for its consideration in some such general presentation as we are having in this session of the Conference, and that following this all these presentations should be referred to the General Committee on Program of Studies, with power to select assistants, and to go ahead with such further investigations and experiments as may seem desirable in order to arrive at satisfactory conclusions as to what we should do in the way of such readjustments as we all seem to agree are needed.

President Lord then introduced Dr. John W. Withers, Harris Teachers College, St. Louis, who as speaker of the evening gave an address on "The Principles on Which Readjustments of the Program of Studies Should be Based."

Dr. Withers spoke as follows:

The needs and values of life, to which education in the broadest sense must minister, cover the whole period of life. Education, therefore, is a continuous process co-extensive with life itself. One is being educated to some degree and in some direction by every experience through which he passes.

An educative experience is any interaction between an individual and his environment. It is the response, physical and mental, which he makes to any situation that his environment provides or suggests. Education as a process may be identified with this living interaction in both its physical and mental aspects, but education as a result is the more or less permanent modification or effect which the interaction or experience leaves behind. The experience which produces education may be, and usually is, conscious, but the educational result is not a fact of consciousness and can only be known by the influence which it exerts upon subsequent experiences and behavior.

The educative process, therefore, involves the two factors,—the educative situation and the educative response. These two conceptions are very useful in the scientific study of education because they center thought upon all the influences which should fundamentally determine and control the work of education. There are, fundamentally, two kinds of problems. First, given any desired educational result, required to find the situation or series of situations which, through the educative responses evoked, will produce that result. Second, given a certain situation or series of situations, including the method of applying them, required to ascertain the educational result that should be expected to follow. Out of these two conceptions, therefore, must be derived the facts and principles that determine, at least on their formal side, teaching, and testing.

For our purpose I shall define these conceptions as follows: an educative situation is that part of an individual's environment which acting upon him at any given time calls forth in him an educative response; it is that part of the total environment whose effect on the response is appreciable. The educative response which an individual makes to any situation may be considered from two points of view,—first, the direct, immediate, and partial response, and second, the indirect, prolonged, and complete response. The first is the kind of consciousness immediately called forth and the bodily behavior occasioned by the situation. The second is chiefly mental and consists of the reflective, emotional, and volitional processes that are started by the direct response and guided and controlled by association, attention, and will.

The result of an educative experience may also be, and usually is, twofold in character, for the individual is different and the environment may be different after the experience from what they were before. The change that takes place in the individual is both mental and physical and is known only

by the influence which it exerts upon his subsequent life of consciousness and behavior.

Before considering the means and values of education, let us distinguish three important processes that influence the course of study. (1) The process of *educating,* properly so called. This process may evidently go on without the aid of a teacher. It is determined by the nature of the educand and of the educative situation to which he responds. It, therefore, involves two variables. The nature of the environmental situation and of the individual making response to it. The educational result that follows is a function of both variables. The basic science is educational psychology. (2) *Teaching.* This is the process of selecting and applying the environmental situations that are designed to evoke or stimulate educative responses on the part of the educand. This process is determined by the will, intelligence, and skill of the teacher and the availability of appropriate environmental means. It, therefore, exerts a limited direct control over but one of the two variables involved in education. The basic science is the science of teaching. (3) *Testing.* This is a process of ascertaining as accurately and fully as possible the results of educating. Like teaching, testing is also limited to environmental control. Since the results of educating can only be known by the influence which they exert upon the subsequent experience and behavior of the educand, the process of testing can only determine through the study of new responses the modifications produced by former ones. Its problem is that of ascertaining what responses in any given case will truly reveal the effects of previous educational effort and of providing the proper situations to call forth these responses. Testing also stands in need of a basic science. There is, perhaps, nothing more significant in present day education than the effort that is being made to attain at least the beginnings of such a science. The hope of improving much further the theory and practice of teaching lies in a large degree in the direction of improving the means of scientifically testing as far as possible the actual results of teaching. Herein lies also the hope of detecting and eliminating useless or ineffectual material from the program of studies and of otherwise improving it by ascertaining the relative effectiveness of different methods of instruction and different plans of organizing and presenting the subject matter of the program.

From what has been said up to this point, it is obvious that the means of education are limited entirely to educative situations. The course of study is, in fact, a scheme designed to aid the teacher to call forth in the child the desired educative responses. After all, this is the one operation of fundamental importance. System, organization, program of studies, supervision, and everything else is subordinate to this. The school or system of schools is in fact an organization having the one supreme function of providing thru the course of study, or otherwise, educative situations of the right sort, in the right order, and at the right time. The actual production of situations planned for in the program of studies is, of course, under the direct control of the teacher and the effectiveness of the program depends upon her insight, intelligence, and skill in making the situations which the course calls for real and vital to the child.

Since, as I have said, the whole means of education are the environmental situations which call forth the responses of life, it follows that the only means that can be employed by one person in the effort to educate another are physical and confined to the possibility of modifying, in one way or another, the physical environment of the educand. In other words, the whole effort to educate is but an effort to make changes in the physical environment with certain educative results in view. Without such changes and the capacity to respond to them, there can be no education. The teacher, within certain limits, can manipulate the environment of the child, but when this is done, if the desired results do not take place, there are no other different means which the teacher can employ.

Taken as a whole then the means of education are of two general sorts,—*human* and *non-human*. The latter are determined and applied by non-human forces constituting the natural environment. The former are those which are or may be controlled by human agencies. They are also of two kinds, which for want of better names, I shall call the direct and the indirect or symbolic. The former consist of the manipulations of things, objects, etc.; the latter of language, illustrations, and symbols of all kinds.

I turn now to consider directly the aim of education as governing the choice of means; the values to be realized thru the means chosen; the agencies concerned in the actual selection and application of the means; the public school's rightful place among these agencies; and finally its own proper work as determining what the program of studies should be.

A satisfactory conception of the general aim of education must be broad enough to cover the whole of education, not merely that of the school. It must represent the interests of society as well as those of the individual and give the right value to each. It must include education as a process and also education as a result. It is, in fact, identical with the aim of life, so that changes in the conceptions and practices of education must keep pace with changes in the conception and needs of life. The aim of education must be consistent with the spirit which permeates the life and thought of the time. It must take account not only of the changes that have taken place in our economic and social life, due to the remarkable industrial development of the last half century, but also of those changes equally potent and profound in our mental attitude toward the world and toward human life in all its relations. Intellectually we have lost much of the certainty and dogmatism of the past and are becoming much more open minded and flexible. The notion of progressive adaptation, which has become so influential in all scientific and philosophic thought, has weaned us from the inflexibilities of the past and given us a world that is more plastic and maleable. Hence there is need that present day education, in its aims, practices, and products shall also be characterized by open mindedness and reasonable adaptability. As a result of the economic and social changes thru which we have passed, profound changes have also taken place on the moral side of life. Previously accepted standards have proven more or less inadequate; the influence of recognized moral sanctions has generally declined; the contacts and wants of life have greatly increased; the opportunities to go wrong as well as to do good have been multiplied. The pace

of life has been accelerated and its strains increased so that the whole problem of moral life and moral education has become complex and difficult.

Briefly, then let us define the aim of education as being the aim of human life, both individual and social. As we conceive the latter, so should we conceive the former. Education's central purpose is to reduce suffering and waste of human life and to promote individual and social well-being, to assist as fully and economically as possible in meeting life's needs and in the realization of life's values thru proper selection and control of the means of education.

All those agencies and influences in modern life, which in any way control and apply the means of education, are involved in one way or another in the realization of this aim of education. Among the most important of these agencies are the school, the home, the playground, the occupations, the neighborhood, the church, the press, the library, the stage, the museum, the club, and the government. Each of these has a share in the work which varies more or less with local conditions and the period of life considered. What is the public school's relation to these other agencies. Should it deliberately attempt to cooperate with them, and if so, how? It is obvious that these questions must be answered by reference to the local conditions, the nature and educative efficiency of the agencies actually operating in the local environment, and to the conception which one holds as to what is essentially the public school's own work.

The principles, therefore, which should be applied in answering the above questions, are the following: First, the total task of education should be accomplished in such a manner, at such periods of life, and by such agencies as will secure the best results. Second, each agency should be held responsible for that part of the work that it can do more efficiently and with greater economy than any other. Third, the principle of cooperation among the various agencies should be applied in such a way as mutually to stimulate endeavor and eliminate waste in accomplishing the total work. Fourth, the public school, as the one exclusively educative agency representing the collective will of the people, should be regarded as the final arbiter and custodian of the child's educational well-being. Fifth, in our democracy the public school is charged with the peculiar responsibility of defining the aim and work of education as a whole and of determining the right relation of other educative agencies to itself and to each other.

Applying these principles, we get the following definition of the public school's relation to other educative agencies. First, the public school should endeavor to understand the actual operation and results of other agencies in so far, at least, as they are operating in its own community and to the extent that is necessary to ascertain their significance. Any educational survey which confines itself to the school is obviously partial and inadequate. The responsibility for making thoro and continuous surveys must be accepted by the school itself. Secondly, it should have a definite constructive policy with regard to other educative agencies operating within its own territory, should actively encourage them to do the part of the work which belongs to them, and should attempt, in some degree, even to direct their operation. Thirdly, whenever any agency neglects the functions which belong to it or fails to discharge them

properly, these functions should be taken over by the public school, within limits determined by the social necessity for the performance of these functions; the legal right and actual ability of the public school to perform them adequately, in addition to those functions which are peculiarly and distinctively its own; the probable deleterious effect upon the efficiency of other agencies which would be produced by taking over their special functions; and, lastly, if the results of other agencies neutralize or vitiate those of the public school, the latter has a responsibility in the matter which it must attempt to meet in any way that is legitimate and effective.

Turning now to the question of the school's own peculiar work, I desire to note in the first place that the value of any educational effort must be measured by the character of the responses which it produces and the more or less permanent educational results of those responses. With reference to the aim of education, these results are of two kinds,—those which are of value to society and those which are of value to the individual. The results which are of primary importance to society are the organized motor tendencies and bodily forms of expression of the individual, constituting behavior in its broadest meaning. Those which are of secondary importance to society are the organized forms of mental life in the individual which directly or indirectly influence his behavior. The results which are of first importance to the individual are those which secure for him the satisfactions of life, while behavior has value for him only in a secondary sense, that is, only on condition that it brings to him, actually or by anticipation, some desirable experience. On the other hand, organized mental life, which is the result of education and which may be highly valued by the individual, is of no concern to society unless it somehow actually or conceivably influences the individual's behavior in relation to others. The word behavior, as I am using it, is not restricted to volitional conduct, that is, conduct determined by consciously chosen ends, nor merely to the grosser forms of behavior. It means bodily expression of all sorts that can in any way influence the lives of others, including those forms of behavior which are initiated and controlled by consciousness and those that are beyond immediate conscious control.

Now an educative response may have both a behavior and a conscious aspect, and the value of the educational result which it produces is determined by the way in which this result influences one or both of these aspects of subsequent responses in the same and in other individuals. There are two, and only two, ways in which anything may be of value. It may have value either in itself directly or as a means to something else that has value in itself. The first kind of value I shall call inherent or intrinsic, and the second instrumental. The conscious aspect of an educative response may or may not be valuable in the first sense, depending upon whether it is or is not felt to be directly desirable by the person who makes the response. It may also be valuable in the second sense if, tho not desirable in itself, it leads by association or otherwise to some experience which is desirable in itself. The behavior aspect of an educative response can never be intrinsically or inherently valuable. It may or may not be instrumentally valuable, according as it does or does not serve as the direct or the indirect means of producing intrinsically valuable conscious re-

sponses in the same or in other individuals. Behavior may also have potential instrumental value when it is considered by anyone as being capable of calling forth desirable conscious responses, tho, at the time, it does not actually do so. It is obvious then that the seat of all human values is fundamentally in the feeling or affective aspect of individual human consciousness. To eliminate feeling would be to eliminate all possibility of value of any sort. Feeling is individual. Its very essence lies in its being experiences by somebody. It follows, therefore, that all intrinsic educational values can be realized only in individuals and that they are for the individual the values that are of primary concern; all else is secondary. It is also evident that society is primarily interested in the behavior aspect of the response of individuals, for it is this aspect alone that can serve as means of producing desirable conscious responses in other individuals. My fellow men are interested in my education and are willing to tax themselves in order that I may receive it, but they do so fundamentally because they hope that out of that education will come forms of behavior which may serve as means of enhancing the lives of others by helping to produce in them desirable forms of conscious experience. The artist's behavior in producing a picture is, for instance, socially valuable because of the æsthetic satisfaction which it brings to others. The primary purpose of public education, therefore, is the determination of socially valuable individual behavior. An individual's knowledge and other organized forms of mental life which result from education are of course socially valuable, but only because they are important means of determining behavior. Unless they actually or conceivably influence the individual's behavior they have no social value, and if they result in behavior that is detrimental to the general well-being they are, of course, socially undesirable. The principles, therefore, which should control the organization and direction of public education, must be derived from the study of socially valuable human behavior and of the means of determining and controlling it. The problem may be stated as follows: What kinds of behavior are socially as well as individually valuable, and how shall the means of producing such behavior be selected and applied?

I have said that behavior can have only instrumental value, and this in so far as it serves to promote directly or indirectly in the individual himself and in other individuals the realization of intrinsic or inherent values. The essence of behavor, therefore, from the educational point of view, is individual and social service. To serve any one is to assist him by means of one's behavior to realize inherent values for himself, either directly or indirectly. In fact, this is the only way in which service can be rendered.

Now an individual can, by means of his behavior, serve himself and others in two and only two general ways. First, by what he produces for the use of himself and others and by his manner of producing it, and secondly, by what he himself uses and the way in which he uses it.

The sense in which these terms are employed is this: Man is a producer whenever he makes environmental changes of any sort, temporary or permanent, that may be used for the satisfaction of any human want, physical or spiritual. He is a user whenever he appropriates any such changes, whether made by himself or others, for the satisfaction of his own wants.

The realization of the general aim of education requires training for these two kinds or aspects of behavior. An individual cannot realize himself and promote the well-being of society unless he has developed in himself the capacity and disposition not merely to produce well himself, but to use wisely the productions of others. The individual who is merely a user and does not produce anything for the inspiration and use of others is a parasite on the social organism and is therefore an undesirable citizen, whether he be a millionaire or a tramp. On the other hand, one who produces skillfully and well much that society needs but who himself uses comparatively little of the products of others is certainly not the most desirable member of the community. To the extent that such a man does not spend his means in securing products of the labor and inspiration of others he prevents them from satisfying their own proper physical and spiritual wants by the use of products which they in turn might secure. The one who best realizes himself and promotes the well being of others is the one who is best equipped and most disposed not only to produce, but to use the good things of life.

If the foregoing analysis is correct, it follows directy that the principles which should determine the work of public education, including the proper content, organization, and arrangement of the program of studies, should be derived from determining in the order of their relative worth the values which should be realized thru education for production and education for use; and from ascertaining the principles, conditions, and methods which determine the most economic development of right behavior from these two points of view.

If we define general or fundamental education as that which is designed for and supposed to be needed by all, the sort that the public elementary schools are supposed to give, we must recognize two grades of education for production and education for use. Specialized vocational education which later in the child's life seeks to develop specialized knowledge, skill, and efficiency in some form of productive activity accepted as the child's life work, must be based upon and grow out of a more general and fundamental kind of vocational education, which seeks to give the child those forms of experience, ideals, attitudes, and habits that will help to determine for him his appropriate place and attitude in the world of producers. Again, specialized education in the use of things which in secondary school or college, in home, church, library, theatre, museum or club seeks to develop a refined taste and appreciative use of any products of the labor and inspiration of others, past and present, must also be based upon an elementary education in the right appreciation and use of the simpler and more common things of life.

The public elementary schools should attempt to provide neither specialized vocational education nor specialized education in the use of things but a general or fundamental education that is the best possible preparation for both, that provides for marked individual differences in children, makes for adaptability, and is well suited to the nature and capacity of children. Therefore in making a program of studies for the public elementary schools we should answer as well as we can the following three questions: (1) Are there any experiences, forms of knowledge, types of behavior, mental attitudes and dispositions that are fundamental to all legitimate vocations or at least to

those upon which the majority of the children of a given school are likely to enter? If so, these should be defined and provided for in the elementary program of studies. (2) What are those values, knowledges, forms of behavior, dispositions, and qualities of mind which are fundamental in enabling an individual to make the most of his opportunities to live a rich, well-balanced, happy, and socially valuable life as a user of the increasing wealth of things which the labor and inspiration of men of all time have made possible for his comfort and for the enrichment of his life? So far as possible these values must also be provided for in a unified elementary program of studies. (3) What, from the standpoint of the elementary school, for the period of the child's life which it covers, is the relative importance of those two aspects of life, and how shall these two types of material be brought together in the program of studies?

I do not hesitate to say that these types of material can be fairly well ascertained and that for the elementary school the second type is the more important for the following reasons: (1) These values are fundamentally intrinsic in character. They represent the individual's capacity to appreciate and enjoy, and are the ultimate determinants of his behavior. Those which are peculiar to himself, together with the relative emphasis which he places on others determine his individuality; while those which he appreciates in common with others make for commonality of life in thought and behavior and are the basis of all cooperation and of social unity and solidarity. (2) As a people we have shown greater skill and proficiency in the production of all sorts of things which we have a mind to produce than wisdom, proportion, and refinement in the use of things and of our social and civic relations and opportunities. Our excessive use of patent medicines; the general over emphasis upon the money cost of things, leading too often to vulgar display and ostentation upon the part of those who can financially afford it, and to over straining, dishonesty and despondency upon the part of those who cannot; our great lack of proper discrimination in the choice and remuneration of public servants, are striking examples of the fundamental lack of proper education in this direction. We actually spend more money to correct and to prevent the damaging results of the misuse of things and of social contacts than we pay for all sorts of constructive educational effort. (3) There are in the United States 500,000 traveling salesmen whose annual salary, including traveling expenses, is more than one billion dollars, a sum large enough to purchase annually all public school property, houses, lands, and equipment in the United States and to pay the annual operating expenses of the public school systems of New York and Chicago. The sole function of these men is to educate people in the use of things, and the nation is paying $10 a piece for every man, woman, and child for the kind of education which they provide,—a kind of education which, tho highly efficient, is not dominated by the motive of promoting individual and social well-being but by that of profit which not infrequently operates to the detriment of people. Education in the right operation and use of things is therefore a fundamental and serious obligation of the public school which it cannot surrender to any other educative agency. (4) This form of education is important on account of the influence which it exerts on production itself. There is, in fact, on account of the ever increasing wealth

and variety, not only of things which an individual may use but also of those which he must use, a correspondingly increasing necessity of generalizing and defining the capacities and wants of individuals as users. In order to maintain the spirit and ideals of democracy, to encourage, stimulate, and diversify the right sorts of production, both mental and spiritual, to eliminate by disuse the wrong sorts, and to raise as far as possible the general standard of living by enlarging and refining individual and social tastes, this sort of education is a necessity.

It is the function of the high school and college to provide the various forms of specialized education for production and for use. Here, again, what may be properly undertaken at public expense must be by a study, more or less local, of social and economic needs and opportunities.

The Final Session of the 1914 Conference was held on Saturday morning, November 21, in Morrow Hall. The program was opened promptly at 9 o'clock with Dr. B. H. Bode of the University presiding. First came the report of a sub-committee of the Committee on Program of Studies, under the direction of Professor Charles H. Johnston of the School of Education. The subject which this Committee was considering was "The Administrative Factors Involved in Readjustments of the Program of Studies." The report was made in sections by different members of the Committee. These reports follow:

1. *Report of the Chairman, Professor Charles H. Johnston:*

There is no single way to characterize adequately the movements for reorganizing public secondary education. Reorganization may refer to the matter of economy by the elimination of a grade; or it may refer to a change in methods of teaching, discipline and internal school management; or it may refer to a reorganization of content of instruction within the various courses; or still again it may refer to a change in administrative units within the 12 years of the public school system, such as we commonly mean to describe by the terms of six-six plan, or the six-three-three plan, etc. Generally current discussions, ever since the N. E. A. Standing Committee Report in 1905 on "6 weeks' course of study", show a confusion as to the precise and distinguishable issues involved.

In the present report your committee has omitted all consideration of the problems of the "junior-college annex" to public high schools and has confined its consideration to reorganization as it applies to the common twelve grades of public education. Within these grades any modification of the arrangement of eight grades of elementary and four of high school education, for the committee, has represented some form of rearrangement or reorganization. In 1912 the U. S. Bureau reports 9 types of segregated junior high schools, or combinations of grades—5 to 10th inclusive, and reports 6 combinations of higher grades representing senior high school arrangements. These and other existing forms of reorganization are indicative of unrest and experimentation.

Likewise theoretically different types of reorganization have been worked out in detail for cities of different sizes. The causes doubtless are more varied than the forms of reorganization, some of them involving educational principles, some indicating adjustments for temporary convenience, some for economy merely, some topographical in character, while some again are merely fortuitous. It may be that none of the present types of reorganization are permanently significant as types. Some educators, indeed, claim that they are all mere temporary makeshifts, heralding some profound and revolutionary form of fundamental school reorganization which will come into existence as we revise and refine our educational ideals.

The present extent of the movement for reorganization is of interest. The U. S. Commissioner and the National Bureau are publicly committed to this reorganization. The Committee on Economy of Time of the N. E. A. incorporate the same plan as a fundamental feature of their report. The National Association of State Universities has declared in favor of the same type of reorganization. A committee of the North Central Association last year presented a similar report to that body. This was adopted. The same association enlarged its committee and instructed them to present the details of further procedure at the 1915 meetings. Ten sub-committees of the N. E. A. Committee on Reorganization of Secondary Education are likewise at work upon these details of further developments in this direction. The State of New York as a state, through its separate official curriculums for the first six grades, the intermediate grades, and the high school grades, virtually declares for its adoption. Likewise the State of California. Unanimous resolutions from the State Teachers' Association of Washington, Oregon, Idaho and Montana favor specifically the six-six plan of school organization. The State of Michigan, as well as did earlier the State of North Dakota, is apparently launching a campaign for a similar statewide readjustment, and the state superintendent has published a pamphlet containing not only urgent advise and lists of reasons for the change, but, in addition, definitely worked out plans for the reorganization of courses.

Paralleling these official acts from state offices comes the Universities of Michigan and Chicago with their methods of accrediting and standards of entrance requirements readjusted so as to recognize and to sanction this new type of school organization. Add to these imposing actions of university faculties the recommendations of the directors of the School Surveys of New York City, of the State of Vermont, or Portland, of Boise, and of Springfield, Illinois, and the movement assumes proportions which demand the serious attention of students and administrators of education. From the U. S. Commissioner's Report, 1913, it should also be noted that there is a movement in the parochial schools which contemplates similar reorganization steps. Among cities which have adopted this reorganization we may note especially Palo Alto, Los Angeles and Berkeley, California; Detroit, Grand Rapids and Saginaw, Michigan; Columbus and Dayton, Ohio; Portland, Oregon; Concord, New Hampshire; Trenton, New Jersey; Boston, Fitchburg, Newton, Massachusetts; Minneapolis and Cokato, Minnesota; Grafton, South Dakota; Ogden, Utah; Rochester, New York; Lewiston, Idaho; Kansas City, Wichita, Garden City, Neo-

dosha and Fredonia, Kansas; Richmond, Evansville and other cities in Indiana, and Springfield and Quincy and, in modified form, East Aurora, Decatur and Urbana, Illinois.

The writer has drawn from current literature on this subject some fifteen reasons for the change advanced by its advocates, and as many reasons against this reorganization, furnished by those who prefer the present elementary-high school arrangement. It is instructive to note, in present developments of the controversy, that reorganization advocates are more careful to champion some change rather than tie themselves down to any particular rigid form of reorganization; while those who resist the proposals of reform are chiefly attacking only the dangerous possibilities to which it may lead,—each shifting the burden of proof to the other side.

These reasons, for and against, are as follows:

I. Arguments for:

1. The scheme is fundamentally a plan for segregating the pre-adolescents and providing the unique environment required with the consequent development of the simple forms of student social activity.

2. It provides a better organization for the grouping of students with reference to their varying abilities, and their physical, mental, social and moral traits, at the most critical stage for this sort of diagnosis and treatment. Organized vocational guidance and placement is to be begun at this time.

3. This scheme provides for an instructorial organization with a better grade of women teachers and with more men in instructional force.

4. The teachers themselves also in this particular environment will develop the particular traits required for this work.

5. It allows for a partial segregation of sexes with appropriate modification of teaching methods and management and courses.

6. The natural pedagogy of some subjects like modern language calls for this readjustment. There is also need for an earlier correlation of English language and grammar with the foreign language and grammar, of arithmetic with elementary algebra and demonstrational geometry, and of history and geography.

7. It makes the whole school system more nearly a unit.

8. This would leave the elementary school of six grades still freer to teach easily, without the imposition of any scholastic standards, the tool subjects as tools as well as common fundamental ideals and at the same time have most of its time and energy for the natural unrestrained and wholesome unrestricted exercises of imagination, play, construction, emotion, imitation, etc.

9. This would also leave the Senior High School proper free to develop with more distinctiveness of function genuinely differentiated curriculums of college preparatory, commercial, agricultural, manufacturing, and domestic science, arts, sewing and homemaking.

10. The 6-3-3 plan makes possible a richer variety and greater number of courses for these children from 12 to 15 years of age, and with this larger number of courses. Most important perhaps of all, it allows at a better time than the first year of school, for a partial differentiation of curriculums.*

*We have had two sharply opposing views of the Ideal American High School presented for the conference already. One of these is that the high school now must be a miniature university in form of organization, with its agricultural students, its students of the commercial arts, students of the mechanic arts, students of the domestic, and students of the college preparatory, all mingling together, but seeking different vocational goals. This means that the varied high school program must have curriculum offerings for these important and distinguishable groups, all within the public school system. This view is of course the counter suggestion offered by Dean Davenport as a substitute for and as better than the separate and undemocratic and costly plan provided by the well-known Cooley Bill, which if passed will impose upon the present high school only academic responsibilities and weaken it in every way. The State Commission Bill, favored by all the school people, as I interpret it, carries rather the implication of the desirability and practicability of several high school curriculums, preserving the good varied vocational features of the Cooley provision and omitting the "dual system" feature. This curriculum differentiation feature of the high school instructional program is the common feature upon which harmony is sought. It is moreover what both approve—the real cause of the whole issue in every state in the Union,—the need of vocational education.

The opposing view of the high school is that identical items of knowledge, identical topics of courses, identical curriculums, a single curriculum in fact, is the ideal toward which designors of high school educational work should strive. This is presented as the only guarantee of universal social sympathy, national loyalty, and other common virtues essential to a democratic civilization. To those who have looked long for curriculum designs, of any sort even in the high school program, to say nothing of the elementary, panicky fears of curriculum differentiations seem groundless. The arraignment of the movement toward curriculum variations seems like raising up a bogey or straw man and hitting him very hard. Those senior and even junior high school principals with whom I have talked have not found possible yet even a partial differentiation. Besides, I have found no one who in the remote future hopes to differentiate trainings so completely that a liberal amount of common instruction will not be required in all the curriculums. The German Higher Schools, under a *dual* or even triple system of local administration are undemocratic, and un-American, not for the lack of common elements, for they have these everywhere, nor from the fact that their differentiated curriculums are well and carefully designed for special purposes—*but* because they do not provide for some classes in their secondary system at all. Curriculum differentiation would seem rather to provided for just that mutual acquaintance with and appreciation of diverse educational aims represented in our future still larger and vocationally more representative high school student body which we may expect,—and which in places we now have. *Fundamentals in these higher grades,* so far as preparation for citizenship is concerned, as Dean Davenport so clearly pointed out, may be provided in other ways than by one rigid curriculum.

A Cooley Bill or some substitute will likely pass. The substitute should as a safeguard provide differentiated curriculums.
(Portland and New York Surveys.)

---

11. The pupils will thus, by semi or wholly departmental organization of instruction, be promoted by subject, get the benefit of contact with a special Junior High School type of teachers, their *individualities* being better rounded out and developed, preserved from narrowness and uniformity—or conformity to one teacher's moulding.

12. It may afford such vocational insights and inducements that a larger percent will remain in school an additional year. It also postpones for one year the transportation difficulties of high school attendance, time, carfare, etc.

13. It is cheaper, on same basis as ordinary 7th and 8th grade work, (Hanus' New York Report, Supt. Rundlett, Concord, N. H.) or, if adequate, it makes for a better adjustment of per capita costs. (Holland and Francis. $40, $60, $80.) Town can often make over with proper equipment a grammar school or old high school building. (Francis, p. 190-1.)

14. Provides for better and more continuous use of equipments for domestic science, manual training and vocational courses, with a better set of instructors who can, when necessary, alternate with the different classes. (Springfield)

15. It becomes possible for bright pupils to finish their public school work beyond the sixth grade in 5 instead of 6 years.

II. Arguments against:

1. In general all the plans increase the difficulties of school organization and administration.

2. The child of this age will be confused in adjusting himself to the individual peculiarities of so many teachers.

3. More difficulty in placing responsibility for poor teaching which will affect work in all subjects.

4. There will be much confusion incident to changing rooms.

5. Teachers of one subject become narrowed.

6. We can't make a thoroughgoing rearrangement and reorganization with mediocre teachers. Such intermediate teachers must have preparation of at least high school grade and are not procurable.

7. The scheme requires specially gifted and trained principals who are not available.

6. The elementary school principals will object to taking away the "pride and inspiration of their schools". So also the high school principals, their numbers.

9. The upper grade teachers who can't be promoted to this intermediate type of teaching and who hence must be demoted to lower grades and probably lower salary if retained, will strenuously oppose this *"injustice"* to them.

10. Inconvenienced parents will object.

11. It can't be done in the smaller towns and cities.

12. It is merely a different name for essentially the same operation. No real change in educational principles; all good effects may be secured by *improving present plan.*

13. There is grave danger of losing the essentially personal influence of the teacher in this distribution of personal responsibility among so many teachers.

14. There is equal danger that the many departmental teachers, ignorant of the child's all day round of school work, will overwork the pupils by the very natural, practically inevitable over-emphasis on particular subjects.

15. It may well be also that the child's age advancement accords with our present grade advancements. It is likely that it is not desirable to save a year or to change the content and method of work and discipline. *An enforced rate of intellectual progress and more complicated type of intellectual exercise,* which the intermediate or grade High School scheme requires, might be against the fundamental law of the child's rate of maturing. The 7th and 8th grade stages may be simply plateau levels in the individual's life, nodes, which cannot be done away or transformed by pedagogic device or administration manipulation.

16. Brings in the school lunch problem.

17. It tends to underestimate the necessary amount of drill work.

As to evidence of success or failure of the equipments with reorganization we have as yet little that could be called proof either way. Superintendent Bunker has carefully enumerated his initial obstacles encountered in Berkeley during the first two years and has told how they all were gradually overcome. Superintendent Rundlett of Concord, N. H., has demonstrated by comparative statistics how average marks of whole classes were raised with the adoption and continuation of the scheme; how something like 33 per cent more actual ground was covered during an identical period in such subjects as Latin, history and mathematics; and how the scheme proved to be considerably cheaper for Concord, N. H. Superintendent Francis of Los Angeles has shown us just how, and how much it costs, to transform an old grade building into a model junior high school. Professor Hanus has, as Director of the New York Survey, told that city how much cheaper the junior high school organization will be to the city. Superintendent Study of Neodosha has reported figures showing striking increases in enrollment and in promotion rates, decrease in elimination, and greater interest of the community in the school work following the adoption of the junior-senior high school arrangement. Superintendent Giles of Richmond, Indiana, reports the good effect on general marks in all subjects of those boys who in junior high school were assigned to a partially differentiated curriculum. He reports also a system of advice and guidance, through committee of junior high school teachers, which seems to him to be typical of a sort of individual work not so easily done under the old form of organization. A thirty-five piece orchestra is, he thinks, typical of forms of junior high school activities which may be better developed under such a system of segregating the 7th, 8th, and 9th grades. The writer has found no evidence that any of these school experimentors would be willing to return to the old system. While he has found no reliable proof with which to convince those temperamentally

inclined to doubt the promise in all these new plans of school administration, he is of the impression that demonstrations and proofs will be forthcoming.

2. Report of Prin. H. E. Brown, New Trier Township High School:

Reorganization of the Public High School on the 6-6, 6-3-3, or 6-2-4 basis would necessitate a reorganization of the subject matter of secondary education. This reorganization would take the form of rearrangement of the subjects at present taught in the high school for (a), psychological reasons, or (b), for the purpose of economy of time, or (c) for economic reasons, (d) increased attendance. The psychological argument is that many subjects can well be begun with more chance of success in the twelfth or thirteenth year than in the fourteenth or fifteenth; that in some of the subjects now taught in the schools better results can be obtained by giving more time to cover the same ground, and (e) that some of the subjects taught now in the seventh and eighth grades would be better to be taught in the ninth, tenth, eleventh or twelfth; (f) that an earlier differentiation of the subject matter would tend to react favorably on the subjects now covered in the various grades.

Some of the arguments for the Economy of Time are that by proper organization and correlation of subject matter, time may be saved; that subjects taken in the first two years of the Junior High School would not need to be repeated in later years. Experiment has proven that at least a year's time may be saved on the last two grades of school work; that the change from the ordinary eight-year type of education and the differentiated type accelerates the work of students and teachers; that much of the subject matter now treated in the seventh, eighth, ninth, tenth, eleventh and twelfth grades is non-essential and could be eliminated.

Junior High School being located in convenient portions of the city would tend to make for economy by decreasing the cost of transportation, by concentrating all the pupils of one grade in a definite building. This concentration of effort and consequent lack of waste, with all the pupils and teachers having a more definite idea of education by this group, greater progress could be made than under the present system.

The break coming at the twelfth rather than the fourteenth year, would tend to keep many pupils in school who would otherwise drop out. With the greater number of students in school, we would have a consequent social saving.

With the end in view of attempting to meet the arguments suggested above, the committees on High School Reorganization of the North Central Association of Colleges and Secondary Schools, the committee on Economy of Time of Education of the National Education Association, and the committee on Units of the North Central Association of Colleges and Secondary Schools, are attempting to re-cast the program of studies.

At a recent meeting of the committee on Units of the North Central Association, a definite program of units for Junior and Senior High School for the first two years of college was suggested.

Similar action is under consideration by the committee of Reorganization of the High Schools of the North Central Association and the committee on Economy of Time of the National Supt. Association.

In Illinois, Junior and Senior High School may be easily established under our law, both in communities that work under the general school law, and communities that work under township high school organization. Our school law allows the Board of Education to establish a program of studies. This leaves us great leeway. It allows township high schools to establish a program of studies for the purpose of "teaching the older pupils". This, also, gives us a leeway to establish additions to the township high school both above and below the present organization.

3. Report by B. D. Remy, Decatur:

In the reorganization of the schools on the 6-3-3 basis, the Intermediate School possesses the following advantages, and faces the following dangers, as I see it from three years of experience in this type of school.

1. Advantages.

1. A sufficient number of pupils is brought together of each grade to departmentalize the teaching. This is an advantage, if properly directed, in giving opportunity for better instruction. Each teacher becomes a specialist so far as subject matter is concerned and improves in the technique of her teaching. She has more time to improve her equipment along the one line and is much more likely to do it than if trying to do everything. She becomes more intelligently critical of the course of study and its adaptation to the mind and interests of boys and girls. There are enough classes in such a school if it has four hundred or five hundred pupils to use the time of one teacher or more in each of the following special subjects: manual training, drawing, music, cooking, sewing, and possibly others. It makes possible, because of numbers to be reached through a single preparation, some vocational guidance of an effective nature.

2. Enough pupils are brought together of a single grade to classify according to their ability and hence according to their needs. Where one hundred and fifty 8B's are in a building there are enough for six classes. These may be graded as those of best ability, medium ability, and poorest ability. The program of studies may then be modified to meet their needs. In fact, we often find that the groups representing those of poorest ability need more work of a simple nature in Reading, or need more work on the fundamentals of Arithmetic, or a different type of English work. Sometimes they have been found to need simpler texts than the ones used by the pupils of best ability. Grouped in this way it is much easier to make assignments commensurate with the ability of all in the group. This of course is to the advantage of the bright as well as the poor ability groups. It makes possible having study lessons, in which pupils are taught to study effectively. Usually this is found necessary with the poorer groups but not with the brighter. Since school teaching at present is group teaching this plan more nearly approaches taking proper care of the needs of the individual than the other plan.

3. Promotion of pupil by subject, making his progress depend upon his work and not sending him on with some subject unprepared because the others are satisfactory and *vice versa* not holding him back in subjects in which he

is prepared because not up to the standard in some subject or subjects. In other words, his progress depends upon what he earns, no more, no less.

4. Contact of pupil with many personalities instead of one. For instance, in this school each pupil comes into contact with eight teachers as teachers, some time every week besides those who may have charge of him in home room or study room. This I believe to be broadening to the pupil.

5. Enthusiasm of numbers of given grade and age. This shows in class competition, athletics, dramatics, music, etc.

6. Makes possible glee clubs and choruses and orchestra. Because there are enough with ability and willingness we can carry these organizations as additional opportunities for those who desire the work.

7. Better opportunity for experimenting and for making careful tests of methods of procedure in teaching. There are numbers enough of a given grade to offset exceptional cases and give a reasonably valid result in any test or experiment.

8. Opportunity for variation of courses and introduction of new courses of prevocational nature—Algebra one semester for brighter pupils, but more Arithmetic for those not developed enough mathematically to profit by the study of Algebra.

2. Dangers.

1. There is need for a fine cooperation among teachers in such school. Indeed, the plan will fail unless this is secured. Teachers with breadth of view and willingness to see beyond their own small field of operation must be secured for such school.

2. The tendency is to overwork the pupil. This comes from the teacher not covering all of the subjects and hence not knowing the amount of work being assigned elsewhere. This condition prevails, however, in high schools and other institutions and is no more serious in an Intermediate School than elsewhere. We are meeting it here by giving the pupil his study period following his recitation under the direction of the same teacher conducting the recitation. She knows how much time he has and how he uses it, and can judge of the length of his assignments.

3. Losing sight of the individual. This may seem to contradict a statement made under "advantages" but it does not. It means that it is not possible for a teacher meeting one hundred and fifty pupils per day and teaching them one subject to get an intimate acquaintance with the personality of each pupil. They are more likely to be considered as pupils and not as separate personalities on an intimate basis.

4. The danger of the mechanical predominating in the organization. This is simply the danger to which all intricate organization is liable.

5. Danger of standards becoming too high. Again this is not more true of the Intermediate than of the High School. Where a teacher teaches one subject she usually teaches what she likes best and hence what is easiest for her. It is quite possible for her to lose sight of the difficulties of children and expect them to understand more readily than she ought to expect them to. It is quite likely that she will expect a more detailed knowledge than many

pupils can acquire. The tendency is to desire and insist upon all of the facts being retained rather than the most significant ones.

4. Report of Superintendent C. M. Bardwell, of Aurora:

For fifteen years previous to the completion of our present High School building in September, 1912, all of our pupils had elementary Algebra for their Mathematics in eighth grade and had also studied elementary Civics for the first half year and Greek History for the second half. Upon the occupation of our new High School building all the eighth grade classes, containing somewhat over 200 pupils, were gathered in the building thus vacated, and various changes were introduced into the program of studies, this school now being called the Lower High School. Where, hitherto, the program had been uniform for all, certain options were now offered; Commercial Arithmetic and Bookkeeping may be taken in place of the Algebra. English Literature, Composition and Spelling are required of all, and for the first semester Civics and General Science are also required, these two being class study subjects; that is, they are so presented as to require no study outside of class.

Aside from these requirements all work is optional. Various combinations are advised by the teachers, as for instance, if a pupil does not take English Grammar he is advised to take either Latin or German. While the work has not been tabulated into formal courses, yet the studies offered naturally shape themselves into definite courses which fit into the courses following in the High School, tho it is not necessary to continue there a subject begun here. To illustrate: Commercial Arithmetic may be chosen here to be followed by Algebra the next year if the pupil so desires, or if he has studied Algebra here he may then take Commercial Arithmetic in its place the following year.

Some may object to the making of Music and Drawing optional in this grade, but it is our belief that if a pupil who has been instructed in these subjects for seven years, does not care to continue either, he has likely reached the limit of profit in that subject .

We have been able to double the time devoted to Manual Training and Household Science, and while these are optional, practically every boy takes the former and every girl the latter.

The German taught here is not the traditional leisure class High School German, but is rather vocational in its nature and purposes. Our community is very largely German and a speaking knowledge of that language is a valuable asset for a boy or girl seeking a position. As in Germany, the schools give a good control of the English language, so we try to give a usable knowledge of the German.

The General Science as given in this grade is made to touch directly upon the lives of the pupils and is vital in every particular; it is made to correlate with the Hygiene and with the Household Science.

If this building were of sufficient capacity to accommodate the seventh grade also it would permit similar opportunities for that grade, where at present there is only one uniform program.

As for the results attained by the changes thus far made it is as yet impossible to pronounce decisively. Apparently the per cent. of loss of pupils

in this grade has not been lessened appreciably as yet, tho we hope that added experience will demonstrate that the school life of the children of the community will unquestionably be lengthened. While it is true that our present first year High School class is larger than ever before and also greater by forty-seven per cent. than the average of the past ten years, this increase may not be wholly due to the changed conditions in eighth grade.

Naturally, problems have arisen in adapting the courses of those coming from this school so that they fit in readily with the courses of those entering the High School from other schools, of whom there are about an equal number. But thus far this has not proven an insurmountable task, and our two years' experience with the plan gives us the best of encouragement as to its successful working.

The report of the sub-committee was followed by the address of the morning which was given by Principal M. H. Stuart of the Manual Training High School, Indianapolis. Mr. Stuart's subject was "The Relation of Courses in Vocational Education to Our Present School Curriculum." His address was as follows:

It will be difficult for me to give you my conception of this subject without referring constantly to our Indiana situation. Our superintendent, Mr. J. G. Collicott, could give you a very much more comprehensive view of our problems, but I have had the opportunity of coming in direct contact with a great deal of the work and shall do my best to make the presentation clear. In the first place, we have the unit system. Our vocational law places the organization of vocational courses in charge of the regular State and local boards of education. The State Board, however, was enlarged at the time of the making of the vocational law by the addition of three members particularly representative of the industries. As a safeguard against local school boards organizing courses without practical knowledge they are required, in communities desiring vocational work, to appoint advisory boards composed of persons strictly representative of the specific vocations to be taught. Although, as the name indicates, purely advisory, the usefulness of such boards in keeping the new line of work in touch with the field can scarcely be over-estimated.

The most important provision of the law is the creation of a state vocational fund from which the State Board is to pay two-thirds of the salaries of vocational teachers, provided their work meets with the approval of that body. This is the only line of education in Indiana in which there is a state award. So you see it is absolutely necessary that the State Board draw a clearly defined line between vocational education and general education. This fact, to my way of thinking, is the salvation of the entire scheme. On the one hand, it leaves our general educational courses uncommercialized, while on the other hand it forces the vocational work to hew to the specific purpose of fitting for profitable employment.

Under this new law, Indianapolis has developed three types of all day vocational schools. First, a school for machine shop practice is in session five days of the week, from 8 A. M. to 4 P. M. In addition to shop prac-

tice, one and one-half hours each day is given to mechanical drawing and applied mathematics and from two to four periods a week given to shop lectures. Second, a school for electrical workers, including one-half day of actual shop practice, supplemented by laboratory and class work in electricity. In addition to this, the class carries applied mathematics and applied English with civics and industrial history twice a week. Third, a school of printing. The work here consists of one-half day in the print shop, supplemented by daily work in applied English, shop mathematics, practical art, and industrial history.

The practical work in the above schools is done by men selected directly from the field. The machine shop man has had twelve years' experience in the shop. One of the electricians is an engineering graduate with considerable practical work. The other has had about fifteen years of experience along varied lines of electrical construction. In printing we are unusually fortunate. The school of printing conducted by the United Typothetae of America is at our disposal. Our boys work in the regular print shop under the control of the head man, who is rarely well prepared.

In part time work we have only just begun. Already we have established for women three courses, dressmaking, fundamentals of home furnishing, commercial illustration and design. These classes usually meet twice a week at the high school buildings. In evening classes we are developing courses in some six or eight trades, including mechanical drawing, machine shop practice, pattern making, electrical work, etc.

According to our law, evening classes are vocational if the instruction relates to the day employment, and part time work shall be complementary to it. This last provision has its advantages and its disadvantages. Where a man is working in a grocery and is mechanically inclined it seems rather unfair to keep him out of a part time and evening school in mechanics simply because the instruction is not complementary to his day employment. In a way it is forcing a man who is in a blind alley job to remain there. Of course, the object of the law is to stress the value of such instruction in terms of production and thereby induce employers to release a man a certain number of hours a week on pay. This ideal is splendid, but it is a question whether the law will promote its attainment.

So much for the vocational situation. Now as to the relation of all this to our general curriculum. In Manual Training High School of Indianapolis we have been trying for twenty years to develop a comprehensive cosmopolitan program of studies. We have considered it our job to develop a program helpful to every boy and girl in the city regardless of his or her purpose. To this end our program of studies has been made largely elective, requiring for graduation only three and one-half years of English and one year of mathematics. I am not sure that the latter requirement can be justified, yet we still adhere to it. Everything else, including a program of five hundred daily classes, is wholly elective, not by courses but by subjects. In fact, our program of studies is one general program, leaving it to each individual pupil to select the subjects which are the best for his present and future interest. As a consequence, no two pupils in a graduating class have necessarily taken the same subjects. Now I dare say, your first thought is to the effect that such arrange-

ment means a great deal of skipping about on the part of the pupil without any purpose and that snap hunting runs rampant. To prevent this, you will find that in our printed program of studies after a given number of terms in a subject a star is placed. No pupil who selects this subject is permitted to drop it for another until he reaches the star. When he has met this requirement, he is at liberty to select any other subject, provided it is not beyond his English grade. For example, the star in mathematics is placed at the end of two and one-half years, in history at the end of two years, in German and Latin at the end of four years, etc.

All exceptions to the rule of sequence of studies must be made by the principal personally. For example, a pupil completing his first year of mathematics may wish to take up a business curriculum, and therefore substitute commercial arithmetic, followed by bookkeeping. This change the principal is willing to grant, provided the choice is a vocational one and made with the thorough understanding of both pupil and parent that the curriculum thereafter is to point toward the office and not toward the college. A little card is used here, which reads as follows:

..... asks permission to omit.....
in order to take.....

Permission to do this implies an understanding that the pupil is preparing for.....and that other subjects leading to the same end are to be taken later in the course.

This change may prove a handicap to the pupil should he wish to attend college, since the subject to be omitted is usually required for college entrance. By signing below, the parent signifies that he realizes the above condition, but requests that the desired permission be granted.

Date.....

.....

Parent.

As soon as the principal is convinced that the subject in question falls under the province of the card, the pupil is asked to take it home and have it signed. It is returned and placed on permanent file and the school from that time on, is released from any college obligations whatsoever. Our choices of study are made twice a year. Each time any pupil has the opportunity of modifying his curriculum as suggested above, provided there are vocational reasons for the same. Many conferences with the parents result, but with the help of a number of well selected teachers, we are able to handle the choice in a way which we feel means educational guidance. I emphasize educational guidance because I believe that Dr. Strayer is right in saying that it is a better term than vocational guidance for secondary education. We give a large part of December and May to this work, but the results amply repay us for the effort.

So much I have said about our present high school work and our vocational courses for the purpose of making a background for setting forth what I consider the proper relations of the one to the other. Vocational education has its purpose in profitable employment. No pupil should be in such a school who has not that purpose uppermost at the time. All the work, therefore, may

profitably point toward the vocation involved. I have the feeling that the work in such a school must not only be practical but it must articulate definitely with the trade. It is perhaps not wise for the articles manufactured to be sold in competition, but it is necessary that the articles manufactured be usable and thoroughly salable. The teachers employed should be those who can demand the respect of actual tradesmen and there is no way to get such teachers except to select those who have had good training and in addition to this actual trade experience. The suggestion made by Mr. Duffy, Secretary of United Brotherhood of Carpenters, is to the point. He believes that to select a well-trained, practical teacher and a well-trained shop man and put them side by side in the vocational school will bring us the best results.

Our high school, on the other hand, should have a broader purpose, although it may include courses just as practical as the vocational school. For example, we have pattern-making in our school that is just as practically taught, by a teacher who is just as well trained as you can hope to find in any vocational school for pattern making. Some of these pupils may eventually become pattern makers, while others may go on and take an engineering course. In one case the work is vocational and in the other case it is prevocational, or more properly, pre-engineering. Now this type of work in the high school is not going to be superceded by vocational education. It has just as legitimate a right for being as has any vocational course. The fact of it is as we all know, our high schools in the last twenty-five years have changed from an agricultural environment to one in which the industries predominate. For a boy to live a useful life in a modern community he must understand the mechanical processes which lie at the basis of our industrial life. It used to be necessary for every boy to be able to harness and drive a team. It is more important now for him to understand the automobile. You can add illustrations at your leisure, which point in the same direction. The sympathetic insight into our industrial life, obtainable in a cosmopolitan high school, is needed both for the sake of the boy and of our industrial world. It is the only guarantee that our wealth will be properly directed and that our army of coming workers will find the jobs for which they are by nature suited to do.

Even if we did not wish our boys to have a definite insight into occupations other than their own, it would not be possible in a very great number of cases to know to which vocational school a given boy of high school age should be sent. Go out on the street and ask men of forty if they are doing today what they thought they would be doing at the age of twenty and you will be surprised at the small percent of people who are now carrying out the purpose which was uppermost in their teens. We must reckon with this element in a large, prosperous American community. Our high school industrial courses therefore must be largely pre-vocational and pre-engineering and articulate so closely with vocational schools that with well directed educational guidance our boys may enter intelligently into the right line of specialization as soon as they are sufficiently developed to do so.

Vocational education therefore comes in to complement our old time school system. It will enable many boys now little interested in school to re-enlist for work which will make their lives both useful and happy. Twenty-

five years ago we had an industrial wave sweep over the country and manual training was the result. It was a great step, which, as indicated above, has much good still in store for us. Unless the vocational type of school, however, is made an addition, we shall duplicate our present course. The advisory board, the practical shop teacher, and the state award for those schools which measure up to the vocational standard furnish hope for real success. Out of it all, if intelligently directed, will come a well developed system of education fitted to meet the various demands of our complex, highly specialized industrial communities.

The following motion presented by Professor Hollister was unanimously adopted: That the whole matter of readjustment as presented by Dr. Bagley on Thursday evening, in the general science discussion Friday afternoon, by Dr. Withers Friday evening, by the subcommittee report and Mr. Stuart's address of Saturday morning, be referred to the General Committee on Program of Studies; and that said committee be authorized to appoint such additional assistants or supplementary committees as may be found necessary in order to carry forward the investigations and studies necessary for a more complete determination of the adjustments needed.

The Conference here adjourned.

PART II

JOINT SESSION OF SCIENCE SECTIONS

The joint session was held on Friday afternoon, November 20, in Morrow Hall, with Professor H. B. Ward presiding. It included the following sections: Agriculture, Biology, Domestic Science, Geography, and Physical Science. This joint meeting was called to hear the report of a committee created at the 1913 Conference for the purpose of considering the problem of a general science course for the first course in our science curriculum for high schools.

The committee was a representative one composed as follows: W. L. Goble, Elgin, Chairman, representing the Administrative Section; W. L. Eikenberry, Chicago, representing the Agricultural Section; J. L. Pricer, Normal, representing the Biology Section; Miss Mary Moore, Chicago, representing the Domestic Sience Section; H. M. Clem, Chicago, representing the Geography Section; H. S. Pepoon, Chicago, representing the Physical Science Section.

The report of the committee was made by the chairman, W. L. Goble, of Elgin. This was followed by a discussion led by Professor F. D. Barber, of Normal, Professor J. M. Coulter, of the University of Chicago, and Professor J. F. Woodhull, of Teachers College, Columbia University. The report of the committee and the discussions follow:

1. Report of the Committee.

To The Science Sections of the Illinois High School Conference:

Your committee appointed last year to confer with reference to a course in general science for high schools begs to report as follows:

There is a strong and rapidly increasing tendency on the part of high schools thruout the country to organize and put into operation courses which are called general science. There is a wide diversity in the plan of organization, in the content, and in the evident purpose of these courses. There is not at present a sufficient understanding of the meaning and mission of the movement, of the issues involved in the change proposed, or of the final result on science instruction in the

high schools to warrant any definite recommendations or final conclusions in regard to general science. The subject is still up for study, and experimentation, and discussion.

In accordance with this belief, we as a committee decided that the most valuable service that we could render was to arrange, through the aid of Professor Hollister, the program of addresses which is to follow.

We believe that the speakers on this program represent three more or less distinct points of view with reference to this problem and that they will give us some of the most mature thought on the subject that could be found in the country. It is our hope that the general discussion which is to follow the main addresses will be free and frank and scientific, i. e. impersonal. A group of science teachers should be able to discuss their problems with no other motive than that of an endeavor to arrive at the truth.

In behalf of the Committee,

W. L. Goble, Chairman.

2. Professor Barber's Paper:

The Present Status and Real Meaning of General Science

One characteristic marks off the 19th century from all preceding centuries in the world's history. That characteristic is the achievement of science and man's mastery over the forces of nature. The 19th century opened with such means of transportation and communication only as were enjoyed by Abraham when he journeyed out of Ur of the Chaldees unto the land of Canaan. Under such conditions man perforce through all the centuries of his existence had led an isolated life. Within one century through the influence of the railroad and trolley line, the telegraph and the telephone, the ocean cable and ocean greyhound, the wireless and the newspaper, time and space were all but eliminated and the whole civilized world became a single social unit.

A second phase of the achievements of science was the recasting of all the activities of daily life. The achievements of science during the last century completely revolutionized the home, the school and its surroundings, every phase of country, town and city life, all methods of heating and lighting, ventilation, and sanitation, of obtaining food and clothing; in fact, they revolutionized all activities of modern life. To fit into this modern world anywhere understandingly some knowledge of the living world and the physical forces about us is a necessity. *The social significance of science in modern life gives it ever increasing importance as a subject in our public school curriculum.*

Again, the content of our knowledge concerning the natural world and physical forces is increasing with a rapidity and a certainty almost beyond the comprehension of the human mind. For convenience, the mature scientist, viewing this new world of knowledge philosophically, divides it into many so-called

special sciences, and the mature student aspiring to do research work and make some contribution to our fund of knowledge necessarily confines his study to some small portion of a single science. Moreover, he can hope to succeed only by acquiring the technique of the specialist.

The great mass of humanity, however, those engaged in the world's work, laboring in the humbler walks of life, in production, as in agriculture, horticulture, gardening, stock raising or in mining, or in the manufacturing industries, or in trade and commerce, or even in many of the professions—these people have slight need of such special training and technique. They need instead an insight into the broad general principles of science and above all they need to see clearly and to comprehend the significance of science as it spins and weaves the social fabric of modern civilization.

Science Must Be Disseminated

To neglect the training of research workers in the field of science would be fatal to further progress in man's control of Nature and her forces. It would mean stagnation in material progress and that must ever mean stagnation in mental, moral, and spiritual progress. But, on the other hand, to neglect the interpretation and dissemination of scientific knowledge and the training of the *masses of common people* in scientific thinking is to rob humanity, in a large measure, of the fruits of scientific research. It is to the interest of all humanity that even the humblest laborer, toiling with pick and shovel, shall have some knowledge of the laws of science as related to his labor and his living. Modern civilization and all that is most significant to the common people in the way of improved living conditions, of more efficient labor, of shorter hours of labor, and of greater facilities for recreation and pleasure, depend largely and primarily upon, first, the achievements of the research worker in revealing the truths of science, and second, upon the dissemination of those truths among the common people and training of the masses in thinking scientifically.

We are confronted today with no danger of neglecting the training of research workers in the field of science. Every great university in the land is chiefly engaged in this work. The ablest men in their science departments are spending their energies largely in training research workers in their graduate departments. The undergraduate departments of these universities and most of our colleges are largely engaged in preparing students to enter these graduate schools, while the science courses in our high schools are in the main shaped and determined by college entrance requirements. Our high schools are vestibules to the college our colleges are vestibules to the graduate school of the university. From top to bottom and from bottom to top the science work in our educational institutions is chiefly shaped and planned to furnish a direct path for the training of research workers. It is necessary that such a path be provided; but, we must not lose sight of the fact that it is equally necessary that the needs of the masses of young people preparing not for research work but for the *ordinary activities of life* receive some consideration. Science falls far short of fulfilling its mission unless the fruits of scientific re-

search fall upon fertile soil and take root in the daily life activities of the masses.

Are our educational institutions preparing the masses to appreciate and utilize the products of research work in science? This can be done directly and efficiently only through science instruction in our public schools where the masses of young people should learn to interpret and to understand the significance as it affects their life work—to think scientifically as they work. They need *less* the scientific thinking of meditation; they need *most* the scientific thinking of participation in the fundamental activities of modern life. And where are our great educational institutions which stand out conspicuously for their efforts and accomplishments in the training of science teachers for our public schools? Where are our great universities which emphasize the art of interpreting and disseminating the fruits of scientific research as they emphasize the art of research itself?

Decline of Science

Notwithstanding the ever increasing importance of science as a factor in modern life, it is a fact well known to students of education that the percentage of students studying science in our public schools is on the decline and has been on the decline for twenty years. Leading educators have from time to time called attention to this fact. The Commissioner of Education has repeatedly shown it in his reports. And yet, the rank and file of public school superintendents, principals, and science teachers have, until recently, sat idly by, alternately boasting of the triumphs of science and lamenting the slowness of the farmer, of the laboring classes, in fact, of the masses everywhere, to avail themselves of the fruits of scientific research in their daily life-activities.

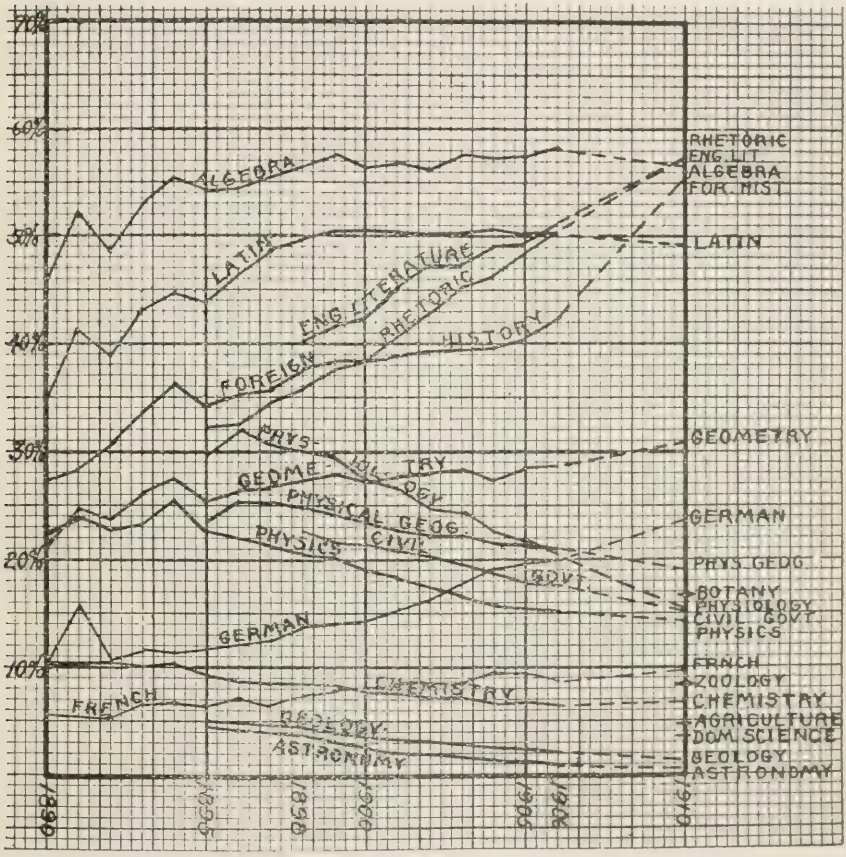
In commenting upon the tendencies in our high schools the Commissioner of Education in his report, 1911, reviewing the educational progress of the decade, says: "Latin is holding its ground; French and German are gaining; algebra occupies a large share of time and is steady; geometry is gaining; English and history have gained materially; all the older sciences, rather strangely, are relatively falling off."

At last we are waking up to the situation. We are beginning to realize that something is wrong—radically wrong—with our public school work in science. What is the trouble? Have you diagnosed the case? Have you a remedy to suggest?

Over Specialization

Some of us are convinced that the malady with which the public school science is suffering is directly traceable to an overdose of specialization. The needs of the research specialist are dominating and determining largely the college courses in science; college entrance requirements almost completely determine the character of our high school courses in science. We have built our science courses from the top downwards. We have attempted to start every fourteen-year-old boy and girl entering the high school upon the path laid out for the benefit of the *exceptional* boy or girl who *may* become a research worker in the university. We have presumed that every four-

Graph, Showing percentage of students studying each of the subjects in the public high schools of the United States during the twenty years from 1890 to 190. From the report of the Commissioner of Education, 1910. Vol. 2, p. 1139.



teen-year-old youth is eager and ready to think in abstract terms. We have attempted to feed him on abstract principles and generalizations, never pausing to inquire about his likes and dislikes or to study the fundamental characteristics of the adolescent mind. We have failed to note that boys and girls of fourteen are chiefly interested in learning things for the sake of knowing those particular things. The adolescent is not yet a philosopher. Abstractions, generalizations and type studies are foreign and distasteful to the normal adolescent mind. Youth is ambitious, but it ever seeks the short cut. Necessity also plants its iron heel firmly down

upon the ambition of the youth from the toiling classes. The wail and clamor from hungry mouths, the pleadings for the necessities of life are ever ringing in his ear, and in the ear of his parents. If he enters the high school at all it is generally for the purpose of spending one or two years, possibly three or four years, in better preparing himself for life's work—for the struggle of earning a living. The boys and girls from the laboring classes, indeed, from the masses of the common people everywhere, as well as their parents, have a right to demand that they be shown the worth-whileness of the tasks set before them. Can our high school principals and science teachers do this successfully while following the usual courses in special science shaped and planned chiefly for a different purpose?

The disregard of the nature and character of the adolescent mind, together with the failure of the high school to offer subject matter which appeals to the boys and girls from the masses as being worth while, largely accounts for the fact that only about 30 percent of the boys and girls of high school age ever enter the high school and that 40 percent of those who do enter quit the first year, while only 28 percent of them complete the course and graduate. Educators are beginning to realize this fact. The widespread conviction that our science courses in the high school must be revised is one of the results of this awakening. The experiment of putting, so called, general science in the first high school year is part of this movement.

Present Status of General Science

At the request of the chairman of the National Educational Association, I undertook last summer to discover the status of what is known as general science. I endeavored to ascertain where and in how many high schools courses *called* general science were being taught and later to obtain from the principals of some of those schools information as to what they were attempting to do and with what measure of success their efforts were meeting. From my investigation I conclude that during the school year of 1913-14 not less than 250 or 300 high schools in the United States attacked the problem of revising their science courses by offering a course which they called general science while large numbers of other schools seriously contemplated doing so soon.

About June 1, 1914, a questionaire was sent to 180 schools reported as offering a course called general science. With few exceptions these were addressed to the principals. Up to June 25, replies from 73 schools had been received. No course called general science was reported from 6 schools. Replies from 67 schools indicate that they have seriously attempted work in general science as they understood the term. All the questions asked were framed with the idea of stimulating thought rather than obtaining ease of tabulation. Some of the replies were consequently rather difficult to tabulate, but it is the belief of the writer that a truer expression of ideas was obtained. A copy of the questionaire with a summary of the replies is in your hands.

A complete analysis of this report is unnecessary. Facts, if correctly reported, are facts, and therefore undebatable. They are, nevertheless, of the greatest value since they furnish the only reliable basis for opinion. I shall call attention to but two items under the questions of fact. First, in replying

to the second question, regarding the length of the cause given, it will be noted that but one school reports a course in general science more than one year in length. I predict with confidence that a similar investigation ten years hence, possibly five years hence, will reveal many schools offering general science courses at least two years in length. Second, in reply to the sixth question, regarding texts used, it will be noted that eleven different texts were used in giving these, so called, general science courses. To one at all familiar with the science texts available during the school year of 1913-14 the answer to this question, together with the answers to the tenth question in the second list, indicates that up to that date, at least, no generally satisfactory texts had made their appearance. I am also convinced that for some years to come, at least until there is available a supply of teachers especially trained to teach general science, text books presenting well organized courses will be as necessary in general science as they are in special science or in any other subject offered in our high schools. The greatest need today, one felt keenly by every science teacher who has become convinced that our science teaching has become too highly specialized is for organized courses in general science. Furthermore, however true it may be that the *best* science teaching, at least for the first high school year, is merely the teaching of the science of the pupil's environment, it is asking the impossible when we ask each teacher to organize such material and put it in teachable and available form.

Passing to the questions of opinion: Opinions are always debatable but the answers to the first and second questions indicate clearly, to my mind, that thus far the experiments with so-called general science have very generally met the approval of the principals of the schools in which they have been tried. It was most interesting to me to discover that the only person answering the first question in the negative answered the second question in the affirmative.

In my judgment the most significant question in the entire set was the sixth in the second list: "Should the units of instruction in general science differ materially from those in special science?" And yet, there were fewer answers to this question than to any other. The term, "units of instruction," seems not to have been understood by many. From the replies one is warranted in concluding that many of the respondents have no clearly formulated ideas regarding the real nature and real significance of the general science movement. Science organized and developed into units of instruction *not matrially differing* from the units of instruction in special science can be nothing other than special science. To attempt to organize science material without recognizing the fundamental difference in the organization of special science and general science is certain to result, it seems to me, in a mere collection of loosely related principles picked from the various special sciences. Those principles may be the most interesting and striking principles of the special sciences and yet such a course might easily have considerably less significance as educative material than any course in special science. In my judgment, most of the so-called general science being offered today is merely fragmentary special science and of exceedingly doubtful educational value.

General science as conceived by its leading advocates is quite as much a different mode of organization and a different mode of attack as it is a new

and different selection of material. Much of the material which has thus far appeared in texts *called* general science consists of clippings from the special sciences. To a less extent the same is true of the half-dozen unpublished outlines which I have received. In many cases little or no unifying idea giving the unit of instruction significance and educational value is evident. In my judgment, the advocates of special science, with justified reverence for logical thinking and training in scientific thinking, may well call such a course "hodge podge" and dub it a "spineless wonder."

If general science is to be of educational value, it must consist of well organized units of instruction. These units must be as definite and as well organized as are the units of special science. They will differ, however, from the units of special science in the fact that they are fundamentally units of practical science or applied science instead of units of theoretical science. The core of the unit in general science will be some process or some device utilized by the individual or by society in the ordinary activities of modern life. To illustrate: In the special science, physics, under "Light", we find such units as these: "Light, Its Rectilinear Propagation; Shadows; Photometry and the Law of Reflection; Mirrors and the Formation of Images; Refraction of Light; The Formation of Images by Lenses; Optical Instruments; Color and Spectra; Nature of Light; Interference and Polarization." In marked contrast, general science, adapted to the ninth grade will be developed through units of instruction somewhat of the following character: Primitive Lamps; Candles; How the Candle Burns; Discovery of Petroleum; Kerosene Lamps; How Kerosene Burns; Evaporation, Boiling-point and Distillation; Crude Petroleum; Distillation of Petroleum; Gasoline; Why Gasoline is Dangerous; Inspection of Oils; Cautions in Using Kerosene and Gasoline; Gasoline Lamps; Gasoline Gas; Illuminating Gas; Distillation of Coal; Coal Gas; Water Gas; Acetylene Generators; Acetylene Lighting; Electric Lights and Electric Lighting; Natural Lighting of Rooms; Direct and Diffused Light; Importance of Diffused Light; Intensity of Light Required; Cost of Artificial Lighting.

A course in general science properly conceived, has unity and logical development. It has educational value of the highest order. It is adapted to the adolescent mind and at the same time appeals to the pupil as worth while. It trains in scientific thinking and deals with material with which the pupil is already somewhat familiar. It starts with the known and proceeds to the related unknown. It deals only with the concrete because *the significant is always concrete.* It gives the pupil control of his environment and an appreciation of the significance of science in modern life. Such a course in science study is *general* because it disregards the artificial boundaries of special science. To study tallow or paraffin candles, the material of which they are made, how they are made, how they burn, and their significance in the development of civilization, involves material from several different special sciences. The units of applied science are never drawn from the field of a single special science. The science involved in the raising of corn on the fertile plains of Illinois or Kansas involves some knowledge of the character of the soil itself, *geology,* some knowledge of the structure and composition of the soil, *soil physics and soil chemistry,* some knowledge of plant life and plant growth, *botany,* some

knowledge of the weather and climate, *meteorology*, and some knowledge of insect life, *zoology*. Why do we insist that the pupil be eternally separating these elements of nature—these items of his natural environment which the Creator has so marvelously and wondrously fitted together into a perfect whole? Why do we insist that he forever and eternally be separating them from their natural, logical and necessary relationships and placing them in the man-made catagory of special science? Is there less education, less mental training, less scientific thinking, or less culture in seeing and comprehending the units of nature as designed by the Creator than by seeing and comprehending the units designed by man?

The Plea for Special Science.

Occasionally we hear an advocate of special science in the high school presenting his case. While admitting that science instruction in the high school may, at this time, very justly have been called to the bar of public opinion, he still insists that science instruction is improving daily, that the rank and file of science teachers will soon be so prepared that they can present special science in an interesting and profitable manner. He closes his argument with the statement that to substitute general science for special science in the early years of the high school at this time would completely upset the entire course in science, set science in the high school back a generation, and inevitably mean a great and deplorable loss for the cause of education.

I never hear such an argument without recalling another case which is recorded in that delightfully written volume, "the biography of Thomas Wentworth Higginson," by Mary Thacher Higginson. Not long after the close of the civil war a very attractive young woman appealed to Mr. Higginson to attempt to secure a pension for her on the grounds that she was the daughter of a certain man, that he was a union soldier, and that he died of starvation and exposure in a confederate prison. Mr. Higginson, after a careful and thorough investigation summed up the case. He announced that he found the case a difficult one to handle. The beauty, brilliancy and culture of the girl were all in her favor, but there were three strong points against her case which would be difficult to overcome. First, She was not the daughter of the man as represented. Second, The man never was a union soldier, and never was in a confederate prison. Third, The man was still living, well and hearty. He concluded to drop the case.

Now, as I understand it, the theory is that special science is the only science instruction having any considerable cultural and educational value—that is is only when the great truths of nature are thus presented that one can see the natural and physical world as a unit and in its logical order, and, finally, that it is only when one thus studies nature that one acquires the truly scientific spirit. This theory while beautiful, brilliant and attractive must be considered in the light of some cold, hard facts when applied to adolescent minds in the early years of the high-school.

First. The adolescent mind demands no such view of nature as will enable it to see either the unity of the universe or such unity of portions of the universe as is presented in the typical special science. The child mind is not

the mind of the philosopher. The adolescent mind demands merely an explanation—a simple common-sense explanation—of his environment, a working explanation of the here and now.

Second. Special science, as usually developed, deals chiefly with abstractions and generalizations. These are usually arrived at through type-studies. The best and most striking types are often found outside of (shall I say rarely within?) the range of the pupil's past experience. The material placed before the student may have the semblance of concreteness but in reality it lacks concreteness because material is concrete only when it has significance and meaning in the light of past experience. No matter how concrete in form material may appear to the teacher with his more mature mind and richer experiences, if it lacks significance in the pupil's past experiences it is to him abstract and consequently lacks interest.

Third. Special science has had its trial in the early years of the high school and has failed. It has failed in a large measure to interest the pupil; science teachers generally regard it as more or less of a failure; superintendents, school boards and especially thinking patrons and hard headed business men have lost faith in it and are demanding a change in science teaching as well as in other phases of high school work. While the significance and importance of applied science in modern life have multiplied many fold, science instruction has steadily declined during the past 20 years. If the rate of decline continues at the present rate for another 20 years, science will then occupy but an insignificant place in the high school program.

We can not much longer disregard these potent facts and cling to the theories of specialists and research enthusiasts when shaping up science courses for fourteen-year old boys and girls just entering the high school.

General Science Is Concrete

Science may be organized into units having practical application and more or less utilitarian values for a basis with exactly the same logical sequence as when organized in accordance with purely theoretical considerations. The science involved in the production and use of light from pine knots and grease lamp of primitive times to the most modern methods of lighting may be as well organized and will require the same logical thinking and be of greater educational value than is the organization of the material usually presented under the head of light in a special science, physics.

When science is organized upon the basis of practical application and utilitarian values only significant material is required. Our text books in special science today are, in a great measure, loaded down with non-significant and therefore abstract and uninteresting material introduced solely because of theoretical considerations. As a teacher of physics principally engaged in teaching students of secondary school attainments I assert with confidence that at least one-third of the subject matter in the ordinary physics text may be omitted without practical loss to the average high school student and with a positive gain in interest.

Organization of General Science

I repeat, the significant material of science may be organized into units of instruction presenting as much of logical order and sequence as is to be found in special science. Consider physics for a moment: There is no accepted order of topics in physics. Some texts begin with the mechanics of solids, some with a study of liquids. In some texts sound is presented early in the course; in others it comes late. In every physics text there are complete breaks in the logical sequence, as, for instance in passing from heat or sound to static electricity. Several popular texts have even divided the usually accepted units, presenting a portion of the topic early and the more difficult portions later in the course. An examination of the 30 or 40 texts in physics published during the past 25 years will convince any fair minded person that there is no necessary nor accepted logical sequence of topics in the subject of physics. The same lack of accepted sequence is equally evident in chemistry. About 30 years ago the order of topics in zoology suffered a complete reversal. Previously the higher forms of life had usually been treated first and lower forms last. Man was the first topic studied and the amoeba the last. An examination of all the texts of special science published during the past half century would prove conclusively, I believe, that authors never have and do not today recognize as necessary a certain sequence of topics. Of course, within a unit of instruction a logical sequence is observed but history proves that special science demands neither that a certain fixed and unvarying set of topics be treated nor that those which are treated shall be studied in a fixed and unvarying order.

Now, the general science advocated today violates no accepted principle of science teaching in proclaiming that there is no single set of topics which should be treated in every school and every class and further that there is no set and unvariable order in which the topics chosen may be treated. In these respects special science never has been universalized and it is to be hoped that general science may never be universalized. Nevertheless, science to be significant and concrete must reveal to the pupil his environment in its true significance. Now, there are certain phases of environment which are universal or nearly so. These phases of environment may be organized and developed into a course in science. If organized in accordance with the basic principle of revealing their utilitarian, social, and economic values, and without material reference to the theoretical considerations of special science, I believe we shall have organized a course in what progressive educators now call general science. Such an organized course will differ materially from our usual courses in special science both as regards the materials used and the mode of presentation.

A Course in General Science

It is my conviction that the first year, probably the first two years, of science in the high school should be organized as general science as interpreted above.

Our plea is not for an easy, a "snap" course nor a sentimental, namby-pamby course, but rather for a course full of meaning and value, and one

which will enlist the interest and demand the best effort of the pupil. It must rest upon an historical setting and reveal to the pupil something of the social and economic value of science in modern life. It must recognize the nature of the adolescent mind and must appeal to the pupil and to his parents as worth while.

When we recognize these fundamental principles and reorganize and adapt all our high school courses to them—when we recognize the needs of the millions of young people who will never see the inside of a college or university or even complete a high school curriculum—when we give up the idea that we must attempt to make profound scholars out of all the boys and girls of the generation or failing in this, crowd them from the high school—when those in charge of our public high schools come to recognize the fact that the greatest service they can render is to make their high schools of such a character that they will attract and hold the great mass of young people till they can be trained into fairly intelligent, self-supporting and self-respecting citizens, then and not until then may we hope to see high school mortality lessen and science in the high school again assume the relative position which its importance in modern life justifies.

3. Professor Coulter's Paper:

The Mission of Science in Education

Before determining the method of presenting science in the high school, it is necessary to determine the most valuable contribution of science to education. Perhaps the crux of our differences lies here. If we can agree upon what science should do for us in our work as teachers, we should probably not be very far apart as to the method of securing the result. The variation in method would be no greater than the inevitable and desirable individualism of teachers. If we differ as to the essential contribution of science to education, of course we shall differ as to the methods. The fundamental problem, therefore, is the mission of science in education.

I shall call attention first to some of the results which science is capable of producing, results which are generally acknowledged. It can be used to develop the scientific attitude of mind, which a distinguished theologian recently defined as nothing more than trained common sense.

This attitude of mind is a spirit of inquiry, which recognizes that we are surrounded by a vast body of established beliefs that need a thorough going over to distinguish heirloom rubbish from the priceless results of generations of experience.

It is also a spirit that demands a close connection between a result and its claimed cause. Failure to develop this spirit provides the soil in which political demagoguery, destructive charlatanism, and religious vagaries flourish like noxious weeds.

It is a spirit that keeps one close to the facts, remembering that a fact is influential only in its own immediate vicinity, and that whole systems of thought and belief lie in a region far beyond the sphere of influence of any facts.

In short, it is a spirit that makes for sanity in thought and action, a spirit which is slowly increasing in its influence, but which as yet does not control the majority of citizens. Any subject that can be used to cultivate this spirit is of the greatest practical importance.

Of course the methods introduced by science are now being developed in connection with other subjects, and the same result may be obtained through them; but it still remains true that the scientific spirit just described is more easily and effectively developed in contact with the concrete materials of science.

A strong claim for science can be made, however, as an essential constituent of all education. It gives a training peculiar to itself, and one that is essential in every well balanced education. It is this contribution that I wish to emphasize.

I shall assume that any peculiar result of science in education must be obtained, not through information in reference to the facts of science, but through contact with the materials of science. However valuable information may be, it can hardly be regarded as a substitute for knowledge. Information is always at least second hand, while knowledge is first hand. The real educational significance of personal experience, which is a better name for what we call the laboratory method in education, is very commonly overlooked, even by teachers of science.

We were first told that science teaches the laboratory method, the inference being that the content of science is of no particular educational advantage in itself, but is merely useful in teaching a valuable method. Of course this method holds no more relation to science than do algebraic sympols to algebra; they both represent merely useful machinery for getting at the real results.

Then we were told that science cultivates the power and habit of observation. Of course it does, but this is not peculiar to training in science, for it belongs to any subject in which the laboratory method is used.

Then it was claimed that the study of science trains the powers of analysis. This is certainly getting the subject upon higher ground, for the power of anlysis is of immense practical importance, but to imagine that analysis is the ultimate purpose of science in education, is not to go very much farther than to say that the ultimate purpose is the laboratory method. The latter is the method, the former is but the first step in its application, and is by no means peculiar to science.

Beyond analysis lies synthesis, and this certainly represents the ultimate purpose of science. The results of our analysis are as barren as a bank of sand until synthesis lays hold of them; but even synthesis is not peculiar to science. To pass by the incidental and the temporary and to reach the real and permanent contribution of science to education is to discover that it lies, not in teaching the laboratory method, in developing the power of observation, in cultivating the spirit of analysis, or even in carrying one to the heights of synthesis, but in the *mental attitude demanded in reaching the synthesis.* In this regard the demands of science are diametrically opposed to those of the humanities, for example, using this loose term to express the great region of literature and its allies. The general effect of the humanities in a scheme of education may be summed up in the single word *appreciation.* They seek to relate the student

to what has been said or done by mankind, that this critical sense may be developed, and that he may recognize what is best in human thought and action. To recognize what is best involves a standard of comparison. In most cases this standard is derived and conventional; in rare cases it is original and individual; in no case is it founded on the essential nature of things, in absolute truth, for it is apt to shift. It is the artistic and æsthetic which predominates, not the absolute. The whole process is one of *self-injection* in order to reach the power of *appreciation.* Any education which stops with this result is incomplete, for there is another mental attitude which is a necessary complement before a full rounded education can be claimed. This complementary mental attitude is developed by a proper study of science.

If the study of nature is conducted so as to cultivate chiefly a sentimental appreciation of natural objects, it is merely more of the same thing. If it is conducted so as to store the memory chiefly with encyclopedic information, it misses the high level of its educational opportunity. If the proper intellectual result of the humanities is *appreciation,* whose processes demand *self-injection,* the proper and distinctive result of the sciences is a *formula,* to obtain which there must be rigid *self-elimination.* Any injection of self into a scientific synthesis vitiates the result. The standard is not a variable and artificial one, developed from the varying tastes of man, but absolute, founded upon eternal truth.

Two such distinct mental attitudes as self-injection and self-elimination must receive attention in education, which cannot be complete without both. They are not contradictory, but complementary. The exclusive cultivation of either one must result in a lop-sided development. Persistent self-injection tends to mysticism, a confusion of ideals, or even vagaries, with realities, a prolific cause of all irrational beliefs. Persistent self-elimination narrows the vision to a horizon touched by the senses, and clips the wings that would carry us now and then beyond the treadmill of life into a freer air and a wider outlook. The two processes and the two results are so distinct and so complementary that any scheme of education which does not provide for the definite cultivation of these two mental attitudes is in constant danger of resulting in mental distortion.

This seems to be the great and unique mission of science in the education of men and women, and nothing more superficial or temporary should divert us from it. It is men and women we have in mind, and not science, or the various subjects under which it is organized. It is obvious that this mission must reach the greatest number, and therefore its beginnings cannot be deferred to the educational schemes of colleges and universities, where the small minority are in training. This work, therefore, is a high school problem. We face the question as to the most effective method of accomplishing it.

The problem is peculiarly difficult because it has been much confused by the various standards used to measure the results. In the main these standards have been too concrete, such as the immediate effect of science upon the earning capacity of the student; the amount of useful information a student may carry into his subsequent life; the number of ordinary phenomena the student can pretend to explain, etc. Too often the higher intellectual standard is lost

sight of, the standard of a mind trained to an effective attitude toward all subjects, an attitude that persists when unrelated facts are forgotten.

This confusion becomes worse confounded when incompetent teaching enters into the program, and the obvious results of lack of interest, and lack of any practical or intellectual outcome, are referred to science as a subject rather than to the teacher as an incompetent. From the midst of all this confusion, leading to merited criticism and a babel of opinions, there emerge some facts which seem clear.

Science has become so vast and so complex a subject, and in addition to this, is so growing a subject, that no teacher can command even its most elementary every day phases. There was a time when men taught Natural Science; there is no man who can do this now. If the most obvious facts of science are to be presented truthfully, they must be presented by teachers trained in the various fields of science. If much confusion has arisen from teachers incompetent in some field of science, the amount of confusion that would result if the same group should attempt to teach *all* science, must be left to the imagination. Of course, in our every day experience we face nature as a synthetic affair, but you must remember that synthesis is the last step in progress, and is an impossible first step. This means that we must begin by laying hold of single threads and following them, until finally we see them woven into the intricate pattern we call nature; and this is the process that brings appreciation, insight, and intellectual equipment; the process that enables science to achieve its peculiar mission in education.

An illustration may be taken from another synthetic experience, common in large cities, as in Chicago, for example. Almost all the living languages are represented in its population, and yet it would hardly seem rational to teach a child foreign languages all at once, by picking out the commonest words and phrases from each. The result might be some scrappy information, but to call it education in language would be far from the mark. The real synthetic study of language is philology, based upon some organized knowledge of the different languages.

A division of the materials of science seems necessary, therefore, not only to secure competent teaching, which is a practical reason, but also to secure a point of view that represents the permanent possession which is the essential feature of education. This does not mean organization for the sake of a subject, but for the sake of a pupil; an organization which means a structure that abides, and not inchoate building material.

I sympathize fully with the demand that the materials selected should be more related to the experience of pupils. This is common sense, and therefore science. I confess that this has been too much lost sight of in our zeal to organize knowledge so that it may be permanent; but the material selected may vary, while the use to which it is put remains the same. The appeal to experience for our material, and the use of this material in organizing a definite body of knowledge, is the combination that will retain all that is vital in our past teaching, and admit all that is helpful in the new demands.

Experience teaches us many things, and changes must be made that will satisfy every possible need, without destroying things that are more important.

A tree may be made to yield more and better fruit by pruning and grafting, but not by uprooting. My picture of the situation in science teaching is that of a tree, rooted and grounded in all the good that the past has revealed, but reaching out its branches and ever renewed foliage to the air and the sunshine, and taking into its life the forces of today.

I have met hundreds of students, entering the university from all parts of the country, who have had work in science in high schools, and although the results have been variable, they have been in the main so satisfactory that it is clear to me that science teaching in the high schools has not been a failure. Those who state that it is a failure must mean that it has not been as successful as it is capable of being made. I have been interested in tracing the comparative failures to their sources, and invariably I have encountered incompetent teaching as the responsible cause, rather than the materials of science that have been presented. The majority of cases, however, that have come under my observation are not failures, for they have brought to me a substantial foundation upon which to build, and what is more important, an aroused interest of their own to build upon the school foundation.

It may be claimed that this evidence is very partial, since it includes only the select few who pass from the high schools into the universities, while the major product of the high schools passes directly into the activities of life. Just how this dissolving crowd can be followed and estimated I am at a loss to imagine. Of course, general impressions are current, which are propagated from no definite source of reliable data. For example, I have heard a business man condemn the whole system of high school education because of an unhappy experience with one high school graduate. Nothing is more common than such illogical generalizations, and they may become propagated so extensively as to be regarded finally as a "public demand". The average "public demand" is about the vaguest scientific proposition one ever encounters.

It has been assumed by some that the large majority of high school students need a type of science instruction entirely different from that which has been given. This assumption is either a response to public demand, or a pedagogical abstraction, and in neither case can it rest upon a convincing body of evidence.

Some of the implied criticisms of the present methods are rather hard to be understood by one who is merely observing the discussion, rather than participating in it. For example, if any science teaching deals with "abstractions" and "generalizations" rather than with concrete material, it is not science teaching. That there should be a certain amount of generalization, based upon observed facts, is obvious, for this is making facts live, which is the pedagogy of the subject. That our science teaching should consist only in explaining to a student what he encounters in his own experience, is to limit his life, rather than to enrich it by extending his horizon. There are many things worth knowing which we only begin to experience when our attention is called to them.

Perhaps, however, the best expression of the opinion that the current method of teaching science should be changed entirely is to be found in the recent texts on "General Science." I find myself quite in accord with the

motive of what is called "general science", in so far as it voices a growing opinion that high school students should know more about science in general, and tries to meet this opinion with a method. What I cannot agree with is the method, and for reasons indicated in a general way in the preceding part of this paper. A mosaic made up of fragments of information breaks up all natural connections, and forbids the development of those ideas which relate and hold facts. As I said, it seems to be really a substitution of the encyclopedic for the educative. The relations suggested by a mosaic are purely artificial, and never can develop a body of *knowledge*, as contrasted with a body of *facts*. With me this is a matter of pedagogy, that is, of the child, and not at all of the sciences as partitioned off into different fields. These sciences can take care of themselves, but we must make them render the best possible service in the education of children.

As one advances through a university, the subjects of science become more and more subdivided, on account of our rapidly growing knowledge. Subdivisions of this kind have no place in elementary instruction, but there are groups of these subjects which are units, so far as education is concerned. It is these natural educational units that must be preserved (and they are not numerous), if science is to do its perfect work in education. I do not understand how an inextricable tangle of these units can be regarded as an education *in* science; certainly it is not an education *by* science.

Of course, when these few natural units are segregated, and perhaps called by names indicating that they are not specialized sciences, then the common experience of life would enter into the choice of illustrative material. We cannot meet the demand for more general acquaintance with science by putting all the sciences into a short course. Such a general acquaintance can only be obtained by extending the time given to science instruction. My program, therefore, would be: enough time for science, so that its natural units may be developed, and also better teaching all along the line.

f. Professor Woodhull's Paper:

Science Teaching by Projects

Science is a word to conjure with. There are those who say nothing worthy to be called science may be taught before the last three years of the high school program—the Senior High School. Something that bears a slight resemblance to science may be taught in the three years preceding,—the Junior High School, but it must not be *called* science. In fact, some of our friends do not seem to care *what* we teach to the junior high school—nor *how* we teach it—but they are most concerned about what we shall *call* it. They say that real, serious science is to be found chiefly in the college, and that what is permissible in the senior high school is the learning of "fundamental principles" preparatory to college science. There are, however, other philosophers who say that children from 12 to 15 years of age come nearest of all persons to using the method of great masters of science, and practice the most real research.

"The native and unspoiled attitude of childhood, marked by ardent curiosity, fertile imagination, and love of experimental inquiry, is near, very near, to the attitude of the scientific mind."[1]

"At present, the notion is current that childhood is almost entirely unreflective—a period of mere sensory, motor, and memory development, while adolescence suddenly brings the manifestation of thought and reason * * * But thinking itself remains just what it has been all the time * * * Only by making the most of the thought-factor, already active in the experience of childhood, is there any promise or warrant for the emergence of superior reflective power at adolescence or at any later period."[2] Elsewhere Dewey says it is not our function to teach children to think—they think quite as much as we do. It may be our privilege to guide their thinking.

We are told that the high school-college-preparatory course in physics, for instance, with its 200 odd topics, is serious science, that it is highly specialized and that it is preparatory to still more serious science hereafter. My opinion is that it is a disjointed skeleton of falsely called "fundamental principles": that it is not science and does not prepare for science; that it is not specialized at all but is a hodge podge of stuff never met by intelligent people in real life.

Dr. Coulter in his address on what the University expects of the Secondary Schools said, "The average college preparation presents to the university the most narrow and unevenly trained material that can be imagined."[3]

And those who deal with graduate students say the same thing about the college work.

Since the defects in high school teaching are due chiefly to the fact that high school teachers are college products and are close imitators of college methods we must first deal with the colleges.

"An ever present question in an institution of the higher learning is how to interest officers of instruction in the subject of education. They are certain to be interested each in his own particular branch of study, but much too few of them are interested in education itself. The consequence is that the teaching of many very famous men is distinctly poor; sometimes it is even worse. This results in part from the breakdown of the general educational process into a variety of highly specialized activities, and in part from the carelessness of college teachers as to everything which effects a student's manners, speech, conduct, and sense of proportion, provided only he gets hold of certain facts which the teacher desires to communicate.

One mistake into which college teachers are most likely to fall is that of confusing the logical with the psychological order in the presentation of facts. The really good teacher knows that the logical order is the result of mature reflection and close analysis of a large body of related phenomena, and he knows too that this comes late in the history of intellectual development. He knows also that the psychological order—the true order for the teacher to follow—is the one which is fixed by the intrinsic interest and practical significance of the phenomena in question. The good teacher will not try to force the

---

[1]Dr. John Dewey, "How We Think."
[2]Dr. John Dewey, "How We Think." P. 65.
[3]School Review, Vol. XVII, P. 81.

logical order of facts or phenomena upon the immature student. He will present these facts or phenomena to him in their psychological order and so give him the material with which to understand, when his knowledge is sufficiently complete, the logical order and all that it means. * * *

It should be possible for an advanced student specializing in some other field to gain a general knowledge of physical problems and processes without becoming a physicist; or a general knowledge of chemical problems and processes without becoming a chemist; or a general knowledge of zoological problems and processes without becoming a zoologist, or a general knowledge of mathematical problems and processes without becoming a mathematician. The reply that knowledge has become so highly specialized that no one can be found to give such courses of instruction is the saddest confession of incompetence and educational failure that can possibly be made. It ought not to be made except under cover of darkness."[4]

The process of learning in school should not differ from that out of school.

"Adults have some occupation about which their thinking is organized. Information is not amassed and left in a heap. Inferences are made not from purely speculative motives but because they bear upon some of life's problems."[5]

Dr. McMurry states the case convincingly as follows: "Should the student be a collector of facts at large, endeavoring to develop an interest in whatever is true, simply because it is true? Should he be unmindful of particular problems? or should his study be under the guidance of a specific purpose?"

"Much has been said in times past about art for art's sake, science for the sake of science, and knowledge for the sake of knowledge; but these are vague expressions that will excite little interest so long as the worth of a man is determined by what comes out of him, by the service he renders, rather than by what enters in."[6]

"There is nothing less profitable than scholarship for the mere sake of scholarship, nor anything more wearisome in the attainment. But the moment you have a definite aim, attention is quickened, the mother of memory, and all that you acquire groups and arranges itself in an order that is lucid, because everywhere and always it is in intelligent relation to a central object of constant and growing interest."[7]

"If students regularly occupy a portion of their study time in thinking out live questions that they hope to have answered by their further study, and interesting uses that they intend to make of their knowledge, they are equipping themselves with active power both for study and for the broader work of life."[8]

"Indeed the reason why self-trained men so often surpass men who are trained by others in the effectiveness and success of their reading, is that they know for what they read and study, and have definite aims and wishes in all their dealings with books."[9]

---

[4]Annual Report, Nov. 1914, President Butler, Columbia University.
[5]"How We Think." P. 41.
[6]How to Study, pp. 16 and 198.
[7]How to Study, p. 37 —quoting Lowell.
[8]How to Study, p. 39.
[9]How to Study, p. 33 —quoting Porter.

Some are accusing General Science of lacking organization of subject matter. But when rightly understood it will be found that the whole movement is an attempt to introduce first of all a very specific organization where none now exists and secondly a very different kind of organization from that hitherto contemplated. This lack of organization which makes the school below a sort of dumping ground for the school above is one of our grievances. If the teacher above wants to use the slide rule, the teacher below must teach it. If he wants to use the metric system, the teacher below must teach that. If the college professor wants to measure gas as no one else on earth does it, the high school teacher must teach that process even though it crowds out a thousand more important matters judged from the standpoint of the pupil's needs. These pupils are going to buy and sell gas all their lives. But anything done in school to teach them to do that intelligently is decried by some as savoring of the practical, while in view of such persons it would be a great scandal to admit one to a freshman course in chemistry who has not been trained in the clumsy method in vogue in college laboratories.

Very little of this knowledge which the high school pupils spend so much time to acquire, is possessed by any intelligent group of persons. But for the high school pupils it ranks as "fundamental principles" preparatory to "serious science."

The movement for general science is first of all a protest against the present regime of unorganized subject matter. We propose *general* science as an antidote for that which now is too general to be called *science* either serious or flippant. The movement is in the second place, an attempt, for purposes of instruction, to introduce a "psychological organization," as Dr. Dewey puts it:[10] or a "genetic organization," as President Hall states the case:

"The chief among many reasons why all branches of science are so disappointing to their promoters in high school and college is, that in the exact logical, technical way they are taught, they violate the basal law of psychic growth, ignore the deep springs of natural interest and attempt to force a precocity against which the instincts of the young, so much wiser and truer and older than their consciousness, happily revolt."[11]

Organization of subject matter must be made around the knowledge of the pupil, not around that of the teacher or syllabus maker. We have to build on the instincts and experiences of the individual, otherwise we are hanging our building on a hypothetical foundation in mid-air.

The real way to learn fundamental principles is to attack those problems of which life is full for each individual, not through the preparatory fallacy called the scientific method, but by a "forked road situation." The school should prepare pupils to walk alone by attacking real problems as Archimedes, Galileo, Davy, Faraday, Pasteur, Tyndall and all the rest did. Most of us know, if we would think back over our experiences, that we never really learn these so-called fundamental principles until they come to us as an interpretation of some of our life's problems. Our teaching bears so little fruit because we are attempting what in the nature of the case can never succeed. We know that we

[10]See "How We Think," Chap. V.
[11]Adolescence, Vol. 11, Chap. XII.

are not learning things that way now, never have learned things that way, never can. We prescribe that sort of "serious science" for the defenceless, and when their unerring instincts revolt, we accuse them of being unwilling to be serious, unwilling to work even while they are pleading to be rid of us that they may get to work. It is not merely the geniuses like Newton, Maxwell, Kelvin and all the rest who thank the Lord when they get out from under their teachers, but this is likewise true of many of the pupils of today, some of whom instinctively know what science is and are pursuing it in spite of us and outside of our tuition, and they are tired of our evasion of their questions and of our impertinent interference with their natural research.

We will not take our own medicine. Imagine one of us up against the following situation: We build a dam across a stream of water, and the pond that thus results surrounds some trees which we value. In our ignorance we think the trees will fare better now than before, having an abundance of water food brought to them by the river. But soon they die, and we go to our friend, the botanist, for light on this subject, and he undertakes to prescribe to us, as he does to his pupils, something like this: "You must take a series of preparatory courses in botany before I can help you with your problem. Here is a First Course in Botany for Children which I prescribe." It has 158 pages, the first thirty-six of which classify leaves as net veined, parallel veined, feather veined, palmate veined; entire, serrate, crenate, dentate, repand, hastate, sagittate, lanceolate, cordate, ovate, reniform, orbicular, rotundate, auricular, deltoid, spatulate, peltate, runcinate, pedate, lyrate, pinnate, digitate, cirrus, adnate, ochreate, sessile, etc., for thirty-six pages. You are advised to have the leaves present to make the study concrete. This is classified knowledge, and hence science, serious science, preparatory serious science. As a supplementary exercise you might classify all the nails in the school yard fence.

Or imagine ourselves going to a physicist for information regarding a self-starting system for our automobile, and his prescribing Newton's laws of motion, Boyle's law, Charles' law, Lenz's law, Archimedes' principles, index of refraction, laws of falling bodies, laws of reflection, law of cooling, Ohm's law, polarization in a cell, specific heat, nodules of elasticity, hystersis, etc., up to 260 items of unclassified knowledge which the physicist is so lacking in a sense of humor as to call *serious* science. This is the preparatory fallacy and it runs throughout all our subjects. Our method of teaching science today by the study of "fundamental principles" is closely analagous to what was in vogue about a century ago in the field of grammar, when children were required to commit to memory rules of grammar, to learn syntactical laws of language and acquire skill in logical analysis in order that they might be prepared to read, write and speak. The analogy goes still further. We have recently heard something of an attempt to make physics a little more concrete by the interjection here and there of a few applications of principles for the sake of elucidating those "fundamentals." It was about 1823 that the teaching of rules of grammar was made a trifle more concrete by the introduction of sentences to which the rules might be applied. For a discussion of this sort of teaching grammar see Dr. Briggs' monograph in Teachers College Record Vol. XIV, from which it appears that science teachers today are in perfect accord with English

teachers of a century ago in attempting to present an adult, scholarly interest to children by a logical and metaphysical treatment of their subject. "Tradition has perpetuated details which have lost much or all of their justification. When old reasons have faded there is a tendency to invent new ones to justify practice."

This attempt to store facts for future organization is what the Massachusetts Board of Education in Bulletin 4, 1912, calls "Education in Forgetting." "The structure and habits of the human mind and brain are such that following the psychological laws of segmentation, unused knowledge tends to be forgotten. Much, a vast deal, of the subject-matter turned over and otherwise dealt with by the subject-study method is of such a nature that in out-of-school hours and in after-school years it remains unused. Examinations once passed and the school year ended, subjects are forgotten * * * But project study has merits peculiarly its own. No more diligent or effective application of the inductive method in education has ever been witnessed than that proposed, and in good measure already practiced, by the project study of agriculture."

"The knowledge which is the boy's quest in project study is knowledge of which he sees the need. Being needed year by year, it will, year by year, be recalled. Used again and again, added to, modified and exactly applied, it will tend to be distinctly remembered."

"The project method of education, more, it is believed, than all others, takes into account the aptitudes, requirements, and accomplishments of individual pupils as these are revealed from hour to hour."

The Smith-Lever bill which has just passed Congress appropriates five million dollars annually to foster the *project method of study* in agriculture throughout the country.

But let us return to the drowning trees and attempt to elaborate this into a project for general science.

Drowning Trees, a Project for General Science

We dammed a small stream to make a skating pond and a place for cutting ice in winter. The pond which was thus formed surrounded certain trees in the valley which had often suffered for water during dry spells. Some of us thought this would be a benefit to the trees in as much as they would hereafter always have an abundance of water. Furthermore, the stream would now deposit about the roots of the trees an abundance of the food which they would need. In spite of our good intentions, however, the trees soon died. Upon inquiry we learned that the trees had been drowned and that they need air at the roots quite as much as water. We were then reminded that a neighbor when he regraded the land in front of his house had built a circular retaining wall around a tree to keep the earth from being banked against the tree itself and exclude the air. Another man said that it would do quite as well to pile loose stones against the tree and throw earth over them, and let the grass grow quite up to the tree. Air would readily find its way to the roots through loose soil as indeed it does to all trees. He said that earth worms, ground moles and various burrowing animals loosen up the soil and let the air in. But best of all when water in the ground freezes it expands, we say it heaves the ground

up. Then when the ice melts and the water drains out much room is left for air to come in. Thus land which may be very hard in autumn becomes soft and spongy in spring. Spring is the time to mend fences. One can dig post holes easily then. Spring is the time to cart off from the fields the stones which the winter frosts have brought to the surface. Soils which are too clayey to let the water drain out of them may sustain only a very stunted growth of vegetation for lack of air. The mixing of gravel with such land (and thus letting in air), will sometimes make it produce luxuriantly. All soils are improved by having a net work of drains a few feet below the surface. So that all the water which will drain off may do so. The ideal arrangement for plants is a loose porous soil with air filling all the spaces between the particles and only so much water present as will cling to the surface of the particles. This is called capillary moisture which indicates that the spaces must be very small so that water will creep through the soil as kerosene does through the lamp wick.

The care of potted plants requires continual thought about maintaining the balance between air and water at the roots. If the soil is very rich and has little gravel in it and if water is always poured on from above, the soil gets packed down so hard that air may not enter. The hole in the bottom of the pot permits of under draining, but the water soon makes channels down through the mass, and it does not spread to all the rootlets, in the hardly packed earth they may be suffering for both air and water in spite of the fact that the pot is porous and that it receives frequent watering. By this consideration soil may be too rich as well as to poor. It must have air and moisture quite as much as fertilizing material. If the soil is rightly proportioned it will suffice to pour water into the saucer. The proper amount of both air and water will creep through the soil. Persons who set out young plants, thinking that the tender roots require very soft soil, sometimes make the mistake of not packing the dirt around them firmly enough. The result is that while they get plenty of air they have too little moisture. Moisture creeps by capillarity only through very small spaces, not large ones. If the soil is properly proportioned the best way is to press it about as firmly as one can around young plants when they are first being set out. The surface of the ground should be frequently scratched over to make the spaces between the particles *at the surface* too large for the water to creep quite to the surface and pass off by evaporation. This is one great reason for hoeing, harrowing and cultivating fields. Another is to kill weeds.

Some people have asked whether earth worms rain down since they are seen in such great numbers crawling on the surface of the ground after a rain storm. The fact is that they crawl out of the ground to get air, having been drowned out. They cannot live without air as long as the trees and some other plants can. Some plants, however, are able to live in earth which is perpetually flooded with water as we see in and about all ponds and streams.

In winter, when there is lack of air and water at the roots, lack of heat to stimulate chemical activity, lack of green matter in leaves to respond to the actinic rays of the sun, plants put winter blankets upon their buds and on their root tips and remain dormant.

This is called a project in *General Science* but it is more specialized than any portion of the college preparatory science, and like a dog pursuing a hare, it has a specific aim, albeit it jumps those useless boundary fences between the various fields of science. This is our justification for the use of the word *general.* The idea of completeness,—complete statements of facts and principles, is one of the greatest barriers to successful teaching. The attempt to teach all that is known about each topic results in very little being understood about any topic.

What is wanted is to set the face in the right direction:—teach the first steps:—arrange many facts and many observations to point in a similar direction:—acquire the habit of having one experience suggest another.

The method is precisely that of the masters of research who are, after all, *Masters of General Science.* There is no difference between educating for research and educating for life. But the high schools and colleges have a strong propensity to neglect this their chief duty. It requires continual belaboring to get the high schools to do much else than to cram facts for college use. The colleges do little else for education than to prepare professors' assistants:—professors' assistants in research:—professors' assistants in college training:—professors' assistants in high school preparation for college.

One hundred and fifty years ago the academies were founded as a protest against the idea which dominated the grammar schools of the time that education consisted in storing the facts which the higher institutions would use. These academies were called the people's colleges. The pupils were to be taught wholly according to their own needs. But forthwith the process of inbreeding began. The teachers appointed for these academies were youths recently graduated from college; in effect, professors' assistants who stored data for college use, a process as futile to the education of the few who went to college as to the many who did not. Again the same protest was renewed fifty years ago in the founding of public high schools. These were to be free from the preparatory fallacy to which the academies had fallen victims.

It remains to be seen whether the high schools, which are the people's colleges of today, can be saved from repeating this history. Perhaps the thing most to be feared is that the colleges may accept General Science and place it in the preparatory group. Before this happens we must introduce into the school and college the psychological organization of instruction and suppress the preparatory fallacy.

5. *General Discussion*

Professor Galloway. General science is but a modified nature study. There are so many new sciences, outgrowths of the old sciences that it is doubtful if science has not started back. We have had a tendency to rush into this work without much to work on. There is a need for some honest experimenting along this new line first;—get the right attitude and then the facts will be gotten.

The high school pupil already has developed the organized mind. General science is a good thing; it is a coming thing, but it belongs in the upper grades, seventh or eighth. The important thing to be striven for is a scientific attitude.

Professor Eikenberry. Not much done in real nature study yet. The high school is a distinct organization and must maintain itself in its own limits. This subject very decidedly belongs in the high school.

Professor Pricer. Under our present plan of organization we should not expect the grade teachers to teach science; this has been proved by experiment. The general science, however, belongs in the grades, under departmental organization. There is need of a modification of the sciences in the high school.

Professor Caldwell. Experiment will bring general science but there is danger it will come so fast that we won't get what is needed. We should be scientific. There is evidence of the success of courses in general science.

PART III

SECTION MEETINGS

As will be seen the sessions of several of the sections were this year limited to a half day. This was due, in most cases, to the joint session of the science groups on Friday afternoon. In the case of the Administrative Section space was again given, in the afternoon, for the meeting of the State High School Athletic Association. The half day session of the County Superintendents and Village Principals is preferred in order that other sections in which the members of this group are largely interested may be attended.

A large number of those attending the section meetings took advantage of the social hour at the Woman's Building from one to two on Friday afternoon.

The complimentary concert by the University Band, given at the Auditorium from five to six on Friday was also much appreciated by the teachers, as shown by the large attendance.

Administrative Section

This section met in the Chemistry Lecture Room with Supt. J. F. Wiley, of Mattoon, in the chair.

The first topic discussed was "Supervised Study." Papers on this subject were read by Supt. J. G. Moore, of Paris, and Principal Franklin W. Johnson of University High School, Chicago. These papers follow.

Superintendent J. G. Moore's Paper:

I take it that I am to discuss this subject of supervised study from the standpoint of the school executive whose business it is to get a maximum of tangible results from a given set of conditions. As an administrator, the superintendent or principal must face his problems with a somewhat different attitude from that with which the teacher organizes or reorganizes his class-room work. For the teacher, the success of his plans are usually rated by the degree of efficiency in the direct outcomes of his instruction. For the superintendent or principal, a teacher's plans reach their highest degree of efficiency only when, in addition to maintaining a high standard of results in classroom instruction,

these plans fit in with the general policy of the schools as determined by the conditions limiting and giving individuality to the local school system.

Naturally, then, the experienced school executive is deliberate in recommending to his teachers, in a large way, plans entirely new or those that have met with more than ordinary success in other schools operating under conditions differing widely from those under which his own schools are working. By this I do not mean to imply that the attitude of the average school executive is reactionary. On the contrary, the general trend of school administration is steadily toward a more efficient organization of all educational work. Rather, I should say, that, along with a sympathetic spirit and an attitude receptive to whatever seems best in other schools, the head of a school system must keep constantly in the foreground a practical grasp of the actual and potential conditions limiting or controlling the workings of his own schools. The teaching corps, its personnel, professional standard, and ability to put new plans into successful operation; the school plant, the scope of its ordinary functions, the possibility of its adaptation to materially changed programs and of its standardization; the program of studies, the difficulties attending its adjustment and continuous readjustment to meet the present day demands; the financial resources, the limitations imposed by local conservatism or by statutory regulations, and the kinds of procedure needed to render these limitations more flexible; the pupils, the conditions determining their normal progress, and the methods that promise a maximum of pupil efficiency under the given conditions of the local school system:—all these enter into the deliberations of the school executive in planning the organization of his schools, and all these must be taken into consideration in the introduction of new plans into the system.

Surrounded by all these tendencies that make for conservatism, the representative school head of today is nevertheless keenly on the alert for every new type of organization that promises a safe and sane way of securing a larger measure of results with the same expenditure of resources. Since the day of the establishment of the Normal School the method of the recitation and the content of the course of study have been focuses of investigation toward a more efficient organization of the teaching process. Contemporaneous with this, the rise of a professionally trained class of teachers gave a tremendous impetus to the efficiency of the classroom. More recently the material equipment of the school plant has become the subject of a widespread investigation, with reference to standardization. Just now the supervision of the health of the child in its bearing upon his school efficiency is gradually assuming a departmental position in the school organization. Beyond the confines of its own walls, the school is going out into the community, to the homes, the business houses, the shops, the mills, the factories, into every vocational field, and is picking up the broken ends of the lines of communication which in the near future will link the school with every constructive phase of life within its supporting territory. In these larger movements the school executive has, almost without exception, been a vital factor, usually a constructive and unifying influence. In the more highly specialized types of organization, of a greater or less localized significance, he has, as a rule, moved conservatively in attempting

their bodily appropriation from another school system. The needs back of these special types of organizations are frequently common to a large number of schools. The aim and spirit with which they are attacked have a common basis. But the type forms of organization must necessarily be specifically formulated to fit into the limiting conditions of the local school system, if the maximum of efficiency is to be realized in the practical working out of the plans.

These things I am led to say, because of a somewhat extended elementary school experience in connection with the subject that I have been asked to discuss at this time,—an experience which I shall recount briefly without attempting to draw general conclusions applicable either directly or by implication to other school systems. The needs which inspired these plans will doubtless find many counterparts in the schools represented in this assemblage. And I trust that the aim and spirit of the attack upon these needs will find a common bond of constructive interest. But, beyond that, I should not care to stand sponsor for the success of these plans in any considerable number of schools represented here.—unless the controlling conditions are essentially the same in these schools as in the schools where these special forms of supervised study have been successfully tried out. I am convinced that where this work is thoroughly done in the grades, the hardest part of the problem is already solved for the high school. This latter phase I leave to the speaker who follows me on the program, and whose experience in that field has been much larger than my own.

Some eight years ago, when I was in charge of a small system of schools in Central Illinois, too small to permit of the semi-annual plan of grading, but having the customary two divisions in each classroom, it occurred to me that the fact of a teacher and a pupil being contemporaneously confined within the same four walls did not necessarily mean that the pupil was receiving the proper amount of direction in his study, particularly when the teacher was giving her entire time to the hearing of two sets of recitations,—a general condition which many speakers and writers on supervised study, in confining their discussions to the secondary schools, seem to ignore or to be unacquainted with.

My suggestion that the grades, above the second, be organized in one division for each classroom, with half time for supervised study, met with the enthusiastic support of the teachers, and the plan was put into operation at once. During the four succeeding years practically every pupil whose attendance was regular—with the exception of a few of marked capacity—won his regular promotion. During that period, the standard of scholarship, which for many years previous had been widely recognized, steadily increased. Practically all the pupils who finished the grades entered high school.

This was in a small, wealthy, retired-farmer, all-American town. The teachers in the grades were all normal school graduates, or of full equivalent preparation. The classroom enrollments averaged 35. A fine professional spirit had been in existence for many years previous. The plan was not tried out in the high school.

At the end of that period I went to a much larger system, of a very different character, where the semi-annual plan was in operation, I found that, although this was ranked as one of the best systems in the Middle West, and although the population of the city had been practically stationary for a number of years, the number of pupils finishing the grades was less than 28 per cent of those enrolled in the second grade. (I took the second grade as the normal enrollment, since a considerable number of foreign children left the public schools at the end of the first year to enter the parochial schools.) The semi-annual plan seemed to have had little, if any, value in contributing to the working efficiency of the pupil. He got a lighter jolt, it is true, in being told to back up for a half year, instead of for a whole year; but he got more of them,—and in the long run seemed to end just about where he would have ended under the annual plan. The remedial course lay clearly along some other line of attack.

It did not seem advisable to discontinue the semi-annual plan, with its two divisions in every classroom, and to introduce the plan of supervised study which had worked so well in the schools which I had just left. This was my first experience with the semi-annual plan, and I was desirous of giving it a thorough try-out before drawing a final conclusion. Accordingly the study problem was attacked from another, and more limited stadpoint. The plans were confined to the retarded pupils. Several special methods were put into operation, among which were: (1) Group work at the close of shortened sessions; (2) Individual help by special teachers; and (3) Doubling the time allotment in weak subjects, by reducing or omitting temporarily the time allotment in other subjects that could better spare it. The first two methods are so widely used that they call for no comment. The third method is in much less general use, although by far the most effective and the only practicable form of supervised study with which I am familiar that can be carried on in a classroom having two divisions of pupils,—without adding to the cost of instruction.

The form of special organization which met with the most marked success in bringing these retarded pupils up to grade was the Elementary Industrial School, modeled somewhat after the Cleveland plan. I cite it in this connection because a large measure of its success was due to the close supervision of study as carried on during the years 1912-1914. Of the 24 boys and 16 girls who entered these classes in September, 1912, all but 2 had been failing regularly in their studies. Doubtless, the giving of one-fourth time daily to manual work,—shop work and mechanical drawing for the boys; cooking, sewing, home equipment, home management, and home decoration to the girls, made a stronger appeal to these pupils than they had had presented to them before. But we found, within a few days after the classes opened, that the one big thing those boys and girls needed was to learn how to work. One of the strongest teachers in the city had been placed in charge of the classroom work in their regular studies. She set about at once to direct their study and to train them in habits of study.

In the following March, all the 8A pupils over the city were given, without previous notice, the famous Springfield, Mass., Arithmetic Questions, of 1846. Following are some of the results:

	Industrial Class 20 Pupils Per cent	Regular Classes 60 Pupils Per cent
100 per cent	15	5
Above 95 per cent	35	8 1-3
Above 82.7 per cent (city average)	65	53 1-3
Below 70 per cent	15	23 1-3

Average of regular classes, 60 pupils, 81.7 per cent.
Average of Industrial class, 20 pupils, 85.7 percent.

It should be remembered that, with two exceptions, the members of this Industrial Class had in previous years been failing in their regular studies. That this power carried over into other studies was shown by the fact that, of the 14 who entered high school the following September, 12 were carrying their work at the close of the first semester.

This city was a typical industrial center, somewhat cramped in resources, and with a large foreign population. The requirements for teachers were the same as in the city from which I had come. A strong professional spirit prevailed, but it was rather inelastic, owing to an emphasis for many years upon the course of study rather than upon the pupils. The results of directed study were limited to the retarded pupils, largely because of this inelasticity. This was unfortunate, for the pupil who is capable of making a grade of Excellent and makes only Good, or the one who is capable of making a grade of Good and makes only Fair needs attention just as seriously as the pupil who is capable of making only a grade of Fair at the best and makes a grade of Poor. The high school in this city was under township organization, and consequently I did not follow up these pupils so closely as I might otherwise have done.

In the city where I am now located we are working at this problem in a more comprehensive way than I have heretofore attempted. Twenty-four of the grade teachers have organized the classrooms into single divisions and are giving double periods to all the principal subjects. A Latin teacher in the high school has been working on the same plan with a Caesar class.

The period of our experimenting has been too short in my present position for general conclusions to be drawn, but we have every reason to believe that we are on the right track.

This last city is very much the same type of town as the first I cited,—a wealthy, retired-farmer, all-American community. No formal requirements have been prescribed for teachers previous to this year, but the general standard is about the same as in the other two cities cited. The general attitude is receptive to new ideas, and the superintendent is given practically unrestricted freedom. The classes involved range from 25 to 45 pupils. Our experience at Lexington showed that the plan can be safely undertaken with classes of less than 35 pupils. The phase of the plan with which we are experimenting most carefully at Paris is to determine how far beyond this previous class limit

of 35 pupils it is possible to go without appreciably lowering our efficiency standards.

Supervised study makes some peremptory demands upon the teacher; and the superintendent or grade supervisor must see to it that these demands are met or the whole plan will fall flat. She must work with her pupils individually, and at close range. During the study period, which, for the most part with us immediately precedes the recitation proper, she can not sit at her desk correcting papers or performing other clerical duties, meanwhile interjecting directions or answering questions at long range. She must get out among her pupils and study their reactions to the task at hand, noting the weak and the strong points of each, stimulating the slow worker, holding in check the hasty and careless, jollying up the discouraged and pessimistic, strengthening the power of attack of those who lack initiative and decision, observing the needs in working grasp of basic facts or in habit formations common to any considerable number so that she may be prepared to deal with these in the recitation proper, keeping always in the conscious foreground that the ultimate aim is to make the pupil self-reliant and molding her directive help to that end. If this is well done, it is not nearly so easy work for the teacher as the conducting of a formal recitation; and where directed study is attempted on a large scale involving many teachers, the frequent stimulus and inspiration of the supervisor and the superintendent is needed.

This leads me to my last statement, that no general plan of directed study can reach its maximum of efficiency without close supervision. At the beginning the local situation must be carefully studied, its needs defiined, and plans of organization formulated which will fit into local conditions, actual or potential. The superintendent, principal, or supervisor, must maintain a close, first-hand knowledge of the practical workings of the plan. Occasional objective tests, of the general character devised by Courtis, and others, should be given and the results made available for comparison in some form, or forms, that may be readily grasped by the teachers and the community. Lastly, the plan of organization in directed study must not be permitted to become so inflexible that it can not be readily modified to meet changed conditions or unforeseen imperfections. This means that the superintendent and his supervisory force must, within practical limits, keep the experimental attitude so that when the forms of special organization, or parts of them, fail to secure the expected results after a fair trial, the useless features shall be abandoned without hesitation and some other plans substituted which give reasonable promise of higher efficiency.

As I have already indicated, we are not yet far enough along in directed study plans in the grades at Paris to furnish reliable data from objective tests. But we are giving attention to the teaching demands and the kinds of supervisory control essential to a fair trial.

To meet our local high school needs we have not yet discovered a satisfactory general plan that will not increase our operating expenses beyond the financial capacity of the district to meet. In the educational value of directed study in the high school, particularly in Mathematics, Language, and Science, I believe most firmly. I am open to the light on any feasible plan of bringing

this about. Meanwhile I am convinced that the working out of supervised study programs in the grades, wherever it is possible—and the range is large—will contribute materially in reducing the present needs in high school for supervision of study. A much larger proportion of pupils will then know fairly well how to study when they enter high school.

I might add that our local high school is using the period from 3:00 to 3:45 as a study period for all students who have not, by the report of any of their teachers, been working up to full capacity during the preceding week. This includes, not only those who are failing, but also those who, in the opinion of their teachers, might rate as Excellent or Good, but fall below these standards for reasons that may be remedied by personal instruction during this period. This is not used in addition as a penal period for misconduct, but purely for instructional purposes. Where two or more teachers report a need for the same pupil, the decision is made by the principal. The students retained pass to the respective classrooms as notified by the principal at the beginning of the week. A student's time may be distributed among two or more teachers, at the option of the principal. Regular reports are sent out quarterly; special reports on the need of better work, are made weekly. The clerical work involved in these weekly reports has not become a burden, because the cases are not permitted to grow to troublesome proportions, at least, where it is possible to prevent this by swift remedial action. Classrooms at period will usually have one or more pupils from each of the classes of the teacher. The instruction is, of course, entirely individual. The plan is working very satisfactorily.

Principal Franklin W. Johnson's Paper:

It is customary for teachers at each stage in our school system to criticize the work of the grade or school below. The college finds fault with the high school, the high school with the elementary school, and within these schools individual teachers find fault with the work of the teacher in the grade below. There has also been of late some very vigorous criticism from outside our ranks. While much of this criticism has been vague or fantastic, there has been almost a unanimous complaint that our pupils are not taught how to study. We must grant that this is a valid criticism. Our pupils certainly do not, in most cases, know how to study and those who do, have not been consciously taught the art by their teachers. Each teacher who makes the complaint lays the fault upon the teachers in the grades below and recognizes no responsibility for teaching the neglected lesson. The teacher of Caesar thinks it so important to get his pupils through the four books which long tradition has assigned to his year's work that he has no time to lose in teaching his pupils how to study. Let those who can not keep the pace of all fall by the wayside. And the dead scattered along the road each year are as numerous as those who fell in the most sanguinary of Caesar's campaigns in Gaul. In this country until recently it has been almost uniformly the practice to spend most of the class hour in the recitation by the pupil of lessons assigned the previous day to be learned at home. How ineffective this method has been we are all well aware. It has afforded little incentive to the bright pupil and little training to the dull one. It has resulted quite as much in training pupils to slipshod, if not dis-

honest methods of working and of thinking, as in giving mastery of the material studied. It has been in large measure responsible for the heavy toll of failure and elimination that mark all statistics dealing with school grades.

The method of conducting the recitation on the basis of assigned home work fails to take into account two very important factors: (1) individual differences in the capacities of children, (2) the futility of much of what is called home study. It is unnecessary here to demonstrate the fact that pupils vary widely in the amount and quality of work which they can do in a given time. Scientific tests have shown this and the experience and observation of every teacher gives assent to the proposition. I think we will give equally willing assent to the proposition that much of the so-called home work of pupils is futile. I am unable to recall in my elementary and high school days I ever had a lesson assigned except at the end of the class period in the form of a statement that the class should prepare for tomorrow the next three propositions or the next twenty lines in Cæsar. So far as I can recall there never was any hint as to how the lesson should be prepared. No teacher ever told me that the index in my Latin grammar was of any possible value to me, or taught me how to use the dictionary or encyclopedia. There may be those who will urge that this unaided effort to overcome difficulties to which this method subjected me was of great value. I can see in it now little but waste of time and effort which I might well have devoted to better ends had I been better taught. The fact is that we are sending pupils home at the end of each day to prepare tasks which many of them do not understand, under conditions frequently so unhygienic or distracting as to preclude the possibility of their securing the preparation which we blandly assume they will get. And on the following day the recitation is conducted on the assumption that the tasks assigned have been prepared though the teacher may very well know that some of the pupils have not prepared the assignment at all, while others have met the requirement through dishonest means. And so the vicious round goes on—with a few pupils gaining mastery over the material and many falling into loose or dishonest methods of work and still others falling by the wayside, discouraged, to join the ranks of the eliminated.

A few years ago, I urged upon my teachers at a faculty meeting the desirability of making a careful study of the most effective method of study of the various subjects from the standpoint of the pupil. I could not tell them for I did not know; there was no literature of value on the subject. The most striking fact connected with the day's discussion was that most of the teachers evidently felt that the method of instruction they were already employing was the most effective that could be devised. Shortly after this, one teacher who was rather more progressive than the rest tried a natural and most illuminating experiment. One of his pupils had reported that it was his custom to assign the home work in mathematics without any suggestion as to the method of solution. Suprised that a pupil should make such a report after what he regarded as careful directions for the performance of home work, he decided to test the effectiveness of these directions with the whole class. At the next meeting of the class he gave directions for the home work of the next day with unusual care and then told the class that they would spend the next fifteen minutes

in performing a part of this work. What resulted was a revelation to him. It was apparent at once that none of the pupils appreciated the value of limited time for none of them went to work promptly. So much time was spent by some of them in the mechanical technique of getting started, such as sharpening pencils and getting other material arranged that they accomplished nothing else whatever. Some showed complete lack of individual initiative, and spent most of the time in looking about helplessly and simply imitating others. Yet most of these same pupils had been accustomed to present the required home work each day. In the entire fifteen minutes very little was done by any, nothing by many.

In this case a class of apparently average ability was unable to apply on the spot the directions of a very good teacher. Yet we have been accustomed to expect pupils who have gone hurriedly from one recitation to another, to go home at the end of the session and prepare assignments given by several teachers, often with little definiteness and little or no smoothing out of difficulties. I think you will readily agree with me that the recitation system generally employed in our high schools is wasteful of the pupil's time and effort, productive of loss of interest, offering little incentive to the able pupil, and ineffective in training in good habits of study.

Several plans have been employed to provide for individual differences in pupils and to supplement the recitation by giving individual instruction and training earlier as a part of the regular class exercise or in special or lengthened periods. Among these, the so-called Pueblo and Batavia plans are well known. In the remaining time at my disposal, I shall describe, with emphasis rather upon their administrative aspects, some experiments in the direction of supervised study.

A very interesting experiment has been made in teaching Latin in several New Hampshire schools, notably the high schools in Concord and Berlin, and in a private girls' school in Exeter. Mr. H. A. Brown, Deputy State Superintendent of Public Instruction, referred to this in an article on Secondary School Education in New Hampshire in the last April number of the School Review. Briefly the experiment began with teaching a few common words and then using them at once in writing sentences for the pupils to read. Pupils are not taught at first grammatical principles and inflections, but use the different forms as they function in sentences. The pupils do no home study but read extensively in class. Some of the schools have completed by this method all the reading required for admission to college in three years and have spent the fourth year in reading such college authors as Tacitus' Germania and Agricola and the Phormio of Terence. No less an authority than Professor Hale of the University of Chicago, who visited some of these schools, vouches for the success of the work. In the University High School two years ago we tried the experiment of conducting several first year Latin classes without home work. Whatever was new in each lesson was taught with great care; then the pupils applied the new material in translating sentences from English into Latin and from Latin into English. Much use was made of perception cards in teaching new words and forms. The first semester, the pupils did absolutely no home work in four sections, while for purposes of comparison, one class was thaught

in the usual manner of home assignment and recitation. This class was taught by one of our best Latin teachers. At the end of each month, uniform tests were given to each division and the papers were carefully graded by all the members of the department. At the end of the first month the four classes without home work graded on the test as follows:

	No home work.				Home work.
First test	92.1	86.1	86.2	74.6	84.4
Second test	85.5	89.7	81.8	86.2	85.5
Third test	85.4	86.5	87.9	80.4	88.2
Fourth test	82.7	87.5	85.1	72.7	90.6
Semester test	87.6	84.9	84.3	76.6	83.9
End of year.....	75.63	83.85	81.46	71.56	75.61

In the second semester an important change was made in the method, in that home work was assigned consisting of exercises for translation both into English and Latin, using words and constructions that had been thoroughly taught in class. This home work it will be observed consisted not of new material but of additional practice in the use of material which had already been taught. This change seemed justified by the results and the experiment was continued last year in that form. A comparison of the grades secured by all first year Latin pupils on exactly the same written monthly tests during these two years is interesting and suggestive.

	Oct.	Nov.	Dec.	Jan.	Feb.	Semester
1912.....	84.9	85.9	86.1	86.5	84.7	77.3
1913.....	90.1	87.4	88.2	90.7	89.7	86.0

It would appear from this experiment that with no home work at all, under proper instruction, a class may do as well, or better, than a class taught under the usual method of home work and class recitation; but that with a modified form of class work and of home work, better results may be secured than by either of the other methods. This conclusion is also reached from an experiment extending over a longer period in mathematics.

Mr. Breslich has reported the earlier stages of this experiment in the twentieth volume of the School Review and in the Thirteenth Year Book of the National Society for the Study of Education. He was teaching two first year classes in Mathematics whose grades at the end of the first semester were distributed as follows:

	A	B	C	D	F	Average.
Section A.....	25.0	25.0	37.5	12.5	0.	81.4
Section B.....	29.4	23.5	23.5	17.7	5.9	79.4

At the beginning of the next semester he conducted Section A as he had been accustomed to do with home work and class recitation. Section B, with no home work, spent the time given by the other section to recitation in study and practice. Exactly the same instruction was given to both classes. Both sections spent fourteen days on the chapter on Linear Equations, at the close of which the same written test was given to both classes with the following distribution of grades:

	A	B	C	D	F	Average.
Section A—						
(Home work) ..	7.1	21.4	21.4	0.0	50.	62.8
Section B—						
(No home work)	0.0	6.2	37.5	25.0	31.2	65.5

The low grades received in both classes are explained by the fact that the test was invented to be difficult and that no review was given in preparation for it.

It will be observed by comparison that Section B, though a little weaker on the basis of the grades for the previous semester, came out a little stronger on the average after supervised study. A comparison in detail indicated that the poorer students profited greatly by the method of supervised study, while the better students did not succeed so well under supervised study as without it. On the statement of the pupils it was ascertained that the average time spent by Section A in home study had been one hour and fifteen minutes. A comparison of the number of problems worked by each section showed that Section B, without home work, had actually worked an average of two more per pupil than Section A with home work; although at the beginning of the experiment Section A had been able to work more rapidly than Section B.

On the following chapter on operations with fractions, the methods employed with the two sections were reversed. Section A working under supervision and Section B with home work. This chapter required but six lessons. At its close the following grades were given on a written examination:

	A	B	C	D	F	Average.
Section A—						
(No home work)	31.2	25.0	18.7	12.5	12.5	77.5
Section B—						
(Home work)...	52.9	23.5	5.9	11.8	5.7	80.4

The average time reported by Section B was thirty-six minutes per day. The amount of work done was about the same. Section B was still the stronger, as at the close of the previous chapter, apparently because this chapter was too short to allow the other section to adapt itself so completely to the method of class work without home study.

Before any final conclusions can be drawn, further experimental work is needed. It was obviously indicated that the type of home study which has been required and regarded as essential to school work, may be given up entirely with advantage to the weaker members of the class and without loss to the average quality of the work of a class, though apparently with loss to the better members of the class. The following year a form of organization was adapted which was regarded as consistent with these indications.

The class hour devoted much time to supervised work upon material upon which instruction had been given. When it was certain that all could do the work, assignments were made of further similar material for practice at home. It was found after a few weeks that in the various first year sections there were some twenty pupils who were falling behind and needed more attention than could be given them in the regular classes. These were dropped from the

regular class and assigned to a special study class after school where they could be given such supervision as they needed. These pupils were assigned to the special class with the understanding that they were to return to the regular classes as soon as they could do work of satisfactory grade. Of these twenty, five returned to their regular classes before the end of the semester. In the final examination they received grades of 63, 65, 71, and 100 respectively (60 being the passing grade), one having left school before this time. At the end of the school year this class had fourteen members. Of these all but four were given credit for the year's work, although some of them were advised to take no further work in Mathematics.

The present method in Mathematics provides a special study class after school, open to any pupils who desire to do their home work under supervision and required of pupils in any course who are doing unsatisfactorily.

From the experiments which we have tried in the University High School the following advantages may be fairly claimed for the combination of modified home work with supervised class study:

(1) It aims to make pupils independent. It was found that only one pupil was kept in the special study class all the year. All others showed enough improvement to be allowed to withdraw at least at intervals and return to the regular class.

(2) It has improved the general professional attitude of the teachers and has made them more effective. The special class has been in charge of each teacher at some part of the year and thus he has in turn come into close touch with the difficulties and weaknesses of individual pupils. Each teacher has also been brought into closer contact with the other teachers of the department.

(3) It gives special help to pupils who need it and as long as they need it. The better pupils can spend their time to better advantage working alone and can thus learn to rely upon themselves.

(4) It has resulted in a marked reduction of the amount of failure. For the past four years the percentage of failure in Mathematics has been 16.2, 11.1, 6.8, 8.5. There has also during the same time been a marked reduction in the number of pupils who have withdrawn from courses before the end of the semester.

(5) The plan is economical. Teachers are generally expected to spend considerable time in helping individual pupils. The study class does away with the need of most of this. It is more economical than the double period plan and quite as effective, for one teacher can take care of twenty-five pupils at a time with practically the same results as would result if several teachers were placed in supervision of the entire classes from which these twenty-five slow pupils come.

(6) The plan provides opportunity for pupils who have been absent for any reason to make up lost work under supervision without undue expenditure of time on the part of the teacher.

In no direction is there promise of such increase in the efficiency of our secondary schools as in improved class room methods which shall train our pupils in effective habits of work in the early part of the high school course,

better still in the upper grades of the elementary schools. There is need of carefully considered experiments in the different subjects of the curriculum which shall furnish objective results on which may be based definite conclusions regarding the length of class period, length of day, and length of year which will yield the largest results, as well as regarding the most effective methods of employing the time of the pupil while he is under the charge of the teacher in the school room.

The second topic for discussion was "Improving the Position of the High School Teacher of History and Civics." Dr. Evarts B. Greene, of the University, and Supt. W. W. Earnest, of Champaign, led the discussion. Their papers follow:

Dr. Evarts B. Greene's Paper:

There seems to be a certain presumption in bringing before a conference primarily concerned with general administrative problems a subject which, at first sight, appears to belong to one of the sections organized for the study of specific parts of the high school curriculum. Yet after all, whatever may be said, and rightly said, as to the importance of administrative work, the real end of all this mechanism is to provide ways and means for getting particular subjects well taught. To secure this result, the teacher and the administrative officer ought now and then to get together on a level for the purpose of expressing frankly, each to the other, his own point of view. I am speaking this morning primarily from the standpoint of the teacher, but having had some years' experience as an administrative officer I shall try not to be too hard on the present members of that hard-worked class. I should add that, though I have had the history teacher primarily in view, my main contention is equally applicable to teachers of other subjects in secondary schools.

For some years I have taken part in the conferences of the section devoted to the social sciences and have found them profitable. In those section meetings we have discussed the defects of the present situation and sometimes have worked out attractive plans for the improvement of teaching methods and pedagogical equipment; but though it is comparatively easy to get some consensus of opinion among department teachers themselves, we are constantly brought face to face with the administrative limitations which bar the way. For the sound teaching of history, as for the sound teaching of any other subject, we need two things, good equipment, of course—not so much money as administrative officers are rather easily persuaded to spend for scientific laboratories, but a much larger sum that is commonly thought necessary for books and maps and other illustrative material. We need, however, first of all, good teachers, men who have taken up teaching as a serious and permanent profession, not as a mere stepping stone to administrative office. When we get such a class of professionaly trained teachers of history—and in professional training I include, of course, training for real scholarship in the subject taught,—they will take care of these problems of subject matter and methods for themselves. Some things which have been largely done for high schools by college men

will then be done by high school men for themselves. The cooperation of college teachers in the writing of high school text books and the preparation of syllabi for high school courses has been necessary and sometimes the work has been efficiently done. It will certainly be better done, however, by men who, with adequate scholarship, such as may be found in the German Gymnasium, the French Lycée, or the best English public schools, have also studied the practical problems of secondary teaching from the inside.

In no field is this consideration more important than in history which is concerned today with some extremely difficult problems of selection and point of view. Shall we emphasize those aspects of the past which seem to have the closest connection with contemporary society, or shall we try to understand the outlook on life of a generation with standards of value and proportion quite different from our own? Shall we begin with the present which we think we know and work backward to the past, or shall we begin with the origins as a prerequisite for the interpretation of the present? All these are debatable questions, and the answers to some of them may be of one kind for the college and of quite another sort for the high school. So it is with other questions of method. What are the relative values of text book and oral instruction; of source book and narrative history; of map-drawing and the exhibition of illustrative material? All these are questions not primarily for the expert historian, on the one side, nor, in my humble opinion, for the expert in educational administration. They belong not exclusively, but mainly, to the expert high school history teacher. Yet of these three kinds of experts it is the "man behind the gun" who has so far had the least to say about the matter. The people who have shaped history programs in schools have been too largely university professors on one side and principals on the other. Everybody knows the famous saying of Abbe Siéves on the eve of the French Revolution in speaking of the constitution of his country, "What is the Third Estate? Nothing. What ought it to be? Everything." To apply that proposition to the department teacher would be going too far, but we ought certainly to give him a much larger role than we now do.

The real reason why the secondary teacher of history, and of other subjects, has not had more to say is that such teaching as a permanent profession does not now hold, if indeed it attracts at all except in rare cases, young men of force and first rate intelligence. Here and there, there are men of fine unselfish spirit who hold to teaching for the sheer love of their work, but most of the ambitious young men who take up secondary teaching at all soon abandon educational work altogether or find their line of promotion in principalships or superintendencies. Under existing conditions this is just what we have to expect.

I have secured from the office of the University High School Inspector the last available statement of the situation in this respect in twenty-four high schools in which there is at present a man in charge of department work in history and civics. Doubtless the result varies slightly from year to year, but certain general conclusions may be safely drawn. The list includes such representative schools as Oak Park, Bloomington, Rock Island, Mt. Vernon Township, Peoria, Danville, and Decatur. Of the twenty-four men included in this

list only eight received salaries of $1200 or more, and of these all but three were principals or superintendents. Seven were receiving less than $1000 and only two, both principals, received as much as $2000. One has only to compare the salary of $765 which one city pays to its high school teacher of history and civics with the annual return of, let us say, a plumber or chauffeur, to appreciate the status assigned by the community to the man who more than any other has to carry the responsibility of training young people for right thinking on their duties and privileges as citizens.

Now what is the effect of this policy on the professional permanence of the teacher? As my colleagues in the department of education have pointed out, this situation is not peculiar to any one group of teachers. Only two of the twenty-four teachers mentioned above had served as much as ten years in the position then held, and both of these were principals. Only three more had served as long as five years; not more than seven had had a total teaching experience exceeding ten years, and two of these were principals. It must be remembered too that these are not in the class of the "submerged tenth", but distinctly above the average. From time to time we here at the University are called on to advise young men who seem to have a definite call to teaching as distinct from educational administration, but who properly ask whether there is a career open to them at all comparable to that which opens before the young engineer, or farmer, or lawyer—not in money returns only, but in terms of social recognition and public esteem. What kind of an answer can we honestly give?

Here we reach the striking weakness of our American educational system, our lack of interest in the development of a strong class of secondary teachers comparable with those who are teaching young people in the more highly developed European states. European visitors to the United States who are deeply impressed with the generosity of our provision for education in other respects, especially in point of material equipment, are equally struck by the fact that these results are secured after all at the expense of weakness in personnel. Here again, I mean, of course, the teaching as distinguished from the administrative staff. Teaching probably never will be a highly paid profession in any branch of the service; its rewards are of another and higher sort. Nevertheless, public opinion regarding the social value of any service tends to express itself in terms of financial support, and may thus stimulate or depress the self-respect of those engaged in such service.

Mr. Learned in his book on *The Oberlehrer,* just published by the Harvard University Press, describes the recent achievement of the secondary teachers of Prussia in securing a salary scale corresponding to that of the judges. As is well known the German *Oberlehrer* looks to a definite and solid career for men with provision for regular increases in salary and the prospect of a pension on retirement. The importance of this policy from the point of view of the public interest has been emphatically recognized by representative statesmen. Bismarck gave unmistakable evidence of his attitude in this matter by devoting the sum of $300,000 presented to him by the German people on his seventieth birthday to a fund for the training of secondary teachers with special

reference to traveling endowments. I cannot refrain from repeating here one of Bismarck's notable utterances on this subject.

"For us Germans there can never be any doubt that the bond which unites us is no mere institution of external police power; it is rather the inseparable and irresistible community of interests in scientific scholarship, in art, and in poetry that has grown up between all the German peoples. The real medium for all this is not the minister of state, but the instructor of the growing youth, the secondary teacher. When the funds from which I established the Schönhausen Foundation were placed at my disposal, I asked myself, 'To what purpose shall I apply this million marks?' And I came to the conclusion that the secondary teacher is the most important factor in the patriotic education of the rising generations."

Has not the time come for a similar movement in the secondary schools of this country? Should it not receive precedence over any other claims on our high school budgets? So far progress in this direction has been retarded by insistent demands for buildings, and for what is called "enrichment of the curriculum". There has been a decided increase in the number and variety of subjects taught, and, without going into the merits of the new subjects as compared with the old, it is evident that the process adds materially to our expenditures. Public sentiment needs to be led to a point where it will realize that progress lies not half so much in increasing the number and variety of subjects taught as in improving the quality of the work done. As regards variety of subjects studied by secondary school pupils we are certainly not behind other countries. What we lack above all else is a thoroughly courageous insistence upon standards. We cannot expect to get this from teachers who, as we say, are "hired" from year to year at the lowest market rates and necessarily fail to secure the substantial status in the community necessary to enable them to make head against the constant demands for letting down the bars and following the lines of least resistence. As I have said before, there is a special reason for urging this thorough identification with the community in the case of the teacher of history and civics. It is his business to introduce young people to the serious consideration of their part in the carrying forward of civilization from the generations which have gone before to those who are to come after,—to a vital recognition of their relation to Society and the State. How can he rise to such a responsibility if he himself has no permanent and honored place in the community which he serves?

Decent salaries are certainly essential to any substantial advance in the quality of history teachers; but after all, when the essential demands of a respectable existence are met, the real teacher and scholar cares more for other things. We need much more attention to teaching assignments in order to lessen the variety of subjects taught by a given teacher. Only so can he satisfy the reasonable demands of a scholarly conscience. I am not asking for extreme specialization—our colleges are suffering from that now, possibly a few high schools—but for care in the grouping of related subjects. A teacher of English history may gain rather than lose by taking another class in English literature; and a teacher of ancient history by a course in Latin which makes him at home with Cæsar and Cicero. Still more obvious is the usefulness of keeping history

in close touch with government and economics. But the frequent combinations of history with algebra, chemistry, bookkeeping and other quite unrelated subjects are surely unfortunate. Such combinations make serious scholarship almost impossible in any direction and tend to isolate the history teacher from his historical colleagues in other parts of the educational system; from his fellow workers in his craft. The secondary teachers of history are welcomed into our national historical association. They should be encouraged to share in such intellectual scholarship and given freedom for keeping their own scholarship fresh and keen.

I have not said much about equipment, because the question of personnel must stand first; yet the two are not unconnected. The professional self-respect of the history teacher is inevitably depressed when he compares the meager sums ordinarily allowed for books and maps with the relatively lavish amounts which are now easily secured for laboratories of physics and chemistry. I need not dwell on this contrast. It is familiar and almost universal.

I am quite aware that the problem which I have presented is not wholly within the control of administrative officers, whether superintendents or principals. The ultimate responsibility rests, of course, with the school boards and with the communities which elect them. Nevertheless I am sure some of you may and often do exert a decisive influence on the development of public opinion in all these matters. Here is an opportunity for leadership which must certainly appeal to the men who are concerned with the sound development of our educational system.

Discussion by W. W. Earnest of paper of Prof. E. B. Greene:

The claims of every course of study forming a part of any curriculum, if properly presented by a sincere and devoted specialist, are strong. If this were not so, that course would not be a part of any good curriculum. In this case, there is no doubt that the claims of the history and civics course have been presented properly nor that they are genuine. We can not hesitate to admit that this course stands in as close relationship as any other receiving attention in the schools to the development of good citizenship, the generally accepted purpose of the public schools. It is also clear that this course is one the desirable outcomes of which depend on inspiration rather than on any sort of drill resulting merely in habitual accuracy or skill or knowledge of any kind, valuable as these may be. It follows that no degree of faithfulness and industry in a teacher can make up for a lack of enthusiasm or of imagination or of interest in social, economic, institutional, governmental affairs; because these are the qualities that make it possible for a teacher to be a source of inspiration to pupils and so to lead them to high resolves so to discharge the duties of citizenship as to contribute in full measure to the welfare of their fellow-beings in community, state and world-wide relationships. Hence it follows further that the finest spirits as well as the best-trained scholars are needed to take upon themselves this order of the priesthood of patriotism, with its higher degree of cosmopolitanism, the priesthood to which every teacher of history and civics should be consecrated.

Of course, every other high school department has a right to make its requisition for the best and strongest manhood and womanhood in those who come close, or ought to do so, to the soul of youth and influence through their personal touch the direction and quality of all the future activities of the boys and girls instructed. The justice of no such demand is denied; we wish here only to lay the firm foundation that this demand of the social science department is at least as just as that of any other.

It is plain that the only way to be assured of getting the best is to pay for the best and make the conditions of service as agreeable as possible. We do sometimes get the best in other ways; but when we do it is the gift of Providence, for which we should be devoutly thankful. But the very wording of our topic contains an implication that, in the thinking of those who assigned it, the position of the teacher of history and civics needs to be improved not only as its present status is regarded but also as compared relatively with that of teachers in other departments. The question "What will you do about this?" seems to be put to us who are supposed to be administrators of these delicately related matters, regardless of the fact that we are sometimes in reality not even suggesters to our superiors, who have been known to reserve for themselves so important a matter as that of the fixing of relative salaries and then go away leaving us charged with the duty of getting good results with machinery which they have themselves thrown out of adjustment.

Assuming, however, as we are accustomed to do, because there is no use of trying to escape it, the responsibility for present conditions, we may perhaps enter a disclaimer as to the relatively unfortunate position of the teacher of social science, so far at least as many schools are concerned. Is it really true that the teacher of history and civics is generally regarded as of less importance than teachers of other subjects or less well rewarded or less sufficiently provided with the tools of his trade? That this is not generally true is merely an impression which some one else may have evidence to disprove. This is a matter which may come within the scope of our Illinois school survey now in progress and Dr. Coffman and his co-workers may be able to report at some later time facts not now in our possession. It is true that the equipment of science laboratories and of manual arts shops may be more imposing in appearance; but the apportionment of funds invested in reference books and other library facilities for the teacher and student of history and government may be not more scanty than that granted to other departments. Besides, we would not expect the surgeon's case of tools to be as bulky as the outfit of the house-mover nor think his equipment poor because it occupies less space.

If injustice of this kind is common in schools, we then have, as the appropriate suggestion for administrative action, the duty of calling attention to the injustice of unfavorable discrimination in salaries or in provision of helps and of using such power or influence as we have in the direction of equalizing conditions. We will all admit that the function of teaching history and civics should not be relegated to the weaker teachers, and boards or committees are quite likely to concur in that view, if the facts be properly presented. This is a matter worth looking into in all of our schools and consideration of this

topic will be justified if it leads to the discovery and removal of unjust conditions.

There may seem to be a wrong relation between expenditures for material equipment, especially that for buildings, at the present time and the expenditures for teaching talent, but the effect on the social science department is no worse than that on any other; and, after all, this regrettable relation may be a necessity of our present stage of development. For some time our school system as a whole has been growing rapidly. Especially in cities, with which we are chiefly concerned, because in them, for the most part, high schools are maintained, the school attendance has been increasing faster than the taxable wealth. This is probably the result of three factors,—the actual diminution of per capita wealth, gradual shrinkage of assessed values as compared with real value sand the increase of school attendance as a result both of more attractive schools and better enforcement of compulsory laws and health regulations. The high schools have been increasing not only at the same rate as the total attendance, but at a considerably greater rate and the per capita cost in the high school, inevitably greater than in the elementary schools, has been painfully emphasized for school boards and taxpayers who have had to provide for this most expensive and most rapidly increasing part of the system buildings, equipment and teachers from only slowly increasing revenues. As the need of buildings can most plainly be brought to the consciousness of the greater public and that of equipment next, while the finer spiritual differences in teachers can not be placed so clearly before them, it may be, as suggested, a necessity of our present development to take first what we can get first. Representing a community whose liberality toward its schools could not be greater within the law, I feel that this explanation is complete for this district and possibly for many others. It may be that no adequate measure of relief will be possible until we shall have progressed a little further beyond this era of pioneering. Then, when the more permanent structures of our present building shall have been paid for and comparatively less of this form of expansion shall be required or when the relation of revenues to school needs shall have been improved, we may put more of our expenditure on what we all know is the greatest need of every school,—the teacher. The nearby possibilities of improvement seem to lie in the hope of increased state contributions for the relief of districts already carrying the heaviest possible burdens and the stimulation of stronger school sentiment in communities that have under present laws more resources than they use and would use more, if convinced that it is worth doing. When all teachers can have more, those of this particular class will doubtless share in the general benefits.

The unfavorable comparsion between conditions here and those in the schools of European countries, or those that were in those lands abroad before the present outburst of military insanity, may be attributed not so much to the greater age of their systems of popular education as such, for this they do not have, but to the greater age of their civilization as a whole with its harder economic conditions and more firmly fixed boundaries or barriers between occupations. When economic rewards in other occupations shall have sunk to the level of such rewards in the old world, then, if not sooner, we shall be able

to attract with the same salaries greater ability to the service of the schools. Economic evolution will automatically effect more definite vocational guidance than we have now in operation, and we are beginning to study the subject and to attempt to supplement the natural process by conscious efforts to help young people to choose occupations intelligently. With more definite social suggestion and with more purposeful choice, there will be less of drifting, greater probability of finding satisfaction in the occupations first chosen and more especially prepared for by each. In this older and more settled country the teacher of history will be a man prepared to teach history, a man who counts in a "man's size" job, a man who is practically assured of permanency of position "during life or good behavior". He will, of course, be a teacher of greater professional pride and enthusiasm than the bright young man or woman whose taste leads toward history, who thinks a high school position may prove interesting for a year or two. We are thankful to get the best of the latter type, but it will be better for the schools and better for the teacher when the permanent position and the teacher to fit it appear.

While the development of this desirable permanency is largely a matter of the ripening of our civilization, we may do some things to hasten the establishment of better conditions. We may call attention to the advantages to a school of permanency in such positions and favor it in the case of every satisfactory teacher, even though it involve some increase of salary. We may promote so far as we can see our way to do it safely and sanely interest in vocational guidance, thus helping the coming generation to choose their life work in a less haphazard manner than that in which the majority of those now on the stage of action chose theirs.

There has already been considerable progress as to the desirability of positions offered to high school instructors. This progress should be accelerated further by intelligent recognition of needs by us and by promoting recognition by the public of what is desirable as well as by board members and teachers themselves. Teachers of history and civics will then share in the benefits that come to all. If, in the case of some school systems, this department is not receiving the dignity and recognition it deserves, then the duty rests on us as administrative factors of helping to secure for it its proper place of relative dignity together with all that should go with it.

At the close of these discussions certain business matters were taken up. Superintendent J. G. Moore, of Paris, was elected member of the executive committee for three years and to act as Chairman.

A resolution was unanimously adopted to the effect that it is the wish of this Section that the University establish an exchange for motion picture films for the high schools of the state; and that we urge upon the President of the University the speediest possible conclusion of such an arrangement.

Professor Hollister presented a proposed new blank for reports from high schools, the nature and use of which he explained to those present. On motion this new form of report was unanimously approved.

The afternoon session considered matters pertaining to the Illinois High School Athletic Association. Principal George E. Marshall, of Davenport, Iowa, gave a report on the work of the Iowa Association. No minutes of this session were reported to the editor. The following paper by Prinicpal W. L. Goble, of Elgin, was submitted:

The Illinois High School Athletic Association, Past, Present, and Future

Late in the nineties I was teaching in a high school that boasted of a big football team, as was common in schools of an enrollment of 200 or more. Three members of the team were pupils in actual attendance. Some of the team lived in neighboring towns and came into play the games. The school had little to do with the game more than to finance it, drum up the crowd, and take the blame when things went wrong. With the public the game was about on a par with professional baseball. It was run and supported by the sports. The pupils of the school had little interest in it. At the same time there were in the school two or three real school teams that had no recognition, but played the game day after day for simple love of the play.

Those were the days when school authorities were wondering what to do with athletics. An activity had come into our institution that had not been developed there and had not been recognized as a part of the education of the pupil. It was a question whether to refuse to recognize it as a legitimate function of the school or to accept and control it. I suspect it was the instinct and persistence of the boys in playing it rather than the new note of emphasis upon the physical that came into our psychology about that time that saved the day for athletics. To accept it brought the necessity of controlling it.

For the support and control of athletics local student athletic associations were formed. These were found to afford some support, but little control. Local eligibility rules could not protect against professionalism in a rival team. Cooperation was seen to be necessary. The colleges furnished the example. State High School Associations began to appear. Among the early ones was this one in Illinois. It began with the large schools. About 60 in all were soon enrolled in it; for they all realized the need of its moral support in the matter of eligibility rules. I think one of the surprises was the ease of settling the standard of eligibility. The standard was soon recognized all over the state and became the basis of all inter-school contests whether the schools were members of the association or not. Many schools preferred to take its eligibility rules as an ideal without committing themselves to it by taking membership in it.

The rule preventing members of the association from the promiscuous scheduling of games with schools outside the association was the one on which

the success or failure of the enterprise largely depended. It was hard to enforce it and preserve the interests of the small school whose near neighbors were not members. Hesitancy at this point brought the natural conclusion that the work of the association had been accomplished. It had established some good standards, and had done a great work, the results of which would be permanent without further membership in the association. And the membership dropped off to nearly nothing—15, I think, in 1907. But a campaign of education and a call for the enforcement of that rule started a rapid rise in membership until it has now reached 317.

An added incentive for taking membership in the association came with the establishing of the sectional and state basketball tournaments. Basketball is now the most popular form of athletic contest. The small school can meet the large school in this game on practically even terms and may aspire to state championship honors.

So much for the history of the association, but I suspect we are all more interested in what the association is now and what it is actually doing. We will be surprised, I know, to learn that nearly all the accredited schools of the state are in the association. Omitting the academies and high schools of Chicago, which have an effective organization of their own more definitely suited to their special needs, there are fewer than fifty accredited schools out of the association.

We cannot easily estimate the good that comes to all these schools through this association. Ideals and standards prevail and are accepted as a matter of course that could not have come without the moral support of such an organization as this behind the local control of athletics. It has brought faculty administration to replace student management. It puts responsibility and school honor behind every contract. It puts definiteness and dependableness into negotiations for games. It takes kid caprice out of the conduct of the game and puts the control where it belongs, in the hands of those whom the public holds responsible for the influence and results of school organizations.

To make this concrete I can only tell what the influence of the association has been in the school with which I am connected. As soon as it was announced the athletic association of the school voted to take membership in it and immediately adopted the eligibility rules as a part of the by-laws of the association. The Board of Control, which was half student and half faculty, soon saw that the administration of eligibility rules under a system of this kind devolved upon the faculty and turned its work over to the faculty. In fact, it soon ceased to exist and was supplanted by a faculty board of athletics. The eligibility rules have been printed from time to time in the school paper and are accepted as a matter of course. The school is kept informed as to all changes in constitution or eligibility rules, and awaits these changes with interest. The athletic reporters of the local papers ask every year about the changes and report them as matters of general interest. The ideals and standards of the association became immediately the "law and gospel", so to speak, in things athletic to the young people of the city. This is only an example of what is taking place generally throughout the state.

And now as to the future of the association. Of course it will soon include in its membership all the accredited high schools of the state that are not already in an organization more definitely suited to their needs. The Chicago high schools are in such an organization. Teams in the association should be permitted to schedule games with them.

The object of the association, as expressed in the constitution, opens up a good field for thought when we look for work yet to be accomplished by the association. "The object of the association shall be to protect the athletic interests of the high schools belonging to this association, and to promote pure amateur athletic sports."

The protection of the athletic interests of a school cannot be secured while there is such overemphasis placed on the winning of games and championships, especially if schools are allowed the present freedom of importing athletes from surrounding schools. The gain to one school is a loss to other schools. It makes possible the setting of so high a standard of athletic prowess to secure a place on a team that deserving and logical members of a team are displaced by boys who would never be in that school except for the purpose of building up a mighty team. The practice violates the spirit of the association, which aims always to keep out of athletics those who are in the school specifically for that purpose, and to keep the honor of representing the school in competitive play for those to whom it rightfully belongs. It shakes the faith of young people in our sincerity in our attempts to regulate these matters. The effects of the practice in any one place are far reaching and sometimes bring out bitter comments in schools that are far away but affected by it. It is up to the association to prevent the practice.

A proper protection of the athletic interests of a school should prevent the exploiting of its athletics for the aggrandisement of the city, the pride of its professional sports, or the convenience of a wagering public. There is too much of the spirit of ownership of school teams in some of our cities. The desire to win at any cost is fostered too much. Winning the game rather than skillful playing is too nearly what is wanted. There is not much parading for the losing team however finely it plays. And yet right athletics in the school should bring a right appreciation of the playing, whether the game is lost or won. It brings a keener delight to see a school and a city support a team for its good playing though it loses the game than to see them celebrate the victory of a winning team without regard to the character of the playing. Whenever this association or any other agency succeeds in securing a proper appreciation of the play rather than the winning of the game in high school athletics and makes it general it will have properly protected the athletic interests of the schools and will have promoted pure amateur athletic sports. Such a spirit is worth working for in our association, and I believe we shall be able to accomplish much along this line.

Less of partisanship in the management of games, less sparring for favorable officials, and more courteous and generous treatment of opposing teams present ideals and aims, the realization of which should and will engage the attention and effort of the association as it goes on to attain the object it has set for itself. It would seem that plans for cooperation to secure approved and more

competent officials at reasonable rates could be worked out. At present we have no approved list of officials.

A great work to be done by this association is the cultivation in the representative of the schools that make up the association of right ideals in the supervision and management of athletics, and a proper appreciation of the opportunities afforded through athletics of affecting the characters of not only those who take part in the games but of all who take an interest in them. It is to be regretted that so many representatives never get into the meetings of the association. Perhaps more in the way of reports and literature should reach them.

These suggestions for the future work of the association may seem somewhat indefinite. They may serve at least to point out that much yet remains to be done, and that it is well worth doing.

Agricultural Section

Minutes of the Proceedings, November 20, 1914

Professor A. W. Nolan of the College of Agriculture of the University of Illinois introduced Professor S. H. Dadisman, now of the College of Agriculture at Ames, Iowa, who presided over the meeting of the section.

The following papers were read:

1. Extension Work and Short Courses in High School Agriculture, Principal L. F. Fulwiler, Mt. Pulaski, Ill.
2. Collection and Organization of Suggestions for Teaching High School Agriculture, Professor I. A. Madden, Normal, Ill.
3. Differentiation of Fundamental and Accessory Materials in the Content of High School Agriculture, Professor Renzo Muckelroy, Carbondale, Ill.

An interesting general discussion followed the reading of these papers.

The following men were elected new members of the executive committee:

L. F. Fulwiler, Chairman, Mt. Pulaski, 1917.

E. D. Lawrence, McNabb, 1916.

The following committee was appointed to report on a balanced course in high school agriculture,—the amount to be given and its place among the other subjects of the curriculum:

A. W. Nolan, Chairman.

Renzo Muckelroy.

J. C. Hanna.

The conference voted to request the College of Agriculture to reprint the circulars on Market Classes and Grades of the various live stock, and Prof. W. H. Smith was appointed to bring the request to the Animal Husbandry Department.

The Section adjourned to meet with the other science sections in the afternoon on the question of General Science.

S. H. DADISMAN,
Chairman.

A. W. NOLAN,
Secretary.

Principal L. F. Fulwiler's Paper:

EXTENSION WORK FOR THE HIGH SCHOOL

The state Universities have for a number of years given considerable attention and devoted much effort to Agricultural Extension Work. The object of this work is to get much valuable information, which the Universities have found is being assembled by them, into the hands of the farmers at once, in order that the people at large may receive the benefit of the greater production which the Better Farming Movement might make possible. It may be said that under the responsibility layed by the law, upon these educational institutions that they were doing their duty and measuring up to their responsibility when they placed this valuable information in the hands of the student who have the good fortune to attend these schools. But with the real professional generosity which characterizes the teaching profession the heads of these institutions have not been content with merely measuring up to their legal responsibilities but they are striving with might and main to measure up to the possibilities which the possession of this magnificent fund of practical knowledge has opened up to them.

In order that the agricultural information coming from the laboratories and experimental fields of all these splendid institutions might become immediately available an Extension Department in each of these Industries was created.

The information offered by these new Extension Departments was for a time discredited by many practical farmers. The questions came, "What do college professors who never did a day's work in their lives, know about soils, crops, animals and the business of farming?" Many said these schools had better stick to preparing their students for professional service and leave the farming to the American farmer, who is the best farmer on the face of the earth.

But through the public press, the magazine, the bulletin, the lecture course, the one-day institute, the farmers' week, the exhibit train, and the University Short Course these extension departments struggled for recognition. Inspired by the knowledge that they were bearing the truth and the truth was vital to the future interests of all the people the indifference and criticism with which

they were met served only as an inspiration. Renewed efforts soon brought the recognition desired, the tide turned and the "Better Farming Movement" is the popular reform of the day.

The Extension Department of our own State Institution is today literally swamped with demands from local organizations for help in their attempts to follow its lead in bringing to the farmer material which will aid him in growing two stalks of corn where but one has grown. The farmer himself is aroused and the University Short Course which was formerly but a handful now enrolls its hundreds and the department must do something to meet this demand.

A letter which I received last year at the opening of our short course from President James indicates the manner in which he thinks this relief should come. It reads as follows:

"Dear Sir:—I note in my daily paper the opening of your Agricultural Short Course. I want to congratulate you on this undertaking. It seems to me that this is the way the benefits of the college of agriculture are to be brought home to the knowledge and consciousness of the farming population. We can only take care of a couple of thousand people at our short course, but if every Township High School were to run a similar course we might take care of ten or twenty or even 50,000, and so multiply the results of agricultural work. I congratulate you on your vision.

"Yours,

"Edmund J. James."

The Township High School is the farmer's school and should, it would seem, serve the out-of-school people within its jurisdiction as well as those of school age who have enrolled in its regular classes. May not the high school, and more particularly the Township High School, be generous enough to go beyond the legal responsibility placed upon it and in a measure arise to its possibilities by following the example of our own and other State Universities in the institution of an Extension Department through which the State University can come in close contact with the man who runs the farm.

The Mt. Pulaski Township High School is attempting to serve its township in the fullest possible manner and a year ago, offered its services to the Extension Department of this State University as a means of reaching the farming interests of our community.

Our Six Weeks' Short Course in Agriculture and Domestic Science was the direct and immediate result of this offer. Just a year ago at the close of the High School Conference I met Mr. Nolan in his office and in consultation with Mr. Rankin we planned what I am informed was the first Six Weeks' Short Course in Agriculture and Domestic Science held in a Township High School in the state of Illinois or in any other state as far as we know. I had held one the year previous in a district high school at Saybrook, Ill. There we did not have Domestic Science but ran the Agriculture six weeks with a class of eighteen students ranging in age from fifteen to thirty. The boys came only in the forenoon, had four classes, a class in Soil Fertility, using Frank Man's soil book as a text, a class in Farm Law, using topics from Lyon's Com. Law, a class in Arithmetic and Accounts, using problems from Prof. Nolan's Lessons in Agriculture, and a class in Veterinary Science which consisted of

lectures and demonstrations given by the local veterinary surgeon, we had no help from outside. The boys recited all morning and then were excused, some studied in the library, some played basketball in the gymnasium in the afternoon.

The latter part of the course found them all in the gymnasium every afternoon. They got the craze and soon had a team organized that gave our first high school team all they could do. For each Friday evening during the six weeks we had a lecture or a basketball game. We called on the University for Friday night lectures and Mr. Nolan coming to our assistance, suggested closing the Six Weeks' Short Course with a Farmers' Week. We adopted his plan. We cut it down to three days and had only evening sessions. We opened Wednesday evening with an agriculture lecture at 7:30, which lasted for one hour, followed by an hour and a half's concert by the Chicago Ladies' Orchestra. On Thursday evening we had Frank I. Man and the Carolina Jubilee Singers, and on Friday evening J. V. Stevenson, from the University, and the Jubilee Singers. Our speakers came for expenses, but we paid regular bureau prices for the musical attractions. We sold 200 season tickets with reserved seats for 75 cents each. Our total receipts ran over two hundred dollars. After paying all expenses we had $17 left. We were assisted in this Farmers' Week by the Farmers' Institute Association of Cheney's Grove Township, whose life we had saved two years before by marching the high school down to their institute when no other victims appeared. Our gymnasium seating 500 people was packed each night, three nights in succession and on Saturday night we dragged them back to a final basketball game between the short course team and the high school.

The Short Course and Farmers' Week were a great success from every point of view. It brought new life into the school, it aroused much interest among the farmers in agricultural education, and it opened to the high school a new field of possibilities.

The Mt. Pulaski Short Course opened January 19th and closed March 1st, 1914. We used four of our teachers as instructors, had Professor Wooters for two weeks from the University and W. A. Winter for one week, furnished by the State Farmers' Institute. In Domestic Science we had Mrs. Barlow one week, furnished by the University, and Mrs. McMurray, by the Farmers' Institute, for one week. In addition we had a farmers' lecture course, one number at the close of each week. On that we had A. P. Grout, President of the National Alfalfa Growers' Association; Mr. Rankin and A. W. Nolan of the University; W. A. Winter and Mrs. Murray. The dedication of our new building was held during the Short Course, and Dean Davenport of the U. of I. delivered the address.

We enrolled 80 students in these short course classes, 50 ladies in Household Science and 30 men in Agriculture. The men came all day, from 9 A. M. until 4 P. M., had text books, study hours and recitation periods as in regular high school. The subjects taught were "Permanent Agriculture," "Farm and Business Law," "Farm Arithmetic and Accounts," "Farm Architecture and Animal Husbandry." The text books were: "The Farm That Won't Wear Out" and for side reading "The Story of the Soil," both by Dr. Hopkins. Lyons' Com. Law, "Barn Plans and Out Buildings," by Powell. Arithmetic problems

were taken largely from Mr. Nolan's book, and "Beginnings in Animal Husbandry," by Plumb, was used in the study of domestic animals.

The ladies came only in the afternoon, and while but 50 were enrolled from 10 to 25 visitors were often present. In the cooking Mrs. Lyford's receipt book was followed and the Snow system of cutting used in the sewing. A special class of 12 young ladies who were employed in offices and stores during the day worked from 7 to 9 each evening, and had the benfiet of the special teachers the same as though they had attended the day classes.

Recreation (Basketball)

The short course was not all work. Had it been, we might have lost some of our students, but, as it was, all stayed until the last day and some visited the high school for a week after the short course closed. For recreation basketball teams were organized among the young students, both boys and girls, two teams of each. The boys played each day at 3:20 until 4:10 and the girls played two evenings a week after supper.

The boys' teams were carefully coached and at the close of the six weeks played a tournament with the two high school teams. The basketball was again as at Saybrook a vital feature in attracting the younger people. Several admitted that they came to play basketball, but became greatly interested when they found that the instruction was both interesting and valuable.

A reception was tendered the short course students by the high school, refreshments served and a lecture, "Managing John", given by Mrs. McMurray for entertainment.

Another special feature was the giving of the "King of Sherwood," or "Robin Hood, the Robber Knight," in comic opera, presented by the high school under the direction of our music teacher.

The opera was a great success. Our Auditorium seats 550 people and every seat was sold before the date of the opera. The receipts were $170.00. Our Manual Training class had constructed a large stage and completed it with scenery and a drop curtain, and the sewing classes had produced fifty of as nobby costumes as the King of Sherwood and his company had ever worn.

The closing day of the short course was Saturday and designated as District School Day.

Invitations were sent out to 40 district schools to spend the day at the Mt. Pulaski Township High School. Four hundred and fifty pupils above the fourth grade, with their teachers, were present. The forenoon was occupied with exhibition basketball by High School and Short Course teams. At noon a model school lunch was served by the domestic science classes and the afternoon was taken up by a repetition of the opera.

The majority of the 450 guests arrived at 10 o'clock on the morning trains and left at 4 P. M., so every minute of their time in Mt. Pulaski was taken up.

The district school board proved the best advertising scheme that the high school had used. Pupils, teachers and parents from the district schools were delighted with their entertainment and the high school won over to be friends many who had opposed it.

[Many interesting letters received by Mr. Fulwiler gave evidence of the complete success of the undertaking. Our space will not permit us to publish these here.]

The agriculture class included landlords, farmers, who farmed their own farms, tenants, and farm hands; ranging in age from 16 to 70, 16 members of the class had attended school only in a district school, three had attended high school, two had attended a business college, two had attended a military school, two had attended short courses at Champaign, and one had attended school at Champaign, one was a graduate and practicing physician, one an ex-bank cashier, who had retired to look after his land interests, two were cattle feeders, one a breeder of draft horses, one of fast horses, one of saddle horses, and several were giving special attention to poultry, several were selling cream to city trade.

The class represented 7000 acres of cultivated land in the immediate neighborhood. On this land at the opening of the short course there was 300 acres of clover, less than ten acres of alfalfa, 80 acres upon which rock phosphate had been used, no lime had been used. None had definite systems of rotation.

These lands had produced 80 bushels of corn, 40 bushels of wheat, 80 bushels of oats, 2 tons of timothy and 4 tons of clover, but the average crop for the last five years has been 45 bushels of corn, 25 bushels wheat, 1 ton of timothy and 2 tons of clover per acre. The yields on poor farming and poor seasons have been as low as 15 bushels of corn, 6 bushels of wheat, 5 bushels of oats, ¼ ton of timothy and 1 ton of clover.

Our enrollment of 80 pupils was not gotten by merely announcing that we were going to have a Short Course. We carried for six weeks, space ads in our two local papers, wrote up column after column of reading articles about it; got out a leaflet descriptive of it and made a public distribution. We made up a special mailing list, getting names from towns and country about, of young people who might be interested and sending them circulars and post cards. The week before we opened we got our regular high school students and the board members out doing personal work among their friends. One board member spent three days on the street button-holing every farmer he saw and talking short course to him.

Plans for the coming year are under headway. The dates are to be the same, the school board will back it financially; the forenoon will be devoted to class work, the afternoon to lectures and round table discussion. Each Friday evening a basketball game, lecture, social event or entertainment will be provided.

The expense to the students will be kept as low as possible and every student given an opportunity to belong to a basketball team. An evening school in the interest of business is proposed. Requests have been coming in from the business men and their employés that the short course include an evening school devoted to the interests of the business men. An effort is being made to comply with this request and an evening school devoted to such subjects as general business management, salesmanship and such of the common branches as there may be need for will be arranged.

In addition to basketball teams a class in physical culture will be arranged for the young business men, meeting two evenings each week.

During the short course our domestic science class served dinner cafateria plan. It was a fine scheme and was figured out to just pay expense so that from 20 to 30 cents bought a splendid dinner. For six weeks every day the dining room was taxed to the limit. This will be done again this year.

Other Extension Schemes

The Short Course is only one of our extension schemes. The Annual Corn Show, which was held Oct. 22, 23, and 24, was just as big a success. We had a three days' program conducted in the high school auditorium. The University furnished us one speaker, Prof. Checkley. We paid James H. Shaw of Bloomington for one lecture on Thursday evening. We had W. A. Winter, who judged the corn, speak on Friday afternoon; had Bob Seeds for Friday evening and Saturday afternoon. The five programs given during the three days consisted of two numbers each—a concert of one hour, given by a local orchestra, and our high school vocal department, followed by the addresses mentioned. Our auditorium seats nearly 600 people and was packed to the outside doors. On Friday evening the windows were all open and many stood in the yard to hear Bob Seeds.

The exhibit was displayed in the gymnasium and in spite of the poor corn this year over 100 exhibits were displayed and the samples were unusually good. In addition to the display of corn, wheat, oats, alfalfa, an unusual display of vegetables appeared, making this, without doubt, the biggest show ever held in Logan County. The expense of the show was about $500. This was raised by donations from the business men and farmers. The show was put on by the Mt. Pulaski Farmers' Institute and Corn Growers' Association. This Association, composed of about 30 members, had held a corn show annually in a tent on the public square, for the past two years at the time of the Horse Show, but this year the Association was reorganized as the Mt. Pulaski Farmers' Institute and Corn Growers' Association, and at our invitation came to the high school building and is now affiliated with us as a part of our Extension Department. Its membership has increased to 75.

This same organization takes charge of the annual One Day Institute offered by the State Farmers' Institute and this Institute will be held at the high school as a part of our extension work. An acre corn growing contest is also managed by this Association.

The Mt. Pulaski Household Science club of 50 members has also joined hands with us and makes the high school their headquarters.

The Mt. Pulaski Horse Show

Held September 15, 16 and 17, while not a part of the Extension Work of the school, must not be omitted in this connection, as it is a very material part of the community activity along agricultural lines. The horse show is run by the Horse Show Association, composed of business men and farmers who subscribe annually to its support. This year $3,000 in premiums was distributed, five hundred entries were made, 3000 to 5000 people attended on each of the

three days. Premiums were offered in 80 different classes of heavy and light horses and mules.

The show was held about the public square and during the entire three days morning, afternoon and evening, the local band, assisted by the P. & O. Quartette, of Canton, kept up a continuous performance.

The annual agricultural events at Mt. Pulaski may be summed up as follows, beginning in—

September, the Horse Show, three days.

October, Corn Show; three days.

December, Farmers' Institute, 1 day, and in January and February, the Short Course, six weeks. Monthly meetings of the Mt. Pulaski Farmers' Institute and Corn Growers' Association and the monthly meetings of the Household Science Club.

Further Plans

For the development of Extension Work. We have organized a parents' club of 50 members, composed of the patrons of the graded and township high school. It is the intention to interest the patrons of each district school in the township to organize such a local organization and then to have all the districts join in a Township Patrons' Club. This club to become active in the interests of all the schools in the township. The next step will be a School Directors' Association of the township, looking toward a close relationship between the district schools and the township high school, if possible, to terminate in township supervision by the principal of the high school.

An Experimental Farm

We have dared to hope for an experimental farm. Our ideal of an experimental farm for the school is an eighty-acre farm, laid out, improved, and cropped in accordance with the best ideas obtainable in all of its details, farmed by a practical farmer under the direction of the school, acting under the advice of our State University. This farm may belong to the school or not, but it must be run for financial profit in order that it may be practical for the guidance of both students in the regular work and farmers in the extension work.

It is our hope that some day we may have such a farm as an addition to our school. Until such a provision can be made "Home Project Work" is all that can be done profitably. Each member of the class may attempt one definite thing for his summer work and report on it in the fall. Someone takes alfalfa growing, another uses lime, another phosphate, one raises an acre of corn, several try dairy experiments, and others try experiments in the feeding of cattle or hogs.

Green House and Stock Pavilion

Another addition hoped for is a green house in which experiments with soils and farm crops can be carried on all the year around, together with a stock pavilion into which all kinds of stock and machinery may be brought from the street and carefully studied.

This addition is inexpensive and of the greatest value in the study of all agricultural questions.

Publishing the Results of Work

We have published in the local press papers prepared by different students on practical agricultural subjects. Upon finishing the study of soils a paper has been assigned to a student, "The Soils of Logan County," for example. The student spent a week on this paper, handed it in for approval, and it was then sent to the printer and published in our regular school column.

This scheme furnishes an inspiration to the student, it pleases his friends and lets the public know that our agricultural work has real merit.

Visiting Farms

After the Horse Show, the Corn Show, the Farmers' Institute and the Short Course, all of which presented new ideas and acted as a stimulation to the farmers, we have been interested to know just who our progressive farmers were and what they were doing, so we got into an auto and started to visiting each farmer in his own home to talk over with him the things that he was doing to better his farming. The most progressive men were visited first and careful notes made of their work and articles written for the paper from these notes.

The farmers we visited were pleased to have us interested in their individual schemes. When these write-ups came out they were widely read, and the invitations began to come in from all sides from others not visited, asking us to come out and see what they were doing. Many who have been doing nothing are getting busy, and summing it all up we are having a real "agricultural revival" in our community. Everybody is getting religion in the good old fashioned way, good fellowship prevails, as we all put our shoulders to the wheel to give the "Better Farming Movement" one big push.

The School Has Other Fields of Action

But why should high school extension work be confined to agricultural interests? Why should commercial short courses not be held as well as agricultural? Why should not the school work in the interests of the business man as well as the farmer, or in the interests of the tradesmen, or in that of manufacturing, mining, lumbering or fishing interests? Why not in all these interests, as much as in the interests of the farmer? In other words, why should the high school not work in the business interests of the class of people that are taxed to support it? Why should the high school not be the biggest, most comprehensive influence for the betterment of material conditions in every community?

Mt. Pulaski Federation of Community Interests

Since the writing of the above paper, Mt. Pulaski has taken the initial steps toward the federation of her community interests in order that a unified effort may be made and a vigorous progressive campaign fully launched. At

the regular annual meeting of the Horse Show Association held at the High School Auditorium, at which time 150 guests sat down to a splendid banquet prepared by the Domestic Science Department, a move was started to federate all the community interests into one organization whose object should be to guide a unified effort to make Mt. Pulaski a model community.

A stirring address was given by Dr. R. E. Hieronymous, community advisor for the College of Commerce of the University of Illinois, in which he carefully outlined the benefits of such an organization and proposed in outline a form of organization and plan of action. Several short addresses by citizens representing the commercial, agricultural, professional, trades, educational, and other general interests followed. At the close of these discussions a committee of ten representing these interests was appointed to draft a constitution and by-laws for such a federation, with authority to call a second meeting when the committee was ready to report.

Mt. Pulaski is a little city of 2000 inhabitants, situated at the junction of two branches of the Illinois Central, 24 miles from Springfield, 11 miles from Lincoln, 20 miles from Clinton and 22 miles from Decatur. The old court house in Mt. Pulaski was once the county seat of Logan County. It is still standing on the summit of the old hill. About it on four sides are the business houses and from its grounds at the four corners the streets stretch away down the hill to the residence portion of the city. It is one of the wealthiest of the rural communities of the state. The soil is a rich brown silt loam that characterizes the corn belt. The people are largely of German origin, have lived industrious, economical lives and extended their land interests to many other states.

Their faith in education is evidenced by the two magnificent buildings that have been provided for school purposes. One, the grade school, erected in 1911 at a cost of $30,000, and the new Township High School, which when fully completed and equipped will cost $50,000.

The city has oiled streets, paved gutters, a water system, electric lights, one coal shaft, three electric elevators, about 40 business houses and seven churches.

Professor I. A. Madden's Paper:

Collection and Organization of Suggestions for Teaching High School Agriculture

The teaching of agriculture presents more difficulties than the teaching of any other subject found in our present school program. The mass of material which should be crowded into a four-year curriculum in agriculture in the high school, the absence of suitable laboratories and laboratory equipment, the scarcity of field materials, and the lack of text books made the teachers' task enormous. The teachers of agriculture are to be congratulated for being in the work, for there are but two things which have drawn them there, the love of money or the love for the work, and I am inclined to think it cannot be the former, for men do not usually enter the teaching profession because of the money involved. Let us assume then, that the teacher of agriculture is equipped with plenty of nerve and a willingness to work as many hours as

he is awake, and proceed to give him a few hints as to the paths into which his energies can be turned for the best interests of himself and his pupils.

Let us turn to the United States Department of Agriculture and see what is there for the teacher and his classes. Some wit has said that the department annually furnishes the farmer sufficient bulletins to fire his furnace. I wonder if some of our schools do not look to the same source for their fuel. I know it is a big question with every teacher as to what to save and what not to save from the great quantities which may be obtained from the government printing office. In the first place, no school in the State of Illinois should be without a copy of the Year Book of the United States Department of Agriculture. See to it that your senator or representative in congress sends you a copy each year, and see that it is put into your library where the students may be referred to it. Next in order are the Farmers' Bulletins. Very seldom is there one of these publications issued that is not of interest to the farmers of any state. From the list of bulletins from the various bureaus in the department select those that are of value to the people of your state and order them. If you are in doubt about their being of value to you order them. Those that are labeled worth five cents, ten cents, or any number of cents, are usually the most valuable publications and they are the ones you want. Write to your senator or representative and ask him to send you copies of them. Your senator or representative will not be obliged to pay for them and Uncle Sam has more money than most high schools in Illinois. If he runs short, we may levy another war tax. If you run short, there will be war but no tax. The United States Department is issuing a series of bulletins and letters on teaching agriculture, and they have made lists of the bulletins in their possession helpful in teaching the various branches of agriculture. These bulletins may be had for the asking. See that your school gets in touch with the officials dealing with the teaching of agriculture and get their suggestions. In addition to the helps already mentioned there is issued by the department lectures bearing on various phases of agriculture. These lectures are accompanied by excellent lantern slides which are loaned to those wishing to use them for the payment of express on the same. No better class exercise could be had than to place the lecture and slides in the hands of a student and have him present them to the class.

In addition to the quantities of material furnished by the United States Department of Agriculture the state experiment stations are in position to furnish you with a wealth of material for reference work. There should not be a school in the state that is not on the mailing list of the Illinois State Experiment Station, and every bulletin issued by the station should be carefully preserved. In addition to the bulletins and circulars issued every officer in the station stands ready and willing to answer any question asked regarding his specialty. I have never found one of the station staff who was not willing to go to considerable trouble in answering questions directed to him. In addition to the men in the various fields represented in the experiment station work, we have an extension department created especially for your benefit and you should see to it that they earn their money.

The question that is now in your mind is the disposal of this multitude of bulletins and circulars after they have been collected. I believe the best

practice is to collect all bulletins and circulars and file them in the series in which they are published. For instance, all bulletins issued by the State Experiment Station should be collected, and when a sufficient number has been collected to make a volume, they should be bound. If it is impossible to bind them in a permanent binding, they may be preserved in a paper box or folder made for this purpose. The Farmers' Bulletins should be collected and bound in numerical order and not under the various subject heads which they happen to represent. This scheme should be followed in all bulletins issued in series. Indexes may now be made up and pasted on the outside of the boxes or on the covers of the bound volumes. The student or teacher will then be able to find material on the subject he is investigating without sorting through the entire list of bulletins. In addition to the indexes, there should be a series of subject indexes accessible to the student where he could find material on any subject upon which he is working. I have tried to file bulletins and circulars under subject heads, and my plans have ended in chaos because of the many publications treating more than one subject. At the Normal University we are filing all state and national publications in series with excellent results. If the bulletins and circulars are not bound, it is often feasible to store them in pigeon holes made especially for this purpose, but this method, although somewhat quicker than boxes, will not allow expansion in the files as boxes will. With the box method one box may be filled and another one placed on the shelf beside it. With the pigeon hole method, the bulletins cannot be kept in groups without constant shifting and relabeling. However, any method of handling bulletins that might be suggested will involve considerable labor and some expense.

The next place that the teacher should turn to keep in touch with his subject is to the book companies. New books are constantly being published, especially books suited to high-school agriculture, and the teacher should see to it that he gets copies of these books from the publishing companies for examination. A few years ago all books written on agricultural subjects were for colleges, but today the writers are finding a sale for books in high schools and academies and are turning their attention to this field. In the past few years, several excellent books have appeared for high school work. Every book whether adopted or not should be carefully gone over by the teacher, for they all contain many new and valuable suggestions, and will broaden the teacher in his view of the subject. Keep in touch with all publishing companies and examine their books as they appear on the market. Many are using old and inefficient books because they do not know there are new and better books to be had.

Next in importance to the teacher of agriculture after government and state publications and text and reference books come the farm papers. There are dozens of these publications and some of them are worthy of considerable attention on the part of the teacher and student, but considerable caution should be used in subscribing for these papers and in sanctioning the veracity of all articles published therein. No matter how excellent the farm paper there are always people contributing to it for monetary reasons alone, and they are more than apt to stretch the truth or paint the lily in order to sell their articles. I

have often said that it was necessary to know more about every subject discussed in farm papers than the writer did in order to verify the statements made. I make a practice of not taking too much stock in articles in farm papers unless the articles are signed by students or investigators who would not dare attach their names to an unsound doctrine. The teacher must guide the pupils' reading of farm papers and caution them against approving all statements made. Each school should take a few farm papers and keep them where they are accessible to students of agriculture. The reading of them should be encouraged for it keeps the student abreast of the advanced farming interests. I might recommend the Breeders' Gazette, Hoard's Dairyman, The Country Gentleman, and Wallace's Farmer as a group of papers representing nearly every farm interest.

Every teacher of agriculture should get in touch with the State Live Stock Commission at Springfield, and secure from them digests of laws governing the handling of livestock, and the use of serums and antitoxins, and the placing of quarantines on farm. In addition to these data, they should secure the addresses of all stock breeding associations and secure from them the literature relative to each breed. Each livestock association has on hand a considerable amount of literature valuable in the study of animal husbandry. In addition they have excellent photographs or halftones of the best animals of the breed. These pictures make excellent substitutes in the absence of the animal, and there is no community that affords one-third of the kinds of stock bred. I have recently started collecting a series of photographs representing the various breeds of livestock and up to date the work is proceeding with excellent results.

In addition to the State Live Stock Commission the State Board of Health and the State Board of Agriculture stand ready to aid in all questions relating to their work. Working with the State Board of Agriculture is the State Farmers' Institute. We should all be on their mailing list and receive the many valuable bulletins, circulars and letters issued.

The teacher is probably called upon more times during the year than any other professional man to attend meetings and conventions relative to his work. The teacher of agriculture should attend more than other men in the profession, if he is to keep abreast of his occupation. The state and county fairs, the International Live Stock Exposition, the National Dairy Show, the Land Show, the Cement Show, and others too numerous to mention all contribute to the broad experience that must be his who teaches agriculture well, and in addition provide him with a wealth of ideas for presenting the work to the students. At the National Dairy Show held in Chicago last month the exhibits presented by the Department of Dairy Husbandry in the state colleges were rich with important data and with ideas of bringing these data before the class in such a way that they realize its importance. I would rather miss almost any teachers' meetings than one of these shows or fairs for they furnish material that is not to be had at a meeting of pedagogues.

In the past few years companies having goods which they wish to bring before the public have resorted to a new system of advertising which they are pleased to call publicity work. Some of these concerns employ capable men

who act as their field agents as well as editors of various pamphlets and other material advertising the wares of the company. In the majority of cases these concerns furnish information that is desirable and authentic. Among such companies, we may note the various types that teachers should be in touch with. Among these companies are the ones dealing in seeds and the ones dealing in live stock. Both publish much valuable information and many excellent photographs which are useful in the class room. Closely allied with these companies are the nursery companies with a wealth of information relative to planting trees and shrubs as well as the care of the same.

One of the manufacturing concerns that is spending a considerable amount of money on this type of advertising is the Association of Portland Cement Manufacturers. This organization is not in the field to advertise any special brand of cement, but it is their mission to make the people more familiar with Portland Cement. They issue a series of bulletins giving minute instructions for the construction of any cement or concrete structure known to the art. The bulletins are carefully prepared by expert engineers and the teacher doing work in concrete construction need not fear using them. In fact, there is not a book on the market today that will give the information wanted as well as these bulletins will. In addition to these bulletins, each cement company maintains an information bureau and valuable bulletins may be had from these concerns for the asking. Recently the Universal Portland Cement Company has started on a new venture. They propose to give a series of correspondence lessons in cement and cement construction. All are eligible to take these lessons and may do so by applying to the company for lesson one. I am asking my students to take these lessons for I consider them the best I have seen in that line of work. I hear comments from my students every day as to the interest taken in the lessons. I hope all my hearers will be enrolled before the end of another week. The price is return postage only.

Another group of companies interested in the publicity work are the power and feed machine companies. Teachers with classes in farm mechanics should secure the catalogs of all machine companies of importance, and in addition to catalogs should try to secure their salesman's guide. This guide discusses each machine and treats of the good points and special features of the machine. In addition to these corporations like the International Harvester Company publish many pamphlets, etc., which are of great value at times. The manufacturers of steam and gas engines always publish excellent cuts of simple and compound steam engines and of two and four cycle gas engines. These cuts are always wanted when we teach the principles of these machines.

Farmers should always know how to mix paint and thus avoid paying exorbitant prices for poor quality of mixed paint. White lead companies publish pamphlets on mixing of all kinds of paints. These should be where you could lay your hands on them for books do not give you sufficient information.

All manufacturers of fertilizers publish data collected to show the value of their wares to the farmer. In many cases the data quoted is not complete enough to allow for a complete analysis of the material to be sold, but much valuable data may be had from these concerns. There are some fertilizer companies which publish data which should not fall into the hands of our pupils

and the teacher should see that these bulletins are removed from material furnished students.

Another source of valuable illustrative material is the flour mill which makes a practice of converting the by-products of flour manufacture into feeds for live stock. These mills usually are willing to send samples of the various products of the mill to schools if these samples are to be used for instructional purposes. No better samples of the common mill feeds could be had than these. Corn product companies also make a practice of sending samples of their products, and packing houses send samples of the by-products of the packing house, consisting of anything from horn combs to ground bone meal for fertilizing.

The manufacturers of dairy machinery and of dairy products often publish valuable booklets and pamphlets on dairying. Separator companies are doing considerable valuable publicity work.

If we are working on plans for barns and sheds the various barn equipment companies stand ready to send blueprints and folders describing the best types of barns and sheds and the proper construction of them. Some of the best barns in the country have been planned by the architects working with these companies and they are perfectly able to execute excellent plans.

In addition to all these concerns we have the manufactures of fungicides, insecticides and spray machinery who publish valuable spraying calendars and guides to the horticulturist.

I have gone through this subject hurriedly in order to show you the possibilities which lie before the teacher of agriculture. I know that all the material mentioned herein is not the best, but it will fill the bill in the absence of something better. I have seen men teach at agriculture in high schools and colleges for two years and at the end of that time all they had to show for their work was a well worn text book. They had given up the teaching of agriculture as an impossibility, and it was with them in the chair. They should have been spending their time collecting material, making charts, and working out exercises that could be carried on in the absence of an abundance of illustrative material, and a well equipped library. The teacher of agriculture who is "onto the job" for two years should have at his command a library of which he could well be proud, if he will only collect and organize that great mass of free material that is his for the asking.

Material from United States Department of Agriculture:
Year Book of Department of Agriculture.
Experiment Station Record.
Bulletins of following Departments:
Farmers' Bulletins.
Bureau of Education.
Bureau of Animal Industry.
Bureau of Entomology.
Bureau of Forestry.
Lists of bulletins prepared for teachers of agriculture.
Lists of lantern slides available for educational purposes.
Special reports on Diseases of Horses.

Special report on Diseases of Cattle.

Material from State Experiment Stations.

All available bulletins and circulars as well as charts, etc. All schools should be on the mailing list.

Get bound copy of report if possible.

Get reports and bulletins from states other than your own. Have school on all mailing lists.

Addresses where material may be had:

State Live Stock Commission, Springfield, Illinois.
State Pure Food Commission, Springfield, Illinois.
State Board of Agriculture, Springfield, Illinois.
State Board of Health, Springfield, Illinois.
State Farmers' Institute, Springfield, Illinois.
Association of Portland Cement Manufacturers, Philadelphia, Pa.
Live Stock Companies Advertising in Farm Papers.
Seed Companies advertising in Farm Papers.
Nursery Companies advertising in Farm Papers.
International Harvester Company, Chicago, Illinois.
John Deere Plow Company, Moline, Illinois.
Moline Plow Company, Moline, Illinois.
P. & O. Company, Canton, Illinois.
Avery Co., Peoria, Illinois.
Minneapolis Threshing Machine Co., Minneapolis, Minn.
Oliver Plow Co., South Bend, Ind.
Dairy Machinery Companies advertising in Hoard's Dairyman.

Barn Plans

Manufacturing Company, Fort Atkinson, Wis.
Loudon Machinery Co., Fairfield, Iowa.
Hunt, Helm, Ferris Co., Harvard, Illinois.
Porter Co., Ottawa, Illinois.
National Lead Company, St. Louis, Mo.

Professor Renzo Muckelroy's Paper:

Differentiation of Fundamentals and Accessories in the Content of High School Agriculture

The wording of my subject allows quite a little latitude, and ample room for differences of opinion. In the main we may not differ materially in the fundamentals of Agriculture, but there may be some variation in the accessories. What may be one person's fundamental in the subject may be another's accessory and *vice versa.* The section of the state in which we teach, the county or community where the school is located, and the interests of the people in the agricultural work, will all determine the fundamentals and accessories. For the above reasons, it is not within my power to properly label the agricultural material to the satisfaction of all concerned. A few type studies will be discussed.

One of the first fundamentals which I wish to discuss is that agriculture shall be taught as a separate subject. The way this Nature Study Agriculture is being taught does not accomplish much. We can never reach the farm life with our agriculture work clothed in the form of our so-called Nature Study.

I am not opposed to Nature Study, it is all well and good in its place, and in the hands of a teacher who knows the subject, but with the average teacher of today either in the country schools, city schools or high schools the subject is a farce in so far as its aim is the basis of agriculture.

Just now when so many high schools are anxious to have it said that agriculture is being taught, they are tacking it to one of the physical or biological sciences as a sort of appendage. This is not fair to the subject of agriculture to undertake to explain the facts in such a disconnected and poorly organized manner. Such a method does not give prominence to the fact that agriculture is itself a science. If these facts of agricultural practice are considered with reference to underlying principles, and if from these are formulated definite lines of procedure organized into a system, we may call the conduct a science. The science of agriculture is more than a unifying organization of correct agricultural practices.

If high school agriculture ever fails it will be on account of its trailing the other sciences as a "sort of a filler." The cause will be found in the teacher who has not had sufficient training, who is handicapped by the lack of a broad foundation and who must resort to the nature study viewpoint in which the recurrence of the seasons governs, to no small degree, the selection of topics and their subsequent organization.

If for no other reason we hold the teacher of agriculture as a separate science one of the fundamentals, it would be that the high school students are not given a "square deal". To hold them so closely to an industrial education of a peculiar kind at this period, to give every boy and girl in the high school a bent toward agriculture would be a step as radically wrong as it is uncalled for. If agriculture is to be taught with the physical and biological sciences who can tell how much agriculture has been taught, the character of the work done, and the amount of credit due either, when a transfer is made?

Following this fundamental fact that agriculture should be taught as a separate subject, is another which is just as important. It is that there should be no one year courses in the high schools covering the whole field of agriculture. Just think of such an effort. No wonder we have teachers of but little training who feel equal to the occasion. How often have I heard the remark, "Anyone who has lived on the farm can teach agriculture." Such teachers view the whole subject as a task. We have hundreds of just such agricultural teachers in the country schools, and they have a right to feel proud of their efforts when they perhaps have covered the whole field in one year of the high school and have had their view substantiated by hearing some instructor in a county teachers' institute correlate agriculture with Geography and in five lectures (the fifth one shortened because of Friday afternoon program) preach from Genesis to Revelation. Such an effort is disgusting. The one year text books, which have flooded the country the past few years covering the whole subject, are having their day, and will die a natural death when we know more about our

condition. Such books contain a little of everything and not much of anything. If we can give but one year's time to the subject, let us have two years' work and alternate the years, Soil Fertility and Crop Production one year and Animal Studies and Feeding the other year. I care but little for the arrangement just so the work is done in units and someone can actually give the boundaries and name the product.

If it is fundamental that agriculture should be taught as a separate science in the high schools and as units of work, what shall be the units? This has been pretty well worked out in general, and the teacher is left to choose and make the arrangement and application.

The subjects to choose from are such as Soil Fertility, Soil Physics, Crop Production, Orcharding, Gardening, Principles of Selection and Breeding, Care and Feeding of Farm Animals, Types and Breeds of Domestic Animals, Poultry, Dairying, Farm Machinery, Farm Mechanics, Landscape Architecture, Farm Management, etc. Possibly but very few high schools feel at the outset that they can cover the whole range of the agriculture work, but there is nothing named in the above list that is not of vital importance to the business of farming. And we may even say that the list is incomplete when we consider the training of the boy who will be the farmer of the future.

Should I choose from the list it would be those subjects which I consider fundamental to my section. Such a choice would include Soil Fertility, Crop Production, Types and Breeds of Farm Animals, Care and Feeding of Animals, Soil Physics, Farm Mechanics, Orcharding and Farm Management.

Not even in my enthusiasm for crowding all possible subjects into the curriculum would I dare to substitute a study for Farm Mechanics and work Farm Mechanics in connection with a general course of Physics, or to cover the ground of Farm Management in connection with Soil Fertility and Animal Studies. Such an effort would be almost suicidal.

The study of Soil Fertility is fundamental to every form of successful agriculture, and here should be placed special emphasis to the end that those who till the soil may know and understand some of its physical character and to some extent its chemical composition. The students should know how and why soils differ as well as their classification and name. They should know the characteristics of these soils with the methods of handling in order to secure the best results for growing crops.

In the study of farm crops the student should know in part some of the chemical and physical requirements in relation to growth, in general the inventory of the soil, and the plant food requirements.

The accessories for these two very important subjects, Soil Fertility and Crop Production, will be the laboratory and field demonstration. In the beginning the Fertility Laboratory need not be an expensive one. If the school should have well equipped physical and biological laboratories much of the material may serve a double purpose. Such things as soil augers, soil pans, capillary tubes, specific gravity tubes, oven, etc., will have to be purchased, but for a class of ten to fourteen working in groups of two, the extra cost can be kept between $50.00 and $75.00 the first year.

The equipment for farm crops should include carefully selected and prepared specimens, especially of those crops grown in the respective communities. Specimens of weeds that are both common and troublesome should be prepared. As far as possible these specimens should show the whole plant, roots and tops, with matured blossoms or seed. Small sheaves of the different cereals and grasses may be gathered. The laboratory should be well stocked with specimens of seeds of farm crops carefully labeled. Samples of the various commercial fertilizers on the market should be kept with a statement of the chemical analysis of each. Pot culture work should have its place to show the effect of the various plant foods and combinations of such foods.

The field work is of absolute importance, so much so that it should be classed as a fundamental. It may seem hard for the average village high school to secure land for demonstration. Perhaps the ideal of the teacher may be too high for this phase of work. It is not necessary that high schools have acres for this demonstration, a city lot or a few rods in the corner of some man's field, is ample. I had much rather have a small area, each plot being only one rod square where students may do the work, than to have acres and hire all the labor.

The objection to this field work is that school will be out at the time the work grows most interesting and needs attention. This may be overcome by allowing a certain amount of vacation credit for such work. If this agricultural field work is to reach the best results some system of vacation credits must be worked out. But somewhere, some time, some township that supports an up-to-date township high school will give us an ideal solution to the problem. This township will hire its agricultural teacher for full time, and put in a four years' curriculum. This teacher will do his class work, give instructions to farmers over the township, organize his clubs, etc., during the winter, and when summer comes he will continue his work by directing the boys in the vacation credits and at the same time be the township adviser. The county adviser is all well and good and must serve the purpose until we can do better, but the solution will never come until the agricultural work has its heart in the schools and works out from these as centers, not only directing the father in his efforts, but better still his boy, the one who will be the farmer of the future.

The equipment for the work in animal studies will probably be the more difficult to provide. In the study of the large domestic animals we will have to resort to pictures, charts, etc. Animals can usually be borrowed for demonstration work, but they are not always the best type. In addition to this study of breeds, the handling and care in breeding and feeding must be taught. It will be a long time before the average high schools can afford the larger animals for this purpose. To demonstrate these principles I think that poultry is the best thing available for this work. I hope that poultry will soon become standard school equipment for this purpose. There are several reasons why we should concern ourselves with poultry. First, because practically every home, both city and country, has poultry. Pure bred poultry is growing in popularity; it appeals to both the young and the old, to people of wealth as well as those of little means. Its products are growing in demand as pure food and cost of living concern us; it need not occupy much space, it does not need much invest-

ment, does not depend on climatic conditions; it is self-supporting and may be made a source of profit if properly conducted. The same principles of breeding and feeding apply equally to horses, cattle, sheep and swine. The rapidity with which poultry multiplies and the shortness of time for development makes it especially well adapted for such courses. This work I place as a very valuable accessory to the study of Animal Husbandry.

Every farm boy should know more about the care and handling of milk and its products. The smaller high schools can do but little in this subject except along general principles, milk testing, cream separating, churning, etc. The nearer we approach the specialized forms of agriculture study the harder it will be to secure the needed equipment at moderate expense.

Time will not admit of any detailed discussion of the other possible high school studies. In conclusion, may I say, as our subject matter is being better worked out, it is getting time to marshall our forces. The Agricultural Department here at the University must ever be the source from which complete instruction and direction must come. The field is too large for one institution to cover all phases of the work in all parts of the state and do it well. The smaller colleges, the state normal schools, city and township high schools must take up the work in their respective spheres of action. The country boy in the country schools must feel the pulse and catch the inspiration of that better life which he may live from one or all of these institutions.

Biology Section

The meeting of the Biology Section of the High School Conference was held Friday, November 20, from 9 to 12 A. M., in Room 229 Natural History Building. Principal G. J. Koons, Chairman of the Section, presided.

The first business of the Section was the reading of the Report of Committee on Illustrative Materials for High School Biology Courses, presented by Professor T. W. Galloway, James Millikin University, Decatur. The report is as follows:

Your committee, appointed to make recommendations as to the illustrative materials with which high schools should be supplied in order to give in a satisfactory way the courses in Botany and Zoology, beg to make the following report:

1. We desire to express our conviction that every school should, regularly and with some system, undertake to build itself up in this regard. By following this practice thru a period of years any school may supply itself with the minimum necessities, without financial strain.

2. It is possible, for convenience, to divide the illustrative necessities into two main groups:—(a) those that must be purchased outright, and (b) those that may be made gradually by students of successive classes, if only they are supplied with the necessary raw materials. This latter group is somewhat larger than we may at first sight believe. Furthermore, whenever it is possible for

some such materials to be made by students the very making may become a means of increasing interest and of giving fuller meaning to the course.

3. We desire also to insist that most teachers do not use as fully as they should the supply of illustrative material which nature affords. The individual work in fields and forests, in swamps and in the waters, in parks and gardens, in green-houses and zoological gardens furnishes a means of illustrating courses which our formal use of the laboratory and class room cannot at all replace.

4. In detail we make the following suggestions as to what should be held in the mind of the teacher of Biology and the directors of schools as an objective:—

a. *Museums.* Small synoptic collections illustrating the main phyla and classes of animal kingdom and the main groups of plants are very valuable. These should not be large and should be built up by successive classes, teachers, and friends of the school rather than got by purchase. Money should go into the cases, containers, and preserving materials, rather than into specimens. It will be necessary to buy some specimens,—as sponges, corals, and other sea forms. Aside from such synoptic collections, built up by successive classes, two particularly interesting lines of addition are open to the museum of a high school: (1) considerable numbers of certain kinds of objects (e. g. snail shells, or leaves, or insect species) arranged, to illustrate the *range of variation,* may be mounted for display; (2) skeletons may be prepared and mounted, or other specially excellent dissections by members of a class may be preserved. Such original contributions by students may well be labeled and credited to the student preparing it. Such a museum does not need to be large to be exceedingly valuable; but it should be fairly representative and synoptic.

b. *For living materials, plant and animal.* Some green-house facilities, if only a sunny window, for winter use, and outdoor beds for spring, are desirable for first-hand supply of botanical material. A corner in the local green-house can often be rented.

There should be one aquarium of some size, if possible with running water. A number of battery jars or other glass vessels of various sizes, insect cages, life-boxes, and the like are essential. Students can make many of these boxes and cages, and even small wood aquaria with one or more glass sides. A small fund should be set apart for such purposes and be available without unnecessary delay. All these things are valuable to insure having organisms when they are needed, to allow experiments and continued observations on habits, and to allow study of development. The library should have at least one good book containing suggestions for making such apparatus and the care of living animals. We commend Ganong's "Teaching Botanist" as an aid in the organization of the museum and in other respects. If the school room is not kept heated at night these life supplies may be kept in a suitable basement room during the coldest weather.

c. *The local collection of living material.* We feel that something is lost if classes are not encouraged to collect as much of the needed local material as possible for themselves. Field work should be so organized that at least some of this shall be done. In connection with this sort of work a home-made map, drawn to suitable scale, of the locality for several miles around the school may be perfected, if the locality at all lends itself to this treatment. All important

topographic points that have to do with plant and animal life should be located. The roads, streams, springs, ponds, and other special habitats of specially interesting plants and animals should be indicated. There should also be a card catalog or indexed book in which are inserted the locality on the map where special types of plants and animals are discovered from year to year. In a few years such an arrangement will illustrate some of the local facts of geographic distribution, as well as be an aid to each incoming class in finding what it needs. It will be necessary always to purchase some materials for laboratory and museum work. We cannot publish a complete list of dealers; but the following are reliable:

A. A. Sphung, North Judson, Ind. Live or preserved frogs, crayfish, turtles, etc.

H. M. Stephens, Dickinson College, Carlisle, Pa., Zoological and Botanical materials for class use.

C. S. Brimley, Raleigh, N. C. Reptiles, Amphibians, and Fishes, living or preserved. A good reference for the winter months.

Biological Supply Co., 106 Edgerton St., Rochester, N .Y. Plant and animal materials for laboratory; slides.

Marine Biological Laboratory, Woods Hole, Mass. Preserved materials for Botany, Zoology and Embryology.

Saint Louis Biological Laboratory, St. Louis, Mo. Microscopic and Lantern Slides.

d. *Microscopes.* If microscopes are used only for demonstration purposes there should be at least two good standard instruments with powers ranging from 50-500, so that both low and medium power views can be shown at the same time. There should also be one oil-immersion objective for occasional high power demonstrations.

If microscopes are to be used as a regular part of the laboratory work, as we feel they should be, there should be *at least* enough to supply each pair of pupils in the largest section with one complete, standard instrument. We believe that no laboratory section in Biology should contain more than 24 members for one instructor. Twelve microscopes can be made to serve such a section.

There should be a simple dissecting microscope for each pupil or each pair of pupils.

e. *Microscopic slides.* These may be divided into four groups: (1) temporary slides, which teachers and pupils may make freely. The teacher should become expert in making these and enabling his pupils to do so; (2) permanent mounts of interesting objects small enough to be stained and mounted whole. There are very many such which are valuable. It should not be necessary to purchase these. The teacher should be supplied the necessary materials and learn to make, stain, and mount these; (3) temporary or permanent mounts where free-hand sections may serve all necessary ends. The teacher should be able to make, stain, and mount these; and (4) permanent mounts of materials where expensive apparatus is necessary for imbedding, sectioning, grinding, etc. These can be bought much more cheaply than made, and the apparatus necessary to make them is hardly to be sought in the ordinary high schools.

We append a suggestive list of especially valuable microscopic slides that should be purchased and used at least as demonstrations in high school courses. These should be the best of their kind,—clear, typical, and perfectly stained.

1. Cell structures, cell-arrangement, and cell-division as seen in longitudinal section of root tip of *Tradescantia or Hyacinth.*
2. Cross-section of leaf, showing structure of this basal organ of all nutrition.
3. Cross and longitudinal sections of monocotyledonous and dicotyledonous stems.
4. Cross-section of a root.
5. Cross-section of ovary of lily or other suitable plant, showing relation of the parts.
6. Longitudinal section of young flower or leaf bud showing the beginning of floral parts, or of the foliage units.
7. Section of another showing pollen-formation.
8. Longitudinal section of pollinated pistil showing pollen tubes, etc.
9. Some properly stained bacteria,—as *Spirillum, Bacterium, Baccillus,* etc.
10. Sections of hymeniun of Ascomycete and Basidiomycete.
11. Cleavage, morula, and gastrula of some form like the starfish.
12. Sections of tadpoles of 1 to 3 weeks to show how animal cells come to be related in tissues and organs, as well as the relations of the organs. Good to compare with (1).
13. Cross and longitudinal sections of *Hydra.*
14. Section thru vertebrate eye in visual axis.
15. Section of compound eye in axis of ommatidium.
16. Longitudinal and cross section of bone.
17. Longitudinal section of tooth.
18. Cross-section of stomach or intestine, showing coats, glandular-absorptive surface, etc.
19. A Golgi preparation showing ramifications of neurons.
20. Section thru skin of animal.
21. Section of injected liver.
22. Ciliated cells.
23. Cross and long (several segments) sections of earthworm.

f. *Projection apparatus.* We believe that a projecting lantern with opaque projector and a projecting microscope should in time be provided for each high school. The usefulness of such a lantern would not of course be confined to the courses in Biology. This would demand also the gradual accumulation of a limited number of well selected lantern slides and microscopic slides.

g. *Illustrative books.* So much success has attended photography, both gross and microscopic, and the reproduction of these pictures in books that every school should supply itself with some books illustrating natural history to aid in identifying the plants and animals discovered by the classes and in visualizing such as the student may not be able to find in his own locality. Under this head comes illustrated natural histories, flower-books, bird-books,

butterfly-books, the reptile book, and the like,—as well as some larger texts showing figures of dissections and microscopic structures in plants and animals.

h. *Charts.* Very effective charts for both Botany and Zoology are issued by a number of firms. These are valuable, but expensive. Each school should perhaps have a limited number of these charts illustrating certain features of life not readily illustrated in some other ways.

Of even more value, however in some respects, are home-made charts, drawn from figures and tables in books and periodicals. They may be made on paper or on paper reinforced by cloth. They may be mounted on a roller or kept flat. Ingenious devices to display them can be made by the pupils themselves. Ink may be used, put on with a brush, or colored crayons may serve. A spray of shellac, from an atomizer after the crayon marks are made, will keep the crayon from spreading. There is almost no limit to the number of charts,—of lines or simple shaded surfaces,—which classes and teachers may make by copying figures from books, nor to the help they render in making structures clear. The selection and making of such charts with their lettering and interpretation is very valuable work for the pupils. The school should furnish the materials for making these charts.

i. *Blackboard drawings as illustrative material.* The committee desires to emphasize the importance of the ability of the teacher to make simple free-hand diagrams before the class. Every teacher should give time to cultivate this power to his full capacity, and to use whatever drawing ability the members of the class may have. These diagrams should not be made too complex. They are valuable because of their simplicity and the consequent emphasis on essentials, and on the fact that they grow under the eyes of the pupil.

T. W. Galloway,
Clarence Bonnell,
E. N. Trauseau,
Committee.

The report presented by Professor Galloway was formally accepted by unanimous vote of those present.

The Report of the Representative to the Committee on General Science Course was next read by Professor J. L. Pricer, Normal University, Normal. During the discussion of Professor Pricer's report several teachers gave accounts of experiments in the line of courses in General Science. Miss McAuley of St. Charles, and Miss Weckel of Oak Park, gave especially concrete information regarding the scope and results of General Science courses given by them. They and several others expressed opinions favoring courses in General Science as legitimate additions to the present curriculum of secondary schools. Others raised questions as to the nature and content of such courses, and what their relation should be to specialized science courses already given. No consensus of opinion was ex-

pressed, and further discussion of the subject was deferred until the afternoon meeting.

Several matters of business were next disposed of. Mr. W. W. Whitney was renominated as a member of the Executive Committee of the Biology Section, and unanimously elected.

The Botany Syllabus presented to the Section at the meeting in 1913 was declared accepted by the Chairman.

The meeting closed with a talk on Photographing Wild Flowers by Mr. Warralo W. Whitney of the Hyde Park High School, Chicago. His paper follows:

Photographing Wild Flowers

(Illustrated with Stereopticon Views.)

The Camera.

A large camera with a long focus lens and perhaps a telephoto attachment has usually been considered necessary for photographing natural objects such as birds and flowers. Such an outfit is heavy and cumbersome to carry on long trips, and but few pictures can be taken because of the large amount of time required to set up and properly focus such a camera. Only an enthusiast with an unusual amount of time will have the patience required.

I have found that an ordinary roll film kodak will do excellent work in wild flower picture taking. I have used for practically all my pictures an Eastman 3A Kodak—equipped with a Zeiss-Tessar anastigmat lens and a Compound Shutter. In addition to this I use an Eastman portrait lens for increasing the magnification and a 6-foot ruler for measuring the distances carefully. This outfit is light and requires comparatively little time for taking the picture. One can take it along for a few pictures when it would be impossible to take the heavier outfit. The pictures will answer every purpose for enlargement or for lantern slide making. It will not give quite as much magnification as the long focus camera, but most pictures should include some of the habitat and this small camera will do just as well as the larger one.

I intend to go one step farther as soon as finances will permit and invest in a still smaller camera. It has been found that the very small cameras will give the same detail and depth with a larger stop than the larger cameras. This means a shorter exposure—a very important feature, as will be explained later. Lantern slides can be made from the small pictures by contact, a distinct advantage now with the daylight printing lantern plates. The equipment recommended would take a picture 1⅝ by 2½ in. or 2¼ by 3¼ in. with, in either case, an anastigmat lens of good make and 3-inch focus, compound shutter, film pack and plates, and extension bellows. Such an outfit can be carried in the coat pocket and will take as fine pictures as any camera can take. The tripod may also be correspondingly light. With such an outfit one will make dozens or even hundreds of exposures under circumstances which would prohibit the

use of the large camera. With most of us teachers the smaller expense for supplies required for the small camera is an important item.

Taking the picture.

In taking pictures of wild flowers depth and detail are absolutely necessary. This requires the use of small stops. I generally use F32. Snap shot pictures with large stops do not give sufficient depth and can not be used. The use of the small stop necessitates the use of a tripod and "time" varying from 1-5 second to 15 minutes, according to the character of the light.

People not familiar with wild flower photography may think the flowers stationary and easy to take, but this is far from the truth. It must remembered that only one end of a wild flower is stationary. The air is in constant motion and the aerial portion of a plant is likewise constantly swayed by the moving air. The taller and more wand-like the plant the greater the movement. You will not be prepared to appreciate the difficulty of taking time pictures of plants in constant motion. Fortunately the air moves in waves or gusts with more or less slight lulls between. These lulls are usually sufficient if correctly gauged, except on windy days or with very wand-like plants. A screen on the windward side of the plant is very helpful if the light is from the right direction. Spring flowers, on account of their size and the leafless condition of the surrounding vegetation, are far easier subjects than the summer and fall flowers. Pictures of plants in the shade except of very small plants are extremely difficult on account of the greater time required.

Another difficulty lies in the color of the flowers. Reds and yellows do not take well without the use of a color filter. But the filter requires greatly increased time—so much so that this method is often impracticable. So far as my experience has gone one must be content with inferior pictures from yellows and reds except when they are light in tone or the plants are very small.

The pose of the plants is important. A suitable background adds much to the effectiveness of the picture. A tree trunk is usually good. The plant should be isolated from other plants so far as practicable so that it will stand out in the foreground of the picture, but of course this may be overdone and the natural environment which gives charm and setting to the picture lost. It is usually best to take several views of the same species of plant showing its varying characteristics in differing environments and at close and distant range. The student viewing the pictures shown by the lantern will in this way gain a much clearer appreciation of the plant.

Wild flower picture-taking is an occupation that takes one out into the open. It gives an excuse for, and makes a pleasure of the long walks in the country. It opens one's eyes to possibilities of beauties in plants never before noticed. There is sufficient difficulty in the work to give it zest, and the resulting pictures are certainly more entertaining and illuminating than dried herbarium specimens. But if the wild flower photographer is a teacher of botany he will be sufficiently rewarded by the enthusiasm aroused in his classes for the wild flowers. It makes a good preliminary for excursions by giving the pupils a better appreciation of the varying habitats and appearance of the plants

the teacher expects them to see. Every teacher should have some hobby. For botany teachers in high schools photography is certainly an ideal one.

Mr. Whitney's talk was illustrated by a series of stereopticon views made from photographs taken by him. All the slides were very beautiful as well as instructive, and were greatly appreciated by all, especially by those who are seeking new and live methods of making Botany real to high school students.

The meeting adjourned to the Joint Session of the Science Sections, Friday afternoon.

LESTER S. PARKER,
Secretary.

CLASSICS SECTION

The Classics Section of the High School Conference met in room 202, Lincoln Hall and was called to order by the chairman of the Session, Professor H. J. Barton.

There was a large attendance of representative teachers of the classics. The chairman briefly referred to the reexamination of educational values in the high school course and urged that classical teachers keep abreast of and participate in all discussion bearing on any readjustment that may be necessary.

Professor H. V. Canter, whose term of office as a member of the executive committee of the section has expired, was succeeded in office by Principal E. S. Lake of Benton, Illinois. The executive committee then organized as follows: Chairman, Mary E. English, Decatur, Ills.; Secretary, Harriet L. Bouldin, Springfield, Ills.

The Section had in the past, through committees, reported on the work of the first and second year in Latin in the high school. This year a committee on the work of the third year presented its report by its chairman, Laura E. Woodruff, Oak Park, Ills.

Miss Woodruff spoke as follows:

REPORT ON THIRD YEAR LATIN

UNIVERSTY OF ILLINOIS, NOVEMBER 20, 1914

The committee appointed to consider the work of the third year of high school Latin submits its report under the following three divisions:

I. Literature to be read and method of procedure.

II. Grammar and composition work to be done and manner of presentation.

III. Supplementary work in history, institutions, private life, geography, etc.

1. For several years there has been a demand among teachers of Latin for greater latitude in the choice of the literature to be read and, as you know, several committees have sought in vain to find some practical solution of the difficulty. The subject is now being considered by the Committee on Ancient Languages, appointed in 1912 under the direction of the National Education Association, and if we may judge from the preliminary report of this Committee, some radical changes are about to be suggested. Meanwhile it may be helpful to recall what has already been done in connection with third year work and to mention some of the plans that are now being attempted.

In 1909 the Commission on College Entrance Requirements in Latin issued a report suggesting that the amount of reading required of candidates for admission to college should not be less than Cicero's four orations against Catiline, the oration for the Manilian Law, and the oration for Archias, and that selections equal to that amount of text be made from Cicero's orations, letters, and *De Senectute,* and from Sallust's *Catiline* and *Jugurthine War.* It prescribed for examination only the orations for the Manilian Law and for Archias.

Less freedom in the choice of selections was offered by the "Syllabus for Secondary Schools" for 1910, issued by the New York State Education Department. Here we find that the required list included not only the orations for the Manilian Law and for Archias but also the first and third orations against Catiline. The remaining selections were to be chosen by the teacher from the same works stipulated by the Commission of 1909. They were to be used for sight reading and were to be equivalent in amount to the second and fourth orations against Catiline.

You all know that Professor D'Ooge of the Michigan State Normal College, discussing this question in the October number of the Classical Journal, says "Cicero is so versatile and fascinating a writer that there is no difficulty in planning an attractive course for the third year from his writings alone. He favors reading selections from Sallust's *Catiline,* but thinks Cicero's letters somewhat difficult because they involve a greater knowledge of political and social conditions at Rome than a high school pupil possesses. He feels that greater profit can be obtained from reading more orations, especially the *Marcellus,* the *Roscius,* the *Ligarius,* and the *King Deiotarus,* as well as parts of the *De Senectute* and the *De Amicitia.*

Some of our high schools, taking the initiative in this question of authors and works, have on their own authority introduced new selections into their Latin course. Thus in one school only four orations of Cicero are read, and for the other two, the book of John, some letters of Pliny the Yunger, and a few miscellaneous selections are substituted. In another school Terence's *Phormio* has been read by the pupils toward the close of the third year. In this case the classes have read the orations for the Manilian Law and for Archias, and also *Catiline* I and III intensively and have merely outlined *Catiline* II and IV. In another instance selections from Ovid have been used in place of one or two of the Catilinarian orations.

In regard to the method of procedure, the vital question seems to be, how to conduct the work in such a way as to secure the greatest possible degree of effi-

ciency on the part of the pupil that will render him more capable of meeting and solving the problems not only of the Latin world, but also of the larger world in which his lot is later to be cast and that will at the same time make him better fitted to enrich his own life by his understanding and appreciation of the life of the past. Fortunately the test of the pupil's power is taking more and more the form that will help to encourage an effort to grow both in knowledge of the subject and in ability to do independent thinking, for there is an ever increasing tendency to make sight work the basis of all examinations. It is clear, then, that we should employ the method that will be most helpful in promoting the power to meet such tests and in seeking to do this, we find that the same instrument used for the final proof of efficiency is also a most useful tool in developing that efficiency. By working out an unfamiliar passage with a class, much can be done to show the pupils how to attack a new section and how to economize time in the preparation of an advance lesson. If they can be taught to work their way entirely through a sentence without turning to the vocabulary at the sight of each apparently unfamiliar word, if they can be trained to see word groups and to look for the relation of a word to its surroundings, they will acquire a distinct gain in power of observation and concentration. If they can be taught to seek the connection a sentence has with the thought that has preceded, they will not only come to realize that the Latin text is something more than an accumulation of words but they will also help to develop within themselves the power of clear thinking.

In addition to this, if we see that the pupils learn the meaning of certain idiomatic phrases and become acquainted with their English equivalents, if we try to strengthen their appreciation of the various shades of meaning that a word may assume in its different relations and to increase their ability to see in a word its English cognate, we shall do much toward facilitating the work of translation.

In connection with this, it is essential to emphasize whatever is of human interest, to study the characters presented and to think of modern parallels, to investigate the political institutions and conditions involved and to call to mind like instances in our own time, to analyze the ancient orator's method of influencing his audience and to compare that employed by later speakers, to arouse as far as possible an appreciation of Cicerco's style and his wonderful power of expression and to consider his literary skill side by side with that shown by writers of succeeding generations, in short to make the work so much alive that the class will realize that it is studying not alone the past but the present as well.

The question of finding time in which to accomplish all that we wish to do is a very difficult one and we see only one remedy, namely, to lessen the amount of intensive reading required. If the third year work covered an equivalent of five of Cicero's orations rather than six, we should be able to secure more accurate results than we are at present able to attain and our pupils would have a clearer understanding of what they have read and a deeper conception of its meaning. In order to encourage more exact thinking and to offer an opportunity for more minute study of the Latin language and the life of the people who used it, some teachers have already adopted

the expedient of leaving certain passages, after they have been read at sight or translated by some member of the class to whom they were assigned as an individual task, and not returning to them for intensive work.

II. The study of Latin grammar and the writing of prose have ever presented two of the most perplexing problems in our Latin course. The amount of work to be done, the manner of dealing with the same, and the time to be assigned to it have raised questions that probably none of us feel have yet been satisfactorily settled. But upon this one point we think all will agree, the ordinary high school pupil is too young and his knowledge of Latin is too limited to make it possible for him to have a real feeling for the Latin language and a keen appreciation of literary values such as would render his study of grammar and his writing of prose a source of pure joy to him. Some background is necessary to make him see their importance, to make him understand the connection between them and the other Latin work he is doing. For that reason the study of constructions and of prose composition in the second and third year of the high school Latin course should be so closely associated with the work of translation and the memorizing of vocabulary that it will not be an added extraneous burden but a help to a better understanding of the other elements. To that end it is an advantage for the prose composition to follow the text a class is translating. Then new or difficult grammatical principles needed for a particular prose lesson may be explained before that lesson is assigned and new or unusual words may be learned in the connection in which the Latin writers used them, and when the pupil attempts to translate his English sentences into Latin, he will not go blindly to the task, but will have the Latin text to guide him. Moreover, he will have a clearer conception of the meaning of that Latin text because of his efforts to use its principles of syntax in expressing the thoughts set forth in the words of his own language.

The grammatical constructions to be studied during the year, both in connection with the translation of the Latin and the writing of prose, should follow some well-ordered scheme, arranged before the opening of school and including at least the ordinary constructions that should be mastered during the third year. Some such outline as that presented last spring at the University of Chicago by a committee appointed in 1912 to set forth the minimum amount of form and syntax work that should be required in high school Latin might be used as a basis upon which to build.*

It is not always safe to assume that constructions are understood because the translation is approximately correct and, although there are many of the commoner forms of syntax that need not be emphasized unless ignorance of them is displayed by some error in the English rendition of the text, yet some systematic work in this line is helpful to a clearer understanding of the real meaning of the Latin as well as necessary for an intelligent use of the language in writing prose. Such constructions as are characteristic of the Latin author

---

* A copy of the syntax outline recommended by this committee for the second and third years of high school Latin is given at the close of this report.

whose works are being read or such as were less frequently found in the selections read during the second year may be especially noted.

If a prose book is used, the teacher should look far enough ahead to prepare the class for the coming lessons, if possible through the grammar and the vocabulary of the Latin text. If the teacher writes his own sentences, he should follow the definite outline he has laid out for the work of the year.

When the prose work is to be done must depend upon the judgment of the teacher. Some think they have most success with one prose lesson each week, some choose to devote two consecutive days every other week to this part of the work, and some prefer to stop the translation of the Latin selections for five days every six weeks and give these five days to Latin writing. Occasionally a teacher may wish to vary the usual plan, but in all cases there is need of a clearly defined system, if reliable results are to be attained.

In the manner of conducting the composition lesson different methods are employed. A certain number of sentences assigned for preparation usually form the foundation of the lesson. During the class hour some teachers have these written on the board with or without reference to the prepared papers and then ask that they be criticised and discussed. Some teachers have the sentences written on slips of paper without reference to the prepared work and after these papers are collected, they have the sentences written on the board and all questions concerning them answered. Then the papers are returned for correction. Later the teacher underscores the mistakes still remaining and the following day the papers are again returned for a complete elimination of errors. The teacher employing this method says that it requires much time but insures accuracy.

Another method that has met with some success is to present to the class at the beginning of the recitation period sentences similar to those previously assigned but with changed moods and tenses and with changed case relations, and from these to lead up to the prepared work, which may then be corrected.

During the last ten minutes of the recitation period, four or five short sentences, similar to those already given but so altered that the pupil must think out the changed conditions, may be given as a basis for grading the work of the day. These sight sentences stimulate thought and arouse a live interest by giving the pupil a feeling that he is really accomplishing something. Moreover they furnish both pupil and teacher an opportunity to see whether the principles of the lesson are clearly understood or not.

III. In regard to the supplementary work, the committee feels that it is not primarily a pleasant diversion, though even when considered in that light it is not without value, but that it is a real necessity for the pupil's intelligent interpretation of what he is reading. Some knowledge of Roman history both contemporaneous with the authors read and prior to them, some understanding of Roman political institutions and religious belief, some acquaintance with Roman private life, some familiarity with the careers of Rome's citizens, some appreciation of her ideals and aspirations help the pupil to know what his Latin means, to see the connection between the past and the present, and to realize that the fundamental elements of human nature were no different in the time of the Romans than they are with us.

The advantage of knowing the geography of the scenes described is self-evident. Maps, lantern-slide pictures, photographs, informal talks, and lectures add a vividness and charm and furnish a basis of understanding that can be gained by no other means.

All this supplementary work may be pursued in different ways, sometimes by investigations conducted by the entire class, sometimes by assignments made to individual pupils, again it may be given in an informal talk by the teacher, and occasionally in a more formal way by some friend of the classics whom we are fortunate enough to have in our midst. But in general the more actively each member of the class is involved in the situation, the keener his interest in it will be, the clearer his understanding, and the more lasting his remembrance. Thus an organization of the Roman State formed by the pupils in a manner similar to that employed in the high school at East Rochester, New York, even though on a less pretentious scale, would call forth a more vital conception of the meaning of Roman methods of government than any number of reports could do. Likewise an actual presentation of the scene in which Cicero describes the conviction of the conspirators and of the meeting of the senate when its members assembled to decide the fate of the prisoners, gives a vivid touch to the picture that the translation alone cannot convey.

Aside from the regular class work, some schools have organized a Latin club whose aim is to increase the profit and pleasure of the study of Latin by giving programs, presenting tableaux, and offering an occasional play relative to classical topics. Sometimes a Latin paper is published or a Roman calendar is made. Various devices of this nature have been suggested and several have been tried with success.

Respectfully submitted,

Laura B. Woodruff,
Oak Park and River Forest Township High School,
Oak Park, Illinois.
Emily B. Mack,
Joliet Township High School, Joliet, Illinois.
Grace M. Warner,
Moline High School, Moline, Illinois.

There was an extended discussion of this report.

The second paper of the Session was presented by Miss Sarah E. Sheehan of Springfield, Ill., on

Views of High School Graduates Regarding the Value of Their Training in Latin

Miss Sheehan spoke as follows:

Doubtless we have all seen or heard of Miss Sabin's charts for showing the practical value of the study of Latin. We acknowledge that they are most excellent in accomplishing their purpose. But they do so in a general way.

The committee in assigning to me the theme for this paper desired to get from students of Latin, themselves, their own opinions as to the practical value of Latin, in other words, how it has helped them in any one or more ways.

A questionaire was made consisting of eleven general and several subordinate questions. These were sent to the Latin teachers of several High Schools of the state. They in turn gave them out to the graduate students, who had studied Latin for three or more years in their High School course.

The High Schools chosen were representative schools of the manufacturing, agricultural, and mining districts of the state. Answers were received from the following schools: Oak Park, Rock Island, Moline, East Aurora, Jacksonville, Quincy, Lincoln, Galesburg, Sorento, Wheaton, Carthage, Chicago Heights, and Springfield.

Sixty answers were returned, about evenly divided between the young men and the young women; and I shall give them to you this morning.

First let me state the questions:

1. From what High School did you graduate?
2. How many years of Latin did you have?
3. What business have you been engaged in since graduation?
4. Has your High School Latin helped you? (1) In getting at the meaning of English words? (2) In your spelling?
5. Has it made you more observant, more accurate in attention to details?
6. Has it developed a taste for good literature?
7. What college have you attended since graduation?
8. Have you taken any College Latin? If so, How much?
9. What special course are you taking? What profession do you expect to follow?
10. Has your Latin helped you in any of the following subjects? If so. in what way? (a) Literature, (b) Rhetoric and Composition, (c) History, (d) Modern languages,—German, French, Italian, Spanish, (e) Science—Chemistry, Botany, Zoology, Physics, (f) Law, (g) Medicine, (h) Dentistry, (i) Pharmacy, (j) Engineering, (k) Commercial Course.
11. If you had it to do over, would you include Latin in your High School course?

In general the answers returned were quite uniform, but it is interesting to notice how much more definite and particular some were than others.

I have already stated the answers to the first question, when I mentioned the schools represented.

Question 2:—"How many years of High School Latin did you have?" Forty-eight of those who answered this question stated that they had taken four years; three, three and a half years; three, three years; and two, two years. From this we see that about eighty-two per cent completed the four years' course in the subject.

Question 3:—"What business have you been engaged in since graduation?" was answered as follows:—twenty-seven continued their schooling at the different universities, colleges, and Normals. Eleven were engaged in teaching. (This includes one who is teaching Music). Four were doing Stenographic

and Office work; one newspaper reporting, one practicing Pharmacy, one Law, one in a retail business, one in Architectural Designing. Then there were twelve who left the question unanswered.

Question 4:—"Has your High School Latin helped you? (a) In getting at the meaning of English words? (b) In your spelling?

All the answers to the first were to the same purport. "Yes!" "Yes, indeed!" and "Very much!"—followed by two exclamation points even. Of the sixty answers to the second part, all but eight were in the affirmative. The eight in favor of the negative very modestly added that spelling had always come naturally to them. Apropos of this, I heard a young lady say once, that the only way she could remember how to spell "auxiliary" and know whether to put the second "i" in or not, was to think of the Latin word "auxilium."

The answers to the fifth question—"Has it made you more observant and accurate in attention to details?" were very uniform. I wish to quote from some of them that are especially interesting. One young lady, who is at present attending the University of Chicago, says,—"The close study necessary to the mere mechanical translations of Latin has developed in me a habit of accuracy and close observation."

Another says:—"Yes, especially in the sense that a knowledge of Latin roots has helped to make me more discriminating in my choice of words." And again,—"It has made me more careful and accurate in my other work and more methodical."

A young lady who has been engaged in stenographic work since her graduation from High School answers this question more fully:—"Since graduation, which was almost three years ago, I have held a stenographic position, where it has been necessary for me to compose my own letters in some instances and dictate letters on all subjects which would be apt to come up in any business office and enterprise. I have found in ordinary instances that a knowledge of Latin terms has been of great help to me. The increased vocabulary which I acquired from the Latin has been of great value to me in my work and has enabled me to compose letters with more ease and with better results. Many people seem to think that because Latin is a "dead" language it is not practical to spend time in translating the old Roman and Greek legends and the stories of the gods and goddesses. But I find a great deal of pleasure in being familiar with those legends, and especially so because there is hardly a book or magazine or editorial in which there is not some reference to these Latin stories. It is true also in many sermons and lectures. For my part, the satisfaction and pleasure derived from listening to such a sermon or lecture comes from my understanding of the things to which they refer. My study of Latin has been not only a decided aid in my business career but a source of constant pleasure and enjoyment in my social life."

Question 6.—"Has it developed a taste for good literature?" Forty-eight answered this in the affirmative and seven in the negative. One said that he did not know and four left the question unanswered. Some of the answers that were given more fully were: "It certainly has helped toward a fuller

appreciation of good literature, especially poetry." And another:—"It has certainly developed my appreciation for higher and better things in every way."

The next three questions ask: "What college have you attended since graduation?" "Have you taken any Latin?" "If so, how much?" Fifty-five have attended some university, college, Normal School, or Business College, and two were intending to enter College this Fall.

Twenty-nine Universities, Colleges and Normals were represented, comprising all the leading colleges for both men and women.

Of the fifty-five who continued their studies in College, twenty-nine elected Latin, one had five years of it; five had four years; three, three years; six had two years; and fourteen had one year.

Question 9 asks:—"What special course are you taking?" Answers to this included, Literary, Law, Domestic Science, Agricultural Engineering, General Science, Pharmacy, Dentistry, Medicine, Economics, Business, Music, Journalism and Geological. The second part of question 9: "What profession do you expect to follow?" gave answers in this proportion: Twenty-five expected to enter the teaching profession. However, only two said that they expected to teach Latin. (I do not doubt that it was an oversight on the part of the others.) Eight were to practice Law; two Medicine, and one each of the following:—Astronomical work, Architectural Engineering, Pharmacy, Research work and Investigation, Telephone business, Secretarial and Office work, and Economic Geology.

Question 10:—"Has Latin helped you in any of the following subjects, and if so, state in what way?"

First, *"In Literature?"* Again the answers were uniform. Some quoted are as follows: "By having become acquainted with the ethics, philosophy, culture and art of the old Romans, I have gained an invaluable back-ground for the study of English Literature and a finely tempered taste for its appreciation." Another says:—"First-hand knowledge of mythology is essential to a full appreciation of Literature."

"It develops a deeper critical sense and a demand for the best in Literature." And still one more—

"Latin has helped me in my study of literature, in that it has made me more familiar with the many and frequent allusions to the Classics. It has given meaning to many long difficult words. It has been especially helpful in the analyzation of poetry."

In Rhetoric and Composition. Uniformity once more.

"In Composition and Rhetoric, Latin has helped me in that it has given me a more perfect understanding of English Grammar. It has increased my vocabulary and has given me a sense of rythm and shades of meanings that I would not have had otherwise."

"Latin as a supplement to English Composition seems to me to be worth four years in High School. Further than that I am not prepared to say but I think for the majority of people that *that* would be enough." The young man who is to follow Journalism, says, that the fine distinctions in meanings essential to newspaper work are to be found almost exclusively in the Latin.

"Does Latin help in the study of History?"

Forty-six affirmative answers were received. Two negative answers, and twelve did not answer at all.

One young lady says, "Historical people seem more real in their own compositions."

Another says, "Tacitus, Pliny and Livy have all been great direct helps in my gaining a more intimate knowledge of Roman history and life."

"Latin lends interest to characters and color to situations in History."

"It has made History more interesting and has helped wonderfully in the pronunciation of names."

"It especially helps in the study of Roman History by giving a deeper insight into the character, feelings, motives, and ideals of the Roman people."

And this last:—"In this it has helped me in proportion as history has been treated by the authors I have studied."

Forty-seven answered "Yes" to the question, "Has Latin been a help in the study of Modern Languages?"

One underlined both German and French and said that Latin made both grammar and vocabulary very easy, especially in the French.

This is a short but excellent answer—"Gives facility in methods of study."

"Latin helps in the knowledge of roots of words, and grammar and sentence structure in French and German."

"Latin helps in giving a general method of attacking a foreign language." Another says that she is just beginning Spanish, but can translate quite well in it already, because of her knowledge of Latin.

"It has given me in a general way a grammatical skeleton for all other languages."

And "The study of as highly inflected a language as Latin made it much easier for me to grasp the mere mechanical elements of German."

"Has Latin helped in Science, Chemistry, Botany, Zoology, Physics?" Eighteen gave no answers to this question. The other answers were similar in thought but rather different in wording.

One was very brief but to the point.—"Yes—Terminology."

"In my study of these four sciences, Latin has been especially valuable in helping me understand and learn scientific terms and nomenclature."

"Yes, because these subjects use Latin word forms exclusively."

"In the sciences a knowledge of Latin was invaluable as so many scientific names and terms are of Latin origin."

I quote this statement from a Pharmacist: "Latin is the ideal language of science. It defines and restricts. Its advantages are almost too numerous to mention." He also says that it helps much in all the sciences pertaining to Pharmacy, in prescription writing and reading; and that it lessens the liability to grave mistakes.

We all know the value of Latin in the study of Law. Four "young lawyers" agree in their answers which say that in understanding legal phraseology, Latin is of great help.

The same answers were sent in for the value of Latin in the study of Medicine and Dentistry.

The one Architectural Engineer says that the mental training obtained by the study of Latin is splendid training for an engineering student. One answer was received for the value to the commercial course and business. "Latin develops training in accuracy as no other subject with the possible exception of Mathematics, can possibly do."

The last question presents some interesting answers.

"If you had it to do over again, would you include Latin in your High School course?"

Again we find emphatic and uniform statements. Those who had four years say:

"Yes, indeed I feel there is nothing like Latin to develop concentration and self-discipline, both essential to the young student."

The young Pharmacist says: "Yes, most emphatically yes! And I should make sure that I had more Latin than formerly. (He had only three years.) I value the knowledge and training in accuracy, reasoning, judgment, as well as the liberal vocabulary in English and the inestimable worth to the practice of my profession more than any subject that I have studied."

One answer is slightly amusing. As it comes from a graduate of my chool, I do not hesitate to give it. He says, "I think I should take Latin; but I should go no further with it. My objection to Latin is the same as to the Modern Languages—to-wit: that too much is mapped out for the student to cover and thoroughness is sacrificed. There seems to be a desire to cover space and not to improve the lesson. This is not confined to High Schools, alone."

Shall we carry this message to the Board of College Entrance Requirements?

In 1911, the Latin Department of my High School edited one issue of the Bulletin, our High School paper. We had among other things articles from prominent men of different professions showing the value of Latin, and also articles from pupils of the school who were taking Latin at that time.

I should like to quote from some of the articles written by the pupils.

"I find that Latin has trained my memory and my reasoning powers. The translation of a Latin sentence requires constant reasoning to discover the more important words, their relation to each other, and the most appropriate meanings for the words."

Another—"Latin has broadened my conception of things more than anything I have ever studied."

One young girl wrote—"One day last week I had an English test, one question consisting of twenty words which were to be defined. Out of the list there were five that I did not know. But I was able to give the meaning of four of those five, because I recognized Latin words in them."

Again—"Latin has been of untold value to me in the study of English words and their derivatives. I am often confronted with a Latin sentence or quotation; and there the meaning would be lost, but for my knowledge of Latin. The greatest value, though, comes indirectly. It is the power to think and to reason in a logical manner; the habit of consciousness which it gives; the ability to grasp a situation readily, to take in its details and yet see it as a whole."

I shall quote only two more—one written by a student in the University of Chicago and since then, becoming an instructor in the same institution.

"My faith in the value of the knowledge of classical languages has induced me not only to continue the study of Latin in the University, but to learn Greek as well. They form a foundation, which renders foreign modern languages comparatively easy and which makes our own vastly more intelligible.

"One must know something of these languages to do satisfactory philological work in English, which we cannot avoid meeting to some extent. In an introductory Shakespeare course here, in which the Elizabethan vocabulary is carefully studied, both proved very helpful. It is, moreover, a source of pleasure to be able to recognize the many tersely apt Latin and Greek quotations scattered through English Literature. French after Latin, is exceedingly easy. A friend of mine here finds French and Italian very difficult because she lacks Latin. In the Science course Latin is of great help because so many scientific names are Latin. The first question asked in an advanced Zoology course was, 'Are you a classical student?' It makes clearer any branch of study, and aside from this, the pleasure of reading the greatest Latin and Greek literature, Horace, Livy, Virgil and the Iliad is immediate compensation for the energy expended."

The last quotation which I shall give is from a letter written for the same issue of the paper by a young man who was well along toward thirty years of age. He was taking, as a special student, the first two years of Latin to help him in his law studies. He wrote as follows: "The failure upon my part to include the study of Latin in the curriculum of my school days was a mistake which has often seriously handicapped me. I formed the opinion, prematurely, that the study of this language was not only non-essential to my future success, but that it was as well, burdensome to me as a student, and had no beneficial results. Subsequently I have realized such opinions to have been abstract vagaries. I have been studying Latin since last September. The close application to and concentration of thought upon this study has developed mental alertness. It has animated my reasoning faculties from an apparently latent state, turned my literary inclinations from modern fiction of the trashy sort to those, heretofore by me unfathomable treatises, written by men of deepest philosophy, whose virility gives strength and endurance to the mind, and it has created productive ideas along practical lines."

From what I have tried to give, we can see what a few people think of their knowledge of Latin. Perhaps the unfortunates who have not been able, as yet, to realize the value it has had for them, in time to come, will be like the young lad in a Latin class of one of our large High Schools. He said to his teacher one day, "I didn't use to think Latin amounted to much, but I've changed."

After discussion, the third paper of the Session was presented by Professor H. V. Canter of the University on "High School Equipment and Publications Helpful to Teachers of Latin and Ancient History."

Professor Canter spoke as follows:

During the winter of 1913-14 it was my privilege to observe the work being done in some thirty representative High Schools in Illinois. In addition to other interests connected with my visits I was particularly anxious, as a teacher of the classics, to observe what teachers of Latin and Ancient History were doing, how they were teaching, how their school rooms and libraries were equipped for successful handling of their subjects, what books and periodicals the teachers themselves were reading, and what degree of success was attending their efforts, not only in teaching the fundamental facts of language and history, but in directing pupils to the civilizations of Greece and Rome, as to a never-failing source of inspiration for things cultural. I cannot today speak of the teachers, or of their success in leading in the vanguard of those who would pursue humane learning, and cultivate a sense for the ideal in literature and art. In the short time at my disposal I wish to emphasize the fact that in many schools a need of certain equipment necessarily limits the teacher's efficiency. For this condition in some cases the school management is responsible, while in others the teachers have nobody to censure but themselves.

First will be noticed some illustrative material for the teaching of Latin and Ancient History. Every school has its own problems, and in most of them only a limited amount of money is available for the purposes here indicated. The fact remains, however, that there are few schools which cannot, and will not, provide necessary equipment for any efficient, wide-awake teacher who will adequately present the need. With but few exceptions Superintendents and Principals are anxious that their schools should be well equipped. But they naturally depend upon their teachers to take the lead, and in the absence of suggestions from this source are frequently not aware that their schools are below standard. Teachers of Latin in Illinois as elsewhere have been too slow to press upon school authorities their need of classroom equipment, and consequently it has received little attention. It is just as important that such teachers should have modern equipment for their work as it is for the teachers of science or of any other subject in the course of study. In the hope that it may be of service to Illinois teachers, lists (by no means exhaustive) of illustrative material, books and publications are given below. It is suggested that a memorandum be made of what is most needed, and that this be presented to the consideration of the school authorities promptly. If it is not possible to secure everything in a single year, keep the matter before the board until all that is needed is bought, making such additions as a reading of the classical magazines will suggest from time to time.

In the second place attention will be directed to certain publications, and a few handbooks, of which no really alert or ambitious teacher of the classics can afford to deprive himself. Because of the direct stimulus toward growth in special and general scholarship, a good part of the publications and books suggested under this head ought, if at all possible, to find a place in the teacher's own private collection of books. But in any event they should be in the school library, and pupils should be referred to them and taught how to use them expeditiously and profitably.

Maps

Maps, a practical necessity and of the utmost importance for effective teaching in Latin and Ancient History, are wanting in the larger number of schools. No teacher who is without good maps, conveniently mounted, can appreciate how constantly such an aid may be made to serve the interest and understanding of his pupils. In purchasing it will be economy to secure the best. Recommended are: Kepert's maps, published by Reimer of Berlin, and to be obtained through G. E. Stechert & Co., 151-155 West 25th St., New York, Goder-Heimann Co., Chicago, or Rand, McNally & Co., Chicago. Any or all of the following will be found of great assistance: Lands Encircling the Mediterranean; Ancient Latinum and Bordering Lands; Ancient Italy; Gaul, Cisalpine and Transalpine, with parts of Britain and Germany; Roman Empire; Ancient Greece; Asia Minor.

Another excellent classical wall map series, and at about the same price, is that of Kampen. The following are obtainable: Graecia; Italia; Gallia; Imperium Romanum. Order through Goder-Heimann Co., Chicago. From the same firm may also be obtained Johnston's classical wall maps, a cheaper publication and one extensively used. They are six in number and may be purchased singly or in sets complete; Orbis Veteribus Notus; Orbis Romanus; Asia Minor Antiqua; Gallia Cisalpina et Transalpina; Italia Antiqua; Graecie Antiqua.

Photographic Reprints

There is no more effective way to arouse and to foster an interest in the classics than to exhibit in the school room photographic representations of classical objects, architecture, and sculpture, or of objects and places notable for historic, literary, or artistic association. The High Schools have scarcely made a beginning with such material, which is relatively inexpensive (ranging in price from one cent to two dollars each print) and easily obtained. Order from: Perry Picture Co., Malden, Mass.; Bureau of University Travel, Boston, Mass.; Berlin Photo Co., 305 Madison Ave., New York City; Elson Art Publishing Co., Belmont, Mass.; National Art Supply Co., Chicago; Goder-Hiemann Co., Chicago; Cosmos Pictures Co., New York. A very attractive series of classical pictures is to be found in Gurlitt's Illustration of Caesar's Bellum Gallicum (Goder-Heimann Co.), with the following contents: Castra Romana; Alesia; Caesar and Ariovistus; Vercingetorix and his Staff; Caesar landed in Britannia; Caesar storms Avaricum. For large photoprints of ancient works of art and architecture, which are of high pedagogical value in the class-room, and also from appropriate wall decoration, the following are very desirable: the Moffit Prints (National Art Supply Co.) and the Seeman publications (Goder-Heimann Co.). Dunton & Gardner, Boston, will furnish these larger photographs in prints remarkably fine, but also rather expensive. The Soule Art Pub. Co., Boston, make bromide enlargements which are beautiful, accurate, and inexpensive. For ordinary class-room use pictures of the size 8x10 inches will be found satisfactory. Photographs of this size of practically every great monument or site in Italy, Greece, or elsewhere may be had from Sommer, or Anderson in Naples, and from Alinari in Rome, at remarkably low

rates. Such supplies when ordered for educational institutions are admitted free of import duty. These illustrations would make the nucleus of a good High School collection: Views of the Forum; Mamertine Prison; Temple of Jupiter, Stator, Basilicia Julia; Mausoleum of Hadrian; Tomb of Caecilia Matella; Servian Wall; Aurelian Wall; Arch of Titus; Arch of Constantine; Claudian Aqueduct; Mulvian Bridge; the Pantheon; Tarpeian Rock; Column of Trajan; the Coliseum; Circus Maximus; The Tiber with Mouth of Cloaca Maxima; Vesuvius from the Tomb of Vergil; Tibur; The Falls of the Anio; Baiae; Verona—Roman Amphitheater; Pont du Gard Theater at Nîmes; Maison Carée at Nimes; Views of Pompeii; Ruins of Troy; Laocoon; Syracuse; Scylla and Charybdis.

Slides

Practically every High School at this day can afford a lantern in its equipment. Slides are one of the very best of appliances to facilitate instruction in classical history, literature, and art. Catalogs may be obtained showing a large collection of views of Ancient Rome, Pompeii, Italy, and Gaul; of temples, theatres, sculptures, etc. Slides are sold by many of the large dealers in stereopticons, as McIntosh Stereopticon Co., Chicago. or Williams, Brown & Earle, Philadelphia; also by A. S. Cooly, Auburndale, Mass., and George R. Swain, Ann Arbor, Mich. The latter has an admirable collection of Caesar slides illustrating his life, the territory, marches and battlefields covered by his Gallic and Civil campaigns. Particularly commended are the set of 50 slides for Beginning Latin, and the set of 40 for Vergil sold by the Records of the Past Exploration Society, Washington, D. C. More difficult to find are slides suitable for use with a Cicero class, showing places and objects mentioned by him, or scenes with which the great orator must have been familiar. The following are suggested as the beginning of such a set: Map of the Hills of Rome; the Capitol; Mamertine Prison; Mulvian Bridge; the Senate, Cicero and Cataline; Cloaca Maxima; Via Sacra; Velia and the Via Sacra; Temple of Vesta; Vestal Virgins; Views of the Curia; Shrine of the Spears in the Regia; Lacus Curtius; Fountain of Treveri; Forum Plans and Restorations; Forum showing views of the Lapis Niger, Altar of Caesar ,and Rostra.

Illustrative Material Made by Teacher and Pupils

The problem is greatly simplified where the cooperation of the Manual Training department—and that means nearly every school at this day—can be invoked. But in every class there will be found some pupils with a mechanical turn of mind, and it is not difficult to interest such pupils in making, in model, copies of the objects which are daily kept before them in class, especially while reading Caesar.

Illustrations and dimensions for such things as the *pilum, hasta, gladius, sicca, scutum, parma, fasces, etc.,* may be secured from designs given in any of the standard works on Roman Antiquities, and here and there in the text books. From these, even if accurate dimensions are not to be had, estimates can be made which will answer every purpose. Boys will take pleasure in setting up a reproduction of Caesar's famous bridge. In every school there are

boys skilled enough in wood-working to undertake a model of a Roman Camp, as also of the *aquila,* the *vexilla,* the various *signa,* the *vineae, turris ambulatoria, aries, falx muralis, catapulta, scorpio, ballista.* It will be found profitable to have some of the girls who are taking Domestic Science make, in model also, articles of dress, such as the *tunica, toga, stola, sagum, solea, calceus, caligae,* etc. An excellent but more difficult understanding would be, if suitable miniature figures were obtainable, to have these dressed out entire, one each as *imperator, legatus, centurio, lictor.*

Classical Atlases

The following have clear and fairly correct maps, are free from the congestion of names which mar many such handbooks, and show with sufficient prominence the natural and political divisions of ancient countries: Murray; Small Class Atlas, Oxford University Press, New York, 1904; Kiepert, Class Atlas, B. H. Sanborn & Co., Boston, 1902; Shepherd, Atlas of Ancient History, Henry Holt & Co., New York, 1913.

Classical Periodicals

Out of the many which may profiatbly be read by the High School teacher the three mentioned below are of special importance.: Classical Journal, Univ. of Chicago Press. Classical Weekly, Teachers' College, Columbia, N. Y. The School Review, University of Chicago Press. I was surprised to find so large a portion of classical teachers in Illinois who do not read any of these magazines. Some had never seen a copy. And the pity of it is they are the very teachers who are not here today, teachers who sorely need the help and stimulus such publications invariably give. In addition to valuable editorials, reviews of new books, programs and reports of meetings held by various organizations of classical teachers, notes and discussions on important passages in classical authors, etc., there is scarcely an issue which does not contain articles that bear directly on the method or subject matter of any ordinary High School. To convince one's self of this he has but to run over the files of two of these journals for the past two years and note such contributions as the following: Prepositional Compounds with the Dative in High School Latin; Hints for the Latin Teacher; Illustrative Material for Latin Teachers; Cicero the Stylist; The Tragedy of Dido (Two Parts); Was Cicero Successful in the Art Oratorical?; Co-ordination of Latin with the other Subjects of the High School Curriculum (Two Parts); Latin as a Practical Study; The Direct Method of Teaching Latin; The Prosecution of Cataline's Associates; Genitive and Ablative of Description; The Presentation of Classical Plays (Three Parts); Latin Composition in the Secondary Schools; Legality of the Trial and Condemnation of the Catilinarian Conspirators; American Politics and the Teaching of Cicero; Ways in Which the Latin Reading of the High School may be Brought into Vital Relation to the Life of Today.

Recently a new illustrated non-technical magazine entitled Art and Archeology has been begun by the Archaeological Institute of America. It has scholarly contributors, appears monthly and is intended for general readers, teachers in schools, members of art societies and all others interested in the

educational aspects of archaeology and art. A special discount of 20% is given to members of the Classical Association of the Middle West and South.

Latin Grammars

Every High School library should contain one or more of the standard grammars, and pupils ought to be taught how to use them, and how to become acquainted with their resources: Allen and Greenough (Ginn & Co.); Gildersleeve-Lodge (D. C. Heath & Co.); Bennett (Allyn & Bacon); Harkness (American Book Co.); Hale & Buck (Ginn & Co.). The following also will be found of great service: Lodge, Vocabulary of High School Latin (Columbia University Press); Byrne, Syntax of High School Latin (University of Chicago Press).

Latin Lexicons

Harper's Latin Dictionary, American Book Co.; White, Latin-English Lexicon, Ginn & Co.; Lewis, Elementary Latin Dictionary, American Book Co.

Roman History

In addition to the usual Ancient History texts, in which Roman History is treated, some of the larger handbooks and expanded works on Roman History make a valuable addition to the library. Such are: How and Leigh, A History of Rome to the Death of Caesar, Longmans, Green & Co. Shuckburgh, A History of Rome to the Battle of Actium, MacMillan Co. Jones, Roman Empire, Putnam's Sons. Bury, A History of the Roman Empire to 180 A. D., American Book Co. Merivale, General History of Rome, American Book Co. Ihne, Early Rome, Scribners. Beesley, The Gracchi, Marius and Sulla, Scribners. Merivale, The Roman Triumvirates, Scribners. Capes, The Age of the Antonines, Scribners. Mommsen, History of Rome, New, revised edit., 5 vols. Heitland, The Roman Republic, 3 vols., Cambridge University Press. Gibbon, Decline and Fall of the Roman Empire, revised by Bury, MacMillan Co. Fowler, Julius Caesar, Putnam's Sons. Strachan-Davidson, Cicero, Putnam's Sons.

Private Life

Nothing does more to beget and sustain an interest in the peoples of classical antiquity than a knowledge of the essential facts of their daily life. Pupils are always eager to know how the Romans lived, what their houses were like, what their social customs were, what they ate and wherewithal they were clothed. The following are good texts for the High School: Johnston, Private Life of the Romans, Scott, Foresman & Co. Fowler, Social Life at Rome in the Age of Cicero, MacMillan. Thomas, Roman Life Under the Caesars, Putnam's Sons. Inge, Society in Rome Under the Caesars, Scribners. Pellison, Roman Life in Pliny's Time, Century Press. Dill, Roman Society from Nero to Marcus Aurelius, MacMillan.

Mythology

All of the following texts are attractive and written in an interesting style: Fairbanks, The Mythology of Greece and Rome, D. Appleton & Co.

Scott, Bulfinch's Age of Fable, David McKay, Philadelphia. Gayley, Classic Myths of English Literature, Ginn & Co.

Antiquities

These treatises are invaluable as books of reference. The mere habit of consulting them is a long step toward proficiency as a classical student. The best for the High School teacher and the library are: Harper's Dictionary of Classical Literature and Antiquities, American Book Co. Smith, Dictionary of Greek and Roman Antiquities, Little, Brown & Co., Boston. Sandys, A Companion to Latin Studies, Cambridge Press. Gow, Companion to School Classics, MacMillan & Co. Platner, Ancient Rome, Allyn & Bacon. Lanciani, The Ruins and Excavations of Ancient Rome, Houghton, Mifflin Co.

Miscellaneous

Brown, Latin Songs, Classical, Mediaeval, and Modern, with Music, Putnam's Sons. Sabin, The Relation of Latin to Practical Life, Order of Francis E. Sabin, Oak Park, Ill. Shumway, Latin Synonyms, Ginn & Co. Meisner and Auden, Latin Phrase-Book, MacMillan Co. Knowlton, Illustrated Topics on Ancient History, McKinley Publishing Co., Philadelphia. McKinley, Desk Outline Maps, small, large, double size; McKinley Wall Outline Maps. Kelsey, Latin and Greek in American Education, MacMillan Co., contains reports of several symposia on the value of classical studies as a preparation for the professions and for practical life. DeBurgh, The Legacy of Greece and Rome, Macdonald and Evans, London.

At the conclusion of the discussion of this paper the session adjourned until 2 P. M.

The session reassembled at 2 P. M. The program of the afternoon was an illustrated lecture by Professor W. A. Oldfather on "With Camera Through Classic Lands." It was of special interest because many of the views were of places rarely visited.

By way of introduction and supplement to the illustrations shown, Mr. Oldfather made some remarks concerning the general character of the scenery of Greece, the type of the mountains, the configuration of the country, and the prominence in almost every landscape of the sea; the climate and accomodations for travelers; hospitality; food and products of the country, and a few typical survivals of ancient usage and custom in the modern country. Then upwards of a hundred slides were shown, mostly from photographs which the speaker had himself taken, illustrating typical landscapes and ruins, and famous spots in Greece, Italy and Sicily.

At the conclusion of the lecture, the session adjourned.

HARRIET L. BOULDIN, Secretary.

Commercial Section

The Commercial Teachers' Section of the Conference met Friday, November 20, in Room 111 Commerce Building, with Dean Kinley presiding. Dean Kinley excused himself and Dr. C. M. Thompson was chosen to preside over the morning session.

Mr. Guy M. Pelton, of Evanston, was announced, and read a paper on

"High School Bookkeeping—What? How Taught? How Much? Results?"

Mr. Pelton's paper was as follows:

The purpose of this paper is to bring before us, for discussion, a few ideas concerning High School Bookkeeping: What? How Taught? How Much? Results? It is needless to say, that a subject so broad and comprehensive as bookkeeping can merely be touched upon in a limited amount of time. Neither do I have the presumption to believe that it is within my power to do justice to it.

However, the subject may be defined, we are told that double entry bookkeeping deals with the following classes of operations: (a) Exchange transactions (b) Loss and Gain transactions, (c) Mixed transactions. It would seem, then, that one of the most important problems which we have before us, if not the most important one, is to teach the fundamental principles of debit and credit as they apply to these three classes of accounts.

Originally, the purpose of bookkeeping was merely to show a systematic record of financial transactions. It is now generally recognized that it is essential, not only to keep the records, but to keep them in such a way that one may be able, at any time, to obtain, as far as possible, desired facts concerning the progress and condition of the business. Of course there are certain elements, such as depreciation, inventory, economic changes, and the like, which make it impossible to obtain, in some cases, anything but approximate answers.

The task, then, which we have before us is to ground the student so thoroughly in the basic principles, that he will be able to apply them with understanding to any of the problems of debit and credit which may come before him.

The account, therefore, must necessarily be made the center of attack. There are various reasons for this:

First, because it makes the inductive method of development readily possible. Second, because practically all accountants recognize this plan as being the most effective. Third, because the student is made to appreciate, more readily, the purpose of his work. Otherwise, there is a danger that both the student and the teacher will get off on a tangent, and waste time on petty details which are of no particular value, except in that special case; or they are liable to make no attempt whatsoever in the handling of the problem as a whole.

Irrespective of the kind of records to be kept; whether they be bound book, or loose leaf, cards, or a combination of these; whether columns are ruled horizontally or perpendicularly; whether items are entered directly into the ledger, or are transferred from various original books of entry; all these are mere details that are secondary to the principles involved.

They serve only as a means to an end which may be to facilitate the work; guard against errors and fraud; make it possible to obtain information more readily, and in that way secure greater efficiency. It is not my intention at this point to argue against the advisability and necessity of acquainting the student with just as much of this technic, as is consistent with the teaching of the basic principles, to which I have already referred.

Even though the student should be given constant drill in debit and credit; though considerable attention should be paid to opening and closing work,—which by the way may be so easily slighted,—and to posting, taking of trial balances, the preparation of statements and balance sheets; it is absolutely necessary, along with all this, that we dwell continually on the reason and where fore for each step taken in order to obtain satisfactory results. It is of no particular advantage to the student to allow him to wade aimlessly, and without reason or purpose, through a great mass of material. It is not entirely the fact that he can handle any special system or set of books, special columned or otherwise; or that he has been taught the details which might apply to any one line of business, that makes his training truly worth while. But it is the fact that he understands the fundamental and underlying principles so he may be able to apply them to various business transactions.

The story is told of a young man who, about fourteen years ago, went to work in a certain business organization. He wanted to know the whys for everything.

"Why", he asked, "do you spend exactly $100,000 a year in advertising? Why don't you spend $105,000 or $95,000?"

It was a simple question, but no one in the concern could answer it. He had hit upon a fundamental weakness in business—the rule-of-thumb method of gauging values.

He approached the problem with the idea of getting the facts. He found that the bookkeeping system was kept in such a way that all advertising cost was charged directly to the general advertising account, rather than to various subsidiary accounts, such as billboard, newspaper, magazine and circular matter. These accounts were opened and charges were made directly to them. Then from these records he compared results to find which form of advertising paid the best. He keyed the advertisements so he could trace the number of replies from each insertion. In the course of time he learned what kind of advertising brought the most profitable returns. Under the former scheme of accounts this would not have been readily possible, and the question why could not have been answered.

Evidently then the teaching of bookkeeping is not so much a matter of how much we do, as it is of how well we do it.

How Taught

It is pretty generally recognized that double periods, or their equivalent, should be used, the first one for recitation, and the second one for laboratory practice. During the recitation period every problem that comes up for consideration, both as to theory and as to practice, may be covered. However, the subject matter should be introduced only as rapidly as the average student can comprehend the theory and processes involved.

It is an advantage, during the laboratory period, to have the student work individually to a large extent. I have found, however, from personal experience, that much good can come from a certain amount of freedom. The idea is to get the student to be natural, and to work in a business-like manner, which he would find necessary if he were in a well regulated business organization.

Better results may be obtained if all work is outlined, and attention is given to the smallest details. Neatness and accuracy, of course, are necessary, and penmanship needs constant attention. The efficiency of the student and his percentage of accuracy are lowered, unless the surroundings are conducive to good work. It is not difficult to realize the bad results that may come from the use of poor pen points, pencils, rulers and blotters. Erasures should not be allowed under any condition.

From the very first it is well to place the student largely upon his own initiative. He should not be allowed to think that he may obtain information from the teacher with regard to each difficulty that may arise. Rather than this, he should be encouraged to work the problem out constructively, under guidance, and to think logically from premise to conclusion.

All outside written work should also be done neatly and painstakingly before being accepted. To allow the student to prepare these papers in any other manner is a positive injury to him.

Along with the experience and knowledge which the student receives in school, he should get some actual experience outside. In order to develop this idea, we have established an employment bureau in connection with our department. Each student is encouraged and aided to obtain experience in business concerns during vacation, and partially during the school year. This employment does not necessarily consist of keeping books, doing stenographic work, or both; but it may be general, and still of such nature that he will obtain a better understanding of business methods.

Trips are also taken to various establishments. In this way the pupil develops an appreciation of business sense. Even though he should not get a single tangible idea from such a trip, he does receive one thing in spite of all odds, and that is an inspiration which comes to him unconsciously from having been brought in contact with a real business organization which is actually doing things.

A certain business man is quoted as saying:

"Take the teachers into your shops, your offices, and your salesrooms, and you will get wonderful results. If we are so smart, as we think we are, we can show these teachers our needs, and they in turn can impart the knowledge to the students."

So these trips may not only benefit the students, but the teachers as well.

It is also a good plan to have various representative business men give the classes talks on general as well as specific business topics.

We have worked out a scheme with our more advanced classes which seems to be beneficial. At various times the student is required to investigate, outside of school hours, certain smaller business organizations. He is given a general outline to keep in mind. The points included in this outline are something as follows: Name and kind of concern; how organized; purpose; buying and selling, and records kept of each; general bookkeeping system; relationship of parts to the whole.

After obtaining this information he writes a report covering those points which he has found in the system. This report, together with various business forms, serves as a basis for a talk to be given by him during the class hour. In this way he benefits, not only from his own work, but from that of others. Undoubtedly he will fail, and does fail, to reach an ideal. But it is surprising to see how enthusiastically he looks for the fundamental truths in the plan, and the reason for each step that is taken.

The purpose, then, of having the student get actual experience; of the business talks; the trips; and of the individual investigations, is to modernize and to vitalize the subject.

How Much

The problem of just exactly how much to teach is a difficult one to answer. Some teachers, with an average class, in a given length of time, are able to cover twice the amount of subject matter as can be covered by others under similar conditions.

Bookkeeping is one of the most important subjects in a high school commercial curriculum. The day will come, no doubt, when the teaching of this subject will be standardized, as it surely should be as soon as conditions permit. However, there are a great many factors that effect the problem.

A High School commercial curriculum should have two purposes; the first one being to prepare the student, as far as possible, in the fundamentals for immediate employment in the business world; the second one being to prepare him to take the more advanced work in higher Courses in Commerce.

The subject matter taught in either case need not, and should not differ materially. In other words, to make bookkeeping worth while, it should not be given until the student is mature enough to really appreciate the content and benefit thereby. It would appear then, that the amount we are able to cover depends upon when we teach the subject. It has been my experience that to attempt this before the second year in high school is of no especial benefit. It may be an advantage to precede the subject by a year of algebra. Information received, however, from a questionnaire recently sent out to representative high schools in the country showed in fifty-eight per cent of the cases that commercial arithmetic is not required as a prerequisite.

It is quite probable that a year and a half may profitably be given to high school bookkeeping. It requires practically a year to cover satisfactorily the fundamental principles involved in the problems of debit and credit, as they

apply to the various original entries, posting, closing of books, taking trial balances and the preparation of statements and balance sheets. Due attention should, of course, be paid to mechanical details, reviews, and the relation of parts to the whole.

In the more advanced work, the principles already learned may be applied to the systems employed by various corporate organizations, such as those found in the wholesaling, jobbing and manufacturing fields. Some time may profitably be spent on special column books, opening and closing entries peculiar to corporate organizations, the preparation of statements and balance sheets from original data, and to some of the larger problems in accounts and methods which a young man will meet sooner or later, in the business world of today.

Results?

Briefly then, the pupil having been prepared thoroughly in the fundamental and underlying principles of debit and credit, may be able to apply these principles, not only to a special system or set of books, but also to the various problems, which may come before him.

By having greater accuracy, neatness, initiative, persistence, and a better business sense and methods, the pupil is enabled to secure better results at all times.

By having secured an appreciation of the why and wherefore for each thing being done, he is enabled to see relationships rather than rules, which will make him of greater service to himself and to society.

The paper by Mr. Pelton was discussed at some length. Following are notes of the Secretary on this discussion:

Mr. Loring, Danville:

In the past the clerical features of bookkeeping were emphasized but recently the theory and science of accounting have received greater attention. Few teachers devote much time to the recitation. The class should be kept together in the work though the student should be allowed to use initiative. Two years might well be spent in the accounting course, my idea being to supplement the theory and practice of the first year with more specialized accounting and accountancy problems the second year. Outside study should be encouraged but not at the expense of other teachers' assignments.

Mr. Nichols, Austin High School, Chicago:

There is a question as to what shall be prerequisite to the bookkeeping. There should be a definite amount of preliminary work. In a measure business arithmetic should be prerequisite and yet it might well be continued parallel to the bookkeeping. Business arithmetic is not well done in the high schools of Chicago. A recent sur-

vey has shown that the work done in the grades is superior. I would suggest frequent contests, every day for a short preiod is not too often, to induce speed in calculation.

Mr. Pelton:

In the teaching of shorthand and bookkeeping the student is prepared as much for citizenship as for the technical occupations of stenographer or bookkeeper. I believe in the four year commercial course.

Mr. Cavins, Normal:

I should like to hear suggestions as to methods of making the student grasp the subject of bookkeeping.

Thereupon Mr. Pelton demonstrated the early methods of presenting the theory of debits and credits, the ledger being the keystone, and followed by showing a way to develop the principles and location of accounts.

Mr. Larson, Oak Park:

I believe in beginning the course with positive rules and introducing the historical and pictorial demonstration afterward. The start would be simple and definite. Later, as the student progresses, the more complicated situations can be defined and then illustrated.

Mr. Scovil, of the University of Illinois, then gave a demonstration of the origin of accounts from the standpoint of the accountant.

The next feature of the program was a paper by Mr. Arthur L. Loring, of Danville, on

The Relation of High School Commercial Courses to University Courses in Commerce

Following is a copy of this paper:

It is not customary to present one's conclusions by way of introduction. There are two however that might explain the absence of a number of qualities which might otherwise be looked for in this discussion. My first conclusion is this: to try to classify the ideas of any great number of commercial teachers on the relation of courses in commerce in high school and university would be a hopeless job. The few letters which I received on this subject were full of excellent ideas but were dissimilar and conflicting. The second conclusion naturally follows. A full discussion of the subject by every one interested is most necessary in order to find common ground on which to start the work of correlation.

It seems that we are dealing with somewhat similar courses but which have grown up independent of each other in supplementary institutions. Whatever this present relationship may be, it has not been planned, and the similarities seem only to have grown out of the fact that both courses are based on economic principles. I find little published material which bears directly on the subject but that little seems to be written around the idea of college entrance requirements.

The ideals or standards of the present high school commercial curriculum can be divided roughly into three classifications, namely, the "high school set standard" or the standard set by the high school and the needs of the community in which it is placed, the "dual" standard, or those who are attempting a college preparatory and finishing curriculum at the same time, and the university set standard where the work is carried out with advice and aid of the university.

Among those who believe that the problem of high school commercial courses belongs entirely to the high school and its community is Prof. C. R. Mann of the University of Chicago. He says: "Let us recognize that from the point of view of the public high school college entrance requirements are like the flowers that bloom in the spring,—they have nothing to do with the case. The state schools owe this training to the people of the state for educational, moral and economic reasons that cannot be gainsaid. Should they be deterred from this mission because there are a few doubting Thomases who question whether things can be useful and cultural at the same time?"

Now we know, all of us, that this attitude, although it may not injure the high school or university, is not one which will bring any nearer the solution of the problem. We admit that the problem of each high school is largely affected by the community in which it is placed, that our first duty is to care for the ninety and nine who do not go to college. Suppose we train them thoroughly in the lines which they will use in their community, give them what might be commonly accepted as a good secondary education from the standpoint of immediate earning power, would it be the best preparation or even a good preparation for university work in commerce should the student take a notion to go on with his studies? If the following maxim is true we might say "yes" to such a question. "The best secondary education, considered in itself, is likewise the best preparation for any further education that should chance to follow it." This proposition might seem to imply that the judgment of the teacher and the judgment of the community acting thereon should be accepted without question by the university.

One might draw the same conclusion from the following letter which I received from a high school principal in answer to several questions which I took the liberty to ask him on the subject. I neglected to ask the liberty of quoting him and consequently withhold his name. He writes: "Yes, I think we are working toward entrance credit in commercial subjects. It has been said that the dictation of the university with regard to high school courses has not been for the best interest of the high school student. But these vocational curricula are planned primarily for the boys and girls who do not go to college. They are planned in obedience to the demands of the community. The com-

munity wants effective training for business and for the trades, and the university will not have the opportunity to dictate further than to insist on a certain quantity. The quality will be then, not because the university wishes it but because the community demands it. In that case it cannot be detrimental *to the pupil* for the university to give credit."

The problem of one community is not the problem of another. The standards and ideals of Danville might require a much more specialized clerical training than those of Springfield or Champaign. With each community engrossed in its own vocational problem we could not hope for any semblance of uniformity. True it is, that we all are striving to produce the greatest possible number of efficient workers, but in different lines. Besides, Danville's standard might fall far short of those of Springfield. If there is not outside influence to pull it up who will suffer? The university cannot admit graduates from the two schools on the same footing.

The consequence of present independent work on the part of each high school are obvious. The courses in bookkeeping include everything from simple laboratory work in which the student does nothing but blindly follow detailed directions of some laboratory manual to half time recitations on accounting with illustrative laboratory work as a supplement. The same study could serve its purpose at least as well were it organized as thoroughly as mathematics in the high schools of Illinois today.

Mr. H. T. Ford who is at the head of the Commercial Department at Hillsdale College, Michigan, wrote me as follows in regard to the present high school standard of bookkeeping: "The standard of bookkeeping by a few of our students is very inefficient and not of a character to be of use to one in taking up university work in the same field. Indeed, I find few students who come to us with sufficient training to allow them to study even so elementary a text as Klein with intelligence." (Klein's "Elements of Accounting" is an excellent book on elementary accounting.)

This I believe would be the result of leaving each community to set its own standard. Granted even that the work were efficiently done as was allowed previously in this argument, the university has no assurance that such work is a foundation on which to build a broader education. The college has its own definite work to do, and that work presumably requires a certain amount of more or less definite preparation. The secondary school may prepare for the farm, the shop, the draughting room, the office or the college, but it cannot make preparation for the latter by teaching office training any more than by giving the student a course in agriculture in preparation for such work.

The idea that a curriculum may become at once a preparatory curriculum and one intended to turn out graduates for immediate employment, although comparatively new, seems to be gaining ground. Mr. Pelton, of Evanston, in a recent letter asserts that the high school commercial course has a dual purpose. "The first one" he says "is to fit the student as far as is possible for immediate employment in the business world. The second purpose is to fit him to go on with courses in commerce in college. In this sense the courses are necessarily preparatory ones. But in justice to our young men who wish to go on with the higher work in commerce it seems necessary and fitting that we

fulfill this requirement. I do not believe there is any question but that the commercial courses have their rightful place in the high school. Granted that, why should it be wrong to allow of their being preparatory courses as well as directly technical courses? The subject matter need be taught no differently necessarily. In fact, the more directly and emphatically it can be taught, the better in both cases. The boy who wants to be a business man should have his English, mathematics, history and science, but he should be studying business, not the things required of those interested in medicine."

Mr. Pelton's argument is made more forceful it seems to me, by the following. He says further: "It is absolutely necessary that we have a larger number of better trained teachers in high school teaching these subjects, and have college trained men, who have had commerce training as well, in charge of these departments. The universities cannot establish a definition and expect it to be carried out otherwise. The viewpoint of the teachers must be correct. I am not concerned particularly in making, or attempting to make, our high school courses meet the entrance requirements of the more classically inclined institutions, but I do believe with all my heart that we should make them meet the requirements of the Middle West Universities."

Mr. Ford, of Hillsdale (previously quoted), expresses the same thought. "My idea" he writes "is that the high school should fulfill two purposes,—first to fit a young person to follow intelligently the courses offered by the advanced schools of Business Administration, second to fit the student who cannot continue his studies beyond the high school, for a useful position."

From one standpoint the dual standard might seem to be plausible. Certain commercial courses might be at the same time practical in the sense that they might lay foundations for further study. Bookkeeping and accounting are cases in point. The principles of bookkeeping are few and are not difficult of application. The system and accuracy demanded are valuable acquisitions and the classifications of transactions train the power of judgment to some extent. If it were not for its practical value the time spent upon it could be better employed. No such charge can be brought against the science underlying it—accounting. The principles governing this science are the principles of business and hence the application of economics. I can see how a complete training along this line might be a preparation for either business or college. Commercial and industrial geography, if taught by a teacher who knows his economics, might also fall under this class. But such courses as office practice, commercial arithmetic, stenography, letter writing, penmanship, and in most cases, commercial law are not basic sciences and hence not stepping stones to broader study. No doubt there are several here who have worked on a wheat or hay stack. A broad foundation is made and the center is filled in to make the whole thing level. As the stack rises in the air the big task is to keep the sides perpendicular and corners square and solid. Once we begin to "pull in" then the capping process must take place. We can't continue to build the sides any higher but must round it off. Failure to do this will result in disaster. Either the hay or wheat will slip off the sides, or the stack will begin to take on the appearances of a steep roofed church, the delight of a summer wind storm.

Any commerce courses which are not basic, and by basic I mean those on which further study might be based, are the "caps" to secondary education.

To develop only courses which can be admitted for college credit is not my argument. Such a policy would defeat the ends for which secondary commercial work was originally established. But to insist on the university giving credit for any other than so called basic work is equally absurd. However, I believe that the future commercial work in high schools will be developed along the lines of the dual purpose standard. I shall discuss it further in connection with the problem from the university standpoint.

The university set standard established in connection with other branches of high school work is successful. At least the present system of inspection, accrediting and evident cooperation seem to bear me out. No uniform method of accrediting commercial courses is yet in practice. The University of Michigan allows two units of commercial work. Notre Dame three, Northwestern five, Illinois three, and Chicago five. In all cases except Chicago the work offered will be allowed as entrance to the college of liberal arts. Wisconsin does not outline specially the number of commercial credits allowed but attempts to handle each school separately. The following statement appears in its catalog: "Owing to the present state of development of vocational subjects in the high school curriculum no specific conditions are indicated for such subjects as domestic science, commercial work and manual arts. Acceptance of the work from any school for admission to the university will be based on special inspection, and approval of courses will depend primarily upon adequate equipment and efficiency of instruction."

My conclusion from an examination of these requirements is that the universities are willing to recognize work in this line as soon as it is organized.

Professor Jones of the University of Michigan voiced the sentiments of several schoolmen in other lines with whom I talked. He writes in part, "With reference to high school commercial courses as a preliminary to university courses my idea has been, in general, that students who intend to go to college should not specialize in high school but stick to basic cultural and disciplinary courses and leave the semi-professional or special courses until later. If there are any things which high school commercial departments can do for students intending to take college courses in commerce they would seem to me to be as follows:

(a) Concrete studies of industrial processes and commercial methods:—a sort of commercial geography, but devoted to the study of American industrial conditions rather than to foreign countries. The value of this would serve as a background of general knowledge for elementary economics.

(b) Thorough drill in the elements of accounting so that the student could get on faster with accounting courses in college.

(c) Shorthand and typewriting for those who are heading for some of the new types of secretarial work."

Professor Jones evidently would recommend such studies as outlined above as electives in high school rather than for presentation for entrance credit. Although they might not be called cultural, such studies are at least basic in relation to the further work in the university for which they prepare. Under

proper conditions of instruction I can see how they might fit into a brief outline of commercial work which Dean Kinley has been kind enough to offer me. In presenting the outline the Dean wrote me as follows:

"The ideal and purpose of the course really determines its character, and a course planned to conform to our ideal may not fit in the high school commercial course as well as a course planned for another ideal. For example, I formed an opinion some years ago after studying the commercial high schools and university courses in commerce in Germany, England and this country that they might roughly be classified as (1) those whose main aim is to turn out people for executive positions, and (2) those whose main aim is to turn out people for clerical positions. The two things are entirely different, the courses of study must be different and the former has a less definite and close relation to the ordinary high school than has the latter."

I regret to say that I was unable to discuss the outline as fully with the Dean as I should have liked. I think, however, that the studies which Professor Jones suggests might be recommended to those whose intentions are for early specialization in college along the lines of the second classification.

I do not wish to offer any plan of reorganization of commercial courses. However, such reorganization is bound to come. When we set to work on this task there are several points which we might well keep in mind.

In the first place it must not be forgotten that the first two years of the college course are, as a usual thing, more closely connected with the high school work than with the last two years of the college course itself. To put the more general work in four years (two in high school and two in college) would not seem to be inadvisable. No intensive technical work can be done in high school and the sentiment of the university is not in favor of such action. Any such program would mean a division of the course somewhere in high school. Why not group such studies which evidently serve both to prepare for college and business in the first three years? Then in the senior year round off the education of the boy or girl who goes into the world with more practical courses, and offer the college aspirant more basic work such as economics, economic history, a third year in accounting and a more intensive sort of industrial study? In this way the course might be said to have a dual purpose until the senior year.

To carry out a program along these lines we need university training courses for teachers, and we need those men in the profession who have had practical experience in business in order that they may see similarities and contrasts in the requirements of the university and business. We must remember that we are finishing up one class of students and only laying the foundations of the other class. That there are courses in commerce which can be considered fundamental and basic to both classes I have no doubt.

If we ever come to any definite agreement on this problem both high school instructor and university professor will have to enter in on the task with a mind open to conviction and a willingness to concede points which they may hold important.

Personally, I believe the university will appreciate fully the bigger local problem of the high school.

A discussion followed the reading of Mr. Loring's paper, the chief points of which were as follows:

Mr. Nichols, Austin:

I should like to emphasize the necessity of arranging the commercial courses to suit the needs of the community and provisions made to accommodate students for short courses. I do not assume that the courses in the city school shall be like that of the school in the smaller community. Provision should be made for such pupils as do not expect to go to the university.

Mr. Hootman, Peoria:

I have just returned from Kalamazoo where the Michigan State Teachers' Assocation held its meeting. This question of articulation between the university and the high school courses in commercial subjects came up for discussion, but, I am sorry to say, the time was too short for any definite results. Prof. Friday of the University of Michigan, read a paper on this question. He declared that the university and the high school both had their work to do and in a large degree did not have the same ideals, the university point of view being cultural, and the high school attitude, vocational.

Miss Van Der Veen, Joliet:

In this discussion of the cultural aspects of commercial work, I think the child very often derives more thinking capacity from his commercial work because he feels its utilitarian value.

Mr. A. L. Loring, of Danville, was elected as a new member of the executive committee of the commercial section, the retiring member being Mr. Boyer.

At the afternoon session, Dean Kinley presided.

Mr. Williams, of Normal, presented the report of the High School Conference Committee, of which he was chairman, on the educational value and content of shorthand, typewriting and commercial arithmetic.

This report was extensively discussed. The discussion revealed a tendency to disagree with several features of the proposed content of the courses presented.

In a similar manner the arguments presented as showing the educational value of stenography, typewriting and arithmetic came up

for criticism. It was felt by some of the speakers that the grounds given for valuation of these subjects were not conclusive.

Dr. Bagley was present, and pointed out the fact that the real factors which go to determine values had been overlooked; that the men who were specialists in determining such values had evidently not been consulted. He showed the need of greater care in presenting arguments to be considered by the University Senate in determining whether or not University entrance credit should be granted these subjects on an equal footing with other subjects of the curriculum.

On motion the report was referred back to the committee for such modification and elimination of arguments as to make the report more presentable.

A motion to recommend the accrediting of subjects as outlined in the report was adopted.

By a unanimous vote the Section extended its thanks to Dr. Bagley for his helpful criticisms.

The session was closed by a brief talk from Dean Kinley on the proposed reorganization of the courses in commerce.

County Superintendents' and Village Principals' Section

Meeting called to order at 9 o'clock. County Superintendent B. C. Moore, Bloomington, presiding; County Superintendent Frank A. Gilbreath, Watseka, secretary. Registration taken, and instructions from H. A. Hollister read. Election of member of executive committee. G. P. Chapman nominated and elected for full term, 3 years.

Chairman gave brief explanation of object of Conference. Asked for suggestions for plans of future meetings. Supt. H. C. Rudolph, Paxton, suggested matter be taken up at close of Conference.

Mr. Moore further commented on causes of improper school conditions, especially with reference to improper relationship between the larger and smaller village schools. Cited State and University of Illinois aid in this matter as best solution.

The topic "Relation Between Rural Schools and Village High Schools," given by Edwin Packard, Rural School Department, State Normal University, was ably presented and the interest of those present was manifested by the many questions asked him pertaining to his paper. His paper is submitted in full.

Mr. Moore suggested that the local principal idea might meet opposition from the fact that it would savor of centralization. Mr. Packard answered that this objection would never arise if only a sincere desire to aid child welfare prompted the work and no disconcerting plan or idea was allowed to interfere.

The second topic was "The Curriculum of the Small High School," presented by J. Calvin Hanna, State Supervisor of High Schools. This paper is appended in full. Much discussion followed its presentation bringing out the fact that, at present, conditions as to program of studies in this type of schools are somewhat chaotic.

Mr. Hanna answered many questions as to local conditions and gave solutions in many cases.

Among village conditions mentioned were Hutsonville, Ogden, Columbia, Armstrong, etc.

Conference closed at 12, with many desiring to take part in discussion.

The Graded School Principal's Relation to the Country School

(Edgar S. Packard)

The village high school and the country school are so closely related that the boundary between them is varying; sometimes it is between the eighth year and the ninth year, sometimes between the ninth year and the tenth year, and sometimes between the tenth year and the eleventh year. This close relation, however, is more in theory than in practice. In states where the township system obtains they are related in practice as well as in theory. The village principal is to some extent the principal of the entire township and sometimes calls all of the teachers together for study and conference. In much of our state no such custom is followed.

While working in a denominational school in this state I learned that the counties of Illinois are distributed among the various schools of that denomination and each of these schools was expected to do field work in its particular province. Although I occupied only a very modest position in that school, yet I spent many a day talking to the country boy at the end of the corn row or to the country girl at the garden wall. And the whole point that I shall try to make in this paper is that I wish each country school might be assigned to its most convenient high school and have it clearly understood that the country teacher has a welcome waiting her if she wishes to come in contact with the dynamo of professional power that exists in the average high school, and also the high-school principal or his teachers may feel free to visit a country school or a country community without being required to secure a passport.

In a recent address before the State Teachers' Association in the state of Maine, President Aley made this remark: "I desire to say that the rural schools need the support of all the people, the co-operation of the state, city,

and large town, and the helpful thought of the teachers and the school administrators of every part of the system." In expressing my hearty approval of this remark I wish to add to it that this cooperation will not be a mere missionary movement on the part of the high school, but, on the contrary, there is a large promise of mutual helpfulness.

The average village principal is a busy man. He is often under the lash of a community and a school board that have more ambition in reference to their high school than they have cash to support it. It is folly, therefore, to point out more duties for him unless such duties promise the minimum of time with the maximum of good results.

We are told by the leading educators to study our respective communities. The units for the measurement of all sorts of values are in the home community, and unless we master these units we shall find ourselves handicapped in our effort to get definite ideas of values elsewhere. We are also told to study especially the people of the community. Unless we can show some interest in them and in their work we need not expect them to show interest in us and in our work. If these points in favor of the study of the community are good pedagogy then they become good arguments to prove that the village principal should take an active interest in the country schools of his community. Are they not in his community? And are not the people in those communities his people? Many of his students come from those schools and many of his graduates are going back to those schools to teach. I have heard principals declare that their best students are from the country, and anybody knows that the high schools are training more country teachers than all the other schools combined.

A principal might be willing to accept this reasoning and to admit that he had obligations in this direction; yet, it being the county superintendent's direct field, he would not wish to do anything that might lead to a conflict. I have been out with county superintendents all the time for the last ten weeks, and if I have read them correctly it is the sins of omission much more than it is the sins of commission that are bothering them. One county superintendent has a record of visiting twelve country schools a day and forty-seven a week. In making such a record it would seem that the county superintendent could do little more than change to low speed while passing school houses. I live in the county where our chairman is superintendent. He has nearly three hundred schools and a new car. We are thinking of placing in front of each school this notice, "When the county superintendent is passing this school he will please slow down to six miles an hour that the children may get to see him." Surely the principal would have ample opportunity to do all of this work he could find time for without much conflict with the county superintendent, indeed if he were at all tactful he would win the gratitude of the superintendent.

Let us see what this work promises the principal. In the first place his very selfishness ought to urge him to have something to do with the elementary education of these bright high-school students already mentioned, and also to have something to do for the success of the teachers who have been graduated in his school. What an opportunity he would have to expand his chest while

stating that he supervised the elementary education even of his best students and that he had trained successful teachers!

One of the duties imposed on every principal is to build up his school, and one of the most popular ways to build up a school is to increase the attendance. Many a country youth is asking for an education but is unable to remove the barriers. As a rule the village principal holds a very exalted place in the minds of many country people and a few minutes of his time as a sympathetic attorney pleading with the parents acting as judge and their child as defendant will bring about a complete acquittal. This means another student for the high school, and more students mean a higher standing for the school and more pay for the principal.

But there are higher reasons for this cooperative relation. Awaiting every youth are thousands of personalities that he may become but for only one of these has he the largest endowment of genius. In some of these personalities he will be a mere sot or vagabond, in others he will be only a drudge producing but little and getting but a meager amount of happiness out of life. Yet if he can reach some personality for which he has genius his production will be great and his happiness assured. Anyone who has opened up a factory or shop knows that it isn't long before he is annoyed by boys bothering around. Their curiosity is usually interpreted as a desire to steal something, and they might take something if it looked temptingly at them and they thought they could get away with it; but that is not what they are prying around for. They are searching for this successful personality. Their life's happiness is in jeopardy as well as to some extent the prosperity of the world. I believe the time is coming when the high school will be more concerned in helping the youth to find his successful personality in exposing him, as it were, to every vocation until his genius is discovered, than it will be in getting him to master college units. It is when the child is at the high-school age that this work can best be carried on, and the high-school principal has the best opportunity to perform this great work. Lord Byron said that when the English people made George III king they deprived themselves of a good farmer and made for themselves a very poor king. These misfits are everywhere.

To be successful in finding what a youth is good for and to put him right is always the work in which the teacher takes the greatest pride.

Some time ago I went to visit the public schools in Gary, Indiana. I first called on the city judge. As I was waiting for him I remembered that fifteen years ago, with another high-school teacher, I drove out to a modest country home to talk to a graduate of a country school about attending a high school. That tow-headed boy and this judge, for whom I was waiting, were the same person. Could we have held up to this boy and to his parents the pictures of a successful judge and that of a probable second-rate farmer we might have gotten him into the high school with less effort. The vision of the average principal is accurate enough to add much to the sum total of human happiness and human production; and the country youth needs this expert direction just as much as the city youth does.

Some tell us that the high school educates away from the farm and therefore in these times when the cost of living is so high we should not try to get

young people from the country to attend a high school. A poor farmer is not going to augment the food supply very much, yet such a farmer may have a genius for manufacturing or for transportation that will help the food supply a thousands times more than if he remained to become a poor farmer. Some have complained because the road leading from the country to the city is so straight and so level, as to attract so many of the young people. But this is really an encouraging feature. The only regret it occasions is that there is not equally as straight and level a road leading from the city to the country. There are misfits and drudges in the city as well as in the country. What a civilization we might have if the high schools could place our young people as the distributing part of one of these great typesetting machines places each type form, dropping it down into the place where it belongs. There is no greater work than helping people to find their best selves and out in the country where about the only occupations are farming and teaching school is the richest field for this discovery.

Some years ago I listened to what my informant assured me was a true story. A man who is very prominent in affairs in the state of Wisconsin, was, some thirty years ago, made principal in one of the villages in the northern woods. Many of the lumber jacks remained in that village during the summer wasting what they had made during the winter. Among these woodsmen was a mere lad to whom the principal took a fancy. He suggested to the boy that he remain that winter and attend school. This the lad thought was impossible because he had not saved up any money. The principal did not give him up. A place was found where the lad could work for his board. The year was full of discouragement. Many a time the boy declared that he would quit, but the patience of the teacher was never exhausted. Finally, as spring opened up, he declared positively that he had to quit. After some questioning the boy said he had to quit to get some money with which to buy tobacco. He had tried to do without tobacco but was unable to study at all without it. After learning that it took fifteen cents' worth a week the teacher told him to come to him each Friday evening and he would give him tobacco money. That summer the teacher organized a school for teachers and this boy was again enrolled. The county superintendent was enlisted and a school up in the woods was secured for the young man. Before entering on his work he spent an evening talking over his plans with his old teacher. One of his plans was the resolution to break the tobacco habit or die in the attempt. This young man became a leading educator in Wisconsin and is now a Sunday School worker and author on the Pacific coast. At one time I had an assistant whom this young man found in the northern woods. In describing the peculiar powers of this man he said that he could drop an oracular expression into the mind of a student that could never be forgotten. In his senior year this student was wasting time. The principal met him one morning and asked him if he expected to be graduated that year. The boy replied that he did. Whereupon the principal, with a look the boy declared he never could forget, said, "You will have to spend more time on the stairway." The young man said he did not pretend to know exactly what the expression meant, but he got enough out of it to get down to business.

There should be no chasms between the different parts of the school system, although there is a tendency to allow one to form between the high school and the country school. Great care should be exercised to keep such a chasm from forming. At the time of high-school commencements and other school activities the pupils in the country school, who may become high-school students, should be remembered with invitations and other attentions. Library books and supplementary readers may be exchanged to the advantage of both schools. The children in the country could make collections and investigations that would help the work of the high school. And what would be a more helpful exercise for a high-school student than to take some material or apparatus to the country school and perform some interesting experiment for the children? Many more of these activities will suggest themselves.

To the man with little vision, the school children, shy, indifferent, and without apparent purpose are nothing but kids; but kids are all we have out of which we are to make the men and women of tomorrow. The chief of artists is he who can take this crude material and carve and mold it into the pillars on whose shoulders will rest a better civilization than we have yet known.

At one time Panama was mankind's folly. Great engines possessing vast potential power lay entangled in vines and formed the lurking places of vicious lizards and frivolous English sparrows. We annexed the ten-mile zone, put those great engines back on the track, and not only attacked but removed the great Calubra obstruction to the world's commercial progress. I hope that each village principal will annex the ten-mile zone that surrounds his school and begin the work of getting those children, who are engines of infinite power, but who are now entangled with the vines of ignorance and are the lurking places of vicious and frivolous thoughts, squarely onto the track to attack the great Calubra Hill that lies between us and the Pacific—the pacific that is big with the promise of peace and good will.

The High School Curriculum

(John Calvin Hanna)

The questions included for study in the making of the high school curriculum are multiform. They are related to every other question and element of the educational field.

The *biological* and *psychological* questions involved in a study of the adolescent period and the education which belongs to it; the *political* and *social* questions brought before us in a consideration of the history and character of our country and its institutions; the *practical* questions involved, in any consideration of vocational preparation and its relation to the schools; the *pedagogical* questions brought to the surface by the ploughing of all these fields and by an honest examination of the teacher-material furnished by our present and probable sources of supply; the questions of *finance* and of *organization* involved in a discussion of the arrangement of the general school curriculum and the relations between elementary, secondary and higher education;

the *philosophical* questions that arise for solution in the examination of different studies and their content; these and half a dozen other fields of inquiry must be kept in mind in agreeing upon anything worth while in the matter of a high school curriculum.

There is a world of criticism, faultfinding, suggestion and discussion. The simple student or the practical supervisor responsible for good results with the rising generation in his own community finds himself nearly swamped with all that is uttered. Such a one not only feels himself unable to march down a clearly defined highway to success, but even unable to swim, wade or scramble to any solid ground. Destructive criticism, whether fierce or cynical, whether contemptuous, or patronizing, whether just or unfair, has surely had its way for long enough. Is it not time to agree upon a few things that should be done, and then to do them?

If we are to consider here an *ideal* curriculum for secondary schools in the average community of this, a self-governing state, are we not safe in making certain assumptions and with these as a basis, attempting something that shall be really constructive, even if modestly so? Let us assume that these following matters are agreed upon.

A. The *aim* of secondary education is three fold.

1. The first aim is to do what is attempted in every primitive tribe, past and present, in the first and earliest form of organized education which was developed, namely, secondary education, and that is to make of the youth a fully equipped member of the tribe, a worthy representative thereof, and a capable working unit therein—or, translating this into terms of modern American life, to fit the boy and the girl to *live well the life which is to be his,* and to be a *worthy member of a self-governing community;*

2. The aim already stated governed secondary education in all phases —illustrated in later years by the apprentice system, for example—until individualism found its own, through the vitalizing influence of Greek thought. In this great movement a second aim was given to secondary education,—one which we must recognize and which we are even now recognizing, and that is, the furnishing of *opportunity and encouragement* to the *powers and ambitions of the individual youth* as distinguished from the mass of his fellows, or, as distinguished from the community ideal.

This wonderful discovery gives life in the revived education of the modern world by means of an influence which, throughout the long centuries of the Christian era, struggled against the leveling, strengthening, organizing influence of Rome. Every Roman was but a Roman citizen; thus did even Paul make his claim for protection that he was a part of Rome. The weakness of Rome came to manifestation when the individual became a part of the *imperator* who was the embodiment of the *imperium.*

Rome's formalism overshadowed all education during the middle period, but there was a new influence declared even at the beginning of imperial days, which ultimately raised the individual to his right again and demanded that he be given salvation as a free soul. This, of course, was Christianity with which we are concerned in its effect upon education. The Hellenic influence which glorified the individual had succumbed to the power of Rome and of

the state, because this, the Hellenic influence, lacked the new and vitalizing element now given by Christianity in the setting up of the third aim of education and that is

3. the *development of character.* The pedagogy of the Gospels clearly sets this forth as the dominating force that shall preserve and harmonize the other two aims or ideals of education; and its fulfillment, long delayed, is in the present age. Robert Burns was the prophet of the individual and preached the forgotten pedagogy of the Gospels when he startled the world by his now familiar utterance:—

"A man's a man for a' that."

If we keep before us this three-fold aim, if we really understand them and are loyal to them, we shall not go far wrong in the framing of a curriculum, nor in any other of the great problems of education.

B. The second assumption is that the spirit of the present age in our own country is a *spirit of honesty* and of a demand that it be *convinced* rather than *ruled.* All things hitherto accepted are challenged and each system, each plan of arrangement, each definition of content, must accept the challenge and must make good in the white light of reality without any help from the trappings of antiquity or the glamour of mystery.

These questions are asked of every proposed curriculum. Does it serve the community life? Does it call forth the power of the youth himself? Does it save and develop character? The answer must be "Yes" to all of these, or the course and the method must go. And the reason is not alone because this is right and wise, but because the imperious spirit of the age will have it so. Autocracy, bauble, tradition—all must go.

C. The third assumption is that whatever stands these acid tests must *stay.* If autocracy must go, anarchy shall not come. A critic's sneer must not dominate more than a ruler's dictum.

Under these assumptions it would appear safe to conclude that the world demands that elementary education shall be for all and shall include the essentials, the mastery of the common tools, with the stimulating necessary to lead the child on with joy and ambition to the training of the secondary school. This would imply that much of what is now found in elementary schools shall be eliminated and that the fundamentals shall include a more severe and thorough training; in short, that the attention given in these later days to the comfort, physical well being and happiness of the child in improved teaching methods, in physical training and in the organizing of play, shall not be taken as a substitute for thorough training, in those earlier years, in the simple essentials that have to do with habits of thoroughness, obedience and accuracy, and that the peeps given in elementary studies at the world of thought and beauty shall not get in the way of the necessary training in simple expression, and in accuracy and rapidity in elementary number operations.

The wise men keep telling us this is, or may be completed at twelve years and demand of us that the great change in our education from elementary to secondary shall come then. This seems to establish a fourth assumption in favor of the 6-3-3 plan instead of the 8-4 plan.

Then our lengthened high school curriculum involves a plan which shall accomplish the making in six years of a child into a budding man or woman, fitted to meet the problem of living well in his community the life which is to be his, prepared and encouraged to choose and go on with such development as is right and proper of his own individual powers, and with a character sufficiently formed to stand the tests that come from such independence as is given him thereafter.

What are these things that shall claim his and our attention then in the new 7th, 8th and 9th grades, with this aim and ideal before us?

What shall follow thereafter in the last three years—10th, 11th and 12th grades?

There ought to be these fields of study and training for the pubscent and adolescent of the 7th, 8th and 9th grades:

1st. A mastery of his *mother tongue,* an appreciation of the best examples of its use, and a power to use it in writing and in speech that shall be commensurate with the natural and possible maturity of his powers at the age of sixteen, when he is to enter the 10th grade. This will require a constant, free and sympathetic study of English during the whole of these three years, involving *first,* a strict grind in the few essentials of grammatical structure without any pretense of studying the historical or biological development of those forms of structure; *second,* a study of sentence structure largely through imitation and practice set for definite actual problems, and wrought out, as McMurry shows, backward from such real problems; *third,* a stimulation, through appeal to imagination, ambition, heroism, and other legitimate and mediæval virtues and powers belonging to this age, of his powers of expression, and a skilfully arranged introduction to the historical development of our literature as being that of a race expressing its struggle toward freedom of thought and action.

2nd. There must be acquired in these three years a real mastery of the essentials and fundamentals of arithmetic, including familiarity with numerical and literal notations and facility, including accuracy and rapidity, in the operations that are actually used in every day life. This would mean the omission of much that is included in ordinary text books and greater drill in the fundamental operations, together with practice in problems taken out of actual life, a step in accord, I believe, with the advice of the most progressive and thoughtful of mathematical experts and educators. This need not include even elementary algebra except for those whose bent or whose future work leads in that direction.

3rd. These three years of what we may for brevity call the junior high school, must include a study of the elementary and fundamental ideas embodied in American history—not a profound study of constitutional and political development, nor a memorizing of many dates and names, but the fixing of a few essentials together with the awakening of patriotism in its noblest sense and of zeal for further study when greater maturity shall have been attained.

4th. These three years shall include a bird's eye view of geography, preparatory to such thorough going laboratory study of it in a later year, as

shall make of geography a real science study in the secondary curriculum to rank with physics, chemistry, botany and zoology.

5th. Within this period there should be a year's work in general science, that preliminary "bird's eye view," to use again the convenient term.

6th. There should be within these three years, a year's work in elementary civics, directed to the fundamentals as illustrated by the problems within a local environment.

7th. There should be a continuous training in the manual arts amounting to two or two and one-half units, and including such work as elementary use of tools, drawing, free hand and mechanical.

8th. The other unit or half unit may be given to a statement of the simplest principles of accounts with some training in the responsibilities connected therewith.

9th. With this there should be instructions in the elementary principles, and practice in the singing, of good music.

Such an arrangement, if handled with well prepared and sympathetic teachers, with a reasonable material equipment and with a wise selection of content for these courses, would, in my judgment, fit the sixteen year old for any one of three roads that open up before him then.

First—preparation for making his living with an apprenticeship of one year (or more as needed) in the work of a mechanic, a gardener or farmer, a clerk, or any one of the many fields of which these are types, giving him, at the same time, a capacity for grasping and enjoying some of the finer things in his leisure hours, as well as preparing him for a fairly intelligent use of his powers and responsibilities as a citizen.

Second—This youth, at the age of sixteen, would be prepared for the work of the three years in a senior high school—leading as it should along one or another of the five well defined lines of vocation training so clearly and sensibly presented in the report of the Illinois Educational Commission. These it will be remembered are:

1. A curriculum leading to the speaking and writing professions with language, literature and history as its main subjects.
2. A culliculum leading to the scientific professions, especially medicine and surgery, and devoting its chief attention to biology, physics and chemistry, studies dealing with life and the conditions of life.
3. A curriculum leading to the profession of farming with special reference to the domesticated animals and plants, and to the soil as the sustainer of life, supported by the physical sciences and by the principles of accounting.
4. A curriculum preparing for useful and artistic construction in the building trades and in most lines of manufacture. Here, manual training, mathematics, physics and art should hold the leading place.
5. A curriculum leading to the callings of the business world, with commercial geography, economics, industrial history, commercial arithmetic, commercial law, book-keeping, stenography and typewriting as its most prominent features.

6. A curriculum dealing with the application of science and of art to the affairs of the well-ordered home. Here sewing, cooking, food values, marketing, serving, nursing, sanitation, textiles, home decoration and the laws of physical, moral and mental development in childhood are the special studies.

The program of studies of the senior high school, therefore, should include these things:

a. Three years of required English—needed for all lines of vocation.

b. Two years of required history and these in my opinion should be 1st—European history with special reference to English history and 2nd, American history.

c. One unit of required science—which thus comes after the year of general science set for the junior high school. This should be left to the free and guided choice of the pupil so far as the equipment of the school will allow it.

d. One unit of civics and economics, taken in the 12th year.

e. Two units of accounts, or of household arts, or of manual training.

f. Three units of free choice in language and history, mathematics and science, agriculture, manual arts or household arts. This list of free electives might be made four units with a corresponding reduction in item e.

Such a senior high school training wisely guided would, for such as wish and need it, lead to a definite professional curriculum—legal, medical, engineering, architectural, and others.

Such a senior high school training would for a very large number be their preparation as now for the business of life and with such guided vocational training would be far better than the average high school training of the present.

How is all this ideal to be made real in a small high school?

Some of it can not be carried into realization in such a school,—for example, what is dependent on offering a wide range of electives.

Some of it can be realized in time, as soon as the community sees the advantage of a living curriculum and the value of the necessary preliminary investment in equipment and in well prepared teachers.

Much of it can be put into operation immediately—next year in hundreds of high schools in this state—with little of jarring in the adjustment.

The separation of junior and senior high schools need not be a prerequisite for such improvements.

The elimination of much of the waste material and time now found in the 7th, eighth and 9th grades can be carried out on short notice.

The elimination of the traditional foreign language study and the traditional two years of high school mathematics as *prescribed* work in the junior high school is something for which we should prepare ourselves merely by taking a long breath and then raising our knives and doing the surgical act.

The insisting upon the right kind of manual training and of actual science study with real problems is possible with teachers who are able and willing to do it.

The enlivening and enriching of our English work and the making practical of our history work, will make it possible to hold on to these nine prescribed humanity units out of the twenty-four or so of these six years and will prevent their being swept away along with the other humanity studies which the modern age is eliminating. If we reform ourselves, the reform will be done right. If we leave it for others, it is likely to be overdone and angrily done and foolishly done.

The setting up of the two prescribed units of science, if one of them be general science, is the reasonable medium between the extreme proposition of having four years of prescribed science demanded by some narrower specialists, and the other extreme of having none at all. This latter is put in practice by the two apparently opposite influences, viz.: the demands on the one hand of some of the more conservative colleges, and the effect of wide open elective systems with the consequent hunting for "snap" courses.

The dignifying of advanced geography as a science course demanding its place among the other laboratory sciences, will prove its wisdom in many ways, and in none more than in preparation for *commercial life.*

Well, then, what shall we do—we superintendents and principals having schools with three teachers or four teachers and no more?

The answer for the present is this: adopt Plan B under the Suggested Programs given out by the Department of Public Instruction or any reasonable modification of the same. With a little care and planning this can be fitted in, for the few cases that demand it, with the liberalized entrance requirements of the State University and other universities, which either are already more liberal, such as the University of Chicago, or will soon become as liberal.

The demand for fixed units of algebra, geometry and Latin is going to fade away, except for such vocational lines in the Universities as absolutely need them as preparation. This change is coming, and it will continue to come even more rapidly.

It is the duty of all fair minded and broad-minded school men to make the changes that are demanded by modern life and we may rest assured that the higher institutions will adapt their requirements in all reasonable ways to these changes.

Thousands drop out and the slowness of reform is the chief cause—greater than poverty, stupidity and laziness.

Thousands of others go through wearing the harness, and turn to vent their wrath or contempt or grief upon the antiquated system and the antiquated methods and the antiquated instruction which they endured in their ignorance and whose harness they bore so long.

It is our duty and just now our high privilege to remedy these faults so that the rapidly increasing number of the dissatisfied and the critical may no longer increase so rapidly nor with so abundant ground for finding fault.

Let us push when we can—improve when he can—study our communities, cooperate intelligently, lay aside our own prejudices and so improve the situation that the great boon of public secondary education, which has been created out of nothing in fifty years, may not be swept away in half that time, but may be preserved as the best means for doing these three great things—the

worthy aims of secondary education—fitting the individual for his place in community life,—opening up opportunity for his own especial powers—conserving and developing and uplifting real character.

Domestic Science Section

The section was called to order by the chairman, Miss Isabel Bevier. After welcoming the section to the conference announcements were made. Miss Bevier reported that, after consultation with the other members of the committee, Miss Florence Harrison, Miss Pincomb's successor in the University faculty, was asked temporarily to take the work of the committee.

A nominating committee consisting of Miss Alice Treganza of Bloomington, Chairman, Miss Minna C. Denton of Oak Park, and Miss Esther Bedker of Kenilworth was appointed.

The report of the Executive Committee was then presented by Miss Florence Harrison. The report is as follows:

Report of the Executive Committee of the Domestic Science Section of the High School Conference—1914

The work of the executive committee of the Domestic Science Section of the High School Conference for 1913-14 has been: first, the planning of the program for the present meeting; second, the revision of the outlines of grade work presented by the committee of the conference in 1912.

The committee met for conference on the outlines in Decatur, October seventeenth. Misses Treganza, Stone, Dunlap and Harrison were present. The outlines for grade work as revised and presented by the committee have a two-fold purpose: first, To encourage and unify the work in home economics below the high school; second, To indicate the kind of work in household arts which can be and is successfully done by girls in the elementary school. In the judgment of the committee, a knowledge of the attainments of the child in the elementary school is a prerequisite for proper planning of the courses for high school, so these outlines will be helpful in the revision of the Syllabus for the high school. The outlines for the grade teacher, the committee wish to be suggestive rather than final. The teacher should feel free to use and modify them to suit the needs of her group. The attempt has been made to give a standard which shall include the basic ideals for which a course should stand; also suggestions of some of the kinds of exercises by which these ideals are to be realized.

Since a committee of the National Education Association, i. e., the Home Economics Section of the Committee on the Reorganization of Secondary Education, is at work outlining aims, considering the place in the curriculum the length of period, the total time, the sequence, all of which data is to be arranged in a syllabus, it seems best to defer the revision of the Syllabus until a detailed study of values has been made.

The committee acting on the suggestion obtained from the General Committee on the Program of Studies, recommend to this section two subjects for next year's work; first, to distinguish between the fundamental and accessory elements of the present syllabus; second, the collection and organization of suggestions for teaching the various subjects. It is hoped that by differentiating between the fundamental and accessory materials in the content of food, shelter and clothing, a statement of facts and principles which are essential to a thorough understanding of these subjects may be developed.

The experienced teacher has many suggestions which could be of value to the young and inexperienced teacher. For example, what is the best way to teach food values, effect of heat upon food, the method of cooking types of food; the form and content of the note book for the grade and high school girl, the method of conducting a laboratory lesson, a recitation lesson, the drafting of a waist, the selection of cloth for a dress, might be shown.

The committee asks that such definite, concrete, practical and helpful suggestions be sent in order that they may be classified and criticized by the committee and later presented to this section.

Miss Elizabeth E. Stone of Decatur High School, in behalf of the Committee, presented the revised outlines for cooking and housekeeping in the seventh and eighth grades. The points kept in the mind of the Committee when suggested changes were made are as follows: 1. To see that the growth was gradual from the simple to the more complex processes. 2. To keep in touch with the girls' knowledge and interests and to make use of the problems that are in close relation to her every day home life. 3. To teach the cost of food as well as the effort required in the preparation of food.

The outlines for sewing in the fifth and sixth grade as revised were next presented by Miss Harrison. The discussion of the report was opened by Miss Mabel Dunlap of Millikin University. She stated the object of the fifth grade work in sewing was to stimulate a desire for work, to create a pleasant attitude toward the work, and to establish a proper habit for thinking and working. The work should be planned to give a good foundation for the sixth grade work. There is the subject matter on the one hand, the child on the other, and the teacher is the point of contact between these two. The teacher should give something as attractive as possible in order to stimulate the child and avoid giving anything which creates the attitude that the work as done is foolish. The lessons on the wash cloth and bag in the fifth grade were objected to on this ground. Also, the colors in the wash cloth would fade when laundered and the bag was not attractive. The objection was made to the sixth grade work

as outlined that there was too much subject matter. The time would be devoted to the practical and the other important and less tangible part of the work would be neglected. No time was allowed for the exhibition of work at the end of the year, which is important for the comparison of each girl's work. Too much work would discourage the child.

Suggestions in favor of the outlines were as follows: The fault of too much material could be obliterated by the teacher choosing from the outlines that which fits her need and time devoted to the work. The bags could be varied, adapted to the needs and made attractive. Laundry bag and its use was suggested. The work is not a means to an end, but when the course is completed, a good finished product is expected. So in cooking, a teacher may illustrate the principle of cooking protein and at the same time insist upon an appetizing and attractive product. Right habits and right attitudes of mind should be taught, but the pupil must also be taught to prepare palatable food, to know how much it costs, and get a standard of taste, food and time. The practice of allowing children to take sewing home to finish was discouraged. After the discussion, a motion was made that these outlines be accepted as a guide to vary from and to be tried. The motion carried.

The following are the first four of the lessons outlined for fifth grade sewing as adopted by the section:

Fifth Grade Sewing Work to be done	60 Minutes per Week Technique and Reasons to be Learned
1. Preparation of working equipment Selection of equipment	Bags or boxes, advantages and disadvantages of each; parts to be purchased; needles, pins, thread, tape line and thimbles; parts made; needle case and pin cushion; material suitable for needle case, amount required, cost; care in use of equipment; cleanliness and neatness.
2. Needle case Marking of individual equipment Plan needle case, size, shape, design	Reasons for marking equipment; characteristics of a good needle case; use of tape line in measuring; size of needle case; proper proportions; harmony of color in selections of thread for design; suitable size of needle.
3. Cross stitch design on cover	Making cross stitch design; appearance of work on right side; appearance of work on wrong side; fastening the thread for beginning; fastening the thread at ending; pleasure coming from work well done; care of hands.

4.	Blanket stitching Piece of flannel for inside of needle case	Purpose of blanket stitch in this case; why called "blanket stitch"; comparison of work done in cross stitch; beginning and ending thread; fiber used in making flannel; character of wool, warmth, oily, non-inflamable, desirability of wool as used for clothing.

The following are the first four lessons outlined for seventh grade cooking and housekeeping:

Seventh Grade Cooking and Housekeeping
One Double Period Per Week

	Work to be done	Technique and Reasons to be Learned
1.	Put kitchen in order	Cleansing of utensils that have been stored; order for utensils; location of supplies; need for cleanliness of person; suitable dress for kitchen; care of towels and room.
2.	Stew fresh and dried fruit	Economy in sorting fruit; proper cleansing of fruit; need for soaking dried fruit; order in work; measurements needed for lesson; economy in the use of gas; comparative cost of fresh and dried fruit.
3.	Bake fruit, peach, pear, apple, banana	Fruit cored and quartered; proper lighting and regulation of oven; polish silver; proximate composition; use of water in the diet; proper and dainty service; cost.
4.	Scallop tomato	Use of stale bread; preparation of crumbs; importance of flavor and proper seasoning; economy in use of utensils; value of variety in preparation; serve scallops; comparison of fresh and canned tomatoes as to cost.

The correlation of Drawing and Design with Domestic Arts in the Home Arts Course was presented by Miss Olive Lothrop Grover, Art teacher at New Trier Township High School, Kenilworth, and the discussion led by Miss Esther Bedker, Domestic Art teacher at Kenilworth. The paper was as follows:

The Correlation of Drawing and Design with Domestic Arts in the Home Arts Course at New Trier Township High School

As we have come here to tell you of our work in the Home Arts Course at New Trier High School, it may be well to give something of the history of the school and the reasons for the development of this course.

When New Trier first opened its doors to the young people of the township in 1901, the number of pupils was fewer than eighty. At that time the building seemed large and roomy enough to accommodate all who might wish

to enter for some years to come. It was beautifully situated on a six-acre tract near Lake Michigan, almost surrounded by woods, the nearest house being nearly an eighth of a mile away; it was easily accessible from the cars, however, as there was a good sidewalk from the car tracks to the school.

This was fourteen years ago, and now a graduate of the early days of the school, coming back to visit his old haunts, feels as though he must have made a mistake, everything is so changed. The old building is still there, nearly entirely remodelled on the inside, but instead of standing out by itself as it once did, it is now the nucleus around which are grouped a number of one-story buildings. The beginning of all this transformation came when there was need for a place in which to play athletic games and carry on the work in manual training and the crafts; this need resulted in what was called the Manual Arts building, a three-story structure connected with the main building by a covered bridge. Now this has been remodeled into class rooms with the bridge forming a corridor, thus making it an east wing of the main building. On the third floor of the corresponding west wing, which is new, is the home of the drawing, design and handicraft department. The Manual Training shops are well housed in a building 50 by 200 feet, which also contains the heating plant, with accommodation for work at the bench and lathe, in forge and foundry, and machine shop. Our one little so-called "gym" has developed into two large gymnasiums, one for girls and one for boys, splendidly fitted up and connected by a natatorium, used by both the boys and the girls at alternate times. On the opposite side of the campus from these buildings, are the Auditorium, or Assembly Hall, seating 1200 people, and a large Dining Hall which may be converted, at need, into a place for social entertainments and dances. The original six acres have been increased to fifteen, giving opportunity for a fine athletic field with a quarter mile cinder track, base-ball diamond, tennis courts and experimental gardens. The woods are almost entirely gone, and in their place are many attractive homes. To some of the older teachers it has seemed almost a pity that we could not have kept our original seclusion, but the coming of the people has perhaps made us more an integral part of the community, and certainly increased the numbers of our pupils, the enrollment this year being over 550.

At the opening of New Trier, no provision was made for drawing in the way of equipment or regular place for classes. One of the recitation rooms was used twice a week and the teacher brought her own still-life or other drawing requisites with her from town; the following year saw an increase in the time allowed and the lessons were given four days in the week, in a room set aside for both kinds of drawing, freehand and mechanical, supplied with hegular drawing tables and boards. This arrangement lasted but one year, however, as the interest in both kinds of work grew to such an extent that it was necessary for each department to have a room of its own, with classes every day of the school-week. Since then the work in Freehand Drawing and Design, with handicraft soon added, has steadily grown until now we occupy three large rooms, having a floor space of about forty-eight by fifty-eight feet, very fully equipped for drawing, designing, pottery and metal work.

In 1905, at the urgent request of a group of interested citizens, Domestic Science was added to the school curriculum, and two rooms were finished off in what had been the attic of the building, for the use of the new department. This work proved not to be a fad, as some had predicted, but a really vital part of the school course and soon outgrew its small quarters, gradually adding more and more space and equipment, until when the main building was remodelled in 1912, nearly the entire upper floor was given over to the Household Arts department, with large sewing and cooking rooms, splendidly equipped, a laundry and a four-room flat for experimental work in house keeping, home furnishing and household decoration.

The demands of the times, and the growing needs of the school, had early made it necessary to depart from the regular work in drawing and design and to put the latter to some practical use; to accomplish this we began our work in applied design; which has developed into a very essential part of the course in drawing. Our ideal and aim from the beginning, has been to give to the pupils something to use in their home and every day life, a broader outlook into the realms of natural beauties, a sense of good line, proportion and color in the home and in the clothing, some power of discrimination in the choosing of materials and furnishings, and withal a sound, happy realization of the beautiful wherever they may find it.

Although during the early years of the school there had been little correlation in the two departments of Household Arts and Drawing, merely an occasional suggestion from the drawing teacher in the matter of design or color, the ideals held by both are so similar that it seemed only natural that we should correlate the two, so in 1912 we planned the Home Arts course covering four years, with five ninety minute periods a week (this is double time), three in the household arts department and two in drawing. Any pupil completing this course receives twenty credits toward the eighty required for graduation.

The course is an elective one, although we hope sometime to make the first year or two required. A large proportion of our girls go to college, and the requirements, especially for the girls' colleges in the east, are so many along other lines of work, that a number who might otherwise elect the Household Arts classes are barred because of lack of time.

Having told you something of our history and our ideals we will tell you how we actually carry on the plans laid out in the Home Arts course. As we are a township high school and our people come from several towns and villages where the preparation has been varied, it has seemed necessary to spend at least a part of the first year in acquiring what one might call a working basis, and while this may be a partial review for some in both the drawing and Household Science, it gives all the same foundation on which to build and does not seem to us to be a waste of time.

As so many of the motives for design used for embroidery and the many things about the home,—curtains, table-runners, pillows and the like,—are based on plant form, in our drawing, we begin work in the fall with the making of flower and fruit studies, doing this as long as we can obtain satisfactory material. We also get butterflies and other insects from the biology department and make drawings of those. All these are done with a view for use in design, and show

all possible positions of flower, bud and leaf and the stem growth. The drawings are kept from year to year, and are often used long after they are made. Following the nature drawings, come several sheets of different kinds of upper and lower case alphabets, and we use a little paper book published by Ginn and Co. as a text or rather copy book, practically the only book, other than those consulted by reference, used throughout the course.

The first problem in sewing is a laundry bag, and on it the pupil learns to do machine stitching and a good many hand stitches. The art needle work on this article is the embroidering of an initial, designed in the drawing class, in some simple stitch or etching. The subject of gifts, their purpose and usefulness is next discussed, followed by the problem in Christmas work. Each girl is given a choice from a number of simple gifts, such as a glove case or some other similar piece of work. These are decorated with stencils made in the drawing department and put together and finished in the sewing classes. After the holidays the girls make corset covers; and here again the application of art principles is considered. The garment is made by hand and trimmed with lace which the pupil has learned to crochet. Good and bad designs in crochet-work are discussed and simple design and good workmanship sought, instead of elaborateness. The last problem of the year is the making of a muslin petticoat, on which the arrangement of tucks and other trimmings is carefully considered in order to make a balanced and well proportioned design. Before the trimming is purchased, samples are brought to class and the designs are criticized with the purpose of teaching the girls that good designs are obtainable in machine made embroideries if care and thought are exercised in their selection.

In the drawing classes throughout the year, the work includes the making of abstract designs, problems in perspective and in color, some drawing of still-life and general preparation for the work of the following year.

The beginning problem in sewing for the second year is a night-gown. The pattern for this is drafted by the girls, and the art needle work on the garment consists of feather stitching as a finish for the neck and sleeves and French embroidery on the front. The design for this is made in the drawing class, first on ordinary drawing paper then traced onto rice paper, painted white and placed on a dark mount, thus making it possible to see how the design will look when embroidered, and if it is not satisfactory it can be changed before it is transferred to the gown. The first drawing is outlined in black ink so that it will show through the muslin and can be traced on to the gown in pencil.

The work in Domestic Science classes has been the studying of bacteria, yeasts and molds; the preservation of foods, etc., and the pupils have canned fruits and vegetables and made jellies and marmalades. The labels for the jars and glasses form one of the problems in lettering. They are done in colors to match the fruit and sometimes a tiny design is added.

The gift or Christmas work is a piece of cross-stitch embroidery; this may be a pillow, a tray, a bag, a towel, a table cover, or some similar article. The design for this is made as though for outline or French embroidery and then worked over into a cross-stitch pattern on squared paper.

As the problem of the second semester is the designing and making of a cotton dress, we start soon after the holidays with one pose drawing. Unless a pupil shows some special ability in drawing features, they are generally omitted as you will see from the drawings, and the attention centered on the good line and proportion of the figure. Textiles are considered, and becoming color-schemes discussed, and conservative rather than extreme styles are chosen. Samples of materials are brought and the designs carried out in the same colors. Patterns for these dresses are drafted in the sewing classes.

In the table-setting and serving, which comes in the second year, there is a wide scope for correlated work. Principles of balance, color and line find concrete expression in the arrangements of the covers, centre-piece decorations, candle-shades, nut-cups, and place-cards; these latter being made in the drawing classes. Each year, in the spring, this class and the older one prepare and serve a dinner for twelve or fourteen people, the members of the Board of Education with their wives, the principal and his wife and the teachers of the department. The illustration shows the table ready for the guests, as it looked in 1914. A general color scheme is chosen and is carried out in the entire menu as well as in the table decorations.

The first work for the third year in Domestic Economy, is the making of a wool dress. Commercial patterns are used this time, so that the girls may learn how to use and how to alter them. Each girl selects a design which she brings to class, where it is criticized by the members of the class and by the teacher, design, proportion and appropriateness being considered. The opportunity for correlated work in this problem comes in the possibility for original design on collar and cuffs, a vest, or embroidery directly applied to the material.

During the second semester, the girls are instructed in various forms of art needlework, a good deal of time being devoted to different forms of crochet work; use and beauty, simplicity and good craftmanship being the aim of the class.

The drawing side of the third year is largely in the making of things which they may use in the home. In the fall, the usual flower studies are drawn and the design made for copper-work. First of all we have a few community problems which will be used in the furnishing of the flat. All of the class make designs for the different articles, then one of each group is chosen to be developed in the metal, several people working on the piece. After this is completed, each pupil may carry out her own design, providing her materials, and that piece becomes her own property at the close of the school year. Some of the pieces being made now are a cheese plate and knife, a bowl for whipped cream, or mayonnaise, with a plate and spoon, and a holder for a jelly or marmalade jar, with spoon. In every case where food will come in direct contact with the utensil, that part is silver-plated; this we have done outside. One of the things we hope to make soon, is an inverted shade or dome of copper for the dining room. Later in the year each girl is expected to make a desk-set of about ten pieces, or a table set, approximating the same number of articles, or some other copper work equivalent to one of these. Toward spring, we do a little work in drawing house plans, but we have found that most of the girls know too

little about the planning of houses to make it satisfactory, especially as the time is limited.

All of the work of these three years has been really carried out and is not mere theory. The correlated work of the fourth year, however, is in an experimental stage, and although we think we are sure what we want to do, the results of this coming year will show how well our plans work out.

In the household science classes, when the fourth year is reached, the girls should be ready to have some individuality and originality of thought in their work and the aim is to bring this out as much as possible. The year is begun with the study of fall and winter millinery, and the making and trimming of a fall hat. Renovating, beautifying, and using of old materials is part of the work. Here, too, our aim is to have hats to suit the wearers, and not a blind following of fashion. The study of color and color combinations, plays an important part in the millinery work, as well as the making of bows and flowers. In the spring a wire hat frame is made, covered, and trimmed. A large part of the theory of this year is devoted to household management and the study of textiles for the different rooms of the house, this is carried out in practical housekeeping and home decoration.

In this fourth year the correlated work will be in the drawing of hats, the planning of color schemes, the study of good line and proportion in furnishings and talks on interior decorating with special reference to the choice of wall papers, carpets or rugs, and furniture coverings, and the hanging of pictures and draperies.

When a girl has successfully completed her four year's course in Home Arts at New Trier, we feel that in whatever circumstances she is placed, she will show by her discrimination and choice of materials and the conscious use of the art principles in her every day life, that the continued application of the theories of one department expressed by the craft of the other, has changed them from the theories into an integral part of her make-up.

Olive Lothrop Grover,
Esther B. Bedker.

A vote of thanks was given to Miss Grover and Miss Bedker for their efforts and contribution to the program.

Miss Mary Moore, Chicago, a member of the special committee to confer with regard to a general science course for high schools, reported to the section. The first and only meeting of the committee was held in February and the advisability of a general science course in the high school was discussed. Some think the general science course would encourage pupils to take other courses in science such as biology and physics; while others think it is revolutionary rather than evolutionary. In her own opinion a general science course including training in each of the sciences as chemistry, biology, physics, etc., would not be revolutionary but would make a good basis for the

domestic science course. The committee decided it would endeavor to obtain more information concerning the general science course.

The nominating committee next reported that Miss Bevier, by virtue of her position, would be a member of the committee. Miss Florence Harrison was nominated as a member of the faculty who studies the problems of both the high school and University; Miss Esther Bedker of Kenilworth was also nominated to represent the art side of the work. The report of the nominating committee was approved and accepted. Following is the executive committee for next year:

Isabel Bevier—University of Illinois.
Florence Harrison—University of Illinois, Chairman.
Alice Treganza—Bloomington.
Elizabeth Stone—Decatur.
Mabel Dunlap—Decatur.
Esther Bedker—Kenilworth.

FLORENCE HARRISON, Secretary.

ENGLISH SECTION

(REPORT OF THE SIXTH ANNUAL MEETING OF THE ILLINOIS ASSOCIATION OF TEACHERS OF ENGLISH)

The sixth annual meeting of the Illinois Association of Teachers of English was called to order at 9:20 A. M., Friday, November 20th, in the Moot Court Room of the Law School of the University of Illinois, by the president. After the reading and approval of the minutes of the previous annual meeting, the president appointed a nominating committee consisting of D. K. Dodge, J. M. Clapp, and Miss Eva Mitchell. After announcements made by the secretary, the Association proceeded to the reading and discussion of papers.

The first paper was that of the president of the Association, Mr. J. M. Crowe of the University High School, Chicago. Instead of discussing the rather vague topic which had been assigned him, Mr. Crowe confined himself to advocating the adoption of some scheme for eliminating wasted time in the teaching of English. Feeling convinced that at least a year could be saved by avoiding the repetition of courses in successive years that are practically identical, or at least that deal with the same material, he told of an experiment recently tried at the University High School at Chicago which seemed to justify his contention.

Professor Paul then presented a report of an investigation relating to the training of teachers of English. The results of the investigation revealed some tendency on the part of high school teachers to over estimate the value to them of courses dealing with the methods of teaching English, and a corresponding tendency to undervalue their preparation acquired from courses more purely cultural. Courses in Shakespeare, in Chaucer, and especially "teachers' courses" they seemed to look back upon with fervent thanksgiving, but to regard with only a chastened satisfaction period courses, Anglo-Saxon, and Browning. Such a tendency, implying as it does, at least a partial misunderstanding of the real value of a college course as a training for teaching English, was deplored by those who discussed the report. Miss Ruth Moore of Bloomington, and Miss Florence Skeffington of Charleston emphatically pointed out that the teachers' educational training is by no means analogous to the packing of a pedlar's wagon with material which is later to be unpacked piece by piece and retailed; that, consequently, the course of which the material may be directly utilized may not be most valuable; and that method courses as compared with those whose value lies in what may be called their cultural content may be after all, not short cuts to success, but to failure. A further contribution to the discussion was that of Mr. Lester Frailey, who maintained that no training of any kind, either that derived from cultural courses, or from courses in method could take the place, as equipment for English teaching, of a real human sympathy, a virile sense of the joy of living, and a knowledge of the psychology of childhood and youth.

Professor Clapp's paper, which followed, was entitled "The Speaking Voice." After an arraignment of the American voice, which he reminded us is a by-word and a hissing in European countries, where even the man in the street speaks in an agreeable tone, and with clear enunciation, he proceeded to advocate that more attention be given in the high school to the cultivation of a good speaking voice. He advocated only common-sense methods—drill in reading aloud, a daily exercise, in connection with composition courses, in correct speech, insisting upon soft, clear, pleasant tones, and distinct enunciation. In conclusion, he asked the teachers present whether in their opinion anything could be accomplished by reading books upon the subject. Mr. Woolbert voiced the opinion of those present when he denied that much good could be accomplished in this way. To

most of us it seemed that the best corrective for a fault in the speaking voice is a thorough training in vocal music. Certainly there is no better means of acquiring the ability to vary one's inflections than a course in sight-singing.

At the afternoon session, the nominating committee reported the following nominations—for president, B. C. Richardson of Alton; secretary, E. C. Baldwin, of Urbana; treasurer, Miss Kathleen Roberts, of Urbana and as members of the executive committee the following:

1915 Miss Florence Skeffington, Charleston.
1915 Miss Eva Mitchell, Centralia.
1916 Miss Caroline Rice, Peoria.
1916 Miss Ruth Moore, Bloomington.
1916 Miss Margaret Wilson, Cairo.
1916 Mr. Williard M. Smith, Cicero.
1916 Mr. Z. A. Smith, Quincy.
1915 Mr. H. G. Paul, University.
1915 Mr. J. M. Clapp, Lake Forest.
1915 Mr. C. H. Woolbert, University.

Preliminary steps were taken toward the formation of local subsidiary organizations of English teachers, a meeting being called for that purpose by Miss Eva Mitchell, and by Miss Florence Skeffington, of Charleston. This was part of a general plan of the executive committee looking toward the interesting of a larger number of teachers through the formation of small local organizations.

"Standards for Testing Composition Work" was the title of a paper read by Mr. P. M. Watson, of Chrisman. In this paper, and still more clearly in the discussion that followed it, the fact appeared that no scale so far devised has taken account of a distinction fundamental to any consideration of literature. This is De Quincey's famous distinction between the literature of knowledge and the literature of power. Several testified to their belief that the variations found in the application of the scale were due to variations in the teachers' own standards and aims—some grading wholly upon a basis of form, others, wholly on a basis of originality. Mr. Crowe pointed out that the formulation of a scale that would in any satisfactory way measure the value of originality is certainly a difficult, and probably an impossible task. Dr. Jones, in the following discussion, went so far as to raise the question whether any such attempt were not "an

abomination," tending only to rigidity, and to the substitution of a mechanical standard for one based upon a sympathetic understanding of the personality of one's students. Mr. Peterson of the Crane Technical High School thought the grading of themes would be greatly simplified, if, instead of applying a scale, we confined ourselves to grading only one thing at a time in a given composition. He maintained that the grading of written work is quite as simple as the grading of mathematical papers. "Suppose," he said, "one is teaching paragraphing. The theme for that day should be graded wholly on that basis. If the paragraphing is right, give the pupil one hundred. If it is wrong give him zero. By all means fix your attention on the paragraphing alone, without allowing yourself to be distracted by the thought (if there should happen to be any) in the paper. Originality is the gift of God; and with the inspiration of the written work the teacher has no concern whatever." At the conclusion of Mr. Watson's paper, Professor Paul made a motion, seconded by Professor Dodge, that Mr. Watson be asked to continue his investigation. The motion was carried.

The paper on the Teaching of the History of English Literature, presented by Miss Lora Henion, of Pontiac, was a thoughtful exposition of the problem, considered from the standpoint of the practical teacher. The conclusions arrived at were that a text book for the teaching of literary history was desirable to give background and coordination to the reading, and to dignify the work. She did not hold that the study of literary history should ever be allowed to become an end in itself. It should be employed simply as an aid to the better understanding of masterpieces, never as a substitute for literature itself.

The latter point was still further emphasized by Miss Kathleen Roberts in her discussion of the paper. She pointed out that the danger of such a substitution's being made would be obviated by a thorough knowledge of literary history on the part of the teacher, and by a careful planning of the work by the teacher, so that the use of the text book would be properly subordinated, and at the same time correlated, with the reading to be done by the class in the masterpieces themselves.

Following this discussion, and after some further announcements by the secretary, the session adjourned. The general feeling was that the work of the conference was improving each year. The papers

this year were less academic than formerly, more vitally related to the actual work of the teachers who wrote them. The discussion was far more interesting, spontaneous, and suggestive than ever before. Indeed, so helpful were the discussions that the question might well be raised whether it would not be worth while to limit the number of papers still more, in order to afford time for a more extended discuscussion of them.

EDWARD CHAUNCEY BALDWIN,
Secretary.

[The four papers by Professor Paul, Professor Clapp, Mr. Watson and Miss Henion are here appended in the order of their presentation.]

The Preparation of High School Teachers of English

H. G. Paul

This present investigation of the preparation of high school teachers of English, undertaken by the Illinois Association, is but a part of a larger one which is being carried on by a number of organizations of instructors in English in various parts of the United States. The New England Association has conducted a similar investigation; and its results may offer some interesting materials for a comparison of conditions and beliefs among teachers of English in two widely separated sections of this country. Later, the materials which we have collected will be turned over to a committee of the National Council, where they will find a place in a report that will give us the opinions of instructors in every section of this country concerning the preparation for prospective teachers of English offered by the colleges and universities.

Before beginning our examination of these results, we may well spend a moment in summarizing the special work now being done by the various institutions of higher learning in Illinois, to prepare high school teachers of English. From the letters received in answer to my inquiries, and from an examination of the catalogues, I am led to believe that many, indeed the majority, of these institutions are furnishing little beyond such incidental training and instruction as may come as a by-product from the regular class-room instruction in English. Lombard, Monmouth, Knox, and Milliken each offer a two-hour course in methods of teaching English literature and composition. Wheaton gives its prospective teachers drill in the practice school; and Rockford is helping with a new training school just started in that city. It also offers in alternate years a "Teachers' Course for English in the Grades," and a "Course for English in the High School." Millikin "gives the student opportunity so far as it is practical for observation and practice teaching under supervision."

Judging from its catalogue, I should say that Northwestern University now offers no course intended primarily for teachers of English; but that a course in the department of education, called "Methods and practice Teaching", may, and probably does, make provision for those expecting to become

teachers of English. At the University of Chicago this work is under the very efficient direction of Professor R. L. Lyman. In addition to courses in the Teaching of Composition, the Teaching of Literature, Oral English, and English Grammar, that university offers work in Practice Teaching in English, open only to Senior College students. "Each student must teach at least fifteen lessons." The University of Illinois offers a Teachers' Course in composition and literature, two hours a week for two semesters, and courses in Historical Grammar and Interpretative Reading, intended primarily for prospective teachers. It also requires candidates desiring recommendation as teachers of English to take an examination, including spelling, oral reading of passages of verse and prose, the writing of theme, the principles of composition, and the outlines of English and American literature. During the last years of the old University Academy, some of the seniors were given practice teaching in English. Such work has, however, been suspended, awaiting the opening of the University practice school.

So much, in brief, for existing conditions. Let us now turn to the more immediate concerns of the present problem.

The number of replies to the questionnaire on this problem, sent out last April to teachers in Illinois schools, was not so large as we might wish. Perhaps there would have been a more generous response if the investigation had been undertaken somewhat earlier in the year. As it was, I received returns from between sixty and seventy teachers of English in the secondary schools of the state.

The first four groups of questions asked these teachers were intended primarily to aid in forming an ideal of the man or woman in the witness box, to shed some light upon his present and past condition of servitude, and to help in understanding the testimony offered. Some of the data collected from these answers may, however, be of general interest and value, especially that portion of it relating to the preparation of those teachers who participated in this investigation. Of these eleven have received normal school diplomas, fifty-seven have the bachelor's degree, seventeen have some higher degree, and four are without any such recognition of their work. As nine of those who hold normal school certificates have also received degrees we are justified in regarding this company of witnesses as practically a body of college graduates. Nearly all of them have taken a fairly large number of courses in college English,—as a rough guess, probably three full years in the subject; and they have taught on the average 12.3 years, with the further average of 9.1 years given to English. Taken as a whole, therefore, the witnesses whose answers we are to examine cannot be said to be wanting in experience or to have their judgments warped by an undue propinquity to their undergraduate days. Almost without exception they are at present engaged in teaching English literature and composition in the Illinois high schools; and in the few instances where they are not so employed, I cannot discover that their evidence differs materially from that of the large majority.

Turning now from this brief survey of the qualifications of those bearing testimony to a consideration of the opinions they hold, we find that in their answers to the request, "Mention English courses that have proved exception-

ally valuable to you in your English teaching, by furnishing material or by directing you in methods of instruction," many of these teachers made no distinction between the two classes suggested. A tabulation of the courses mentioned as helpful includes nearly every course in English commonly offered in colleges. The following table indicates the number of times that each course received honorable mention as having proved itself of especial worth to some instructor in a secondary school:

Reported Once—Anglo-Saxon, A Survey of Sounds, Contemporary Literature, Browning, Argumentation, A Working Use of the Dictionary.

Twice—Eighteenth Century Literature, Period Courses, Elements of Criticism, and Public Speaking.

Three Times—A Study of the Novel, the Drama, Chaucer.

Four Times—Nineteenth Century Literature.

Nine Times—Shakespeare.

Ten Times—Teachers' Course in Literature and Composition.

Twelve Times—General Survey Courses, American Literature.

Seventeen Times—Courses in Composition.

An examination of this list offers some interesting suggestions. On the whole, it is rather inclusive. One teacher writes, "It seems to me that all my work in English has been invaluable to me in my teaching;" and her testimony is corroborated by that of eleven others. The significance of the number mentioning Public Speaking and Contemporary Literature may be left for later consideration, as may also the report on courses intended for teachers. Many of the courses less frequently mentioned are obviously of a more advanced or very unusual nature, courses which are less frequently offered, and when offered elected by a comparatively small number of students. Furthermore, certain courses contribute much more immediately and more frequently than do others to the demands made upon the high school teacher of English. It is not surprising, therefore, that a course in a General Survey should be mentioned six times as often as a course in the Essay.

Those teachers who went on to enlarge upon the courses and other means of grace that had proved especially helpful to them in acquiring better methods, emphasized either one or a variety of agencies. Several of them spoke of the aid they had received from such books as those by Professor Moulton and by Professor Corson; and one teacher adds, "I got as much out of following Professor Clapp's experiment in Oral Composition last year as from any course I have ever taken." In general, however, those teachers who discussed this point emphasized either one or both of two kinds of help. The first of these was the influence and example of some professors who were, or are, excellent teachers, and who through their methods of presenting their materials offered admirable illustrations of the technique of their craft. One writer puts it thus:

"I gained more real help from the observation and comparison of different instructors in composition and in literature, since, unconsciously, they taught methods and set standards by their actual class-room work and management."

In much the same vein another teacher writes:

"I have never taken any course in methods; what I have gained on this point has been gained under the professors with whom I have studied, particu-

larly the late J. Scott Clark, whose methods of teaching rhetoric and analyses of literary style were eminently practical."

A second and far larger group of teachers, however, emphasized the value of supervised teaching and of courses dealing primarily with methods of presenting the subject matter; but in so much as their testimony helps shed light upon topics considered later in this report, we may defer for a time any discussion of what they have to say, beyond noting that over twenty of these teachers declare that they have been greatly helped by their work in such courses.

In their answers to the succeeding question—"Mention any English courses that have proved of little worth to you as a teacher of the subject," a very large majority of the witnesses deny the existence of any such courses—or at least affirm that they have never found them. Two of these reports speak unfavorably of work which might have been surmised to be helpful—one a General Survey course, the other a course in the Elizabethan Lyric. The majority of the small number that criticize their college English, mention work that was either of a very advanced and technical nature, or else too purely philological to serve the teacher's later purposes. Among these technical and advanced courses were the following: one in Carlyle, "which had too much detail to be applicable in teaching high school work," a study of three texts of *"The Vision of Piers Plowman,"* "graduate work in the textual criticism of Shakespeare," and part of a rhetoric course dealing with argumentation. While most of the teachers who commented upon their instruction in Early and Middle English seem to feel that it has been of value in their later work, one objects to "technical courses in the teaching of language—the Anglo-Saxon roots;" another declares that he gained little from his study of Beowulf; and a third writes that his course in Chaucer was disappointing, "being almost entirely philological." But such instances as these just cited are the exception rather than the rule; and in their recital they may have received more space and time than they deserve; for here, as before, most teachers take the position that nothing they have studied has proved useless. As one instructor puts it: "I have used everything I ever knew."

The answer to the next query—What courses other than English have you found especially valuable to you as a teacher of English,—are quite in keeping with what we might well expect after the replies to the preceding question. After a study of these answers, indeed, we are tempted to twist the old motto, and let the teacher of English declare that "Nihil scholastici mihi alienum." Fully thirty different subjects are mentioned as having proved especially helpful. Of course we must be careful regarding the inferences we draw from these answers. We have seen how pretty much everything which comes into the English teachers' net is fish for the freshmen; and we must also recall that many teachers have not had, and naturally in four college years cannot have, training in each of the subjects mentioned. We must also remember that some of these subjects, such as the Social Sciences, are just coming to their own; and that certain other subjects, such as aesthetics, are usually placed well along in the college course and their election restricted by prerequisites, or are of a nature so ill understood by the student body that they are chosen by a very small

minority indeed. As a first condition, therefore, to scientific accuracy in answering this question, every teacher should have had training in each of the subjects of the curriculum. In the absence of such testimony, however, let us see what is revealed by the answers at our command. Grouping these thirty subjects, we find, as might be expected, that various physical sciences, such as zoology, geology, biology, and ornithology are mentioned by only one or two as having proved of especial value. Here, of course, as has been suggested, the scientist might come back at us and ask how many teachers of English have ever made even an elementary study of these sciences; and by so doing he would probably have us on the hip. Botany was mentioned by four as especially valuable; one teacher adding, "It has done much to open my eyes to the things the poets love." A much larger number of teachers emphasized the importance of the courses they had taken in the sociological and philosophical groups: political science, civics, sociology, and ethics are each mentioned five or six times; while psychology, education, and philosophy are noted by twelve, thirteen, and seventeen teachers. Still more numerous are those who have found their work in various foreign languages especially helpful: fifteen mention French; eighteen, German; and twenty-six, Latin. Greek is reported by five; and Greek in translation by three. It would be interesting to know just how many of those who participated in this investigation had ever been students of that subject.

But making every allowance for all the conditions that limit the value of the answers to this question regarding the subjects teachers have found well worth while in their present work, we cannot escape the conclusion that most of them have discovered in their courses in history a very present help in time of need. Many of them specify ancient history, medieval, and American; and a still larger number testify for English history, which several teachers characterize as "indispensable." More than seventy-five percent of the sixty teachers who answered this question mentioned history, either in general or in some one or more of its special departments. To put it in other terms, history is included nearly twice as often as the next highest subject, which is Latin.

Of special interest are the replies which include aesthetics and the history of art. The former is mentioned three times; and the latter five. Here, again, we should like to know how many of us ever elected such courses, and how many of us ever had a chance to elect them.

The answers regarding courses other than English which have proved of little worth to teachers of our subjects are disappointing, if we are to judge simply by the comparatively few replies the query evoked; for on nearly half the questionnaires the space for the response was left blank. The fact, however, that twenty teachers replied that they had taken no such course or courses, probably explains in large measure this dearth of responses. Furthermore, as several replies indicated, many of us as college students had not expected to teach English,—probably had not expected to teach at all. Those who mention specific courses usually ascribe their disappointment not to the subject matter of the course but to what the meteorologist would call "local conditions." Here is some testimony to bolster the faith of those of us who believe in exacting from each student at least good, honest, journeyman's labor: "I gained little or nothing from a 'pony-course' in the Aeneid, from some prose composition

and translation courses in German, and from the third of my four semesters of French, the reason being in each case that I did not work hard enough." And again: "The only two courses that I ever found disappointing were two in which the professors were so afraid of over-working the students that they gave nothing really new. My disappointment, therefore, was not due to the courses." Similarly we may see the effects of what we have characterized as local conditions in the following typical answer: "One course in methods of teaching modern foreign languages, taken with a noted phonologist, proved interesting from a scientific standpoint; but I derived but little practical value therefrom."

Two or three of those answering stated that they had gained little or nothing from their courses in political science; and six had words of censure for their courses in education and educational psychology. It is interesting, however, to note that in each of these eight or nine instances the writer blamed either himself, the class conditions, or the instructor, rather than the subject matter of the course. For example, the student was "too immature for the work," or, "the class was a miscellaneous mixture, including the recent graduate from the country grammar school, university graduates, and all between;" or again, "the instructor did not know his subject." Even the strongest criticism ends with a word of extenuation: "Psychology and pedagogy as I studied them were a disappointment. I used to wonder what they had to do with teaching school; but they are better taught now."

Such are the comments. A word of caution is necessary here, perhaps. Most of our space, in discussing this question of fruitless work, has been given to criticism of various courses. We should do wrong, however, to leave this subject without re-emphasizing the fact that in nearly ninety percent of the replies no such criticism is offered; and that, in general, whenever teachers have taken these courses other than English expecting to find help in teaching their own subject, they have not been disappointed.

As might have been surmized, a considerable majority of our witnesses have never elected any pedagogical courses that required practice teaching. Of the twenty-five who have taken such courses, one is decidedly opposed to them. She writes thus: "Frankly, my practice teaching was, in my own opinion, of little assistance to me. Conditions in real schools and in model schools are very different." Of the twenty-two or twenty-three teachers who gave an unqualified approval of their experience in these practice classes some simply commented upon the work as "helpful," "very valuable," or, frequently, "indispensable." Of the answers of those who analyzed somewhat more carefully the worth of such experience three may be quoted as typical:

(1) "I found these practice courses wonderful helps in aiding me to find myself and in learning to trust myself."

(2) "This practice teaching was extremely valuable, both for the work in plans, questions, class conduct, etc., and for its criticisms and suggestions."

(3) The course served to turn one's attitude and standpoint from that of the taught to that of the teacher; it opened a new field of vision."

Many other similar answers might be quoted, if time and space permitted; but they are perhaps unnecessary. In a word, the evidence on this point is a

highly commendatory and an almost unanimous approbation of practice teaching by those who have had such training.

Turning next to the answers concerning the value of courses designed for teachers of English, we find that two voices give the negative, and that three express doubt as to the worth of such work. The most carefully worded of these opinions is the following:

"I think that I should have been helped by such a course; but even the equipment that a successful teacher of English needs is a broad, general culture rather than specific, practical data or suggestions. Each teacher worthy of the name will sooner or later have to discover a way of his own; and he will do this the better if unhampered by *ex cathedra,* pronouncements of certain courses in methods, say, or what not. The one essential thing, for the teacher of English in particular, is to have the *Vision* and a broad intellectual horizon. English—and the successful teacher of it—is touched at so many points by all the other branches of knowledge that it is a vital mistake for the teacher of English to find himself, at graduation, circumscribed by the limitations of the specialized courses of his particular calling."

The caution here suggested is worthy of our very careful consideration; but, nevertheless, its writer is in agreement with nearly ninety percent of those answering the question in declaring that they should have been, or have been, helped by such a course as that under consideration.

In this connection an extract from a private letter of a principal of a large high school is quite pertinent:

"In some quarters this question may bring to the surface that miserable old bone of contention concerning the value of normal school vs. college training. Of course if I had to choose between two teachers, one loaded with methods and a scant knowledge of his subject matter and the other widely read and well versed in subject but without pedagogical training in English, I should unhesitatingly select the latter. But if I can get him, I shall always take the man who has had both. I value this training in methods because it helps the prospective teacher in getting his bearings. Frequently the college graduate has a sorry time in adjusting himself to conditions in secondary schools and wastes precious months in endeavoring to practice the whole college course upon high school students, very much as your young Ph.D.'s are troubled when they come to teach composition to college freshmen. No medical school today would dispense with its clinic work and its intern service; and no good law school which I know of would be willing to omit its moot court practice. Inexperienced teachers usually find themselves in time; *but it is at an appalling expense to the pupils.* The larger high schools, paying better salaries, frequently protect themselves by refusing to take these young teachers till they have finished their apprenticeship and buried their crudities and mistakes in some small town. Naturally, too, I value highly—no man more highly I trust—wide culture and general scholarship; but to demand these alone seems to me to lead to the old fallacy that anybody can teach English. Now to my way of thinking right methods of teaching English are as necessary as right methods in any other subject, and usually much harder to get. A good course in methods of teaching English awakens the student to a consideration of the question of values; and it

leads to a discussion of those innumerable problems, such as the outlining of courses of study, which puzzle the most experienced of us. Furthermore, it enlarges the student's horizon by training him to face these problems of teaching English thoughtfully and intelligently. I prize most highly the inspiration that comes to every student from contact with a liberally educated, widely read man or woman; but I feel that it is time for us to realize that the teaching of English is an art and a science thoroughly worthy of careful study from those who propose to make it their vocation."

Passing from the question of whether there shall be such work designed especially for training prospective teachers of English to the consideration of the nature of such a course, we find that about two-thirds of our witnesses believe that such instruction would be equally helpful in composition and in literature. Of those who dissent from such an opinion six are of the belief that a course in literature would prove the more useful, and thirteen favor a course in composition. The latter seem to base their belief upon these two arguments: (1) "it would be easier to make a course in composition helpful;" (2) "the technique of that subject is the more troublesome."

Regarding the further question as to who should give the course—a member of the department of English or one from the department of education—the vote is overwhelmingly in favor of the former (35-7). One examining the comments is led to infer that this large majority based its opinion upon the primary importance in such a course of the instructor's grasp of subject matter. "Such a teacher," says one answer, "should be a member of the English department who has had training in education rather than an instructor in education who has had training in English." Two or three of those who discuss the question insist that it makes no difference who gives the course, provided the work be practical and well done, and that the instructor be in close touch with the actual needs of high-school students. Personally, if I may take the witness stand for a moment, I am inclined to sympathize with this little group. The position of such a teacher is somewhat anomalous,—one foot in the department of English and the other in that of education; but the difficulty of such a situation is not unique. It is only one of a number of cases contingent upon our present system of departmental barriers. In so far as the vote represents a conviction that a thorough acquaintance with subject matter is more likely to be assured if the work be given by a member of the department of English, I am in sympathy with the majority.

A tabulation of the answers to the succeeding query, as to whether such a course would prove most helpful, after, during, or before a period of actual teaching experience, reveals an interesting difference of opinion. Twenty favor such practice before actual teaching; twenty others favor it during teaching; and twenty-one favor it after some experience in teaching. This result may recall, perhaps, the somewhat similar vote of an assembly of Kentucky colonels who deliberated concerning the best time of day for consuming one of their state's most famous products. Evidently the advantages to be gained from each of these three periods made about equal appeal to those responding. One of the teachers who discriminated in values offered this brief comment: "Before or during, necessarily; mere valuable, after." Another put the difference thus:

"Before, for the sake of the pupil; during or after, for the sake of the teacher." A third favors two courses: "One before a period of actual teaching, to inspire confidence; another during actual teaching, to renew inspiration."

That such a course should be accompanied by practice teaching is the almost unanimous opinion of those replying to this questionnaire; and no inconsiderable number of these may be said to speak with authority, for they have eaten of the pudding and not simply tasted the string. One of the five or six who dissent from this opinion of the large majority, believes that the teacher may secure more effective aid from visiting classes, attending conventions, and reading educational journals. Two others object to practice classes on the grounds that the conditions there found are very different from those of the ordinary school room; and a fourth declares that organized visiting and the writing of lesson plans will suffice. On the whole, however, the opinion of the overwhelming majority is, as has been stated, strongly in favor of such practice teaching.

The suggestions regarding additions to the college curriculum in English that might prove especially valuable to teachers in secondary schools, are very significant. Possibly the large vote in favor of an advanced survey of English literary movements was due in part to the fact that such a course was suggested in the questionnaire as a typical innovation; but, from the comments made upon this suggestion, it seems probable that many teachers had already considered seriously the desirability of such a college course, to be taken somewhere toward the close of the student's senior year. "I wish especially,," writes one teacher, "that we might have a course which would gather up and unify what the student has done." Other teachers suggest courses in the history of language, in advanced English grammar, constructive work in debating, a more advanced study of the history of American literture, extensive courses in the evolution of literary types, a study of social rather than of so-called literary movements, courses in English thought, courses in first hand criticism, intensive and limited in scope. "A helpful course for teachers," suggests another, "might be based on the English Journal." Still another teacher writes: "I should favor courses in the literature of agriculture, electricity, etc., or in other words English as it is applied to the activities of life. We confine it too much to pure thought and emotion; pure literature as it were."

Many of these suggestions, worthy of consideration as they are, represent the views of a single teacher. There are, however, four proposals, each of which has the support of a body of instructors. Some of these suggestions may well be incorporated here in the language of their champions. The first advocates a course in folk literature.

"A study of primitive literature would be of benefit to the teacher. By primitive literature I mean the whole range of folk literature and the early epics. Such a course would fit graduates to teach literature in the elementary schools and would be of hardly less value to graduates who go into high school work. Of course very little of this material is really *English.* Teachers of English should have it, however, in some department."

A second proposal, coming from a number of teachers, is for a course in comparative literature, especially for modern literature in translation. The

reasonableness of this suggestion is obvious and need not here detain us. A third and most insistent demand is for courses in contemporary literature. About twenty teachers mention such a course and urge that it be added to the college curriculum. One teacher puts the case thus: "The boys and girls (like you and me) are bound to do much of their reading in the literature which expresses the mood of the present; and we should be prepared to show them the worthy efforts which are being made to produce such literature."

In addition to these demands for folk lore, comparative literature, and contemporary literature, comes that for a course in oral reading, which, says one of its advocates, should be "taught by a good and ripe teacher of English literature who has also some technical knowledge of the voice. This is a terri bly needed course. Not a course in reading scraps, nor in reading declamatory or histrionic piffle, but one in reading important literary works—poetry, drama, fiction, belles-lettres, from Chaucer down."

Such are some of the suggestions. Personally I believe that this Association may do much by discussing this question thoroughly, going into it carefully, either today or at some later meeting, and then making its recommendations to the colleges and universities.

For the teacher to attempt to indicate in the three or four inches of blank space allowed on the questionnaire what he may regard as the irreducible minimum in the equipment of the teacher of English, and what he would add to make that training ampler, may seem futile indeed; and perhaps we should be equally guilty of rushing in where angels might fear to tread, if we attempted in one section of this report to discuss at length such answers as those questions evoked. Briefly, however, while these answers disagree regarding this irreducible minimum, which in these various replies differed from "an ability to use decent grammar" to "at least thirty hours of college English," they were fairly agreed in insisting that the high school instructor in English should have gained at least a bachelor's degree. Furthermore, a careful comparison of those replies which outlined definitely in college courses such a minimum shows a fair consensus of opinion. Here is a representative list: "a survey course, Shakespeare, American literature, Victorian literature, more than one course in composition, some work in public speaking." Of those answers which did not attempt to enumerate any specific courses the following is typical:

"An English teacher should be able to talk and to write readily and accurately, should appreciate good literature and have a fair acquaintance with it, and should be able to read well enough to hold the interest of his pupils."

When those who had patiently answered the questions propounded came to enumerate the courses they would add, if permitted to build a mansion for the English teacher's soul statlier than the low-vaulted, irreducible minimum just discussed, the majority of them added at least two foreign languages, a more extensive acquaintance with English literature, especially with the earlier periods, a study of the English language, a course in methods of teaching English, and plenty of history and philosophy. A course in bibliography, travel, and summer study were among the most interesting and pertinent of the other suggestions offered; and one teacher adds:

"After all mere courses in training cannot make the English teacher. The atmosphere of a cultivated home, refined instincts and tastes, correct speech habits, formed in childhood, wide reading and travel, the lecture-chautauqua-theatre-concert habit, keen interest in politics and the big movements of the day, sympathy with and insight into human nature; all these are assets which go to make the English teacher."

Among these various assets which have proved of exceptional worth we find more than one teacher included courses in the careful translation of some foreign language. Of these responses the following may be quoted as typical:

"The study of a foreign language with a cultured and careful teacher is a great help to one who teaches English. Dr. Fairclough of Stanford University always insisted upon excellent English in Greek and Latin translation. Clear, concise sentences with adjectives bringing out proper shades of meaning were expected. However much we labored for the perfect result, he could and did improve our work; and yet he gave us due credit for our efforts. His teaching has always been to me a valuable model."

Different teachers emphasized the desirability of a more thorough training in art, philosophy, sociology, and education. The attitude of some of these advocates of a more extensive professional training has been forcefully expressed in these words:

"The point of view of high school teachers is usually wrong. They are very conscious of their college courses and do not know how to think in terms of the children's activities at all. They have little or no idea what *teaching* is. Indeed they secretly believe there is no such thing—only calling for and hearing lessons from books."

Other answers emphasize in various ways the imperative need of an open and receptive mind and of continuous growth on the part of the teacher of English. Three of these are thoroughly typical and stress some ideas which it would be hard for us to over-emphasize:

I. "My own view, based upon my own experience, is that no one has so much to discover as the teacher of English. In no other calling is it so essential that a man be alive and eager and receptive and sympathetic. Hence, courses that deliberately limit a man too soon are matters to be deliberately avoided. I have taken all sorts of courses in English, but my own reading has given me a better equipment than these courses. And, just as soon as the teacher of English becomes stereotyped in method or goes to seed on material, the time has come, for him at least, to abandon his classes to a more helpful and inspiring guide."

II. "The worst thing for a teacher of English is getting into a rut, becoming a cog in a machine. A teacher of English should be a *mixer* and should have an interest in some outside community activity—an amateur dramatic club, a singing society, a town improvement club—even if some papers are left uncorrected. One *must* look over the edge of the ditch where one is working; this is the solemn truth."

III. "Preparation of the teacher of English? The trouble with all of us is that we do not know enough; we stop growing very early in our intellectual youth. Just because some college has dubbed us bachelors, we think we have

advanced well into our craft, when we are really nothing but entered apprentices. Most of us are pretty raw and crude; we came from homes of comparatively little culture, where good books were few and far between. And now that we are teachers, we own but a scant and meager collection. Don't tell me we are underpaid; I know it and feel it too; but we may all afford good books, if we really wish them. Again, too few of us go back to the universities for further study; and most of us do not even realize (to look at the matter with sweetness and light waiting upon the pocket-book) what an advantage even a year's graduate work gives us over the majority of our fellow teachers. Furthermore, we ought to be more zealous as students of our subject, interested in solving its many problems and in making it more of a science. Let us bow the knee to Culture and honor her with the highest seat; and then let us bestow the next place on intelligent craftsmanship."

What, now in conclusion, may we say in summarizing the results of this investigation?

(1) That most of the institutions of higher learning in Illinois are not doing a great deal toward preparing students as special teachers of English; and that they might well be asked to consider whether it is desirable and feasible for them to undertake more extensive and systematic work of this character.

(2) That almost every thing in the teacher's college course in English may and very often does prove of value to him in the class room; but that the greatest help has come from general survey courses, Shakespeare, American literature, courses for teachers, and courses in composition.

(3) These teachers have found that among their courses other than English their work in history has been of greatest value; next, their work in foreign languages, especially in Latin; and that their courses in philosophy and education have also proved helpful. Fewer of them testified as to the value of political and physical sciences.

(4) Those who have taken courses in education requiring practice teaching have, generally speaking, found them very helpful; and a large majority of them favor such courses for teachers of English, to be given, preferably, by a member of the department of English. The majority of them also believe that such a course would be equally helpful in literature and in composition. There is no general agreement as to whether such a course would prove most helpful after, before, or during a period of actual teaching experience,—different answers emphasizing the peculiar value of such work at various stages of progress.

(5) Of the possible additions to the college curriculum, desirable for teachers of English, the chief demands are for five courses: (a) an advanced survey of English literature; (b) a course in primitive literature; (c) a course in comparative literature; (d) one in contemporary English and American literature; (e) a course in oral reading.

(6) As an irreducible minimum for the teacher of English, the concensus of opinion favors the requirement of the bachelor's degree from some reputable college. The necessity of at least courses in a survey of English literature, in Shakespeare and American literature, in public speaking, and in something beyond freshman composition, is emphasized. Especially notable too is the

insistence upon an ampler training, in history, languages, philosophy, and education, and upon the continuous growth of whoever would succeed as a teacher of English.

The Speaking Voice

John M. Clapp

Teachers of English are at last approaching one part of their duty which is most fundamental, but which they have generally shirked, the improvement of the speech of their pupils. The importance of correct speech—good tone and good enunciation as well as good grammar—can hardly be over-stated. It is essential to full comprehension of literature. Yet during the past generation, at least, instruction in speech has been generally neglected in American schools. After the lower Grades we have assumed that instruction in speech is unnecessary. As a general rule we may say that neither in school nor at home does the young American receive any instruction in the use of his voice in speech, in the right way to utter the various sounds which make up his own language. Largely as the result of this lack of instruction in correct speech, the American is a byword among the nations for his unpleasant voice and his slovenly utterance. The other great civilized nations: England, France, Germany, Italy, pay careful attention to this matter in their schools. In England the average man or woman—those of the working classes, who constitute the greater part of the population—speaks in a pleasant tone, with clear enunciation (and with grammatical correctness, although I am not now thinking of grammar). We Americans must improve our speech before our educational system is truly efficient.

This is particularly the task of a teacher of English. Our instruction in the higher mysteries of literary history and of style, and in elaborate forms of written composition, is constantly and seriously handicapped by our pupils' utter ignorance of the principles of spoken language. Moreover, we owe it to society at least to train our pupils to speak their own language aright. In the past some of us have assumed that instruction in speech is unnecessary, and others of us, while realizing the need, have been afraid to do anything, not knowing what to do. We need not be afraid. Much can be done in connection with the regular work in English. In the classes in literature we can have really careful work in reading aloud, a little of it every day. In the classes in composition we can give a little attention every day to drill in correct sepech, insisting on soft, clear, pleasant tones and distinct enunciation. Specila instruction, through elective courses in Elocution, Public Speaking, Music, and outside stimulus through school dramatics, can do much. But constant attention in connection with their regular classes is the most important agency to improve the speech of the young people. It is the duty of the teachers of English to begin this work, requiring correct speech just as they require correct spelling and good grammar, and eventually all teachers, of all subjects, will cooperate. Our duty now is to find the right methods of handling the subject.

The National Council of Teachers of English is about to take up this problem. One of the principal sessions of the general body is to be given to a

symposium on the Speaking Voice, and a regular committee is to be appointed to study the problem carefully and report, in a year, or two years, upon the best methods of dealing with it. It would be well if the Illinois Association, which has led the way on several occasions could have an active part in this most important forward movement.

Standards for Testing Composition Work

P. M. Watson

The last decade has witnessed a growing demand that we measure more accurately the efficiency of the schools. It is no longer enough to say that the schools are very good. The public demands to be informed just how good they are, and in what respects they may be made better. In order to determine these things, definite objective standards for the measurement of educational results are needed.

Within the last few years several such standards or scales have been constructed. We now have the Handwriting scales of Ayres and Thorndike, the Arithmetic tests of Courtis, a scale for Freehand Lettering by Rugg, and several others. Most of these have dealt with material of a formal nature. A few have attempted the measurement of material whose merit was more subtle and intangible. The recent scales for testing English Composition are of this type.

The first of these, the Hilligas scale, appeared in 1912. From about 7000 compositions a set of ten was formed into a scale according to the combined judgment of over 200 judges. It is intended as a scale for the measurement of general merit in English Composition.

In 1904 another set of scales was published. These were worked out in Newton, Massachusetts, under the direction of Harvard University experts. Recognizing the difficulty of measuring "general merit," the Harvard-Newton authorities have devised four separate scales, one each for Description, Exposition, Argumentation, and Narration. Each scale contains six themes ranging in merit from 45% to 95%. Each theme is followed by comments justifying its position in the scale, and indicating its chief merits and defects.

In an article recently published, Mr. S. A. Courtis, noted for his Arithmetic tests, announces his intention to construct a composition scale. He proposes, by an investigation of present practice in theme grading to determine what weight should be given to mistakes in spelling, writing, style, etc.

The Hillegas scale has received much criticism since its appearance. Courtis rejects it in his investigations because he has not found it a "practical tool for classroom use." Professor F. W. Johnson of the University High School of Chicago found that teachers specially drilled in uniform grading varied as much as 69% in grading a theme by the Hillegas scale. His chief criticisms of the scale are that its material is different from that of ordinary high school productions, and that it ignores all material calling for originality of thought. He suggests a need for two scales, one for form, and one for content.

The Harvard-Newton investigators found the Hillegas scale valuable chiefly as a pioneer attempt, and consider a single scale for general merit as

impossible as a single instrument for the measurement of heat, light and color. In attempting to avoid this defect, they have adopted the conventional rhetorical subdivisions of discourse. But there is a tendency today to abandon the terms —Narration, Description, etc., and hence there is danger that this basis of division may become obsolete. The Harvard-Newton scale is, however, the most satisfactory one for classroom use in existence.

The Courtis Scale will apparently deal largely with errors of form. As such it will no doubt be of value. However, it is questionable whether present practice is not too confused and aimless to afford a sound basis for the construction of a scale.

It would seem better to attempt a classification of writings upon a psychological basis—the effect produced on the mind of the reader. DeQuincy classifies all literature on this basis as *literature of knowledge* and *literature of power.* Gardiner of Harvard speaks of it as *literature of thought* and *literature of feeling.*

These two types differ widely, the former is concerned with the imparting of exact information in a faithful, accurate, impersonal way. Any emotional appeal is entirely out of place in such writing. It includes statistical reports, scientific treatises, etc., and is the natural product of the scientifically inclined mind.

The latter type has what is ordinarily called literary value. A strong emotional atmosphere is present, and the author has revealed his own personality. Our best poetry, orations, sermons, etc., belong to this type of discourse. It is the natural product of the "artistic temperament." The ability to produce both types should be cultivated.

The existing scales ignore the distinction between the two types. In both scales samples of each type are inserted indiscriminately, and it is interesting to note that in general the themes of least merit have mixed the two. Hence, in ranking by either scale a theme in Description, for example, it must be compared with material unlike itself.

Whether a satisfactory scale for the measurement of English composition can be constructed remains to be seen. It seems fair, however, to demand of such a scale that it make a sharp distinction between these two kinds of merit.

In present practice, as in the existing scales, this distinction is not made. Too often the child does not know what kind of merit his theme is expected to contain. As a result, he will produce that which appeals more to him, or he will make a hopeless mixture of the two. The teacher when grading his work is very apt to ignore the kind of merit which does not appeal to her. Inevitably the child becomes discouraged in his work.

When teachers have a clear understanding of the sort of merit they expect a theme to possess, and make the assignment so definite that the child knows what is expected of him, then we may hope for themes of such uniformity that they may be more fairly graded by the proper kind of scale. Then we may reasonably expect a material reduction of failures and low grades because the personal whim and bias of the teacher will be in a large measure counteracted.

The Teaching of the History of Literature

Lora Atkins Henion

There are many reasons why a unified course in English is desirable in Illinois high schools, and the matter of the kind of text book in the history of English literature with a method of using it, seems to me of great importance. In my varied career as a teacher of English in this state, I have run the gamut of text books from the diminutive primer of English literature by Brooks and the detached series of biographies of Painter, to the recent editions of texts by Halleck, Pancoast, and Long. So I feel that I may speak if not with authority, at least not as the Scribes and Pharisees.

There is, indeed, a great variation in requirements in English literature. We have reached some conclusions about the amount of rhetoric to be given in high school, and the proportion of oral and written composition; while our choice of reading is largely governed by the college entrance requirements; but the position of the study of literary history seems very indefinite, varying from the second year to the fourth, and from the use of the book for reference only, to a very careful and chronological study of the text.

This variation certainly works a hardship on the children who come from the migratory families in the community, and they are of sufficient number to be considered. One of my juniors this year is now in her fourth high school and has had her English literature; another, a senior, comes from a three-year high school, has had literary history, but practically none of the reading suggested for college entrance.

We claim, of course, that our high schools are not feeding grounds for the university, yet we do wish even the small percentage of our seniors who go to college to be well prepared, and I know that the students in English I in the university show great variation in their knowledge of the movements which characterize English literary history.

I believe we will agree that at some time during the high school course it is advisable to use a text book. In the first place, the pupil needs some background for the study of the masterpieces. How can a pupil get the full value from a study of the "Fairie Queen" or of "Paradise Lost" without knowing the characteristics of the Elizabethan and the Puritan periods? The enjoyment of the Spectator is enhanced by a knowledge of the truthfulness of the portraiture of Sir Roger de Coverley or the literary ideals of the London of Addison and Steele. The teaching of "Ivanhoe" is more valuable if one understands the antagonism between Norman and Saxon, and conversely, one understands through reading "Ivanhoe" the reasons for the amalgamation of Norman and Saxon and the composite character of the language.

Furthermore, a text book coordinates the work. During the two or three years that the pupil has been reading the various works assigned, unless the teacher has furnished the links between the classics studied, the student has no definite notion of the relation between them. In his mind there is a varied assortment of material,—a little of Shakespeare, Macaulay, Longfellow, Burke, and others, and all appear of equal importance unless the student has a particular aversion for some particular work, due usually to the fact that it was dis-

membered and dissected more completely than some other work. The idea that one work is of more importance than another from the literary point of view, from its relation to other works of the same period and of later periods, can be made clear only by the use of the text book.

In the average high school, the reference library is very small, and rather than turn the pupil loose on an encyclopedic article, which more than anything else, can dampen one's desire for information, a fairly scholarly text book in the hands of the pupil is the most available source.

There is another reason for a text book that may sound trivial to you, but from the pupil's point of view looms large. The very fact that the pupil has a text book dignifiies the work. I am working with a senior class that for two years has had no text for English work either in the history of literature or in composition, and they tell me they have just read books before, and now they are studying English Literature. They will cheerfully read any literary work as long as they find that the text book gives space to a discussion of the particular writer studied, for they are taking the word of a maker of a book, rather than a supposed personal whim of an English teacher, who, in the nature of things, is supposed by the children, and sometimes by the rest of the faculty, to be a dreamer of dreams.

We complain of the vagueness of the English work. The pupil thinks it is not so important as Latin or algebra because in the latter he is given a definite task to accomplish; while in the former, too often he is left to his own devices. The ideal English teacher, of course, gives enough helpful suggestions so that a definite result is obtained, but does the average theme-burdened, conference-driven teacher have the time to plan her work so carefully? Here the text book is an aid. Take, for instance, a class reading the prologue to the "Canterbury Tales." After the reading has been done and the pupils have thoroughly enjoyed the descriptions, would it not be a help to have a text book that brings together the impressions they have received, and makes them see that the very qualities they have discovered are the ones that Halleck and Long discuss in the text?

Some one may say, "Are we desirous for our pupils to be students of literary history or lovers of good books?" Of course the latter is our aim, but are the two incompatible? Can we not make them truer lovers of good books because they know the reason for the faith that is in them.

We will conclude, then, that a text book is desirable to give background and coordination to the reading, and to dignify the work. Where should the text book be used, and what should be the nature of it.

In nearly all school programs the literary history is used in the fourth or senior year. Has it been placed there for good and sufficient reasons? There is one reason for it in the fact that the pupil by that time has more historical background, for he usually has had European or English history or is taking it at the same time as his English literature. I am having an opportunity this year to test the matter of the value of historical background. Both English III and English IV are taking the literary history, as it is the purpose to introduce American Literature in the fourth year after the present year. As far as the maturity of the pupils is concerned, they are about the same age, from sixteen to nineteen

but the seniors understand the underlying social and political conditions more readily than do the juniors, because they have had their English history. Incidentally, they are better able to make comparisons in the study of various writers, because they have had the extra year's reading.

There has been a plan used in some high schools of correlating the literature and history to such an extent that the separate text in literary history was not used, but the development of literature was studied as a part of the history of the English people. The pupils were to read as collateral to their history work some of the most important historical classics, such as the historical plays of Shakespeare, "Ivanhoe", "Henry Esmond", "The Tale of Two Cities",etc. These would be read of course, as throwing light on the social life and conditions. A course in theme work was also recommended to be carried throughout this year, the subject matter of which should be drawn from the history work and thus make it contributory to a fuller knowledge of history. Mr. Hollister is my informant about this plan, and it was intended as a relief for the smaller high schools to enable them to get one year's credit in English history and three years' credit in English, instead of requiring four years of English for three units of credit. He says the plan is no longer being recommended simply because teachers were not able to keep up the work. It would start out strongly when initiated by a teacher who had been thoroughly instructed as to method of procedure, but the very next year perhaps another teacher would come in and the principal was not able fully to explain, the result being a very bad combination of formal study of history of literature and a study of a text in English history.

Mr. Hanna, the State High School Inspector, said recently that the children even in the first year of English should have a taste of literary history; that they can appreciate the literary signficance of "Beowulf," "The Canterbury Tales", the ballads, and the "Idyls of the King." He would say that as a result of the teaching of the various masterpieces and the literary background, that the text in literature in the fourth year should be in the nature of a review rather than the taking up of an entirely new subject.

In the first place, in the text there should be sufficient historical material to show the close relationship between the literature and the social and economic conditions—the history in the making which is so necessary to know in order to find the reasons why certain kinds of literature are produced at certain periods, the reasons for the dramatic impetus, the presence of the ballad and epic material, the revolutionary spirit, or the changes in religious views. For we would have the pupil know that a great book reflects not only the author's thought, but also the spirit of the nation's history.

There must also be sufficient biographical material to show how each important writer lived and worked, how he met success and failure, how he influenced his age, and how his age influenced him. This is one of the places where I take issue with nearly all texts for high school work. Is it necessary, for instance, in discussing Byron, to trace his family back to William the Conqueror and tell us the various degrees of rakishness in his family for three generations? The affairs in the lives of writers which we older people read, have no place in a high school text, unless it is impossible to understand the writer's personality without them.

There should be an elimination of long catalogues of names and works of minor writers whom one never unearths unless he is an English student of at least graduate rank in college. Of course a text book should be a store house in which one finds what he wants and some good things in addition. In nearly every class there will be a few students who will be attracted by works which the rest of the class need not know, and the material for their study and reading should be found in the text. As an illustration of the encyclopedic character of one of the most highly recommended texts, in the Elizabethan period, besides Spencer, Bacon, Marlowe, Shakespeare, and Jonson, at least a paragraph is given to each of twenty-three writers.

One should find in a good text, a few definite, helpful comments on the style and value of important works. There should not be too much critical material, so that the pupil has no chance to come to any conclusion for himself. For instance, why should five pages be given to the "Canterbury Tales" with paragraphs headed The Pilgrims at the Tabard; The Pilgrims on the Road; Chaucer's Picture of Himself among the Pilgrims; and finally, one short paragraph on Chaucer's Literary Art? The energy expended in studying this material might be used to much better advantage in reading the prologue itself, where Chaucer describes the pilgrims better than do Long or Moody and Lovett.

I should not like to see in this ideal text book too many extracts from writers that the children should study first hand. It may not be true of the pupils any of you teach, but I have seen some who felt that a change in type from the main portion of the book meant permission to skip all such material, and it takes much persuasion to make them understand that the fine print, like the postscripts to some women's letters, may contain the most important matter on the page.

They get the notion also, that the work of some writers is a thing of shreds and patches by having only a line or two quoted rather hit or miss from his work. I think, too, in this connection, something might be said regarding the illustrations in the average book. One of the books used most commonly in this state seems to have a small representation of each writer done rather sketchily, and a picture of said writer's birthplace done still more sketchily. I will venture to assert that the average pupil pays little attention to that kind of illustration, while a few portraits, copies of famous paintings, will have real value for him.

I should like to find in this high school book, a style on the part of the writer that will not drive a pupil away from his study. I have in mind a text in American literature in which some of the sentences would have been a credit to a Delphic oracle, and in which it was necessary to conduct a reading lesson to be sure that the ideas in the mind of the writer could be conveyed to the minds of the readers. Another text which has been recommended to me would make all teaching regarding coherence and sentence structure useless, for my teaching and the practice of the writer would be absolutely at variance.

I have recently tried to examine with unprejudiced eye and open mind, the texts by Pancoast, Moody and Lovett, Halleck, and Long. I have attempted to put myself in the place of the average seventeen-year old high school pupil

with the mental equipment and background of a senior. It is difficult to hark back so far into one's past, and requires a stretch of the imagination. The one advantage is that I may speak with the frankness that the high school girl would possess. When I took up Halleck, I looked first at the illustrations and found that most of the writers appeared very unattractive and commonplace, due, no doubt, to the small, rather indefinite pictures inserted into the printed page. In the second place, the necessary historical material cannot be found there and one must direct the pupil to various English histories where many pages must be read in order to get what the teacher wishes. Halleck is easier to read and undrstand than any other book I know, and that is very much in its favor. Even the biographies are interesting and are not packed full of unnecessary details. There is also not so much cataloging of unimportant writers, and the book can be fairly well covered in one year.

Pancoast, and Moody and Lovett, have a fault in common that makes them both difficult for high school texts. Strange as it may seem, they are too scholarly. That may be a virtue in a book for college students, but it is a stumbling block for immature minds. We do not wish the pupils to be so hampered by the difficulties of the phraseology that they scarcely get the thought back of the words. The biographies in Moody and Lovett contain details that are of little value to a young boy or girl. If the text of Moody and Lovett is called the First View of English literature, we need one called the A. B. C. Book to precede it.

Long is a little voluminous for a text that is to be taken in consecutive pages, but the material is readable, and not beyond the comprehension of a high school student. If the book is used for reference and the assignments are carefully made, it is a suitable text.

I wish that some person who is an English scholar and at the same time is familiar with the average pupils of high school age would write a text book for us. The trouble with nearly all of these texts is that a man dealing with advanced college students has done the writing and has failed because of the fact that he is too scholarly. The book, like any other tool, should be the best one for the particular task in hand.

Now, how should the text be used? I should say, primarily for reference, the book not being taken in consecutive pages. Since literature is our subject, we should begin and end with good books. We should stand aside and let the great writers speak their own message. We should not impose upon pupils the ready made opinions of the text book until they have read the best that an age has produced; have felt the power of Spencer, Shakespeare, and Milton; and then they will wish to know something of the author, the times in which he lived, and what other people think of him.

The amount of space given to different periods in a text book is not an index of the relative amount of time to be spent upon the different subjects. Thus, "to tell the story of Spenser's life and ideals requires as much space as to tell the story of Tennyson; but the average class will spend its time more pleasantly and profitably with the latter poet than with the former."

We will conclude, then, that a suitable text in literary history should be used to give background to the study of masterpieces; that the book should not

defeat its own ends by being two encyclopedic or too difficult of comprehension. We should take care, finally, that the text book, whatever its nature, does not become the end, but simply an aid to the better understanding of literary productions, for as Dr. Carson says, "Histories of literature cannot do much for literary education, which must come first, and which, in its true sense, is a spiritual education; and this, no amount of mere literary knowledge or literary history, will, of itself, induce. It must be induced on the basis of what is permanent and eternal—of what is independent of time and place."

Geography Section

The meeting of the Geography Section of the Illinois High School Conference was held from 9:00 to 12:00 o'clock on Friday morning in Room 251, Natural History Building, Dr. John L. Rich of the University of Illinois presiding. A short business session was held for the purpose of electing two members to the Executive Committee of the Section in place of Messrs. D. C. Ridgeley and J. L. Rich, whose terms had expired. Both were re-elected for a period of three years, but on Mr. Ridgeley's declining the election, Superintendent George White of Saybrook was chosen.

The topic for discussion before the session was "How to Make Physiography Concrete." This was treated under two headings, the first dealing with laboratory work, the second with field work. Miss Marion Sykes, of Bowen High School, Chicago, presented the first paper, which follows:

How I Conduct Laboratory Work in Physiography

Marion Sykes, Bowen High School, Chicago

The question—How make Laboratory Work in Physiography Concrete?—sounds indeed very like a paradox; for if the work is not concrete, how can it be called laboratory work? It is true that the actual subject matter of Physiography can not be handled in the schoolroom as can that of other sciences, but I believe that the work is concrete and can be made increasingly so. In planning laboratory work we must avoid what has been called "busy work"—and the "elucidation of the obvious." Real laboratory work will make the pupil feel that the facts are indeed his by direct experience which I understand is the meaning of the word concrete. I believe that Physiography can be made to touch life as the ninth grade pupil knows it, more closely than other subjects, but it must be made simple and as free as possible from technicalities. The material used in the laboratory should be, as far as can be, the every-day appliances. Many illustrations should be drawn from the pupil's experience and the experience of his friends. The meaning of each exercise, and its bearing on the general plan of the work should be brought out and emphasized so that the pupil will not ask himself in bewilderment—who cares? What of

it, anyway?—or think that the main object accomplished is the adding of one more page to his notebook which will help him towards a credit. Laboratory work must be such as to strengthen the attitude of mind which makes a person hesitate to accept what he has not arrived at himself—what he cannot verify for himself—what does not appeal to him as reasonable.

We have one-half year for Physiography in Chicago. I prefer to have no stated days for laboratory work, but to do such work on text book work as occasion demands, spending sometimes five days a week, sometimes one day a week, on what may be called laboratory work. At present I begin with a study of the atmosphere and find that an exercise on the expansion due to heat is most acceptable for a beginning. It is easy for the pupil to make the matter of this exercise his by direct experience; for besides the ball and ring used in class, most pupils can give from their own experience examples of expansion of solids. Expansion of liquids leads us to a consideration of the thermometer and the changing density of water. Expansion in gases reminds each of how he has plugged tightly a cold bottle and thrown it into the fire. The pleasing recollection of what happened adds to the work done in the laboratory in making the fact concrete.

Exercises on the distribution of heat on the earth, and on the influence of latitude and of land and sea on temperature, necessitate the study of isotherms and maps. We can not actually journey far abroad and experience the temperature changes for ourselves, but studying out recorded temperature as shown on the maps, brings the facts of temperature home to us. We can journey in imagination and make the conditions noted our own by descriptions and pictures, and by contrasting and comparing them with the conditions which we know.

Constructing a barometer with the class is not enough to make its use and application real. If this is followed by reading the barometer daily and discussing briefly the changes as they occur, the barometer becomes an actual thing.

The wind belts can be developed on a blackboard globe if the school possesses one of large size. Plotting the belts on a world map, while not a first hand acquaintance with the winds themselves, fixes them in mind and makes an impression such as mere text book study can never do. The ninth grade pupil is a very young thing and the formal feelings still appeal to him strongly. He is inclined to regard the drawing of the lines of a diagram as the real exercise, instead of looking for the interpretation of the drawing. This has been to me a real difficulty, and unless definite time is given to emphasizing why we have done the work, and what the diagram means, the pupils are inclined to regard the drawing of the lines as the desideratum.

As we study the weather map, the members of the class compare recorded conditions with those we experienced the day before (our map reaches us at the end of the day, after school is over), and the boys and girls often stop before and after school and between classes to note the record of conditions which impressed them, and to see what they think the weather may be for the next day.

At the beginning of the study of the land, individual small globes seem almost a necessity, for parallels, meridians, latitude, longitude are terms too often badly mixed. Indeed, they are still confused after many exercises.

A brief and, what seems to me, a most meagre study of a few of the most common minerals and rocks, pleases the children, and serves as an acceptable introduction to weathering. The pupils realize that minerals are not all equally resistant, and that rocks do not yield with the same rapidity to the forces which attack them. After handling pieces of the most common rocks and minerals, the pupils look about them more intelligently and bring in all sorts of things, from the lake shore, from excavations which are being made for buildings, from old quarries and from the most unexpected places.

As we begin this work I realize again that lack of appreciation on the part of the pupil of the fact that what he reads about and what he sees around him are the same. He comes to think, somehow, that the discussion in the books must of necessity apply to places remote. He seems to have an idea that any statement he makes must be backed up by what he has read in a book, that anything else is a "bluff". It takes a conscious effort on my part to get most pupils into the habit of connecting what they read with what they see; e. g., they read that mantle rock is loose material such as sand, gravel, clay on the surface of the ground. The majority of a class of 40 will say that glibly enough and then all of them, boys and girls, will declare that they never saw any mantle rock. So with bed rock, until some one suggests that perhaps the rock in an old quarry may be bed rock, and then most of them will say with surprise—"Is that what they mean by bed rock?" Unless the teacher takes especial pains to connect what is around the pupil with what is being talked about ,the connection is not made, and the work in or out of the laboratory never becomes concrete. I have difficulty with the question—What rivers join Lake Michigan at Chicago? Some of the children are surprised to find out that the river on the map is the same one which they cross on the 92d Street bridge.

When we take up the study of rivers, it has proved profitable to do considerable place geography, locating repeatedly the rivers, cities, states which we speak of, and learning the names of the states so that a fair proportion of the class can name them correctly on an outline map of the United States. The work on rivers, glaciers, shore lines, mountains is less abstract if the class know where the important features are. As an introduction to the study of a new topic as glaciers and mountains, I think it is a help to precede the work with a good many lantern slides.

In the study of land forms, it seems to me that topographic maps are most helpful. Not detailed study of one or two, but a rapid study of as many as possible comparing one with another, noting the few big things that pertain to the topic under discussion. The maps take us to places we can not actually visit.

More than one aid to understanding the meaning of a topographic map is useful. (1)As an introduction, an exercise with a sand island is helpful. Draw rapidly a line to show the outline of the shore, and successive lines to represent the positions of the shore line from time to time as the water is

imagined to be rising. (2) A piece of apparatus purchased some time ago, serves this purpose admirably. It is of wood and represents a hill or island. As it is made in horizontal sections, the cracks between the sections represent contour lines. Another part of the apparatus shows these contour lines as continuous pieces of wire on uprights, forming a skeleton of the island. The uprights on which the wire contours rest can be pushed thruogh the base, bringing to one plane the wires which thus form a contour map of the hill. (3) We have a set of small plaster models, one for each pupil, of a portion of the LaSalle street. When studied with the map these bring out its meaning admirably. (4) At various times, pupils have made pasteboard models of various maps studied, which are excellent helps in seeing maps as sort of bird's eye views. It has seemed to me that these various devices have made it possible for a class to read the main features of a contour map with a fair amount of ease. I hope I have not been deceiving myself. After the maps can be read, I use them as a basis for the study of river work—the effects of glaciers—shore lines, mountains. Professional paper number 60 of the U. S. Geological Survey—"The Interpretation of Topographic Maps," by Salisbury and Atwood —gives splendid material for a comparison of many maps, and it is unfortunate that copies cannot be obtained so as to have one for every two pupils.

In the study of stream action and shore lines, I make use of a sand table which clears up many points difficult for city young people to understand. They can see the valley and the upland. Flood plains and terraces are being made, and the widening of valleys by lateral cutting is rapidly taking place before them. I find it an advantage to be in a part of the city where in places paving is still a thing of the future, and where rain wash makes gullies and alluvial fans at the side of the street.

I have avoided mentioning field trips, as the discussion of these is another part of the program. Laboratory work calls constantly for illustrations from near-by places, which are most valuable even when supplied by only a few members of the class. Lantern slides illustrate and emphasize the points made, and we should not neglect a study of the illustrations in the text used. With a little encouragement, I find the children will hunt out pictures from Railroad advertisements and other papers, and will bring them in as illustrations of forms and processes discussed.

In general I make use of various forms of apparatus, of diagrams—of sand and pasteboard models, of pictures, of constant and repeated reference to what we see about us. If the subject is not obscured by "scientific jargon, pedantic and absurd" Physiography, or as I prefer to call it, High School Geography, is indeed concrete, and a delight to the average child. I wish that my pupils might leave my class feeling that whereas they were blind, now they see.

In the discussion which followed this paper special attention was drawn to the desirability of training the child to *interpret* maps, diagrams, models, etc., rather than merely to acquire skill in the mechanical operations involved in carrying out his studies. The need of more

thorough teaching of geography in the grades, and of continuing to teach place or local geography, incidentally to the other work, in the High School was also emphasized. The second paper dealing with laboratory work was read by Mr. Lewis Walker of Mahomet High School, Mahomet, Ill. Mr. Walker's paper follows:

How I Make Laboratory Work in Physiography Concrete

Lewis Walker, Mahomet, Illinois

A globe and a few wall maps make up the entire laboratory equipment provided by the school. The course was taught during four months' time to a class composed of juniors and seniors. The problem of teaching Physiography, making it interesting and concrete, with no apparatus, was one which presented a great deal of difficulty.

Outline maps were used extensively throughout the work. Each pupil was required to buy a set, which was selected by the teacher. Pupils reproduced, on outline maps of North America and Europe, the maps in the book showing the continental glaciers. Arrows were drawn in the directions in which the glaciers extended, fixing in a helpful way their extent and direction. In this way the glacial centers were made plain and pupils saw more readily the extensive effects of glaciation.

Ocean currents and atmospheric circulation were studied in very close relationship one to the other and in detail. The pamphlet, "Circulation of the Atmosphere," prepared by D. C. Ridgley, was in the hands of the teacher and was used as a supplement to the text.

A few facts concerning the air were first mastered, viz., wind is air in motion, air has weight, air when warmed expands, when cool contracts, warm air is lighter than cold air, warm air can hold more water vapor than cold air, moist air is lighter than dry air.

After these facts and examples proving them were thoroughly studied the pupils were ready for a complete study of the circulation of the atmosphere and its relation to man.

Charts were made showing by means of flying arrows the direction in which the air was moving. An imaginary steam pipe was located in the center of the room representing the equator and the doldrum wind belt. The air (trade winds) moving in from either side of the room toward the steam pipe (doldrum belt) was warmed, expanded, moved upward toward the ceiling where it divided, some of it passing to either side of the room along the ceiling. This air represented the *anti-trade* winds. When this air pressed against the walls it moved downward toward the outer aisles on either side of the room, representing the *horse latitude* wind belts. Here we supposed the air to separate, some of it passing out of the building to represent the westerlies, and some of it passing back toward the steam pipe as trade winds.

We then applied this illustration to the earth without considering rotation. We then applied the illustration to a rotating earth. The pupils applied these facts and mastered the circulation of the atmosphere in a very short time.

The fact that pupils who are now in school can reproduce the illustration after one year and apply it to the globe is ample proof that this means of presentation is concrete.

Wind belts maps were drawn showing their average position and their January and July positions.

The four questions which determine the rainfall of the earth followed the study of the atmosphere and were applied to the vegetation of the earth and to population. The circulation of water was presented and compared to the circulation of the atmosphere. This was not difficult since the atmospheric circulation was studied in such detail. A map showing ocean currents was produced.

A tellurian was improvised by means of a board and pieces of chalk. The chalk was placed in the positions of the earth at the beginning of the different seasons. The earth's orbit was represented by a chalk mark. The globe at hand was so constructed that it illustrated, fairly well, the different positions of the earth. It thus became easy for the pupils to understand why the earth can be nearer the sun on September 21 and March 21 or December 21 and yet not have hot weather nor cold weather.

Perihelion and Aphelion were each brought out and illustrated, as well as could be, at this point. Jackson's Astronomical Geography was used as a supplement to the text in teaching this subject, which so often proves a failure with a class composed of high school children. Nickol's Tellurian is a cheap but effective instrument for the teaching of seasons.

Maps showing land elevation in color were studied. A good atlas in the hands of the teacher was passed around to the class that they might be able to interpret land elevation by contour lines as well as by coloring. A contour map of the local community, if such has been published should be used whenever possible. Illustrations drawn by the teacher were placed upon the blackboard for the pupils to interpret.

Salt and flour maps were made to show the physical features of different continents. These maps did not prove so helpful to the pupils as the ones in the book. The pupils looked upon the idea of preparing them as laborious and when the time came to discuss the maps, the individual interest was not so keen as when the maps with contour lines were discussed.

A sun stick owned by the teacher was used to determine the altitude and direction of the sun in degrees and the length, in inches, of the sun's shadow. The sun stick is made of a pine board 8½"x6" with a 3"x¼" peg placed in an upright position in a corner at the end of the board. A nail is driven into the board at the diagonal corner from the three-inch upright. To this nail is attached a string which has a small weight at the loose end. A quadrant is drawn, using the nail as the center, and is marked off in degrees. By placing the board in a flat position so that the three-inch piece makes a shadow, hourly observations were taken. This showed strikingly the change in the direction of the sun and its altitude hour by hour. Thus the earth's rotation was made concrete.

To make measurements of the altitude and direction of the sun the quadrant was used. By placing the board on edge so that the shadow of the nail fell across the quadrant, the altitude was determined with a fair degree

of accuracy. To find the direction of the sun we placed the board square with the world and noted the number of degrees through which the shadow of the nail passed. This gave the pupils a clearer idea of directions.

We next studied the weather. We wrote to the Weather Bureau Station at Springfield for the daily weather maps. With these we studied, so far as time permitted, the isotherms, and followed highs and lows on successive maps. Pupils noted the barometric pressure in the daily papers and compared the pressure of one day with another and the weather of one day with the weather of another. This work was very enjoyable and was taken up with much interest, pupils discussing the weather and making comparisons. With no instruments at hand except a thermometer, no special weather study could be made by instrumental observations. However, much is possible without instruments.

To a tabulation sheet which was purchased as a part of a set of outline maps we added a few more items, as it was evidently designed for work in the first eight grades. On this sheet, the date, hour, temperature in degrees, direction of wind, velocity of wind, condition of roads and sky, precipitation, kind and amount of clouds, if any, were given. This data was tabulated daily from November 10 until December 10, leaving out Saturdays and Sundays and holidays. The time of taking the observations was usually, though not necessarily, about the same each day. This work was done independent of class although often the day's observation was discussed in class as a guide and stimulus.

Salisbury's Physiography was used as a supplement to the text in determining the kinds of clouds. Excellent pictures of clouds are to be found in this book, and the pupils found little trouble in determining the kinds of clouds in the sky after studying carefully the pictures and the text on the subject. The teacher kept an observation sheet with which the records of the pupils were compared.

After the work was completed a curve was drawn on co-ordinate paper to show the rise and fall of temperature for the month beginning November 10, and ending December 10. A dash was used to represent a day lost.

These are the few methods used in our school to make the laboratory work concrete. Each method here described tended to make the work in Physiography more realistic in the minds of the pupils and did away with the memorizing of words of the text which to many had no meaning. The materials are inexpensive, they served their purpose for us and served it well. No doubt they will for you—try them.

Mr. George White, of Saybrook, next presented a paper on "How I Make Field Work in Physiography Concrete." His paper follows:

A field trip is an exercise that readily appeals to any and all of the student body. I seldom make mention of the trip until we are ready to go. It is an excellent thing to have agreeable surprises for our classes. The day before we are to take the trip, I assign such reading material as will be helpful to them, and in this way have them acquainted with many, perhaps all, of the

terms that will be used in our discussions, while on the trip. If these trips are made during the regular recitation periods, the class discussions will have to follow at succeeding recitations.

The work discussed in the next few paragraphs will serve as material for several trips.

Our first trip is a study of valleys. In this study I bring the class to a place where they can readily see all of the valley, which is above them. At first I have them see that each valley has three slopes. This will not be readily seen by all, but in the course of a few minutes most of them will have it worked out.

The question of mantle and bed rock is discussed to some measure here, although most of the discussion is deferred to a later time. It is quite easy for us to find examples of mantle rock, for we are told that the loose material such as soil, clay, sand and gravel, which covers most of the land is mantle rock.

The bed rock is not quite so easily found, but there are places where this may be studied very successfully. One of these is at a place where they are drilling a well. This we did, and obtained some of the material which was taken out. We also found out from the one in charge the different kinds of mantle rock passed through, the distance to the bed rock, its kind and its thickness.

Another way we make this study is to visit a quarry, and notice the thickness and kinds of mantle rock, and the depth of the exposed bed rock. Then we discuss some of the uses of bed rock, e. g., for building stone, cement, etc.

One other place I visit whenever I can in the study of mantle and bed rock, is a creek in which the overhanging bluffs illustrate practically the same things as the quarry; but which show very plainly the effect that the bed rock has upon the shaping of valleys, especially if it comes to the surface. The student at once sees that the bed rock does not come to the surface in regular and uniform lines, but that it crops out here and dips beneath the surface there for some distance, yet its influence is evident in the shaping of the valleys.

Now since we have some knowledge of the materials, mantle rock which makes up the slopes, and the underlying material, bed rock, we are in a position to make a still further investigation.

We have such terms as "V"-shaped and "U"-shaped valleys. These are discussed and the term decided upon that applies to our particular valley. Since most of the valleys in our part of the state are "U" shaped, I have chosen that kind for our particular study.

The angle of the slope and the variation of each is next taken up. A very interesting exercise is the measuring of the angle of a slope at any particular place. This can be done in this way. Take an ordinary sun board which is used to measure the angle of sun's rays. When the long edge of the board is placed horizontally, the plumb-line makes the other side of a right angle. Have the arc in which the plumb-line swings graduated so that 90 degrees forms a right angle with the edge. Having selected the slope which we desire to measure, place the edge of the sun board on the ground, or better on a straight edge about ten feet long, which is placed on the slope. The plumb-line will still make the vertical line, but it will fall away from the 90 degree mark. Read where the plumb-line registers and this subtracted from 90 will give

us the angle of the slope. We measure each slope to find the angle and compare the side slopes with each other and with the down slope . The reasons for the variations in the steepness of the slope may then be discussed. The student can at once see why the sides of a rock cliff are not worn down to a slope as gentle as that on the mantle rock, while at the same time he sees that all mantle rock slopes are not uniform in angle. Much depends upon the texture of the material, its covering, etc. The angle has much to do with the width of the valley, and its usefulness to man. The terms youth, maturity and old age as applied to valleys are worked out.

The working out of contours on a field trip means much to the child. Take two laths, or other small boards and fasten them together so as to form a T. On the horizontal lath mount a common small level, and on one of the flat sides of the vertical lath, suspend a plumb-line from the top. This will answer for an instrument for taking levels. I am frank to confess that the work done will not be accurate, but nevertheless it will illustrate the point. If laths have been used, the vertical as well as the horizontal one is four feet. Select the place on the slope where you wish to start your contour line. Now adjust the upright lath so that the plumbline is parallel to the side of the lath, then move the lath at the top until the horizontal one is level. We are now ready to proceed. Since the upright lath is four feet in length and is placed in the ground some three or four inches; laths will answer very nicely for stakes. Now sight along the top of the horizontal lath and locate the place where four inches below the top of another lath can just be seen. This we call station 1. Proceed until one contour line is established. Designate each position as stations. The exercise is carried on until some three or four contour lines have been made. The pupils will see that these lines are not parallel. This work should be done in a valley and then the contours form semicircular lines. The reason for these lines being farther apart in some places than in others may be easily seen if the angle of the slope is measured. We are told that in some sections of the country the farmer plows following the contour lines. Why? You will readily get the answer. After this exercise I experience but very little trouble in having pupils understand contour maps.

The mantle rock is the part which concerns mankind most, so it is necessary that the pupil should know more about it than about the bed rock. It is from the mantle rock that we get our soil. The soil in my section of the state is sand, clay and loam, being the southern part of the Bloomington moraine. The evidences of this moraine are striking as there are great banks of sand and gravel. Now of the three mentioned soils, sand is the coarsest, with loam next, while the particles of clay are finest. Loam is a mixture of fine sand and clay. Then we have the humus, which is decayed organic matter, usually vegetable matter, and it is this which gives the soil its dark color, as well as adding plant food.

Of what benefit is the dark color to the soil? For this exercise we select three small plots on one of the slopes of this valley which we have previously studied. Each plot is about four feet square. After the ground is smoothed, we cover one plot with lime, the second one with yellow clay dust, and the third is left with its natural covering of black loam. It is best to fix these plots

on a previous trip, or at least the day before. Now with a cylindrical thermometer and an iron pin we are ready. The temperature is taken first four feet above the ground, then one and one-half, three, six and twelve inches respectively in each of the plots. The temperature above ground being the same in each case, the lime and yellow covered plots show a lower temperature than the loam or black covering. The effect which this has on the soil warming up in the spring is of great value to the farmer.

These exercises may be carried on with differences in temperature of cultivated and uncultivated, vegetated and unvegetated saturated and unsaturated soil.

We found the temperature of a south slope to be about five degrees warmer than a similar north slope.

From this we discuss the raising of fruits on the southern slopes of countries in high altitudes.

Since the valley which we are discussing has passed its youthful stage, it will have, near the stream, well defined flood plains. When this valley is compared with a youthful one, say a gully the child can readily see what has happened to bring about the more matured valley. The question of erosion is easily seen and understood.

The mechanical work of erosion may be illustrated in several ways, viz.: When water freezes it expands about one-tenth of its volume, and thus exerts great force. If the water which gets into rock cavities freezes it acts like a wedge to pry the rock apart. This is clearly illustrated by leaving water in an earthen or glass vessel and exposing it to a low temperature.

Where solid rock has no covering of loose material, as on many steep slopes it is heated by day and cooled by night, and the daily changes of temperature may be great. Rocks expand when heated and contract when cold, and under daily heating and cooling their surface parts break and scale off. The breaking of cold glass when touched with hot water or *vice versa* involves the same principle. This may be illustrated with rock itself, by heating the rock in a fire and then pouring cold water upon it. If this is repeated for a few times, it will be found that small pieces will scale off. These broken pieces illustrate what is meant by talus.

We found a place where trees were growing in the rocks and some of the roots had entered the crevices. It can be seen that if the root is to increase in size after a time at least the crevice must enlarge. Another instance of this is where the roots of the trees have caused the unevenness in concrete walks. This we also found.

Streams carry and move what is known as load, varying from material in solution to the heavy gravel rolled along its bed. Corasion as well as erosion may be studied here. Running water washes the material of a higher altitude to a lower level, and in these ways the valleys are in part reduced to their present form. I have not attempted the chemical changes, although they work in conjunction with the mehanical.

If we dig down for a few feet in a flood plain we can see that it is built up of layers that have been deposited by the water in times of overflow. The layers may also be seen along the edge of the creek. By close examination, we find that the coarse material is deposited near the stream, while the

finer particles are found much further out. Near the banks of some streams are found places that possess a slight elevation over the surrounding surface. This silghtly elevated place or ridge is known as a natural levee. From this we discuss man's aiding of nature in the building of artificial levees.

Perhaps we had better try to get out of this valley on which your attention has been centered for the past few minutes. As we ascend one of the slopes, we shall later come to the crest or divide. We shall now follow this divide for some distance, comparing and contrasting the slopes.

The question of drainage would now necessarily come up for discussion, and since we have studied the stream, slopes and divides we are ready for this question. It is well if two sections may be studied at this time, one in which the drainage is quite perfect ,and one in which the land is too flat for perfect drainage, such as a slough, swamp or very flat land. The child is then brought face to face with the problem that in some cases the drainage is incomplete. At once some one says that the surface drainage is aided by underground drainage, and as evidences of this we go to the streams which are flowing, although we have had no rain for a long time, and the water in the stream is clear, showing that it is not water of surface drainage. Here is an excellent place to introduce a discussion of dredging and tiling, the tiling being an artificial aid to underground drainage. Where the land is well drained by a system of under drainage, there is less leaching of plant food as well as many other advantages. We do not have to go very far back into Illinois history to find that the prairie section of country was passed by, and that settlement was on the better drained wooded areas along streams.

One other exercise is in connection with a pond or small lake. After some years the levee of the pond breaks and the pond is drained, and then we have and excellent example of a lacustrine or lake plain. Compare with the great lake plains.

In addition to the things already studied we should give more of a human touch than we have thus far. A few questions will make this clear.

Is the natural vegetation of the hill slopes and the flood plains the same?

What are the effects of topography and soil on man's use of the land?

What relation exists between the valley and the location of dwellings and the routes of travel?

What effect does the character of the stream have upon its uses?

What are the influences of the valley or stream on local activities other than the use of the land and stream itself?

Give evidences of climatic influences affecting the life of the region.

Miss Eunice Blackburn, of Armington next presented a paper on "How I Make Field Work in Physiography Concrete."

The paper follows:

My subject demands that I be personal and speak only of those things which I have tried and experienced.

Among the many good reasons for field work in Physiography I mention three—(1) field work adds to the interest, (2) it makes the text book work

concrete, and (3) it helps the pupil to interpret the printed page. Every boy or girl between the ages of two and eighty loves to be out of doors, when the weather is pleasant; so any subject which allows him this pleasure is sure to be a favorite, especially when he can actually see gullies widen, alluvial fans deposited and waterfalls worn down. He then sees that nature is at work on the school grounds as well as on the mountains in Europe, and begins to realize that it is not necessary to go to Switzerland to see interesting things. A waterfall may be only a few inches high and yet show all the features (except grandeur) of the Niagara.

The fact that the human mind must work from the known to the unknown is well shown in the fact that the ancients, in order to represent an idea of a god, either made the image of some animal or used some combination of animals. Similarly in the study of Physiography a child must have some images upon which to build, and it is much easier to make concrete comparisons and draw conclusions in the field than in the class room.

How is the average high school boy or girl, having lived all his life on the prairies of Illinois, to actually picture the work of running water when the cañons mentioned in the text are in Colorado, the oxbow lakes on the lower Mississippi River, the alluvial terraces in China and waterfalls in Wyoming, unless he actually sees such things in Mr. Hickey's pasture or along the road,—on a small scale to be sure,—but just as perfect as those mentioned in the text book. They may lack the beautiful surroundings, color and variety, but they are actual growing, moving things, which the text book pictures are not.

Not long ago a graduate of one of our splendid colleges in this state said to me, "I know I am ignorant, but how does an alluvial fan look?" Now she had studied about them in the text book yet had been unable to picture the actual thing. It was after a rain and when I showed her a small one she said, "Well, why did not some one show me that before?"

If high school boys and girls were able to interpret a printed page many of our trials would be over. How many times a day do we have to stop and read a seemingly simple statement over with a pupil. Many times just the reading with the proper emphasis and no word of explanation is sufficient. How many times do even grown people fail to get the meaning from a printed page? How many women of your acquaintance prefer to be shown how to do a pattern of crocheting or tatting rather than follow printed directions? If we are to "make ourselves useless" to our pupils or, in other words, to fit them best for life outside the school we must teach them to take a printed page and work things out for themselves. After working out some point in the field that was particularly hard or impossible to imagine from the text book alone, such as, for instance, that rivers grow in length at their sources, or, as some text books say, grow backwards, a pupil, on rereading the text will be better able to form an image from mere words. Thus he forms the habit of thinking back into his experience and of building the image of the unknown from the known. Many boys and girls find description of scenery tiresome and always skip to the conversation because the description is merely a lot of words. They find nothing in their experience which is in any way related to this. I find that at the end

of the semester the pupils can more readily form mental pictures from word descriptions.

I have never heard any objections to field work from parents or board, and but one of my pupils has ever complained. She objected to long walks and was granted permission to stay at home when the trip was to be a long one and hand in a paper discussing the things we went to see. I have heard that a few superintendents and principals object to field trips because they fear the discipline will not be as it should. I have never taken a class of more than twenty-five and have had but two problems to solve. The first was of a boy who wished to show off and attract the attention of the other pupils. The next time the class went on a field trip I simply left him at the school building with directions for writing an essay on the subject which we expected to study. I have never been troubled since. The second problem was with a girl who "adored" field trips and begged loudly for many, yet was always too tired and exhausted to be on time for school the next day. When this had happened twice, I announced the field trip on the morning I had chosen and gave usual instructions for the wearing of rubbers. At noon she was all smiles talking about the trip. I gave her a long list of references and a subject for a written report and told her that I felt very sorry she was unable to accompany us, because we had noticed she was in too poor health to take so much exercise. After she had shed sufficient tears and promised to be on time the next day, and assured us of her excellent health she was permitted to attend, on trial, as we had planned she should. We had no further trouble with her.

I have found that usually a teacher has the kind of order she permits. And the class soon find it out. On starting out I ask the class to stay together and no one is ever allowed to get more than twenty feet away from me. We never go until after the first week of school and by that time I have found out with whom to walk and whom to watch. We talk and have a quiet, good time until we come to the place where we are to stop and examine some particular thing. Then everything is as in class in the room.

The things which can be seen to advantage vary in different communities, yet the work of ground water, running water, the effects of ice in ponds and streams, deposition of sediment by melting snow, effects of the atmosphere and the effects of plants and animals on the topography can be observed in every community.

Our field work on the study of ground water is in noticing landslides, slumps and creeps, which are found most easily along the cuts and fills of the railroad track. We also notice the mineral matter in well water.

The work of running water offers the greatest variety of examples. We note the growth of valleys, gullies, cañons, divides, waterfalls, rapids, young and old streams, meandering streams, oxbow lakes, flood plains, valley flats, terraced valleys, deposits in the bed of streams, sand bars, alluvial fans and cones, and deltas.

The work of running water can be more easily studied on a small scale than on a large one. It was my privilege to teach for two years on the banks of the Mississippi. Yet when we studied the work of running water it was necessary to go to the road or hillside since there we could see the work being

actually carried on fast enough for us to watch it. If the road slopes slightly it affords an excellent place to watch the work of running water as does any other place partly or wholly free from vegetation and not too hard, especially freshly turned soil and the banks along the railroad. Small gullies in a pasture afford ample illustration of the growth and deposition of rivers, especially if they can be visited before and after a rain. Where I am now teaching our best place is about a mile from the school house. We have one hour and a half for our trips, and if possible we take the trip the last two periods of the day so we do not have to be back at any certain time. We can easily go and come in an hour and notice the features on the way and have half an hour at the "Grand Cañons of Mr. Hickey's Pasture" as we have named them. Excellent examples of all the important features in the work of running water are found there, although the deepest cañon is not more than three feet deep or four feet wide at the top and the largest alluvial plain is not more than fifty feet across. However, it is easy to find instructive examples, for every little stream, if only one in the wagon track, shows the important characteristics of the large streams, although the boys and girls, unless some one points them out, will fail to see them.

The effects of plants on physiographic features may be seen by a comparison of a pasture and freshly plowed field after a rain. We note changes made in banks of streams by animals and make a list of animals in our country which change the surface of the land.

The work of ice in streams and ponds can be studied during favorable winters. In studying the work of the atmosphere we note the crumbling of stones in buildings or on boulder and monuments in the cemetery, noting the difference between the polished and the rough stones as to amount of crumbling.

The number of field trips taken depends on the class and the field material available. I like to take a class on a trip the day the work on the topic illustrated by the trip is assigned and before the class has recited on that subject, but this is not always possible since the weather and the distance of the desired points must be taken into consideration. Sometimes we wait and take several topics at once and also look forward to others soon to be handled. This saves time and also serves to illustrate the fact that usually more than one force of nature is at work in any particular place at one time. Care must be taken, however, not to take up too many topics on one trip.

I find that the time spent in field work is really time saved, for a pupil can get in five minutes of actual observation, and that for all time, what will take him half an hour to gather in a hazy way from the text book. No advanced text book assignment is made for the day after an excursion but the pupils are required to write a report of the trip.

In the discussion which followed these papers, Prof. D. C. Ridgeley of Normal emphasized his belief that a thorough acquaintance with a small area, not necessarily more than one mile square, made during the term and including a study of all the geographic features to be found within that area possessed great educational value, particularly

when accompanied by a written report at the end of the term. A teacher from Southern Illinois told how such topics as the work of ground water, the extent and character of bed rock, folding, etc., could be well illustrated by a visit to a mine, if one were within reach.

The final paper on the program was a short presentation by Dr. John L. Rich of data showing the results of entrance examinations in physiography at the University of Illinois. Out of a total of 105 students taking those examinations within the past four years, 78, or 74 per cent., failed to pass. The average grade was 52.2% Of the total number the records of 44 who have since entered the University of Illinois could be traced. These came from schools of all classes, scattered widely over Illinois and other states,—a fact which showed clearly that no one class of schools was responsible for the seemingly bad showing. In the course of the investigation it appeared that practically all of those who take entrance examinations in physiography have either failed to pass the subject in their high schools, or come from schools whose work is not accredited by the University. (Other students, who enter on certificate, are not required to take the examination.) When these facts are considered the apparent poor showing proves to be what should rightly be expected under the circumstances.

Manual Arts Section

The Manual Arts Section of the Annual High School Conference was held Friday, November 20, 1914. The morning session was held in Room 410, University Hall, from 9 to 12 M., Professor E. J. Lake presiding. Benj. L. Bowling was appointed secretary. The program was rearranged, Professor Lake opening the work of the morning with a paper on "Freehand Drawing."

Professor Arthur F. Payne, of Bradley Polytechnic Institute, Peoria, presented a paper on the subject "The Rule and Reason Method of Teaching Design." Many fitting and concrete figures to illustrate his theme, were used. The text was substantially as follows:

Art is generally considered by most artists and by the general public as being beyond explanation or definition, and the appreciation of art is claimed to be a matter of culture and development of taste that only the chosen few can ever hope to attain.

In all art no matter what its medium or form, certain principles and rules are followed consciously or unconsciously, and I wish to make it clear to you

today that all art rests upon a definite scientific basis, which may be expressed in terms of principles and rules, also that all teachers of this subject who wish to follow the best practice of pedagogy must acquire a mastery of these principles and rules as a definite part of their professional equipment.

In advocating the "Rule and Reason Method of Teaching Design," I am fully aware of the fact that I am going contrary to the beliefs and theories of many brother artists. These people advocate and advance the appreciation idea, and deplore in a somewhat superior way the lamentable fact that the common people do not appreciate or understand art. In fact, we are lead to infer that they feel that the common people are not in possession of enough intelligence to understand art, but if we try to get at their methods, or the principles back of their work, or the reasons for their work, we find that they are utterly unable to analyse or define what they have done, or are trying to do. In fine the matter is merely a conflict of the hazy dilletante artist manner of working, where they have only themselves to consider, as against the definite aim and method manner of the artist teacher, who must be definite to get the results he is responsible for from a large body of students and in a very short time. These temperamental studio artists shut out the light of knowledge and reason, and leave the eager beginner to stumble along in the dark. They forget that the perfection of any art consists of the development and employment of a comprehensive system of laws that will regulate and define the thought, and guide the artist in its perfect expression. We recognize this in the other arts, we demand law and order in literature, and music has a complex system of well defined rules that govern thorough bass, counterpoint and harmony, and these have never at any time hampered in any way the fullest expression of any type of emotion. Walter Crane, the great English artist, teacher and designer, said, "With the search after, and the desire for beauty in life, we are driven to study the laws of beauty in art and design." Socrates said, "If arithmetic, mensuration and weighing be taken out of any art, that which remains will not be much."

We must understand, however, that even a thorough understanding of these laws and principles will not necessarily make a great artist, or enable one to produce a great work of art, but all the great artists use them, and no great work of art is produced or can be understood without them. Our great need at the present time is not great artists but an understanding and appreciative public, and I do claim that the general use of the "Rule and Reason Method" in the public schools will do more to develop an appreciative and understanding public than any other single factor. Furthermore, our most important aim is not to make artists of our students, but to educate the public to a more refined taste and an understanding, appreciation and enjoyment of the finer things in art.

We as teachers must first define, classify and then illustrate and explain by means of simple direct statements or rules that are easily tested, and then we can get a reaction from the students in better work, and in terms of reasons for the work presented.

In this discussion I shall make use of three terms, art, constructive design and applied or decorative design, and for the sake of better understanding of what is to follow I shall define these. One of the important things that I

wish to present to you as teachers of design is the inviolable unity of art. It is too generally accepted that the fine and the craft arts are separated by a wide gulf, in fact, a line is drawn by many people which excludes from recognition as a work of art, any object the construction of which is based upon the useful; however, I am glad to see signs of a gradual breaking down of this fallacy. At no time when great works of art design and craftsmanship were being produced was such a separation known. All the great artists were craftsmen. Hans Holbein, one of the greatest portrait painters, spent most of his time designing metal work, jewelry, book covers, windows and costumes. Michel Angelo was apprenticed to Domenico Ghirlandajo as a goldsmith, and from him he received the foundation for his later work as a painter. The ceiling of the Sistine Chapel, his greatest work, is more a masterpiece of design than of painting. This condition was common with most artists during the famous period of the Italian renaissance. A most notable example is the well known Benvenuto Cellini. Leonardo da Vinci, whose "Last Supper" and "Mona Lisa" are known to all, was a goldsmith and architect as well as a painter. I have among my treasures a copy of a sketch by Leonardo da Vinci illustrating his invention of the first machine to cut files. This is dated 1505. Ghiberti, famous alike for his frescoes, and the bronze gates in the baptistry of Florence, was a goldsmith, sculptor and bronze caster. Donatello was at one time more famous for his metal work than for his Bas-reliefs.

Composition in fine art is the same as design in applied art. All art of whatever kind is designed. Design is construction as well as decoration; it includes the consideration of fitness for use, suitability of material, limitations of tools and processes. Decoration and applied design is the decoration of that which has already been designed constructively.

At this point I wish to make an objection against the copying of Greek borders, Roman scrolls, ancient ornament or craft work of any kind and using them indiscriminately. We should study them, not with the idea of copying them, but to get hold of the spirit and method of the designer who produced such beautiful and lasting things to fulfill a need and produced them with the tools, materials and processes which nature, his religion, his civilization and skill had given him. Our present need is for creators of good things, not copyists.

Rules, Reasons and Principles

The first great principle of design is that "The object must be suited to its use." This is simply a statement of common sense, and is readily understood and agreed to by all classes. As an illustration of the method let us take the designing of the pen tray, first show the class a full length pencil and let them state how long the well should be, then let them judge and decide how wide and deep it should be to hold from four to six pencils, and two or three erasers. This brings us to the consideration of another fundamental principle, "That the requirements and limitations of the material, the tools and processes must be considered." The class will readily understand that in the wooden pen tray the bottom and edges must be thicker than if it was made of copper, and that the grain must run lengthwise. The tool used in cutting out

the well is the gouge, lead the class to see the limitations of the round shape of the gouge that compels us to have a well that is rounding. The result of this discussion will be a fundamental pen tray, that is strong and useful but not necessarily beautiful. (Sketch.) Exactly the same method was used in designing these glove boxes (Sketches). The next step necessary is to refine and enrich the details and parts. In the case of the pen tray the edges could be beveled, and the same applies to the cover and base of the glove boxes. This allows us to state another rule. "The methods used to refine and decorate the details and parts must be characteristic of the tools and materials."

What we have been doing is constructive design, and now we are ready for a consideration of the decorative design. The space at the ends of the pen tray and the cover of the glove box may be decorated by a simple design, carried out by veining, carving or inlaying, but we must be careful to show the class the limitations of each process before allowing them to begin the designing of the decoration. In designing the simple decorations for elementary problems we make use of four rules that apply particularly to decorative design. The first is "That the decoration must fit the space decorated." This rule may be proved to the class by drawing on the blackboard designs that violate and some that conform to the rule. (Sketch.) The second rule is "That all elements and parts must be harmonious." (Sketch.) The third is, "That the design must have a center of interest." These centers of interest are divided into main centers and subordinate centers. The fourth is "That the points of force must be recognized and made use of." In the case of the flat glove box top, the natural position of which is always horizontal, the points of force are at the corners, and in the center. At these points the main and subordinate centers of interest must be located. Prove this by drawing on the board sketches that violate and some that conform to the rule. (Sketch.)

To show the use of other rules of decorative design I will show their use in designing circular borders such as plate borders. To obtain the proportions of the border draw on the blackboard a circle representing the diameter of the plate, then outline a border that you know is too narrow for that size plate, then another border that you know is altogether too wide. (Sketch.) Next draw a border that you feel is rather narrow but that is not altogether displeasing, also one that is rather wide but that would still do, in this way establishing limits of narrowness and wideness that will leave room for freedom of choice between the limits. It will be found that the rule established will be "That the best proportion for a plate border is from one-fifth to one-seventh of the diameter of the plate." The next step is the designing of the decorative pattern for the border. An analysis of the plate border problem shows that there are five general ways in which this may be designed. These are as follows, arranged in their order of difficulty: First, "The design radiating from the center outward from the center." (Sketch.) Second, "The still design that has no apparent motion in any direction, with the center of interest equally divided between the inner and outer edges." (Sketch.) Third, "Moving around the border from the inner to the outer edge with the center of interest near the outer edge." (Sketch.) Fourth, "Moving around the border from the outer to the inner edge with the center of interest near the inner edge."

(Sketch.) Fifth, "Radiating from the outer edge inward." (Sketch.) Sixth, "In designs that grow or move around the border it is best to have them move to the right." Elementary designs of this type are generally made up of a single unit repeated a number of times around the border; this brings us to the problem of how many times should we repeat the the unit. By experiment it is easy to prove that the most pleasing divisions are in this order. First, six divisions; second, five divisions; third, seven divisions; fourth, nine divisions. (Sketches.) A good general rule to remember is to never or seldom divide any space into equal halves or quarters.

At this time I propose to show to you the method of designing units disregarding for the present any consideration as to where or on what material they are to be applied. Sometimes I teach this first and at other times only when the need for this instruction has arisen. Both methods have advantages and disadvantages. When designing units the first rule to keep in mind is, "That there must be a center of interest." There are five ways in which a center of interest may be forced or strengthened; they are by size, position, outline, shape and color. (Sketches.) The second rule to follow is, "That all elements and parts must be harmonious." (Sketches.) A third is to get "Flow of line" so that the eye will easily travel throughout the entire design. This will also tend to give unity to the design, that is, the unit will hang together well. Another rule to use in unit design is "The elements of a unit must support each other. This is the logical place to teach the value of symetry, which is repetition on a central axis; in other words, both sides are alike. This principle of symetry is readily shown by drawing aimless lines and spots on the board or paper and then placing a mirror on them, the complete units are quickly seen and picked out; these may then be rubbed over or transferred. It must be emphasized, however, that it is the principle of symetry that gives us the units. These units may be used as single units on watch fobs or paper knives, and when repeated horizontally may be used as borders, or repeated vertically as designs for wall papers, etc.

The next logical step is the use of four-part symetry, that is, the design is the same in each quarter section. To get this type of design quickly, we may make use of two mirrors at right angles to each other. (Sketches.) These designs could be applied to blotter tops, box covers, page borders, etc.

In every design course there should be given the rules of design that govern curves and an opportunity to teach and study the proportion, classification and definition of curves. In originating forms for bowls, vases and other similar articles there must be borne in mind the fact that the eye is best pleased with harmonious flowing lines, all violent changes of direction are to be avoided, broken and interrupted lines are disagreeable. The best curves start with a long curve and change to a sharp curve at the end. As a rule the sharper curve should take the smallest part of the line. The rules that govern curves are first, "A long sweeping curve with a shorter, sharper curve at the end is best." Second, "The best curves are in the proportion of one to four, one to two, one to five, and one to six, that is, the sharp curve should take the smallest part of the line and the bigger curve the longest part

in the proportions given. Third, "Curves that are arcs of circles or geometric curves should never be used, as they are stiff and mechanical." Fourth, "The various details of the object must be in proportion to each other and to the dominant curve." Fifth, "One simple well proportioned curve, such as the 'Curve of Force,' is stronger and more dignified than any combination of weaker curves." Sixth, "Curves should have a definite flow of line, and should not abruptly leave the general direction of the curve." Seventh, "If breaks, beads or moldings are introduced into the curve to avoid monotony, the general flow of the curve must be maintained." (Sketches.) Illustrations of the well known Greek vases should be shown to the class and their curves and proportions analyzed. The "Curve of Force," "The Curve of Grace" and Hogarth's "Curve of Beauty," the "Spiral" and the "Serpentine Curve," should be studied and discussed.

At the beginning of this address, I said "That composition in fine art was the same as design in applied art, and now I think we are in possession of such facts that we can prove this. This "Hosea," by Sargent, is a good example of center of interest. This "The Last Supper," by Leonardo da Vinci, is a perfect illustration of main and subordinate centers of interest. This "St. Catherine," by Raphael, illustrates flow of line and harmony and proportion of curves. Raphael's "Madonna of the Chair" is a good example of support of outline. This picture of "The Entrance to the Temple of Rameses" is a perfect illustration of support of outline, both in its general form and also in its decoration. This "Antique Chest" is an example of monotonous spacing and ornament and lack of harmony between the structural lines and the decoration. This picture of St. Mark's is a good example of harmonious elements and center of interest. And this picture of "Cologne Cathedral" upon analysis shows that it obeys all the laws of good design and composition. This picture of "St. Etienne Du Mont," Paris, is ugly and displeasing, because it violates them.

I have briefly stated and illustrated about thirty-five rules and principles of design. There are in all nearly twice as many of more or less importance.

By better methods of teaching, the Germans send out into the professions better trained men than we do and they send them out four years younger than we do. A few years ago our grammar grades were reduced from nine years to eight years, as a direct result of the efforts of a small group of men who analyzed, studied and presented better methods of teaching, reading, writing and spelling. At the present time there are earnest men working on the problem of better methods of teaching arithmetic, mathematics and science. President Judson of "The University of Chicago" has gone on record as advocating the six-year grammar school, one of these years will be saved by the better methods of teaching. The teachers of art, design and of the manual arts have got to keep pace with these other investigators in other school subjects, who are doing an invaluable work. We cannot keep on with the hazy, indefinite studio methods, which substitute narrow personal preference for broad abstract judgment based on logical thinking. The rule and reason method of teaching design gives us something definite to work with. When

either teacher or student are asked that sometimes embarrassing question, "Why is it good?" or "Why is it bad?" they can answer, "Because it conforms to or violates this or that rule," thereby opening the way to clear sighted criticism and correction.

Through design by this method we appeal to the interest of the student, the play of analysis and synthesis develops the much desired creative and active attitude in the student instead of the dormant receptive attitude that is so much to be deplored. Through it we get a definite reaction that is a pleasure to the student and an inspiration to the teacher, and of definite value socially and vocationally.

A marked interest in the method of teaching design was manifested by the very active discussion which took place frequently during and immediately following its presentation.

Miss Minnie Van Pelt, who was to appear on the program, was unable to be present.

At the close of the morning session the following Executive Committee for the Manual Arts Section was elected:

Anna G. Brown, Jacksonville, 1915, Chairman.
A. P. Laughlin, Peoria, 1916.
C. E. Howell, Decatur, 1917.
A. F. Payne, Peoria, 1917.

The afternoon session of the Conference was held in Room 400, Engineering Hall, Francis M. Porter presiding. An exhibit had been arranged by the Architectural Department for the visiting teachers, who manifested great interest and pleasure in the drawings and water color renderings.

The program, as previously arranged, was carried out.

Mr. R. Winship, of Bloomington, read a paper on "Architectural Drawing in the High School," in which he presented an outline prepared by Mr. A. C. Newell, of Normal. This outline was as follows:

COURSE IN ARCHITECTURAL DRAWING FOR HIGH SCHOOLS

Outline by A. C. Newell

GROUP	PROBLEM	RELA. TO OTHER SUB.	RELA. TO INDUST.
1. Architectural Conventions Definitions	Conventional Methods showing: Brick Stone Marble Terra Cotta Plaster Concrete Metal Earth Glass Rough Lumber Finished Lumber	Commercial Geography Forestry Metallurgy	Masonry, plastering. Structural iron work, carpentry, and mill work, brick making, marble cutting, concrete work, excavating.
	Symbols showing Structure and fixtures as follows: Frame wall-window and door Brickwall, window and door Single door, interior Double swing and exterior		Carpentry Masonry Mill work

GROUP	PROBLEM	RELA. TO OTHER SUB.	RELA. TO INDUST.
	Sliding doors Casement Windows Flues and Hearth Key to materials	Air circulation and draft of flues.	
	Symbols for Plumbing and Lighting Fixtures, Sink, Laundry Trays, Bath Tub, Lavatories, Water Closets, Electric ceiling outlets and brackets, Gas Fix., Comb. fixtures.	Electricity for lighting and dangers. Gas for lighting and dangers.	Hygiene and Plumbing, with reference to traps, vents and plugs for cleaning out pipes.
2. Washes with Ink and Colors (Optional)	Flat washes Graded washes Blended washes	Water color painting. Use of the brush and mixing colors.	Industrial Art
3. Rough Buildings Types of roofs	Dog-kennel Chicken-house "A" shaped pig-cot. Roof terms Laying out rafters for a definite rise and run	Practical carpentry, construction of small buildings and particularly roof construction and rafter cutting.	Farm Work
4. Designs and pencil sketches	Floor plans of a small frame house. Preliminary pencil sketches, scale ⅛" to the foot.	Freehand and Mechanical Drg., making a working drg. to scale freehand.	Home building Inventions

GROUP	PROBLEM	RELA. TO OTHER SUB.	RELA. TO INDUST.
5. Plans of a frame house	Floor plans. Scale drg. to ¼" to a foot from pencil sketch. Study of space relations for pleasing proportions. Plans of 1st. and 2nd floor, roof and basement.	Design, study of sizes, arrangement and pleasing proportions.	Architecture Furniture designing
6. Elevation of a frame house	Draw a vertical section thru walls, cornice, roof, and foundation for a line of heights in drawing elevations. If walls are irregular draw a line of widths as a plan view above or below the elevation to be drawn. Draw the front, sides and rear elevations. Check and rearrange window and door openings of the plans to agree with the elevations. (Parts of the elevations may be left unfinished till details are drawn.)	Design, light, beauty, convenience, fenestration and decoration. Engineering. Structural principles and strength of materials.	House Building
7. Detail drawings	Foundation walls and footings	Soil, Bearing power of soil under the bldg. Strength of materials. Climate and temperature.	Masonry

GROUP	PROBLEM	RELA. TO OTHER SUB.	RELA. TO INDUST.
	Framework details showing whether full frame, balloon frame or combination frame. (Optional).	Lumber, kinds of lumber used for frames.	Forestry Lumbering Milling Carpentry
	Details of cornice, and types of cornices.	Weather, Effect of water and ice on gutters and shingles. Design, type of cornice best.	Sheet metal work
	Detail of a corner showing water tables and clapboards.	Moisture and warmth, construction depends upon climate.	Carpentry
	Elevation and section of window and door.	Design,—Space relation of parts of the window and frame.	Millwork Glass making Glazing
	Detail showing porch construction.	Climate and pitch of roofs.	Carpentry Roofing
8. Sections thru house (May be omitted if the time is too short)	Longitudinal or Transverse section thru the house. Indicate line of section on the plans. (Sections need not all be in one place.)	Geometry,— Carpentry Sections thru solids	
9. Inside finish details	Types of stairs 1. Straight run 2. Box stairs 3. Dog-legged stairs 4. Open-newel stairs	Arithmetic:— To find the total run needed for the stairs and height of each riser	Stair Building

GROUP	PROBLEM	RELA. TO OTHER SUB.	RELA. TO INDUST.
	5. Geometrical stairs Layout of stairs for Rise and Run, with sectional drg. showing details of construction.		
	Detail of Mantle and section thru chimney.	Draft of flues	Masonry and cabinet-making
	Detail of base-board Details of wainscot cap Details of window and door trim in rooms Detail of plate rail Detail of buffet Cupboards and Sink	Design	Inside furnishing of house
10. Specifications	Clear statement of the material, construction of bldg. and relation of the parties. Explanation of drawings. Separate specifications for masons, carpenters, electricians, plumber and furnace men.	Law,—Must comply with ordinances and become part of a contract.	Excavation Masonry Plastering Carpentry Mill-work Plumbing Furnace construction Elec. work Painting Hardware, etc. Labor

GROUP	PROBLEM	RELA. TO OTHER SUB.	RELA. TO INDUST.
11. Bill of materials and Estimates of cost (May be omitted if time is too short)	Bills of materials for:— Excavation Masonry Carpentry Plastering Sheet Metal work Plumbing and Gas fitting Heating Electric work Painting, Glazing and Papering Hardware	English Arithmetic	Knowledge of the qualities of materials, prices, and the kinds of material available locally
12. Perspective Drawing (Optional)	Draw the front and one side view of the house in Scientific perspective.	Art Descriptive Geometry	Pictures for illustration

The aim of the outlined course is to give the student an idea of the work of the architect. Two or three students may be working on the same building each doing some of the more important parts, as the floor plans, and dividing up the details if time does not permit each one to draw all the plans.

Mr. C. E. Howell, of Decatur, in his discussion of the outline, as presented, suggested a number of changes. He said:

It is possible that what is of value in items 3 and 4 might be covered under item 5 with less loss of time. Also, in the natural sequence of things, foundation walls and footings, item 7, might more logically be taken up just previous to item 5 rather than following it.

Undoubtedly Mr. Newell intended topics under the column headed: "Relation to Other Subjects," to be taken up and considered in the class room. The "Design, Light, Etc.," of item 6 and the "Soil, Bearing Power, Etc.," of item 7 bears too vital a relation to the problems listed to be divorced from them.

His outline places Perspective Drawing as an optional. I am inclined to feel that a standard course such as we are proposing should contain some required Linear Perspective. The importance of this work cannot be overlooked. Any architectural course which we adopt should demand, either as a prerequisite, or as a sequel, such a brief preparation in Linear Perspective as will permit the making of one or more perspective house drawings to accompany the other house plans.

There are several related problems that may well be considered in a discussion of this kind. They are merely mentioned here and may be taken for what they are worth:

1. Is a course in architectural drawing complete without some work in architectural lettering?

2. Would a short preliminary course in Penetrations be advisable?

In considering the adoption of a standard for the high schools of the state the time element must play an important part, as it now does in the other subjects of the curriculum. For present purposes, however, let us assume the outlining of a course in architectural drawing which will give the maximum number of essentials in the minimum period of time, keeping in mind the limited assimilating powers of the average high school boy and an ideal of efficiency and thoroughness which will not permit us to cast aside vital details.

Motivation of our work as a whole should be the definite thing toward which we are striving. A mass of petty details which are worked merely for the work's sake and as necessary, although obnoxious, routine preparatory to the real doing should be avoided as far as possible. As a general thing instruction in minor details should be met as the pupil sees their need and place in the scheme of the whole.

This brings us to a possible deviation from Mr. Newell's outline in that we might select a definite, concrete task and let detail take its proper setting therein.

An example of this would be the placing before a pupil at the outset of the motivating task of planning, let us say, an eight or nine room residence for some home builder; this residence to be modern in every respect; to occupy a lot of given size and frontage; to be built at a stipulated cost and to comply with the building code of the pupil's home city. Such a scheme would give one definite problem gathering, motivating and crystallizing all details of construction and all related subject matter involved in the ordinary routine of the

architect's office. Beyond the confines of this problem lie merely the amplifications and multiplication of details evoluting into the modern business structure, together with the facility and skill derived from practice and repetition. These latter the average high school cannot attempt to attain at the present time.

Details and related subjects would thus be drawn into the course and placed in their proper setting. There would be some variation as the individual teacher assigned the size and style of house to be planned, but the necessary working out of essentials would bring a very close approximation to uniformity in the various schools where such a standard was adopted.

A brief outline for this project might be as follows:

1. (a) Complete drawings, consisting of plans, elevations and details of construction and finish, the latter showing the dimensions, appearance and arrangement in general and in detail, of the building contemplated.

(b) Optional work in the laying out of the grounds, gardens, walks, drives, etc.

2. Duplicate specifications to go with the drawings, stating the kind, quantity and quality of materials to be used in each instance; the methods of erection to be followed; class of workmanship; fittings, and any additional information of value which cannot be shown on the drawings.

3. Contracts covering the terms of award, such as the time limits on the parts and on the whole; the penalties; plan of payments, etc.

4. Approval of the plans by the authorities and permits for the work.

Leaving the specific outline under consideration and taking up the more general phase of architectural drawing in the high schools of Illinois, one is led to wonder, after a more or less thorough survey, and a study of the courses offered, why the majority of schools seem to leave architectural drawing until the third or fourth year. Only a small minimum of advanced students can take it at this time. Is there anything so difficult in the drawing of floor plans and elevations that the beginning student should have more trouble with it than with problems in orthographic projection? It is largely straight line work and, furthermore, every boy is more or less familiar with the outlines of his own home, thus furnishing us with that "past experience" which psychologists tell us is so necessary if we are to instruct successfully.

It seems a self-evident truth that a knowledge of ordinary house plans, elevations, plumbing, heating, lighting, etc., will be more useful to the average high school student and future business man, than the ability to draw conic sections and gear wheels. Have we reversed the proper order of things, are we putting the cart before the horse in our drawing classes when we place that which would do the most good to the greatest number, where the fewest can attain it, or have eliminated it altogether from our curriculum?

The above questioning attitude first came to me through a study of the girl question in our high school at Decatur. We have a large proportion of girls, as I presume all cosmopolitan high schools have. For some time we considered very seriously how the manual training department could do for the girls some things similar to those it had been doing for the boys. It was at once evident that in mechanical drawing the girls, particularly those of the art and domestic

courses, would be far more interested in house plans and related subjects than in parabolas and epicycloids. Consequently our first idea was to offer a special class in architectural drawing and design for the girls. Fortunately this plan fell through, due to the fact that only three girls could elect the subject at the hour in which we could offer it. I say fortunately because, although this semester we have thrown our regular mechanical drawing classes open to girls with an initial registration of four and a hope that next semester the temerity of a few more will be overcome and the presence of girls in the drawing classes become quite the ordinary thing, all this has led me to deeper and more serious thinking. Now we are actually anticipating a revolution in our drawing course, whereby both girls and boys will start with architectural drawing and spend the later years of their high school career, if financial and various other reasons permit them to remain that long, in the more difficult fields which are embellished with conic sections, evolutions and machine design.

Herewith is submitted a table containing some interesting data relative to architectural drawing in the Illinois high schools. In collecting these statistics 17 of the largest four-year high schools, 9 township high schools, and 3 of the Chicago technical high schools were written to. Each group is listed alphabetically in the order above mentioned.

A school which failed to reply is indicated by blank spaces. Those which answered, but do not offer architectural drawings have dashes following the name. To get all information on one sheet I was obliged to strike out some of the latter and use the space for Chicago technical schools, which you will find listed in the extreme right column. Whenever a question mark occurs it indicates a lack of absolute information, although there are good grounds for the figures given.

Items to the left of the double line down the center of the page may be grouped under the general heading, "Time Element"; those to the right of this line under" Scope of work". In the latter case the main object has been to indicate two distinct groups of schools:

1. Those which offer a course in which details are taught first, as details, and

2. Those which set before the pupil at the beginning the task of making complete plans for a house and teach the details as the need arises.

It is to be noted that some schools appear to do both, i. e., they use plan (1) to begin with and, after that is finished, take up plan (2).

All time figures have been reduced to 60-minute hours and a standard semester of 19 weeks; assuming 38 weeks in the school year. It is interesting to note the wide variation in the total hours devoted to the subject.

Perhaps the broadest and most evident conclusion which the time element of the chart warrants, is that architectural drawing in the high schools of our state is in dire need of some kind of a uniform treatment and is surprisingly absent altogether in too many instances.

A strong tendency is indicated to make it a third and fourth year subject, with the stress on the fourth year.

An attempt has also been made to indicate those schools which teach perspective, architectural lettering, classic architecture, and steel and concrete.

Figures in such an investigation are, at best, liable to error due to the varying replies received from the schools, but are on the whole accurate enough so that we may be warranted in drawing some conservative conclusions from them.

One of the questions which this table provokes might well be: "Which produces the best results, a short period each day, spread over more semesters, or a long period each day with fewer semesters?"

The plan of the Harrison Technical High School of Chicago seems unique. You will note that they offer three distinct courses in architectural drawing. The one which is marked "Regular," offering 5 45-minute periods per week, and the "Specials," offering either 10 45-minute periods, or 15 45-minute periods per week.

The Lane Technical High School was omitted from the table by error. They failed to reply to my inquiry.

ARCHITECTURAL DRAWING IN ILLINOIS HIGH SCHOOLS

C. E. Howell. Decatur, Ill. Nov. 20, 1914

FOUR-YEAR HIGH SCHOOLS	Time per Day.	Days per Week.	60 min. hrs. per Week.	Total hrs. per Sem. of 19 Weeks.	Sems.	Total hrs. Given to Subject.	Year Offered.	Details.	Partial House Plans.	Comp. House Plans.	Perspective.	Arch. Lettering.	Classic Arch.	Steel Cons.
Alton	No reply.													
Canton	Not offered.													
Champaign	Not offered.													
Danville	Not offered.													
Decatur	45	5	3¾	71¼	3	213¾	3-4			*	*	*		
Elgin	—	—	7½	142½	4	570	3-4			*	*			
Freeport	45	5	3¾	71¼	2	142½	4	*?	*?		*			
Galesburg	Not offered.													
Jacksonville	No reply.													
Moline	90	5	7½	142½	3	427½	—	*	*	*	*			
Monmouth	No reply.													
Peoria	45?	4	3	57	2	114 (120)	—	Not stated.		"Some add		elective work."		
Quincy	—	—	6¾	126¾	2	253½	4			*	*		*	*
Rockford	"Every other week."				1	—	—	*	*					
Rock Island	80	3	4	76	4	304	—	*	*	*		*		
Springfield	No reply.													
Urbana	Not offered.													
TOWNSHIP HIGH SCHOOLS														
Evanston	90?	5	7½	142½	2	285	3			*	*			
Joliet	Not offered.							Taught in		evening sc		hools.		
Kenilworth	Not offered.													
LaGrange	Not offered.													
Oak Park	Not offered.													
Ottawa	No reply.													
Princeton	No reply.													
Streator	2 Boys doing individual work.						—	3¾ & 7½		hrs.	per	week.		
Waukegan	Not offered.													
THREE CHICAGO HIGH SCHOOLS														
Crane Technical	45	4	3	57	4	228	3-4	*		*	*			*
Harrison—Regular	45	5	3¾	71¼	4	285	3-4	*	*		*		*	
Harrison—Special	90	5	7½	142½	4	570	3-4	*	*		*		*	
Or.	135	5	11¼	213¾	4	855	3-4	*	*		*		*	
Lane Technical	No reply.													

Mr. J. Scott Wiseman, of Kewanee, in his paper "Methods of Presenting Manual Training Instruction," offered the following:

AN OUTLINE FOR A HIGH SCHOOL COURSE IN MANUAL TRAINING MORE IN ACCORDANCE WITH REGULAR SHOP METHODS

I. In general, an outline of the method of conducting the work is as follows:
   1. Boys are divided into groups. The members of the same group may be dependent or independent of each other, according to the nature of the work.
   2. Each group performs only one step in the process of manufacturing an article.
   3. Each boy holds the one responsible for the work the latter did in preparing the work for the former.
   4. The groups are shifted in order that each boy will get experience in all stages and all operations of the work.
   5. Short cuts of working, as illustrated by the templet and jig, to be invented and used wherever practicable.
   6. The call for speed must be a real one.

II. A few aims of accomplishment:
   1. A conception of interdependence and its necessity. In piece work, each boy is always responsible to another.
   2. A conception of co-operation and its necessity. In gluing, clamping, etc., a number of boys work together.
   3. A habit of reacting to proper motives to work. These should spring from his personal ambition and artificial arrangements and more from real conditions outside the individual.
   4. A habit of reacting to proper stimuli to speed. A call for speed should be founded upon natural, not artificial, conditions.
   5. A knowledge of industrial methods and their value. The work should be so arranged that the boys will acquire some conception of industrial methods and ideals.
   6. The development of leaders,—Those boys showing special mechanical ability, or ability to lead others, are lead into positions as foremen.
   7. The habit of thinking out means to ends, that is, a habit of inventing.
   8. Some knowledge of and skill in the use of tools and machinery.
   9. The place of neatness and accuracy in the industrial shop.

The Work of a Manual Training Shop Run According to Regular Shop Methods—A Few of Its Aims and Projects in Outline

During the last few years, the gradual supplanting of the old manual training methods by shop methods has moved along without interruption. The more of the kind of work the school has done the more profitable it has seemed to be. A great many articles have been made according to industrial shop methods but only three examples of the work will be given, since that number will be enough to fully illustrate just what is being done. These three are ten

drafting tables for the school drafting room, fifty collapsible hurdles for the high school, and six shoot-the-chutes made in conjunction with the grades. These problems afford excellent opportunities for:

1. Co-operative group work and work requiring the interdependence of pupils.
2. Forming habits of being interested in somebody or something not in any direct sense connected with the pupil himself.
3. The cultivation of proper motives to work.
4. Speeding up the boys in their work by the presence of a real need for speed.
5. Doing work according to industrial shop methods.
6. Invention in the solving of difficulties.
7. Working on problems of real life size.

Outlines of the three projects, the drafting table, the collapsible hurdle, the shoot-the-chute, are given below in the order named:

I. Drafting table.
   1. Cut duplicate pieces: Legs, rails, panels, tops.
   2. Plane and square on jointer and with hand plane.
   3. Cut tenons.
   4. Mark mortises by use of jigs and other time-saving devices.
   5. Cut mortises.
   6. Cut grooves in rails and legs on circular saw.
   7. Fit panels in place and assemble, by the boys in groups of two.
   8. Sandpaper.
   9. Examine work.
   10. Glueing up, by boys in groups of three.
   11. Scrape and sandpaper.
   12. Stain.

II. Collapsible hurdle.
   1. The design of the hurdle.
      (a) The length of feet necessary to insure stability.
      (b) The quickest and strongest way to joint the feet with the cross pieces.
      (c) The length of the cross pieces necessary to give the required height, and the required breadth at the top.
      (d) A device must be invented that will be strong and will at the same time, provide a means of easily and quickly collapsing the hurdle.
   2. Figure the necessary amount of material and cost of same.
   3. Get out the required pieces.
      (a) Cut duplicate pieces in quantity on the circular saw.
      (b) Method of cutting out the joint connecting the foot with the cross piece.
   4. A jig must be invented that will enable the foot and cross piece to be placed in their proper positions quickly so that the hole for the bolt may be bored accurately.

5. A jig must be invented that will enable the boys to put the hurdles together quickly, getting the exact height each time, but without the trouble of measuring each piece.

III. The Shoot-the-Chute.

1. Bend the steamed boards to curvex.
   (a) The work must be done quickly.
   (b) Strain must be properly distributed when bending piece.
   (c) Pieces bent must be thoroughly dried before clamps are removed.
2. Build up the curves of the side pieces out of 7/8" lumber in order to obtain the greatest strength.
   (a) Illustrate the necessity of running the grain of the parallel strips of a built-up curve in different directions in order to get greatest strength.
   (b) Illustrate the strongest method of joining the ends of the two or more boards constituting each parallel strip.
3. Methods of getting the correct angle of the steps of the step ladder.
   (a) From a drawing.
   (b) By the rule of thumb.
4. Best contrivance that will enable one to close the step ladder.
   (a) Contrivance must be light and easily made.
   (b) Examine different schemes used on step ladders.
   (c) Contrivance to suit the particular case in hand.
5. A device by which the chute can be easily removed from the ladder must be invented.
6. Invention of short methods of work as that illustrated by the jig frequently called for.

Mr. L. Day Perry, of Joliet, discussed "Some Essential Elements in Manual Training." In presenting this subject he spoke in part as follows:

The problem of presenting work to classes is an all important one. After carefully explaining the problem as regards its use and its limitations, its making should be carefully demonstrated step by step, and the tools to use, the processes, and the dangers to avoid outlined in detail. With the images at hand the pupil begins his work and works well up to the point where they become obscure, when assistance is necessary. With the aid of a printed sheet of directions before him on his desk he recalls the idea and gains new ones, when he once more proceeds. This printed sheet correlates with and supplements previous directions.

After the student has acquired an accurate knowledge of the use of tools, he should originate his own designs. Previously, however, he must have had instruction in design in its broadest sense. By this is meant the ability to differentiate between the pleasing and the ugly, and to assign a reason for his conclusions. He must not blindly copy or imitate catalog cuts, blue prints, or the article itself no matter how well designed.

Throughout a course of instruction general and detailed discussion should be given at proper times upon particular facts bearing upon the work at hand both directly and indirectly. Such facts as tools and their manufacture; logging, milling, tree growth; copper, its mining, alloys; history of printing, modern print shop methods; primitive pottery, its development, modern potteries, and so on. In large school systems it is imperative that these discussions be given at stated times so that each succeeding instructor may know that certain definite facts have been imparted, and that the class is prepared for new data.

In any community there are many industries which may be studied at first hand. It is not sufficient that the boys be merely guided through such establishments for the sake of seeing, but while the visual images are fresh in their minds talks upon industry, indicating all things which did not appear upon the surface should be the rule, as methods of operation, kinds of specialized labor, the pay, the promotion possible, etc. Many industries cannot be studied at first hand; then an ideal way easily within reach is the use of the stereopticon. There are few things which will bring to a boy such interest and useful data, as slides depicting industrial development and manufacture ultimately leading to the big question of conservation. With the attending lectures he has imbedded in his mind certain data which are of invaluable consequence to him in future life. The one big factor in Manual Training which is being ignored is the vitalizing of the work, by enrichment of content, and by variety of courses for ultimate selection.

A medium which without doubt opens up a field of direct connection with the outside world, with life, is the medium of reading. Current magazines which have ultimate relation with work at hand, every shop should have. Its list should contain current magazines of pronounced merit coming to the reading table every month. A boy who has finished certain work or is at a place in work where reading would help may then be directed to certain articles. He connects in terms of the printed pages, the outside world with his own. He obtains an insight into other channels and acquires, as a by no means minor consideration, a habit of reading.

The shops in any system must be interdependent to be of maximum value. Not only that, but all departments of the school system should correlate with the shops. We cannot think of any particular shop experience but which is an outgrowth of some other experience, or the basis for some experience to come. They are interwoven as some fabric and cannot be separated without destroying the whole. Too much do we think only in terms of our specialty. In such a concrete case as foundry and pattern making where their interdependence is conceded they frequently run as distinct as the subjects of arithmetic and literature. In cabinet work, and metal, for instance, where design plays such an important part, in the enrichment of detail and the breaking up of flat areas, it is incumbent that they develop together, for only then do they develop best. So on through all branches of the Manual Arts we must correlate, for only in correlation do we obtain the best and broadest from each.

In relation to design,—we must not continue the construction of things ugly. It may be that the article in question is well put together and indicates so called craftsmanship, but is ruined through ignoring the laws of good design

in mass, line and finish. Then conversely, the project may be well proportioned and finished in every detail, but lacks structural rigidity. So I have a theory that a thing to be well designed must not only conform to the principles of Balance, Rhythm, and Harmony but it must be structurally sound and well fitted for its function.

Using mediums in shop practices which contribute to the usefulness of articles and to their beauty, and instill interest and enthusiasm in the boy, is advisable. They are worthy of adoption. Caning, both commercial and hand, since its introduction in the Jacobean period, has been in fairly general use. Used in conjunction with wood it furnishes a means for decorative design, as well as constructive, and brings to the boy an appreciation of the interrelation of mediums toward the production of articles of beauty.

And so with rush seating, from its coming into use in Flanders it is a twin with caning in its value as an interest creator. It however serves no more than a function, yet withal is decorative. And not least, a knowledge of both processes in weaving brings commercial returns, for in any community many chairs need reseating and rebacking, and with payment made for services rendered a new idea of what Manual Training experiences mean comes back to the boy, and he realizes that they actually reach out into the world of commercial activities.

There should be one point on which we all agre and that is this: that nothing should be constructed in the shops that requires ultimate completion from without. If a piece of furniture needs upholstering, upholstering should be taught; if a piece of pottery be permanent it must be glazed, and glazing should be taught; should a lamp be made that requires wiring or piping, such should be taught; if a copper bowl needs silver plating, we should teach silver plating. Therefore, we must employ any medium that is demanded for completion of a given article, and also any which is not inherently needed, but through whose use a broader conception of industry and of life is obtained. Such mediums have much to do with the aesthetic aspect of Manual Training so frequently overlooked or neglected.

The report of the committee to formulate outlines for a second unit in mechanical drawing was presented by the Chairman, Mr. F. S. Needham, of Oak Park.

The report reads as follows:

Aim of the Whole Course

To develop the pupil and through this medium train him to get control of his situation so that he can apply himself to any problem and by his own efforts and reasoning so acquaint himself with that problem that he will get the larger view, and become the master of the situation rather than a cog in the wheel that only moves when a greater force is brought to play which overthrows the spirit of rest.

To teach the pupil to express himself by drawings so that he may convey to others by an intelligible and systematic method an idea which is contained

within his own mind and to be able to translate drawings made by others so that he may read a drawing understandingly and get that idea which some one else has endeavored to express.

a. To teach the practical application of Orthographic projection to drafting.

b. To teach the simple principles of machine construction.

c. To teach the technics or conventions of drafting.

In offering this course for a second unit in machine drawing we feel that it is incumbent upon ourselves to supplement the preceding course which has already been adopted for the first unit in mechanical drawing in the following manner:

a. Suggesting that inking be made a problem in itself and not introduced until the pupil has become more or less familiar with the use of his drawing instruments, which would probably be during the last half of the year.

b. That the pupil endeavor to learn only one style of lettering during the first year.

c. That Isometric drawing or some form of pictorial representation be studied.

d. That all attempts at architecture be considered under another course, putting more emphasis on the practical application of developments as related to the sheet metal industry.

Time Required

Not less than forty minutes daily for ten school months, or its equivalent

Contents

1. Machine lettering.
2. Fastening devices.
3. Mechanism.
4. Interpretation.
5. Reproduction.
6. System.
7. Drawing from tables.
8. Details; stock lists.
9. Assembly drawings.

Outline of Course

Subject	*Content*	*Problem*
I. Lettering	Purpose Application Expression	Study of lettering of blue prints, also notes, titles, etc.
II. Fastening Devices	Rivets Bolt Screw	Methods of riveting and shapes of rivets Machine bolts, square, hexagonal, round heads

		Cap screw Set screws, hollow, headless, cup point, etc.
III. Mechanism	Mechanical parts and their construction	Face plate Pulley Jack screw Water valve details
IV. Interpretation	Translation	From Isometric drawings or sketch of machine details make Orthographic sketches with dimensions
V. Reproduction	Tracing Blue printing	Trace and blue print drawings of Groups III, IV, VIII
VI. System	Methods Checking Filing	Group II Group III
VII. Drawing from tables	Use of simple formulæ	Couplings Pillow block Hangers, etc.
VIII. Details	Distribution of parts Arrangement of plates Shop requirements Mechanism drawings Accuracy and information Stock list	Use sketches and drawings in Group IV
IX. Assembly drawings	Assembly of details	Group VIII parts drawn in position

Suggestive methods of teaching the course in machine drawing.

Group I.

Good lettering is of such great importance that it would be emphasized throughout the entire course. The use of co-ordinate paper is of great value in teaching this particular branch and is recommended. The study of lettering may be simplified by the use of blue prints secured from some manufacturing firm. Observe the practical value of good lettering as to size, style and location, the arrangement of titles, the information there given. Importance of notes, good clear-cut figures, definitely marked arrow heads and intelligently placed dimension lines. Auxiliary views, conventions and sections. The care of instruments should be emphasized early in this course.

Group II.

Make drawings of different shaped rivets in position. (Cambria or Carnegie Steel Co. handbook for proportions.) Draw carefully the helix, its application to the V and square thread, and their sections. Show by drawings the difference between machine bolts, cap screw, set screw with their different points and heads, using conventional methods for the threads.

Group III.

Make drawings of a face plate, pulley, jack screw, water valve, showing the application of the screw threads to machinery.

Group IV.

From isometric drawings or sketches of machine details make orthographic sketches:

a. crank shaft
b. coupling
c. pillow block
d. hangers
e. vise
f. emery grinder
g. rod cutter
h. lathe (wood)

Group V.

Make tracings and blue prints, using both paper and linen of the drawings made in Group III or VIII.

Group VI.

Allow pupils to check each other's sketches of Group IV, also Groups VII and VIII, later in the course, showing the necessity of checking, method and how to make corrections. Introduce a filing and indexing record.

Group VII.

Using catalogs containing sketches and tables, draw to scale, for different size shafting, pillow block, hanger, coupling, etc. (Dodge, Link Belt, Chicago Pulley, Crane, etc.)

Group VIII.

Make detailed drawings, using sketches of Group IV, emphasizing the principles demonstrated in Groups I and VI. Also make stock lists.

(For schools that are able to obtain machines or models students should make sketches of these parts instead of sketches from Group IV.)

Group IX.

Use of assembly drawings, assembly sections, auxiliary views, etc. Relation to detailed drawings.

Pipe layouts from isometric center line layout, using catalogs (Crane, Western Gas, etc.) for fittings, etc., is a subject well within the ability of the

pupil at this time and one in which the individuality of the pupil's initiative may be developed. This would be a problem in which a stock list training would be particularly emphasized. While we do not incorporate it in this course we do suggest that a great deal of value might be derived from this particular problem under favorable conditions.

In preparing this course for a second unit in machine drawing it has been our very earnest desire to extend the greatest consideration to the smaller high schools, which of necessity have not the equipment to compete with some of our larger and more modern schools, many of these latter being in a position to present this subject far beyond college requirements.

The well equipped school has already the equivalent of a course such as we have presented and is in a position to make many deviations and elaborations that will more than satisfy the demands for college credit.

The committee thanks you for this opportunity to assist in the formation and development of this course.

Respectfully submitted,

F. S. Needham,
W. F. Willard,
W. A. Richards.

During the discussion following the report, the concensus of opinion seemed to favor considering the outline rather elastic, and to be a basis upon which to organize the work to be carried out in class, rather than adhering strictly to the outline as presented.

Following the usual announcements the session adjourned.

Respectfully submitted,

Benj. L. Bowling.

Mathematics Section

High School Conference, University of Illinois, November 20, 1914.

At the morning session, Professor H. L. Rietz, University of Illinois, presided.

Moved and carried that the chairman appoint a committee to nominate two members to serve on the Executive Committee, one for three years, to take the place of Mr. E. H. Taylor, whose term had expired, and one for one year, to take the place of Mr. C. A. Pettersen, who had resigned. A nominating committee, consisting of Professor C. H. Sisam, University of Illinois, Mr. Alfred Davis, Joliet Township High School, and Professor C. E. Comstock, Bradley Polytechnic Institute, Peoria, was appointed and instructed to report at the afternoon session.

The following papers were presented and discussed:

Professor E. J. Townsend, University of Illinois, *The Fundamental and Accessory Elements in High School Algebra.* Mr. R. L. Modessit, Eastern Illinois State Normal School, Charleston, *Report of the Committee on an Efficiency Test in Elementary Algebra.* Abstracts of these papers and notes regarding the discussion are given below.

At the afternoon session, Dr. E. B. Lytle and Professor H. L. Rietz presided.

The nominating committee reported the nomination of Mr. L. C. Irwin, Township High School, Joliet, as a member of the Executive Committee to serve for three years, also the nomination of Mr. Fiske Allen, Eastern Illinois State Normal School, Charleston, to serve for one year and to act as chairman of the committee. The third member of the committee is Dr. E. B. Lytle, University of Illinois, who is to continue for two years.

The following papers were presented and discussed:

Professor E. R. Breslich, University High School, University of Chicago, *Supervised Study of High School Mathematics.* Mr. H. O. Rugg, University of Illinois, *Discussion of Graphs of Grades given in Elementary Mathematics.* An abstract of these papers, some notes regarding the discussion and a full account of the action taken by the section are given below.

Abstract of paper on

"The Fundamental and the Accessory Elements in High School Algebra"
By E. J. Townsend

Several years ago this section undertook to express by means of syllabi what in its judgment was the most essential in the mathematical training of secondary school pupils. * * * *

I take it that we had at least two distinct purposes in their preparation. The one that was doubtless regarded at the time as the most important was perhaps the desire to standardize so far as practicable the secondary school instruction in mathematics in the State. It is highly desirable that the content of the course of instruction in one high school should be substantially the same as that in another in order that pupils should not be placed at a serious disadvantage when compelled to change from one school to another, and

moreover it is equally important that those of us who have to base our work upon secondary school preparation should know what we may safely assume as known, and that students coming from the various schools of the State should have similar training in amount and character as a basis for their work in college. * * * *

Another, and perhaps more important purpose of a syllabus is however to serve as a guide to the inexperienced teacher in directing his attention not only to what should constitute a minimum content of the course of instruction, but in suggesting an effective order of arrangement of the various topics, calling attention to what are to be especially emphasized because of their fundamental importance and what accessory elements may be introduced to increase and to maintain the interest of the pupil, and finally to point out such common errors and difficulties of pupils as should be anticipated and avoided. It is in meeting this second purpose of the syllabus that we have perhaps failed. * * *

In order that our discussion may be more concrete and constructive, I shall direct my remarks and suggestions largely to the syllabus for algebra. I have the added purpose in doing so that the results obtained in elementary algebra seem on the whole to be less satisfactory than those obtained in geometry. Moreover, it is the one mathematical subject which here in Illinois is commonly begun in the high school and finished in college, thus making it of the highest importance that the correlation between the secondary school work and the subsequent college work should be definitely understood.

To be most helpful to the inexperienced teacher our syllabus should give more detail and be more explicit in many instances in the directions given. For example, under factoring we say:

"Factoring—Special products and factors taught together as inverse operations; meaning of quadratic expressions and factors of such expressions; problems leading to quadratics to be solved by factoring: H. C. D. and L. C. M. by methods of factoring; multiplication and division of polynomials by polynominals.

Such an outline serves to give the experienced teacher the needed information, and from it he can formulate his own course of instruction. I fear the inexperienced teacher will get but little out of it. What he wants to know is *what* type-forms of factoring should be presented, *what* applications should be made, and above all in what order of arrangement should these topics be presented. * * * *

The ideal syllabus for the inexperienced teacher would in this regard be such as might be put into the hands of the pupils in his class, if desired, as an outline of a course to be given by the syllabus method. * * * *

More might be done in pointing out the common errors that pupils are likely to make and recommending that special drill be given at these points. This feature of the syllabus might well be expanded by giving a list of references to the more important discussions that are to be found in the available literature. The syllabi which we have issued embody the opinion of our committees and of this conference. That might be regarded as expert opinion and is good as far as it goes, but the value of our syllabi would be greatly increased if there were added liberal references to other syllabi, such, for example, as

the syllabus for geometry prepared by the National Committee of Fifteen which was authorized by the National Education Association and by the American Federation of Teachers of the Mathematical and Natural Sciences, and the Syllabus of Mathematics published by the Society for the Promotion of Engineering Education. The ideal syllabus should also have a reasonably complete list of references to the important contributions to the pedagogy of the subject, so that it may suggest to the inexperienced teacher the places where he may find the best thought of our times concerning the professional side of his subject. Any mathematical syllabus should list among its important references the reports, already mentioned, of the International Commission on the Teaching of Mathematics. I think we might well go still further and include in our syllabi a list of mathematical books that should be in the personal library or at least accessible to the teacher of secondary school mathematics. Such a list should include those books which may be useful as source books from which the teacher can obtain stimulating problems for supplementary work as well as those which would serve as mathematical reference books in connection with secondary school work. * * * *

It is with the minimum program that we are interested. * * * It is not my purpose to go into details in this phase of the question, for to do so would be to produce a syllabus, but rather to suggest some general principles that may guide us in deciding whether any particular topic is fundamental in character or merely accessory in any particular case. In deciding upon these guiding principles we should keep clearly in mind the purpose for which the subject is taught. I shall state these principles in the order, as it seems to me, of decreasing importance. * * * *

I. *First of all, we should include those topics which of themselves are essential or desirable in the training of an educated member of the community.* * * * *

Without doubt the popular opinion is that the value of the study of algebra for practical purposes is essentially nil. The man of affairs declares that he has found but little use for it, and the school boy is apt to ask his teacher "What all this stuff is good for, anyway." We are ourselves often more than half convinced that it is of little use, except for the discipline it affords, unless the pupil expects to proceed further with the study of mathematics or anticipates taking other scientific courses for which algebra is a necessary preparation. To accept, unqualifiedly, this point of view is to lose sight of one of the *fundamental* purposes for studying the subject. Algebra should be presented as a continuation and generalization of arithmetic. The pupil who fails to see that the fundamental processes of algebra are but generalizations of the corresponding processes of arithmetic, that is that algebra is a study of general principles and processes of which he had in arithmetic but particular illustrations, fails to get from the study of algebra one of its important lessons. He should see that this generalized method of treatment gives him an understanding of the principles of arithmetic and a facility in solving its problems which he did not before possess. From this point of view the study of algebra has an important bearing upon the training of an educated man, provided we acknowledge the generally accepted conclusion that arithmetic itself is an

essential element in such a training. The boy should also be led to see that algebra affords a convenient means of stating briefly and precisely by means of formulæ many of the laws and relations with which he is familiar, a point of view which can not fail to be of value to him even in the common affairs of life. * * * *

II. *We should include those topics which are necessary to furnish a minimum training in fundamentals of the subject as a basis for the next mathematical course in sequence.*

Whether the student intends to proceed further with the study of mathematics or not, he should be given that training which makes possible further study of the subject if circumstances should make that desirable. Moreover, there are always some in our classes who will doubtless proceed further with mathematics and for these such training is essential. In a way, this principle of selection is that which interests us in determining the essentials necessary to the training of the pupil who is later to specialize in mathematics, but on the other hand no subject can be said to be satisfactorily presented which does not contain a minimum development of the fundamental principles of that branch of science and in such a manner as to bring out clearly its logical development. * * * *

I take it that we should readily agree that any topic should be introduced in as close connection as possible with the application to be made. The error which we are likely to make here is not in deciding what is scientifically fundamental but what is *pedagogically* fundamental, that is, is not in determining what we shall present but rather *how* it shall be presented. At this point we can readily see the reason why the teaching of geometry seems to produce better results than our teaching of algebra. We have all discovered that our pupils like best those things that stimulate their mental activity and lead them to discover things for themselves. In geometry we frequently give only the suggested steps of the proof required, leaving the pupil to fill in the details. We select our problems from the boy's experiences to stimulate his interest in applying his mathematics to things that appeal to him as worth while. In algebra, on the contrary, we are fond of giving the last detail in our proofs, leaving nothing for the boy to do but to *learn* the demonstration. We are too often content to select problems that merely illustrate the principle, but which have no relation to the common experience that our pupils have had in the past or are likely to have in the future. In this way we not only deaden the interest of our pupils, but we lose the opportunity to stimulate in them the *spirit* of inquiry and of research. In this respect, it seems to me that much improvement can be made, and it may be worth while to incorporate in our syllabus for algebra some suggestions along this line. * * * *

III. *Finally, we should include some material which while perhaps not essential in itself to the logical development of the subject is nevertheless of importance in arousing and sustaining the interest of the pupil, or in showing the relation of the subject to other allied subjects in the curriculum.* * * * *

The boy who completes the study of algebra without having his attention called to those applications that come within the realm of his experience, or

fails to find that it is to be of use to him in the study of allied branches of science is surely the victim of inadequate teaching. * * * *

Too often, I fear, our problems and illustrations involve a technical knowledge quite outside of the experience or interest of the pupil. To be effective, these applications should imply a knowledge of only such physical phenomena as is within the *common* experience of the class. * * * *

While we should never give a problem merely for the sake of giving information, yet if a problem contains data, that data ought to be both accurate and valuable. It may even be of value to borrow equations from other branches of science, if no technical knowledge is required for their solution. * * * *

The central purpose for the study of algebra is clearly the equation. * * * Those topics which do not have an important bearing upon the solution of equations may well be reduced to the minimum required for subsequent work. In this connection I wish also to urge upon the conference the importance of drilling the pupils in oral work of translating the English statement of a given relation into its algebraic equivalent and *vice versa*. * * * *

Another fundamental notion in the study of mathematics which is not always sufficiently emphasized in elementary algebra is the notion of functionality. * * * This notion of functionality should not be merely annexed to the work in algebra, as though it were quite incidental to the course and foreign to the main purpose for teaching algebra. * * * The notion of functionality not only broadens the field of applications that may be made and therefore increases the interest of the pupil, but it paves the way naturally and normally for the introduction of the graph in algebraic work, which of itself is both of value in algebra and of importance in subsequent work in mathematics and the allied sciences. * * * *

Professor C. E. Comstock opened the discussion. In reply to a question by Miss Audrey Dykeman, Kansas, Ill., asking what parts of the mathematics course had not been adequately presented by high school teachers, he said that some of the things omitted or insufficiently emphasized are exponents, meaning and use of the graph, the idea of variable (functionality), the idea of form, and the idea of generality.

It was discovered, from questions raised by Dr. Lytle, that, while several of the members of the section present had made use of some syllabus, perhaps a majority of those present had never even heard of the syllabus adopted by this section in the year 1908. In reply to the question, what help the syllabus had given, Miss Bessie F. Cline, Urbana, said that it had helped her to discover that some parts of her text book were not essential and might be omitted, so as to give more time for material really needed.

Mr. F. D. Bowditch, Urbana, expressed the opinion that the importance of the equation was very much over-emphasized in many

texts, and recommended a thorough preparatory drill in the fundamental operations. He asked the members of the section if they would advise that students expecting to follow mathematical subjects in the University be given four years of mathematics in the high school.

The opinion was expressed by several teachers that it was unlikely that a committee could agree upon the adoption of any particular syllabus.

Professor L. C. Plant, Michigan Agricultural College, said that if Mr. Bowditch thought the subjects should be presented in a certain order, he ought to use a text which presented the subject in that order; that, personally, he believed in beginning with the equation; the belief in a certain order makes a teacher successful in teaching that order. Nevertheless, a committee might very well *suggest* an order. Detailed syllabi are frequently very useful, especially for an inexperienced teacher.

Mr. Irwin expressed a belief that geometry is more satisfactorily taught than algebra, because so much more attention is given there to *how* we teach than to the order, that the importance of how to teach should be emphasized in our syllabi, and that the order of subjects depends upon the manner in which they are taught.

In answer to a question, whether there exists a natural order, or whether order is a matter of individual taste, Mr. Allen replied that, in his opinion, a natural order had not been found, and that that order was best for each teacher, in which the teacher believed most fully. He suggested that two or three different orders be recommended in a syllabus. He also expressed the opinion that we have not yet reached the time when the content should be chosen from regard for utility alone.

In reply to the question whether he would teach more in regard to the graph than the graphing of a simple equation, Professor Comstock said that the graph was needed more than many other things taught in algebra, since it is a means of public expression found even in the most simple statistical articles and lectures on all kinds of subjects, as well as in the daily papers and popular magazines. After the student has been taught to read these graphs, graphs may then be exhibited as an expression of mathematical laws.

Professor Walter J. Risley, Millikin University, said that he believed in continually calling the attention of his students to the simple daily applications of mathematics.

Miss Jessie D. Brakensiek, Quincy, said that another half year of work was needed in the high school to properly prepare the students in the elements of mathematics. Mr. Bowditch repeated his question regarding the advisability of a four years course.

Professor Rietz answered that four years of mathematics in the high school would probably be helpful, especially for Engineering students, but that the prospects of getting even two years of algebra was very remote, the present tendency being in the opposite direction. The high school is no longer regarded by the people as a preparatory school.

Moved by Miss Cline and carried, That some member of the section, e. g., say Professor Comstock, be asked to present, as a part of next year's regular program, a paper on the place of the graph in the high school, showing just where it would be introduced and how it would be presented.

Moved by Mr. Bowditch and carried, That a committee be appointed to obtain through a questionaire, the ideas of different teachers regarding the order of topics in high school algebra, and to solicit papers on this subject for presentation at the next meeting.

Abstract of a paper on

"An Efficiency Test in Algebra"

By R. L. Modessit

What I have to say is not a report of the committee appointed to formulate an efficiency test in algebra. For some reason this committee was not able to get together, and I am not at all sure that the other members will concur in offering what I shall read as a report. I give it with the hope that the Conference will see fit to continue the committee until an efficiency test in algebra is worked out.

I wish to express my indebtedness for many of the suggestions I shall make to the Committee on Results and Examinations of the Central Association of Science and Mathematics Teachers, and also to Edward L. Thorndike, whose book on "Social and Mental Measurements" has been of much help to me. In the attempt to see how a scientific test in algebra might be worked out, I have followed as closely as possible the method used by Mr. Thorndike in his "Experiment in Grading Problems in Algebra" found in "The Mathematics Teacher" for March, 1914.

In July, 1905, the school authorities of Breslau asked certain persons, among them Professor H. Ebbinghaus, to undertake an investigation of the fatigue-effects of the five-hour sessions common in the schools of Breslau, at that time. In the course of the investigation, Ebbinghaus devised what is known as the "Completion Method" of testing the mental ability of pupils. Because of the enthusiastic statements of its author, who characterized the method as "a real test of intelligence," the test has gained much prominence. * * * The test consists in determining the accuracy and time required in combining into a coherent whole a passage from which parts have been omitted. * * * *

Mathematics as a subject in our system of education commonly has ascribed to it the value of leading to clear and effective thinking and of developing the power of holding the mind firm until a desired end is reached,—the penalty sometimes being to do the task all over again if the mind is not thus firmly held. Mathematics increases the power to observe accurately, and to make correct inferences and generalizations. Tests have been worked out in algebra by the Committee on Results and Examinations (referred to above) for the purpose of testing some of these values. For example:

Test 1. (Time, 3 minutes.)

Name two quantities for which each of the following expressions may stand:

$$\begin{array}{cccccc} ab & d/y & 3^a & ab^2 & a+b & abc \\ 1/x & x^2+y^2 & a-b & -a & \frac{2+b}{2} & 1/2\ ab \end{array}$$

$$\begin{array}{l} 2/x+3y=5 \\ x-2y=3 \end{array} \qquad a^2$$

No doubt all of you are familiar with the tests, devised by S. A. Courtis of Detroit, Michigan, which have been used so extensively in standardizing arithmetical abilities. * * * *

Some feel that what Mr. Courtis has done for arithmetic might be done also for algebra. There are certain fundamental abilities in algebra on which a pupil's success or failure depends. He must know, for instance, that if the sum of a and b is to be multiplied by c each number (a and b) must be multiplied by and the two products added. On the other hand, if the product of a and b is to be multiplied by c, either a or b may be multiplied by c and the resulting product multiplied by b or a. The pupil should become so familiar with such fundamental principles that there will be no hesitation in their use. Then, there are the abilities of thinking, of reasoning, of interpreting, of translating the written problem into algebraic language and *vice versa,* which the pupil must acquire in order to be a successful algebra student. In other words, the pupil must possess a knowledge of the meaning of the number symbols as well as the ability to manipulate them automatically.

Many of these fundamental abilities in algebra have been suggested by the Committee on Results and Examinations. Some of them are as follows:

1. Expanding by one term multiplication and removal of parenthesis; e. g., $c(a+b)$; $5(3x-y)$
2. Simple cases of factoring; e. g., $a^2-2ab+b^2$; $4x^2-y^2$.

3. Operations with exponents; e. g., a^2b^2; a^3/a; a^{-5}/a^5.
4. Solution of simple equation; e. g., $x+3=7-2x$

Tests have been prepared each of which seeks to determine the ability of students in one of these particular lines. I have tried some of these with pupils who were just completing one year's work in algebra and have been much interested in some of the results.

One test, designed for the purpose of testing the ability to solve simple equations, consisted of six problems. The first of these, $9-7a = 3a+4$, was solved incorrectly by twenty-six out of sixty-four pupils who attempted it, or by approximately 41 per cent. The prevailing results among those who failed had a "5" and a "4" in them instead of a "5" and a "10". Another equation in the test was the general linear equation, $ax+b = c$. Only sixteen out of seventy-five pupils solved it correctly, or 21 per cent. All did not attempt the problem. * * * *

The chief difficulty in selecting problems for tests of the type just mentioned is in finding those which require approximately the same length of time. If such problems could be found for pupils who had just finished one year's work in algebra, the difficulty in measuring the ability of these pupils would be reduced to finding how many of these equal units could be done in a given time. With this in mind one test was made in the fundamental operations in algebra. It consisted of two problems in addition, one in substraction, two in multiplication, and two in division. The time in each case was counted from the time of beginning to the time when half the class had indicated that they had finished. The first problem, one in addition, required in the four classes tested twenty-seven, thirty-four, thirty-three, and thirty-four seconds, respectively. Counting only the last three classes, the average time was very near thirty-four seconds. The fourth problem, one in subtraction, required thirty-five, thirty-five, thirty-eight, and forty seconds in each of the respective classes, an average of thirty-seven seconds. Still another problem in addition showed the almost uniform times of forty-eight, forty-nine, forty-eight and fifty seconds in the four classes. But the problems in multiplication and division were solved in such irregular lengths of time that it would seem very difficult to arrange a test even in the mechanics of algebra so that all of the problems would take equal amounts of time.

We are not concerned with a test which has to do with the time required in solving problems in algebra so much as one which measures the ability to think in generalized numbers. Probably the greatest contribution that has been made recently toward an efficient test of this kind is that of Mr. Thorndike in his "Experiment in Grading Problems in Algebra." * * * *

A full account of the experiment may be found in "Mathematics Teacher" for March, 1914, as stated above. It seems that an experiment of this kind would be of much more value if the problems used were tried out in the class room. Would it be advisable for us to follow the plan of Mr. Thorndike in making an efficiency test in algebra? * * * *

It would be much worth while if we could devise an efficiency test in algebra to be used at the close of the school year. The exact nature of such a test is still an open question.

Professor Comstock opened the discussion with the remark that teachers need to test the ability of students both with reference to carrying out a mechanical process and with reference to thinking. It is fundamental for success in teaching algebra that some processes, e. g. those involved in solving the equation $ax + b = c$, become automatic. Separate tests should be devised for testing reflex actions and the processes involving thought, e. g. interpretation.

Mr. Davis suggested that the student's work be weighted as follows: for accuracy, 3; rapidity, 2; neatness, 1. They should be taught to check as they go along, since correct work is more valuable than that which is finished quickly.

President Walter P. Morgan, Western Illinois State Normal School, Macomb, said that the figures regarding the difficulty of problems, obtained in the experiment described by Professor Thorndike, were much more to the point than the opinion of any 200 teachers could possibly be. He thought that the order of the problems should be taken into account. The first problem is likely to be the easiest because it is first, and the last problem, hardest, because it is last.

Mrs. Jane Pollock Anderson said she regretted to hear any talk of making mathematics more mechanical. It is mechanical work which leads to errors in the simplification of expressions in complex algebraic and trignometrical problems, "clearing of fractions," for example, leads to throwing away the denominator. The six fundamental operations and the principle of substituting a thing for its equal are the only operations which it is safe for the teacher to recognize in the explanation of work.

Mr. Rugg suggested that it was worth while to take some action regarding the kind of work described by Mr. Modessit.

Professor Rietz called attention to the advantages of standarizing problems, and distinguishing between easy and more difficult kinds. He thought that such tests would help to do away with the unconscious mechanics of those teachers who give the same type questions on examinations year after year.

Professor Comstock said that the relative importance of different kinds of ability was not the question at issue, but that teachers must expect their pupils to be able to do certain things. He moved and the motion was carried, That the Committee on Efficiency Tests in Elementary Algebra be instructed to continue their work.

The following paper is printed in full:

Supervised Study in Mathematics

E. R. Breslich

University of Chicago High School

One of the most pressing problems before the teaching public at the present time is to develop a special technique for supervising the studying done by pupils, and to train them in the habits of study. Although great progress has been made during recent years in school administration and equipment, as well as in the technique of teaching, we are still tied to an inefficient system of class instruction, commonly known as the recitation period. It is based upon the principle that a subject is to be taught in the same way and to the same extent to every pupil, the class period being used partly for recitation purposes and partly for assigning home work. Usually the first is the more prominent. Its purpose is primarily to determine whether a pupil can give a satisfactory account of the topic which he was to prepare in his home study. It is largely devoted to clearing up difficulties and this gives little additional stimulus to pupils who have mastered the lesson and who therefore have little interest in the helpless efforts of their classmates trying to reproduce the assignment. As a result, the recitation is likely to become monotonous, especially where a slow pupil recites. It encourages lack of attention and divided interest. It fails to rouse pupils to their actual capacity of effort. If, as it happens frequently, the whole class period is given to recitation purposes, the assigned home work is likely to be on advanced work to be followed the next day by another uninspired reproduction, etc.

To obtain a proper perspective view of the situation it is interesting to see how it has developed historically. We find that in the earliest schools the first method of instruction was not class instruction but individual. Pupils were not taught in groups but as individuals. It soon became apparent to some of the educators that this method of instruction was wasteful and unsatisfactory, as it was possible to give instruction to the pupil only during a small part of the school day. During the remainder he was sitting still, playing, whispering or making disturbance, and wasting time generally. Very slowly the simultaneous or class method was adopted. Although Comenius as early as 1657 described the method of grouping pupils into classes for simultaneous teaching under one instructor, we find that as late as 1843 the individual method was still used in 5488 primary schools in Prussia and France.

The method of *class* instruction was used successfully at the end of the 18th century in the schools of the Christian brethren in France; and, at the same time, in England the individual method was replaced by the monitorial system of Bell and Lancaster.

This system was adopted in the United States in 1806 by the Free School Society of New York City because it was a very economical system. It finally led to the present graded system or class room system. Almost from the start the defects of the system became apparent, especially the danger of uniting pupils of widely different attainments and the resulting impossibility of adapting in-

struction to the capacity of the class and the futility of much of what is called home study.

Few persons, including teachers, know how great a variation in ability is found among pupils of the same class. Bonser tested 757 children of the 4th, 5th, and 6th grades by means of a series of problems and questions designed to exercise the most fundamental four phases of reasoning activity, namely, mathematical judgment, controlled association, selective judgment and that complex of analytic and synthetic thinking used in the intellectual interpretation of literature. He found that in grade 4 A the ability varied from 20 to 245 units; in 5 B from 35 to 255; in 5 A from 50 to 265; in 6 B from 70 to 265; in 6 A from 80 to 260. Thus, a large number of pupils in 4 A can do even more than some of the pupils in the higher grades. Similar results are given by Thorndike, e.g., in mathematics he found that in a test in addition given to 83 seventh-grade pupils, all pupils being allowed the same time, they did from 3 to 20 examples correctly. "The range of ability in school children of the same age," says Thorndike, "is such that in a majority of capacities the most gifted child will in comparison with the least gifted child of the same age, do over six times as much in the same time, or do the same amount with less than a sixth as many errors."

Similar tests have been made in other places showing the same individual differences. In classes graded as closely as is found under the most favorable conditions pupils will be found able to do from 2 to 5 times as much as others, or to do the same amount from 2 to 5 times as well. Because of these individual differences the bright pupil has to be idle part of the time, while the slow pupil is being hurried, failing to get clear understanding and meeting difficulties for which he is not prepared. It is not surprising that they dislike the study, become discouraged, fail and finally drop out of school altogether.

It is well known to parents and teachers that a very large percentage of children of our schools do not know how to study properly and profitably. Yet pupils are sent home at the end of each day to prepare tasks which many of them do not understand, under conditions frequently so unfavorable as to preclude the possibility of their securing the preparation. Experiments have been made to show that pupils generally get no very clear idea of what is required to prepare a lesson as ordinarily assigned by the teacher. Dr. Earhardt assigned to 812 sixth- and seventh-grade pupils a short section from a text book in geography with the following instruction: "Here is a lesson from a book such as you use in class. Do whatever you think you ought to do in studying this lesson thoroughly and then write down the different things you have done in studying it. Do not write anything else." Seven hundred and ten of the 820 pupils gave indefinite and unsatisfactory answers.

Doubtless some of the teachers present today will recall from their elementary and high school days that lessons were assigned regularly at the end of the class period in the form of a statement that the class should prepare for the next day three propositions in geometry. There was never any hint as to how the lesson should be prepared. Doubtless the better teachers today do give careful suggestions with each lesson assignment as to method of attack, aim, and meaning of assignment. But even that is not sufficient to enable many

pupils to do the assigned work. Even if they remember the suggestions they still fail to make the connection between suggestion and assignment. Some years ago when I began to pay attention to the way pupils did their studying and when I invariably assigned lessons only after most careful preparation in the class room, the parents of a girl in one of my classes complained that their daughter came home day after day without knowing how to do her home work. They were getting tired of doing the work for the girl and they told me that if some suggestions were given by the teacher, they thought that the girl would be able to do her work alone. This suggested to me to assign the *next* lesson with as much care as possible and to ask *all* pupils to begin the assigned home work immediately. The experiment made it apparent that some of the pupils were not in the habit of working alone. They simply imitated the others. They opened their text books when they saw the others do so. They took out paper to write on because the others had done it. It took them about fifteen minutes to go through the motions of getting started. On the whole all showed lack of appreciation of the value of time. Very little was accomplished in fifteen minutes and I could see then that I could be of great help to the whole class by giving them specific instruction as to the way to study.

If these pupils were unable to go to work successfully immediately after the detailed instruction of the teacher, how can we expect pupils who have gone hurriedly from one recitation to another to go home and prepare assignments given by several teachers often with little definiteness and no preliminary smoothing out of difficulties?

The recitation system in high schools is wasteful in time and energy. It offers little incentive to the able pupil, while the poorest pupils are strained to the utmost, and it is not efficient in training in good habits of study.

A number of plans have been devised to provide for the individual differences of pupils. Although some of them have been successful in certain localities, so far none of them have been adopted widely.

The individual or Pueblo plan abolishes all recitations and home study. The work is conducted largely by the laboratory method, each pupil working by himself under the direction of the teacher. Pupils are promoted according to the ability to do the work. The plan was used successfully in several schools in Colorado, Massachusetts and California, and in the Kansas City Manual Training High School. In other places where the system was tried, it broke down because of the technical difficulty which teachers found in dealing with so many pupils, each on an individual basis.

Various other plans have been devised to supplement the recitation by giving individual instruction and training, either as part of the regular class exercise or in special and lengthened periods. Of these, the Batavia plan is well known, in which an extra teacher was provided for a room to give special attention to pupils showing weakness.

The application of the Batavia plan in high schools includes various types of adjustment. Mr. Reavis worked out a plan by which the pupils' time and work were so organized as to enable them to do the required home study and to supervise that study. In the Detroit Central High School a plan was tried to give weaker pupils in the ninth grade additional direction by grouping them to-

gether for special review work. In the De Kalb High School study hours for several departments have been introduced, giving one study period per week to each subject. A similar plan has been tried in the Pittsburgh High Schools. In the Joliet Township High School a double period plan has been in use for several years, one period being used for recitation and the following period for supervised study. The plan has been successful in Joliet, but has failed when tried in another school, I was told, for there the Latin teacher used all the time for recitation and assigned more home work than usually required. The modern language teacher was all tired out. The English teacher could not use all the time, etc. The commercial teacher talked all the time. In the University of Missouri High School supervised study was made possible by reducing the recitation time to a minimum. The class hour is divided into three parts: Study, assignment of next day's lesson, and recitation.

I have tried to summarize above briefly the typical experiments made to overcome the faults of the present system of instruction. All of these plans have been published at various times in more or less detail. The general testimony concerning the success of supervised study is strongly favorable. This has been supplemented recently by experimental proofs, some of which have been published, and others are to be published in the future. However, a plan is still to be worked out, which can be used successfuly by the ordinary teacher found in the ordinary high school. Even then it will be impossible to adopt the plan in schools in general unless it causes no great additional expense.

In the department of Mathematics with which I am most familiar, namely, of the University of Chicago High School, we have been working for several years to find a solution of this important problem.

Preceding the year 1910-11 very little attention was paid in the school to the grades given or to the percentage of failures. It was considered sufficient that each teacher was fully able and anxious to do all that could be done for his pupils. However, the percentage of failures was large. When Mr. Johnson became principal, he undertook a systematic study of grades given by the school, by each department and by the teachers in each department. As is usually the case, the percentage of failures in Mathematics was larger than in other departments. No criticism was made against the department, because of this, but the department felt that Mathematics was not entitled to enjoy permanently the reputation of failing more pupils than any other department. It seemed that improvement should be made along two lines! The course should be better adapted to the mental growth of the pupil and more attention should be paid to the individual pupil. Thus, during the year 1910-11 considerable study was made of the way pupils prepare their home work, and of what assistance might be given them to help them to learn how to study; supervised study was introduced into the class room. This made it necessary to reduce the time ordinarily given to recitation purposes and hearing of lessons prepared by the pupil at home, in order that the time gained might be used for supervised study in the class room and for class work. To satisfy ourselves as to the possible loss caused by this change, an experiment was tried to measure the effect of home study upon class progress with two algebra classes. No home work was assigned in one recitation and the time usually taken up with the discussion of

home work was used for study in the class room. The method of instruction in both sections was the same. Both sections covered the chapter on simultaneous linear equations, at the end of which the same test was given to both with the following results:

	A	B	C	D	E	Average
Section A—(Home work with no supervised study).....	7.1	21.4	21.4	0	50.	62.8
Section B—(Supervised study with no home work).....	0.	6.2	37.5	25	31.2	65.5

The low grades received in both classes may be explained by the fact that the test was not easy, and that no review was given in preparation for the test. If the time had allowed it, a second and fairer test would have been given.

Some idea as to the relative ability of these classes can be obtained from the results of the departmental final examination given at the end of the preceding semester. The grades were distributed as follows:

	A	B	C	D	E	Average
Section A.....	25.	25.	37.5	12.5	0	81.4
Section B.....	29.4	23.5	23.5	17.7	5.9	70.4

It is seen that section B, though weaker than section A, came out a little stronger on the average after supervised study without home work. The poorer students profited particularly by this method. Supervision seems to have enabled pupils at least to make up for the loss due to lack of assigned home work. On the other hand, it is significant that the better students did not succeed as well under supervised instruction as without it. The average amount of time spent on home work in section A was one hour and fifteen minutes per lesson. However, when the number of problems worked in each section was counted, it was found that in section A the average number of problems per pupil was two less than in section B. These results indicate that the amount of home work may be reduced in high school classes, provided a method of instruction more effective than the common method be used.

It was interesting to notice the progress of the class working under supervision. At first the class was very slow, and it did not get along as rapidly as the other section. During the third lesson, however, it became evident that the pupils were learning to work independently. After the fourth lesson both classes were doing the same work, and they were kept together for the remainder of the time the chapter selected was being studied.

The section under supervision worked with more confidence and pleasure. This was especially true of the slow pupils. A girl who had failed during the first semester and was in the class on condition made a grade of 78 in the test on this chapter. Her grade in the final examination at the end of the first semester had been only 40. A boy who barely received a passing grade at the end of the first semester, and who at first seemed to be unable to do anything under supervision, suddenly found that with a little greater effort he could do as well as his classmates. There was an immediate improvement, and one day when a speed test was given he surprised everybody, even himself, by leading the class. A girl rturning after a week's illness, and still in a weakened condition, said

she "could not understand anything that was said," and felt greatly discouraged. By giving her a little more attention than other pupils she was enabled to do the work before the end of the recitation, and had no further difficulty. Under the common system of instruction very little attention can be paid to such cases. The teacher usually allows a certain amount of time in which the pupils must "catch up." Very often, in addition to the difficulties found in understanding the class work, "back work" is assigned. The injustice of all this at times drives some pupils to use dishonest means of getting possession of all this required work.

The following chapter, on "operations with fractions," was covered by section A working under supervision, and section B taking home work. A test was given to both classes as soon as the chapter was completed. The grades in this test were as follows:

	A	B	C	D	E	Average
Section A	31.2	25.	18.7	12.5	12.5	77.5
Section B	52.9	23.5	5.9	11.8	5.7	86.4

The average amount of time per lesson spent on home work was thirty-six minutes. The number of problems could not be computed because much oral work was done in section A, but there was very little difference. The power obtained by section B in the preceding chapter, while working under supervision, persisted and was strong enough to be helpful in the following chapter.

Before any final conclusions can be drawn, evidently further experimental work is needed. The results of the foregoing tests, however, express the impression received during the time the study of these classes was being made. Both classes accomplished the same work within the regulation time, although section B did no home work and section A spent an hour and fifteen minutes daily on the assigned lessons. Section B, the weaker section at the end of the first semester, came out stronger than section A, after nearly three weeks of supervised study and proved to be still stronger during the study of the next chapter. In both classes progress under the new method was very slow at first, but there was rapid improvement.

Following these experiments some of the instructors in the department were practically omitting home work because their experience showed that better results could be obtained by giving more time of the class period to class work on the part of the pupil rather than to reciting the lesson. In the final departmental examination of the first year classes, the sections in which home work was minimized ranked second, while in the second- and third-year courses, the classes doing little home work ranked first. Thus, with supervised study loss of home work did not retard the progress of these classes.

Technique of supervised study in the class room.

Teachers often do not know themselves the best methods of study. Much less do they know about the pupil's difficulties and helplessness when he tries to prepare his home work. In order, therefore, to be able to give him the best methods of work, the teacher must watch him at work.

Supervised study can be carried on in a 45-minute period, but the ideal length of class period seems to me to be 60 minutes. With that much time on hand, the amount of home work could be reduced to a minimum, most of it being done in the class room. If 60 minutes can not be obtained, an addition of even as little as 5 minutes to a 45-minute period is a decided advantage. At the University of Chicago High School the time of the class period last year was lengthened from 45 to 50 minutes, and Principal Johnson is now working on a plan by which 10 minutes more will be added.

In every class period three things are to be accomplished. First, the new lesson is to be taught. This does not need to be done at the beginning, although that seems to be the best time for it. Along with the development of the advanced work goes the assignment for home work. Second, some time is to be spent in clearing up any difficulties found in home preparation, i. e., in hearing the lesson. Third, the remainder is to be used for class work and supervised study. Thus, pupils start in the class room the working out of the assigned home work. If no difficulty is found, the work may be stopped, to be completed at home.

To make this supervised work go smoothly each pupil must always have with him the necessary equipment, i. e., text book, note book, ruler, compass, protractor and pencil. (Complete set to be shown.) At first we had considerable trouble to accomplish this. Pupils would lose their rulers and compasses, or if a certain instrument was not used for some time, they would cease to bring it to the class room. The trouble was removed by putting perforations in the rulers making them fit into the rings of the note books. A type of compass was selected that could be attached to the note book ring. In a similar way the protractor is carried. Since then we seldom find a pupil without his equipment. However, each teacher's desk contains a number of sets of those instruments to be loaned to a pupil who happens for some unforeseen reason to appear without his instruments.

Some of the first lessons to be taught in supervised study are: the appreciation of the value of time; not to take five minutes for something that can be done in 1 minute; to begin work at once whenever asked to do so; not to wait idly for assistance, but to keep busy, at least gathering the known facts about the problem, until the teacher can give further suggestions; to assume a business-like position when working, i. e., not to lounge on the table, or to be fussing with the hair until every pin is in its exact place, etc. All of these are minor details, but are important for quick and thorough work.

There are some things common to the study of all mathematical subjects: First, in every problem, algebra or geometry, there are some known facts. These facts must stand out clearly in the pupil's mind. Pupils must learn not to make the mistake of trying to start a problem in algebra by getting the equation and of beginning the study of a geometric problem with the proof, i. e., not to try to draw a conclusion, from an unknown or confused hypothesis.

In teaching pupils how to study we show them that the procedure common to all problems in algebra should be about as follows: Read the problem carefully and find out particularly what unknown number is called for, i. e., find the question of the problem. Denote this number by a symbol, as x. One of the

great advantages of algebra over arithmetic is that, although x is unknown, it can be used as if it was known. Thus, we can state the hypothesis, the known facts, in terms of x. This is done by translating the problem word for word into algebraic language. Then is the time to think about getting the equation. In general, the equation is obtained by translating the problem into algebraic language, but for certain types of problems there exists a special scheme for obtaining the equation, e. g., motion problems, mixture problems, geometric problems, clock problems, A and B can do a piece of work problems, etc. Unless these devices are familiar to the pupil, every new motion problem will seem different to him from any other motion problem, compelling him to reason out each problem as a new problem rather than as a new problem of the same general type.

Likewise some very definite rules may be laid down for the study of the geometric problem or theorem: First, the pupil must read the theorem until he understands its meaning clearly and must memorize it before undertaking the study of the proof. Pupils often make the mistake to think that memory work is not required in geometry. They must be taught not only to memorize theorems but to classify them, in order that each theorem be a new tool to be used in the proofs of other theorems and problems. To illustrate: Collect the theorems on the isosceles triangle, on the parallelogram. How can we prove two angles equal? Under what conditions are two lines parallel? etc. Often I have asked the pupil to state the theorem the proof of which he was studying, only to receive the answer: "I don't know the theorem, but I think I can prove it." Geometry means to them *to prove things* and everything else is considered of no importance. When the theorem is memorized the pupil must put down this theorem referred to a particular figure, i. e., the hypothesis and conclusion are stated. Then is the time to study the proof. He must learn that for certain cases a certain method is most likely to be advantageous, e. g., are two angles to be proved equal the method by congruent triangles should be considered; are two lines to be proved parallel, he should try the method by analysis, i. e., ask himself the question: under what conditions are two lines parallel? Is the size of an angle to be determined, the algebraic method is likely to be promising, i. e., find some relation containing the required angle and others, which then have to be eliminated by algebraic processes.

The direction given above will do much to remove the helplessness with which some pupils view their problems in algebra and geometry. They are, however, far from sufficient to guarantee a successful study of either subject. They will give the pupil a definite way of starting. When a pupil claims he can do nothing with a problem, it is frequently because he tries to see through the whole proof without writing the facts down. When he is asked to get his facts down in writing he most likely can complete the proof without further assistance. The teacher who tries supervised study will receive surprise after surprise as he sees pupils struggling with difficulties he would never expect. It keeps him busy to think out schemes by which pupils may be helped to overcome these difficulties. A few examples will illustrate this. *Symbolic Notation.* Let us assume that the pupil knows how to separate the hypothesis from the conclusion. He has in his hypothesis such statements as isosceles triangle ABC,

the midpoint of AB, CD $\perp$ EF, the vertex angle is bisected, etc., but he has no idea how to use these statements to prove the congruence of two triangles on which the proof of the theorem depends. This difficulty is easily removed by teaching good symbolic notation. Thus, AB=BC is identical with the statement that Δ ABC is isosceles, x=y replaces the statements that CD bisects angle C, AE=EB states that E is the midpoint of AB, m=n expresses that CD $\perp$ EF, etc. The pupil must be trained in mental geometry. I found a pupil recently who had trouble to prove the following problem: If the diagonals of a parallelogram are equal, the parallelogram is a rectangle. His whole trouble was due to his figure. He had drawn a rhomboid and could not see how he could prove one of the angles to be a right angle. If he had compared by mental measurement his statement in the hypothesis that the diagonals were to be equal with the geometric picture of that statement in the figure he would have discovered his error at once. Another boy who was to prove that the interior angles formed by two parallels cut by a transversal are supplementary, misunderstood the theorem and in all seriousness undertook to prove the two angles equal. When he was asked to estimate the size of the angles he saw at once that he was attemping to prove the impossible. *Logical order is of importance.* Very often I find that pupils have all the steps in the proof but fail to have them in logical order. They are fully satisfied with the following order: AB$\parallel$CD, AD$\parallel$BS; therefore $\angle x = \angle x'$, $\angle y = \angle y'$; which should be AB$\parallel$CD, therefore $\angle x = \angle x'$, AD$\parallel$BC, therefore $\angle y = \angle y'$. This is a comparatively slight mistake in logic, but it occurs in various forms, the worst being the use of the conclusion in the proof of theorem. Every step is there but no idea of logic.

General expressions as clearing of fractions, cancellations, etc., mean little to many pupils.

Some pupils have no clear notion of what it means to clear an equation of fractions until they go through the process themselves repeatedly under the supervision of the teacher.

These are a few of the difficulties that confuse the slow pupil. Watching the pupil at work, the teacher is able not only to correct errors and false ideas, but to help the pupil to work out a scheme which will guard him against repetition of the same mistake. To do this, a considerable portion of the class period will be used, which means that the recitation part must be cut short. It has been my practice to dispose rapidly of the most serious difficulties found in the home work and then post the best paper of the class somewhere in the room where it can remain for several days for the inspection of the pupils. This not only enables a pupil to find his mistakes, but contributes to a general improvement of the written work, as it gives him a chance to compare his work with that of the best pupils. Written work done under supervision of the teacher is done in one of the following two forms: A special note book of the composition book style is kept for each pupil in the class room. Pupils are not allowed to take these books home. Thus, all work contained in them is done in school independently under supervision of the teacher. A good idea as to the pupil's ability can be obtained from them. This book is especially

good for solution of lists of problems and exercises when more or less help from the teacher is to be expected and to make sure that a topic is mastered by a class before passing on to the next subject.

When only one problem is to be solved and explained, small paper slips are used (¼ of a regular note book page). The teacher dictates the problem or theorem and pupils work it out in a limited amount of time. Pupils are then requested to lay down their pencils and the problem is explained, each pupil keeping his paper before him. After the explanation all papers are passed to one end of the room and collected by the instructor. This device has the following advantages: Each pupil works independently. He has the problem explained at a time when his interest is keen and when he still has it in mind. He has done his best with the problem because the paper is of the nature of a test. The teacher, in glancing over these cards, can tell at once whether the problem is well taught, where the most frequent mistakes are and which pupils need the further help. The device is economical as to time. Almost as much good can be obtained by the pupil from one problem as is ordinarily obtained from a set of problems of the same kind done by the class at the blackboard, the explanation of which often takes the remaining time of the class period.

Although supervised study in the class room will do much for the slow pupil, it is not sufficient to enable some to do their work successfully. This has lead us to arrange for an additional study class after school hours. We began to experiment with it in the school year 1912-13 in all first year classes, since the largest number of failures was found among the beginners. Pupils taking first year work were dropped from class as soon as the instructor felt that they were failing. They were put into a special class, taking the same work as the regular classes, but receiving more individual attention because all work was done under supervision of the instructor. At the end of that year only 6.1% of grades in the first year classes were failures, a good showing when compared with the 11% failures of all grades given in the department.

During the next year we decided to give assistance to *all* pupils in mathematics who did not do work of passing grade because there were not enough first year pupils failing to make up a full section. These pupils were allowed to remain in their regular classes and received additional help in the afternoon study class. It was found that this section soon became too large for one teacher to handle successfully and a second study class was formed. The teachers took charge of these classes in turns for a length of two weeks each time. In these two classes we were able to give individual assistance to every slow pupil in mathematics. As soon as a teacher felt that a pupil's work had improved enough to be above passing, his presence in the study class was no longer required. It was found that 129 different pupils, i. e.—over 25% of all pupils taking mathematics—were regular members of these study classes at some time during the year. This is fairly close to the percentage of failures in mathematics in many high schools. The number of periods per pupil varied from 1 to 118 and were distributed as follows:

No. of lessons per pupil: 1-9; 10-19; 20-20; 30-39; 40-49; 50-59; 60-69; 70-79; 80-89 per pupil.

No. of pupils, 16, 38, 13, 20, 12, 6, 6, 7, 6.

No. of lessons per pupil: 90-100, 101-109, 110-119.

No. of pupils, 1, 0, 1.

This year we have gone back to one study class instead of two. One instructor has charge of this class as part of his regular work. When the number of pupils increases beyond 25 or 30, other members of the department drop in to give assistance. This plan has been very satisfactory so far. Of the 52 regular members 14 improved enough to raise their grade above passing. The average number of pupils attending voluntarily was 5.

The technique for the conduct of this study class is about as follows:

Attendance. Pupils taking mathematics are enrolled whenever their work falls below the passing mark, the teachers handing their names to the study teacher. Others may, if they wish, come to the study class as visitors to receive help. *Absences.* No roll call is taken in order to keep the instructor free to give assistance from the beginning to the end of the period, but each pupil hands to the instructor in charge a slip with his name on before leaving the class room. If a pupil is absent, he must bring a satisfactory excuse to the instructor of his regular class. All absences are reported by the instructor in charge of the study class to the other instructors.

Excuses from study class. Excuses from study class can be obtained only from the instructor of the regular class.

Conflicts. Pupils are requested to make appointments with other teachers of the school at times that will not be in conflict with the study class. If this is impossible, they will be excused from study class on alternate days, upon written request by the other teacher.

Length of study period. Regular members must stay from the beginning to the end of the period, i. e., 50 minutes. Visiting pupils are allowed to come and leave at any time. Pupils must enter the room quietly and begin to study their work as soon as they are seated. If no home work is assigned they must spend their time reviewing back work or reading in advance.

Pupils are encouraged to do all work in writing. One advantage of this is that the study teacher can be in touch with what they are doing and direct their work without inquiring about it.

A pupil must bring to the study class the necessary equipment.

A pupil must not ask questions until the teacher is at his desk.

In general, the study period is conducted in the same way as supervised study in the regular class period.

What the pupils say about this study class. Among pupils the study class is known as "bone-head class." This indicates that it is considered a disgrace to be a member of the class, a good incentive for getting out of it as early as possible. I suppose it always will be a disgrace. However, many pupils have expressed themselves in a way which leaves no doubt that they consider it a privilege to be in the class. The number of students attending voluntarily varies from 4 to 10 daily. Pupils who are not sure of their work frequently ask the instructor "if they had not better go to the study class." One boy dropped a favored subject to be able to be in the study class. Pupils remark frequently that the class is "doing them a great deal of good." One very slow boy ex-

pressed his appreciation by saying that "he generally got a start on his home work."

Advantages of supervised study as conducted in the department:

It aims to make pupils independent. Most pupils show enough improvement at intervals to be excused from the study class. During last year only one pupil was a permanent member.

It cultivates the habit of study. The fact that a pupil must study daily during a whole period at a definite time in the presence of his teacher is bound to show results, even if no assistance were given to him.

It gives help to pupils only where it is needed and as long as it is needed. Good pupils are excluded and can spend their time to better advantage by working alone at their own convenience.

It is economical. In many schools teachers meet pupils in private to give them special assistance. The study class does away with most of that. Where there are several teachers in one department, teachers can carry a study class easily in addition to regular work by taking turns. One teacher alone can take care of all the slow pupils of a number of classes.

Pupils who have been out of school because of sickness or for other reasons can obtain help as long as they feel the need of it.

Results

By helping the slow pupils, the popularity of the subject is increased. Although only one year of Mathematics is required at our school for graduation, about 75% of all pupils in school are found to take courses of Mathematics.

The Standard has been raised. Our pupils now pass entrance examinations to eastern colleges without trouble, at least we have had no failures for the last two years. (A number of our pupils have been reported to lead their classes in college mathematics.) *The number of failures in Mathematics in the high school is reduced.* From 1911-1914 they have decreased from 16.2% to 11.1% to 8.5%. The failures of last year are distributed as follows:

Mathematics I—9.5% failures as compared with 16.6% previous year.
Math. I M.—10.6% failures as compared with 27.7% previous year.
Math. II—14.2% failures as compared with 12.9% previous year.
Math. II F—2.0% failures as compared with 18.6% previous year.
Math. III—3.6% failures as compared with 14.1% previous year.
Math. IV—2.9% failures as compared with 14.9% previous year.

The number of withdrawals has been reduced from 10.7% to 7.5%, nearly all of them unavoidable and not due to inability to do the work.

Supervised study improves the teaching in the department. Teachers learn to know the mental processes involved in a problem, the pupil's weaknesses and the means by which to overcome them. Moreover, teachers become acquainted with each other's ways of presenting the same subject.

In conclusion I may say that the experiment is still in the stage of development. We are sure that in our own school much has been accomplished. We hope that in time somebody will develop a technique by which supervised study may be easily introduced in other schools.

Mr. L. C. Irwin, of Joliet, opened the discussion with a paper from which we have abstracted the following:

Different plans of supervised study have been successfully tried in different schools of this country. I have studied the plans in use, their successes and failures, and am strongly convinced that the plan in use in the Joliet Township High School is nearer the ideal than any other.

The double period plan has been in use three years in our high school. The plan means that two periods of forty minutes each are set aside for first and second year classes. The first period is devoted to recitation work. The second period, which immediately follows the first, with an intermission of a minute or two, is given up to supervised study. The period is devoted primarily to the study of the next day's assignment, but the teacher may use it in clearing up individual difficulties which may have arisen during the recitation period, or in making up back work, or, if a mistake is noticed being made by several pupils, in correcting or discussing this common error. The teacher can observe any incorrect use of tools in geometry and can assist in securing accuracy and neatness. He can make a study of the individual needs and habits of the pupil, and aid him by suggesting questions upon topics with which the pupil is familiar, e. g., topics relating to his father's occupation or topics relating to the course the pupil is pursuing in school. The teacher can thus become more intimately acquainted with the pupil and secure his confidence. * * * *

Recently I passed out to 441 pupils who have supervised study slips upon which were written two questions: (1) Do you have a private place at home for study? (2) Do you prefer the longer school day with the extra period for study under the supervision of the teacher, or do you prefer the shorter school day with no supervision and the privilege of studying at home? In answer to the first question I found about fifty per cent had no private place for study, or if they had, they did not use it. A large per cent of those who did have private places for study have rooms whose decorations suggest many things which detract from study.

In answer to the second question, I found over ninety per cent favored the longer day with supervision. The majority of those not favoring supervision were the brighter pupils, who need no supervision, while those most enthusiastic about supervision were the weaker pupils.

When the plan of supervision was instituted, we believed that the supreme test of its success would not be the reduction of the per cent of failures in the subject having supervision, but the attitude and ability of these same pupils in the succeeding week. We have tried the plan for a sufficient time to conclude with safety that the pupil has a better attitude toward his new work and is able to do more proficient work in the succeeding years than under the old plan. * * * *

This table of failures will show the effects of supervision since its adoption.

	1911	1912	1913	1914
First half, first year, Algebra	22.6%	24%	21%	14%
Second half, first year, Algebra	16 %	18%	14%	8%
First half, Pl. Geometry	28 %	29%	21%	17%
Second half, Pl. Geometry	34 %	20%	18%	8%

We have also noted a decrease in the number of pupils who leave school although there is an increase in the number of pupils who enter.

The greater part of the time in ten first-year Algebra classes, the lesson assigned for the following day is handed in completed at the end of the second period, showing that the pupil has learned to concentrate. The scope of work covered has been increased and our standards have been raised. * * * *

In conclusion, I believe that wise supervision of study will encourage the individual pupil to stay in school because he will be encouraged and led to see the wisdom of staying with the subject until it is mastered; that the average pupil will have correct habits of study formulated; that less time will be wasted by the pupil and teacher; that ability formerly dormant will be awakened; that the teacher will be encouraged and strengthened and will secure the confidence of the pupil; that the home conditions, habits, and environments will be improved, and our schools become more efficient; and finally, that the maximum success and minimum failure will follow without additional cost to the public.

Dr. Lytle said that he was becoming more and more impressed with the fact that students do not know how to study. He suggested that thinking consists in asking a question, and keeping at it until that question is answered.

Mrs. Anderson stated that for several years she has used supervised study and found it most successful. Her method consists partly in developing the new work by putting questions to the class, first to the weaker students and then to the stronger. The better students thus do the work as original research, and the necessary review is made voluntarily and incidentally. In answer to a question by Dr. Lytle if supervised study would not cause the pupils to lean too much upon the teacher, and so to lose their self-reliance, she answered that not only did they not become dependent, but that the weaker students formed the good habit of asking questions, and of formulating their problems after class, so that many of them became stronger in power of expression than the stronger students.

Mr. Irwin said that the amount of independence developed depends upon the teacher, who must not take final action on any question raised, being careful, for example, not to make corrections for the pupil, but only to suggest them. He said that the ideal system of supervised study is to have a short recitation period during the first year, and to increase the length of this period gradually each school year.

Mr. Davis called attention again to the fact that a two hour period gives the teacher a chance to relate his subject more closely to the outside life of the pupil.

Mr. Rugg summed up the results of his investigation on grades as follows:

MARKING SYSTEMS WITH SPECIAL REFERENCE TO THE MARKS OF ILLINOIS HIGH SCHOOL AND COLLEGE TEACHERS

By H. O. Rugg

CONCLUSIONS

1. There has been a general assumption on the part of investigators that, since physical attributes and a few mental abilities distributed on the "normal curve," that the "abilities" of students in school subjects will also distribute themselves in accordance with this curve.

2. The determination of the answer to the question, "What is measured by school marks?" calls for a standardization of the terminology of marking systems. The distinction should be made between "ability", accomplishment and productive efficiency or performance. It is suggested that school marks measure accomplishment as expressed in productive efficiency.

3. The preponderance of evidence from investigations on marking systems reveal High School and College grades to be decidedly skewed to the high end of the percentage scale; (b) that very wide individual differences are found in the marking by teachers of the same students and the same subjects; (c) that the passing and exemption grades decidedly influence the shape of the grade-curve and play an important role in determining where the "critical" points are to appear; (d) that multi-modal curves are very common; (e) that a five-division grouping of grades proves to be the best,—this being confirmed experimentally by a study on the minimum precision interval in which teachers can mark.

4. The study of grades of Illinois teachers confirms practically all of the above points and emphasizes, 1—the importance of the passing grade as a determiner of critical points in the curve; 2—that High School teachers pass a larger proportion of their advanced mathematics classes than of the elementary classes; 3—that the mode for technical students is considerably higher in technical subjects than in mathematical and non-technical subjects.

5. That the application of Cajori's "normal" tables results in raising the grades of nearly all the students in 9 classes in Descriptive Geometry by 3% at the high end of the percentage scale and by 12% at the low or inferior end of the scale. The value of such proposed systems of marking needs to be determined by further experimentation.

6. We need detailed evidence on many mooted points concerning the theory and practice of marking systems; e. g., the effect of individual differences of teachers and of "institutional" passing and exemption grades on the skewing of the curve of accomplishment. This conference can contribute to the solution of these problems by taking definite action at this time.

Because of the importance to secondary and higher education of the various problems concerning marking systems, and because this section of the conference

is in a position to contribute much to the successful solution of these problems, it is suggested:

1. That the study of this problem of marking systems be extended in a detailed manner during the present and coming semester by a committee of this section to be apointed by the chairman.

2. That the cooperation of high school and college teachers of mathematics throughout the state be secured and the investigation so organized as to lay emphasis on at the least the following points:

a. Actual grades to be secured of as many separate classes and in as many subjects of study as possible, including the passing grade and exemption grade and all other like data, using for this purpose a standard printed form.

b. That the members of this section be prepared to report (anonymously if desired) detailed information concerning their own methods or "systems" of marking and the systems of marking in use in their respective institutions or departments, using for this purpose a standard printed form.

c. That the members of this section submit for trial, some one or more of the proposed marking systems mentioned in this report

1. Since the scheme proposed by Dean Cajori applies consistently the mathematics underlying the "normal" curve, and since the curve has been assumed to correctly represent the true distribution of abilities in school subjects, and since Cajori's scheme involves a minimum of labor for the teacher, it is suggested that his proposed system be given a thorough trial during the coming winter.

2. The committee could facilitate that experiment by supplying teachers with printed tables stating the grade (in percent) that should be given to successive individuals in classes of various sizes, the students having been previously arranged in order of ability.

3. Teachers should then report to the committee the grades given by reference to the normal curve and the grades actually recorded.

4. In this report a definite and detailed explanation should be made of reasons for accepting or rejecting the "normal" grades and their opinions of the value of such a system, its advantages and disadvantages.

Professor Rietz said that, inasmuch as it appeared that the largest number of grades were given at the passing mark, he favored 50 as a passing grade.

Professor Comstock stated that a system of grading by five marks, A, B, C, D, E, with C average and D passing, is now in use at Bradley Polytechnic Institute, and that he believes it will give a normal curve.

Professor Comstock moved, and the motion was carried, That a committee, with Mr. Rugg as chairman, be appointed to continue the investigation of grades.

A discussion of the meaning of "passing grade" followed.

W. W. Denton,
905 S. Sixth Street, Champaign, Ill.

Modern Language Section

Morning Session

Professor John D. Fitz-Gerald was elected as the third member of the committee to fill the place vacated by the retiring member, Professor T. E. Oliver.

The bulletin, "Suggestions and References for Modern Language Teachers" was presented in manuscript form to the Conference for examination. This bulletin contains information on the following topics:

I. The Training of the Teacher.
   - A. Opportunities for Travel and Study.
   - B. Books of Travel.
   - C. Reference Books.
     1. Methods.
     2. Aids to Correct Pronunciation.
     3. Political Histories.
     4. Histories of Literature.
     5. Journals for the Teacher.
     6. Dictionaries.
     7. Supplementary Grammatical Aids.
     8. Miscellaneous Reference Books.

II. The Teacher in the Classroom.
   - A. Newspapers and Periodicals for Classroom Use.
   - B. Illustrative Material.
     1. Maps.
     2. Illustrative Albums.
     3. Pictures and Photographs.
     4. Post Cards.
     5. Wall Chromolethographs, etc., for Conversational Drill.
     6. Lantern Slides.

III. The Teacher Outside the Classroom.
     1. Songs.
     2. Games.
     3. Dramas for High School Presentation.
     4. International Correspondence between Schools.

The bulletin was heartily approved; and it was further moved and seconded that the University of Illinois be requested to publish

said bulletin. [This has been done in the form of Bulletin No. 12, School of Education]. It was also urged that a similar bulletin on text-books be compiled.

The following paper on The Demand for Spanish, was presented by Miss F. L. Stuart, Highland Park:

"When the subject, "Spanish in the High School," was presented me, I interpreted it to mean "Shall Spanish be taught in our High Schools," and its value to the student: not the method to be employed in teaching it, as this subject has been so thoroughly and helpfully discussed in dealing with the teaching of French and German, and the direct method has been so unanimously accepted. The same arguments offered in form of other modern languages would be equally applicable to Spanish so that from a pedagogic standpoint there is little new to be said. Knowing how full the curriculum in our schools already is, I realize I must prove that in urging the introduction of another modern language the value cultural and commercial of the new subject. Above all it must be proved to the student that the work is worth while.

We think of what England has done in the spreading of civilization through colonization and navigation, but Spain was before her—Spain was first. Under Spain's aegis the Americas were discovered. The growth of the Latin-American republics has been so rapid, and so recent have been many of the most important developments that only those who have given special attention to the subject have any very definite knowledge of them. The completion of the Panama canal and the changes in commercial relations brought about by the war in Europe have served to call the attention of the people of the United States to Latin-America. These countries comprise an area three times that of the United States, with 70 million inhabitants and governments modeled after our own, while statistics show that one-tenth of all the people claiming protection under the American flag are Spanish speaking people. From the Bureau of Education, of the Department of the Interior, Mr. Claxton says, "For all these reasons and because of the fact that all our relations with these republics must soon become much more intimate than they have been in the past, I desire to call the attention of teachers and school officers to the importance of teaching in our schools and colleges, more of the geography, history, literature and life of the Latin-American countries than is now taught, and of offering instruction in the Spanish and Portuguese languages, to a much larger extent."

The United States is the most conservative of nations in regard to world issues, world commerce, literature and art. England and Germany have preceded us many years in our appreciation of the opportunities of trade and intercourse offered by South American states, whose names are rarely mentioned in our daily papers without mockery—the contempt of ignorance. How many of us know that they have a literature quite as good as our own; that Buenos Aires is the second Latin city, ranking after Paris, in all the world, and growing faster than any city in the United States except New York and Chicago: that the finest and most expensive structure in the world used exclusively by one newspaper is in this same city: that there are universities at Lima, Peru, and

at Cordolrs in Argentina whose foundations antedate Harvard and Yale. As Secretary Root said, "The newer civilization of North America has much to learn from the older civilization of South America. This is the answer to the question "Why have we not made more progress with our prestige and trade in South America in the past? We have not studied and appreciated South American peoples, nations, governments, habits, customs as they deserved. There has been a tendency to look down upon our sister republics, to patronize them, to assume the "holier than thou" attitude instead of giving them credit for their actual progress in developing stable national and municipal government, in promoting education and in striving under difficult circumstances to reach a higher standard of civilization. Mr. Charles L. Chandler for several years minister to Peru, who recently conferred with Mrs. Ella Flagg Young to urge the extension of the teaching of Spanish in the High Schools, says that South American trade is virtually dependent on a knowledge of Spanish and South American conditions. Naturally the difference in language and lineage has worked against us. Instead of our mastering Spanish and Portuguese we have expected them to understand English. We have always approached South America on the material side and discussed opportunities for making money, without endeavoring to get into closer touch along intellectual, literary and educational lines. We ought to take a lesson from Germany's example. Germany is not a neighbor of South America but her commercial agents in Latin-America do not grope about with their native tongue. They learn Spanish in Germany. The first point of salesmanship is for the salesman to understand his prospective customer. This he cannot do unless one of them understands the other's language. And when the buyer has choice of sellers he will prefer the seller who comes to him to the seller to whom he must go in speech. It is good salesmanship just now to push Spanish ahead of other modern languages, upon the attention of aspiring youth. Let me quote from a letter from Mr. C. H. McDowell of the Armour Fertilizer works, "To the south are the Latin-American nations. They have large places and plenty of room; they produce many things we need and can use many things we make. They generally speak Spanish, some French and little English. They too are not linguistically inclined. Their disposition is to go to Europe, to trade with Europe. Europe can talk to them. They are a proud people with gentle manners and social graces. Their friendship is worth while. Their trade is important. Europe goes after it not through interpreters, but by direct speech. There is subtle flattery in talking to strangers in their native tongue. If we are to benefit by South American travel, if we are to interchange prosperity with these states, more of us must speak Spanish. It is our important foreign language socially, diplomatically, commercially; and our students should compass it conversationally and grammatically. With more of us speaking Spanish we will be braver in our commerce with them. We will comprehend their viewpoint better. They are apt to visit us if we can converse with them. As they know us better and we them, their opinions and ours will change and mutual respect and confidence will follow."

Some one has said that aside from the difference in language, the three barriers, for us to South American trade are the lack of American men on the ground, the absence of an informed press and the lack of American banks.

There is no American bank south of Panama; or was not in 1913. American banks could serve two purposes toward trade expansion, to keep us in touch with opportunities for investment and by having men on the spot to furnish information on the standing or credit rating of foreign firms. The packers are moving to Argentina. Already 78% of London beef comes from Argentina and we must turn there too. Statistics show that our supply of meat has decreased 9% in ten years, and the increase of consumers is 21%. Shall we let many transactions in food supplies be controlled by our trade rivals? It is said that British banks have made over 80 million dollars from United States citizens in South America. They form regular machines with branches in all trade centers, whose men are interested in railroads and other enterprises.

South America is the field for young men. As the element of personal relations in business is stronger in the south than in the north of our country, so by multiplying this difference many times one may get an idea of the importance of personal relations in business in South America. One of the most difficult things for the American salesman in South American states is to understand why he should spend days in gaining a social entrée before placing his business proposition before them. But that is the Latin way and we will have to appreciate our customers. I read of a salesman, eminently successful in the United States, who failed utterly in South America from lack of ability to converse, and whose place was filled successfully by a young man of very little experience as a salesman, but with a fair if somewhat stilted command of Spanish, who was thus able to acquire a circle of friends and familiarize himself with the ways of the people.

This brings me to the point "Shall Spanish be confined to the commercial department, made a strictly business proposition," which I answer with an emphatic *"no."* Professor de Salvio of Northwestern said that he could not conceive of what was meant by a commercial course in Spanish," that without the study of the language itself a comprehensible letter could hardly be possible. But with the language as a foundation, how easy it would be to acquire a few stereotyped phrases to comply with business formalities. Everyone to whom I have talked and written as well as those whose opinions I have read, have emphasized the need of tactful, cultured people to deal with the Latin peoples, and this class of people will be more apt to be found among our high school students than among the students of commercial schools.

Professor Blakeslee of Clark University says, "One of our most important diplomatic problems is to place our South American relations on a satisfactory basis. How can this be accomplished? First in importance will be the sending of better representatives from both the Government and Commercial business houses. Men who speak the local language, Spanish or Portuguese, are able to meet the native officials and business people upon a plane of equality in their clubs and families, and have the courtesy to follow the dictates of the social code of the country where they are residing.

Considering the study of Spanish from a cultural point of view, there is also much to be said. We, inclined to be a little provincial as all Anglo-Saxons are, need to know a world entirely different from our own. It will open up new interests, new sympathies and give us a broader point of view.

Spanish Literature was a mine for the Elizabethan dramatists. Romeo and Juliet was taken from the idea of Celestina by Rojas. Lazarillo de Tormes, whose author is unknown, was the original picaresque novel. It set a fashion that spread to all countries and finds a 19th century manifestation in the pages of Pickwick, Fletcher, Dryden, Fielding and Shelley who all acknowledge their indebtedness to Spanish literature. In France I mention a few of the best known examples of literary works where Spanish influence is so easy to see "Le Cid" of Corneille, "Gil Blas" of Le Sage so Spanish that the Spaniards themselves were jealous of it and claimed that a Spaniard had written it; "Hernani and Ruy Blas" of Victor Hugo, who was brought up in Spain and never lost the Spanish influence which was so potent in the Romantic movement. Merimee's "Carmen," from which Bizet took his opera; de Musset's Contes d' Espagnes and Gautier's "Voyage en Espagne" still an example of what a book of travel should be. These are only a passing few of the many which might be mentioned to show the influence of the Spanish Literature on the English and French.

Our schools and colleges are awakening to the fact that Spanish is of equal importance and value with other modern languages and are accepting it for entrance credit. This means that the preparatory schools will have to offer good Spanish courses, to fit their students for such institutions. In the United States Naval Academy of Annapolis, Spanish has been established as the foreign language of paramount importance, so that hereafter students will be required to study it during the whole four years, instead of two as heretofore. In the night school classes of the "City College" of Baltimore Spanish was inaugurated and within a few months the number of students enrolled increased to 250; while in the New York Evening High School for Men, there are more students of Spanish than of any other foreign language. For the first time in the history of the Berlitz School of Languages in Chicago there are more pupils studying Spanish than study French.

In answer to the question "How shall we make a place for Spanish in our curricula without crowding out some other branch, without sacrificing efficiency in some other branch in order to secure a teacher able to teach Spanish," it seems feasible to suggest that the Spanish be combined with some French or some Latin. In many schools, where the attendance is not large enough to call for two modern language teachers, German and French have been combined. Why would it not be infinitely more fitting that two of the Latin languages be combined, as Latin is equally the basis of French and Spanish. And we might reasonably expect a teacher combining two of these branches, to be successful in both, whereas it is difficult to find a teacher who can teach well both French and German.

Spanish is now a necessity, which will become more pressing as the time goes by and our commercial and social relations with Latin America grow more extended. The merchant and manufacturer will need it to understand the wants of his customer; the mechanical, civil and electrical engineer to facilitate his work by his ability to come in closer contact with the men under him; the teacher to take up work in Spanish American schools where our methods are admired and copied; the trained agriculturist to meet the great want for scientific farming, fostered so eagerly by many South American governments; the

lawyer will need it to familiarize himself with Spanish American legislation; the diplomat and the statesman to carry on conscientiously the work of drawing together the ties of mutual respect, friendship, commerce and good understanding.

In the discussion of this paper no point was questioned except that our acceptance of the Castilian pronunciation as a standard was often questioned by the Mexicans and South Americans with whom we had to deal. Reference was made to the bulletin, "Suggestions and References for Modern Language Teachers" for information as to opportunities for travel and study.

Dr. C. H. Johnston, of the University, read a very suggestive paper on "Experiments Profitable for Language Teachers."

In brief it was as follows:

Dr. Johnston introduced the subject of language experimentation in secondary schools by describing certain typical experiments carried on in the Horace Mann High School, New York, in the practice school at Manchester, England, and at the Model High School of the University of Missouri. These illustrations were cited as typical of the new spirit among modern language teachers, a spirit of experimental testing of different methods of instruction.

Following this general introduction he outlined several results of experimentation which might profitably be done in the field of language teaching. One of these was the study of *standardization of vocabulary acquisition.* In this problem it was suggested that the modern language section, through a committee, might formulate what is meant by the acquisition of a new word in a vocabulary, and upon this standard they might adopt the method of tabulating a vocabulary improvement by parts of speech and by different rates at different stages of the course.

A second field for experimentation was that of *"Units of Instruction".* This means, briefly, the establishment of the time values in terms of recitation time, which might profitably be given to certain distinguishable topics within any given year's instruction in a language. As, for example, the time spent upon vocabulary, syntax, translation, etc.

The third field for experimentation was that of investigating the possibility for a *system of differential marking.* The contention was that language instruction has such entirely distinct aims—some analytical and grammatical, others synthetic and artistic—that ratings of progress should be distinct for the different sorts of processes.

Another problem was that of the *recitation types best adapted to language instruction.* The approximate number of meetings, for example, which should be devoted to the lecture, the interpretation, the question and answer, the written, the review and other types of class meeting.

Another field was that of the possibilities for *supplementing the current written final examination test by other educational tests* which would represent more adequately all the ideals aimed at in modern language teaching. In this

connection some results were reported from an analysis of many examination papers in Illinois township high schools.

The speaker closed with a general statement that supervision of high school classroom teaching was a very live subject at the present time and that high school principals were rapidly adopting systems for the inspection and supervision of classroom methods of technique. He pointed out that for the protection of the teacher herself such an organization as the Modern Language Section of the High School Conference should set committees to work formulating these standards for adequate supervision and thus anticipate standards which would be formed otherwise by outside administrators. He pointed out further that the Committee of the Program of Studies had urged for several years upon each Section the possibility of scientific experimentation in the different fields with a view to having fundamentals and standardized procedures established in each of the subjects represented in the high school curriculum.

The morning session closed with an address by Mr. A. Kenngott, of St. Louis, Missouri, on "Supplementary Reading in Modern Language Instruction." Mr. Kenngott spoke as follows:

In the third or fourth year, in some cases already in the second year, books for outside reading are given to the pupils, and they are instructed to read them at home. There is no limitation of the time a pupil may keep the book, but from time to time he is to be reminded of the rule that in the third and fourth year of the language study a minimum of four books a semester is required. The pupil may read more books if he wishes to and if he enjoys reading them, but he is not compelled to do so. If he reads more, however, a credit of one per cent for each additional book is allowed on his report card.

It might seem at first somewhat risky to allow such an extra credit, fearing that poor pupils might take advantage of this opportunity and raise their low grade to a passing mark after having neglected their class work. Experience shows however that this is no real danger, for generally only good and industrious pupils read more than the required amount, and, secondly, because weak pupils gain so considerably through outside reading that the quality of their class work is decidedly improved, thereby justifying the extra credit.

It might be well to mention here, that, while the home reading itself is a very helpful and most important factor in the pupil's development, a still greater benefit is secured if he is required to relate the contents of such books to the teacher, either in writing or orally, whichever he may choose. This gives him additional opportunity to make practical use of his more or less limited knowledge of the language he is striving to acquire. Time for such reports may be found either before or after school, at intermissions, or when free periods of teacher and pupil coincide.

Of course this means a sacrifice on the part of the teacher, more work perhaps, or, to be more exact, more time devoted to the interest of the pupils. To call it *more work* would hardly be correct, neither from the point of view of the teacher, nor from the point of view of the pupil.

Let us consider the latter first. This question is a very important one, and in cases of attacks made upon the outside reading method, the successful defense of its merits lies mainly in a clear and logical answer to the question: *Does the pupil's work become more heavy through outside reading?*

I shall deny myself the privilege of answering this question. It is undoubtedly fairer and unquestionably more convincing to let the pupils themselves express their opinions on the subject. To this end I have asked the third and fourth year classes to discuss in writing, freely and unreservedly, the matter of outside reading, and I did not withhold from them my intention of making use of their expression publicly.

Some excerpts from these reports will follow. I cannot refrain however from giving one of them complete, because it shows such a sound judgment, and is at the same time a well matured and frank statement of experience:

My Opinion of Outside Reading.

In the last two years of our German at the High School, we are required to do some outside-reading. At first it seemed to me that the teacher was doing injustice by making us do all the reading besides the class work.

The teacher, however knew better than I did what benefit we would derive from the readings. The reason I hated it so at first must have been either, that I was too young to see into the matter correctly, or that it was new to me. At any rate I know now that I will never hate outside-reading again.

In glancing at the instructor's records of my readings from the last two years, I notice that I have read from two to three books more each semester, which somewhat proves the increase of interest I have taken.

For a school library we have a considerable amount of books from which to choose. Students differ in their selection of books. Some like the drama, others the romance, history and so on. Well, there are enough books to satisfy their individual taste. The instructor leaves the selection of books entirely to the pupil, unless he wishes to have some judgment passed on the book. I, for one, like the romances and historical accounts. My wish has always been well satisfied, and I have come to a point where I enjoy reading a German novel as much or even better than an English one.

One is only required to read the small amount of four books a semester, but nearly every diligent pupil exceeds that amount. The more they read the more credit they receive, which is another inducement for pupils to read.

If this system of outside reading could also be established in the other departments, I am almost sure that I would get along much better in the other languages than I do. I think it is the duty of every German pupil to be sincerely grateful for the great advantage we can enjoy.

In the German Group of the Afternoon Session Mrs. Therese Dillon of the Chicago Normal College gave a very helpful talk on "Wastes in the Teaching of German, Their Remedy." It is with regret that we are able to publish only a bare outline of this address:

WASTES IN TEACHING GERMAN

I. Attitude of Teacher.
Subject matter held of more importance than pupil.
Remedy: Pupil's needs to be considered first.

II. Teacher's Lack of Preparation.
Result, slipshod work.
Remedy: Plan quickly but carefully, what ground to cover and how to cover it.

III. Careless assignments for study.
Unsatisfactory work the result.
Remedy: a. Use German Recitation Period.
b. Assign short lessons allowing time for careful thinking and good form.

IV. Unwise Selection of Material.
Use of two books, a reader and a grammar with reading matter, a source of waste. With two different vocabularies neither will be mastered.
Remedy: Use a reader containing also the essentials of grammar. Better still, a reader and for reference use only, a grammar brief, but containing essentials. (Gohdes & Bushek) Der grammatische Teil des Sprach und Lesebuchs in deutscher Fassung.

V. Time wasted by Pupils Memorizing Grammatical Classifications and Distinctions.
These not vital for learner.
Remedy: Teach essentials only.

VI. Translation During First Two Years.
Alternative: Inductive reading of simple, interesting modern prose.

VII. Literature for Reading Not Well Chosen, of a Period too Remote.
(Pupils more familiar with the literature of 19th and 20th centuries than with earlier works.)
Remedy: Begin with literature of recent rather than remote past.

VIII. Composition. Often Insufficient. More oral and written needed.
Remedy: Use reading material freely as basis.

IX. Drill on Idioms Necessary.
Should be careful and systematic. Ready command of idiomatic expressions develops Sprachgefühl.

X. Examinations—Often Too Early and Too Severe.
Results, unsatisfactory.
Remedy: Preliminary tests.
Discussion with pupils of the deficiencies shown in tests.

Miss Charlotte Reichman, of Normal, reviewed some excellent Recent Publications. She spoke in part as follows:

The choice of a text depends largely upon a teacher's point of view as its success depends upon the teacher's use of it and upon the ability of teacher and class. Thus you would have no confidence in my judgment if I should even

seem to assert that the two beginning books which I am bringing to you for a somewhat close inspection are the best of the recent publications. Indeed, I know that Gohdes and Bushek's Sprach and Lesebuch, Gronow's Jung Deutschland, Mosher and Jenney's Lern-und-Lesebuch, whose aptly chosen titles can give only a hint of their splendid contents, have already been adopted by eminent teachers and that they are worth serious consideration in the choice of a book for beginners. Walter-Krauses' Beginners' German and First German Reader need no word of recommendation for those who are familiar with the names of the leaders in the Reform movement. They work well in the hands of well trained teachers and I have found them admirably adapted to well conducted supervised study. I have chosen for consideration with you, Bagster Collins' First Book in German and Curme's First German Grammar, not only because I believe them to be the most happy recent productions, but rather because of their individuality. Not at all like each other, both are quite different from the general mass of rich products of the last few years.

The first impression of a book must be on the side of the mechanical, and the Bagster-Collins book attracts one at once by its fine, full-page ilustrations and by the arrangement of the printed matter on the page. The Latin type is used through the first half of the book, the German type beginning only, and very appropriately, too, with the story of the very German opera, Hansel and Gretel. Many of the words are by that time so familiar to the student that he encounters no discouraging difficulties, enjoying rather the fun of reading the well known words in the once so mysterious symbols. The Latin type relieves the learner of all distracting and confusing traits in the picture of the word which he is struggling to pronounce. Every teacher knows how hard it is for the student to distinguish between S and F, U and N, M and W, the capitals B and V. Five pages of tiny, but clear pictures of the common objects in the home and schoolroom, with their names and questions concerning them are so skillfully arranged and so definitely purposed that the student is not only quite familiar after three lessons, with the names of the objects pictured but he is also thoroughly conscious of the three genders; he can make a simple statement which is not merely a repitition of words, he can ask a question and he is at home with the inverted order and the interrogative pronoun.

Many teachers start their classes without requiring any home preparation for some days, making them familiar with many words and phrases before leaving them to the resources of home study. Some inventive teachers put simple exercises on the board for the children to copy if they feel that home work is absolutely essential. But there is great danger that the child will not copy the unfamiliar forms correctly, and even if he does so, what has been rapidly put on paper with lead pencil is not easy to learn. Not requiring any study at home may lead to habits of laziness toward the subject which must be overcome when industry and close application become necessary. This problem is solved by the picture pages. They are a delight to the young people, giving them a hold on the subject at once. Of course, the books are not used in the class, for the teacher points to the objects and the students name them and talk about them in response to the teacher's questions. There are, also, at the beginning of the book three pages of schoolroom expressions and there is no reason why some

of them should not be used from the first day, one or two new ones each day until the students are so conversant with them as to comprehend a command at once. And so, after a few days the reading lessons, with all the appended exercises are attacked with some feeling of surety and some sense of the exact relation of word to word, with ear and vocal organs trained to the new sounds.

The reading lessons tell, in simple language, the story of a brother and sister who visit Germany, all interesting enough for our American boys and girls for whom the land beyond the sea is full of adventure. On the first reading lesson of six lines the writer bases twenty-one questions and each question is given a line, however short it may be. They are not all crowded together as in most books.

The grammatical notes in each lesson gather up into a clear statement what the student has already observed and made use of.

To teachers who think they must begin with literature, the early reading lessons, together with the reading exercises—simple sentences which impress the vocabulary, idioms, and grammatical forms, may seem disappointing But they are really very rich in material for general and intimate conversation. A skillful teacher will make the new sounds and symbols and the combining of them interesting and entertaining. Of course, after the student has mastered the principles his interest must be maintained by the reading of something really worth while and for this ample provision is made in the later reading lessons. In none of the books are the questions and exercises for substitution so well worked out.

In the early vocabularies only the nominative singular of the nouns is given and for a long time practically only the nominative and accusative are used; so the student does not realize until he has learned many nouns that they are inflected and he can thus give his whole attention to the endings of the article. The genitive which appears only a few times is used only as a possessive, which use the student knows in his English. The nominative plural is not introduced until the eighth lesson and as each lesson covers nearly or fully a week's work the student has studied German eight weeks before he is burdened with all the principle parts of the noun. In this same way the verb is introduced. Through many lessons the infinitive only is given in the vocabulary. Only much later is the past tense added and later still the past participle and the tense auxiliary. The strongest feature of the book lies in the presentation of the grammatical forms which stand out clearly on the page with the important words and endings in boldface type. The intention of making the student think and speak from the very beginning in phrases and sentences that is only suggested by a few forms in most books is carried out persistently and successfully.

The student learns: ich habe einen Vater, eine Mutter, ein Buch, du hast einen Vater, eine Mutter, ein Buch, etc.

warum stehe Ich nicht auf?
warum stehst du nicht auf? etc.
ich werde mich anziehen.
du wirst dich anziehen, etc.
ich werde mir Papier kaufen.
du wirst dir Papier kaufen, etc.

ich fahre bald ab,
du fährst bald ab, etc.
To learn the cases and their primary uses he learns:
Der Vater geht.....
Das Gepäck des Vaters steht schon da,
Ein Mann hilft dem Vater mit dem Gepäck, ..Wir rufen den Vater.
He learns the personal pronouns as follows:
Wer geht mit dem Sohn? Der Vater geht mit ihm.
Wer geht mit der Tochter? Der Vater geht mit ihr.
Wer ruft den Bruder? Marie ruft ihn.
Wer ruft die Schwester? Marie ruft sie.

This method is carried out in the finest details of form and idiom drill. Unconsciously the learner is acquiring many things while he is being drilled in one thing.

The grammatical statements in both the beginning books under consideration are in English and I persist in thinking that wise in spite of the fact that very many of the new books are affecting the use of the foreign tongue for this purpose. Our English speaking young people are little used to a language so richly inflected as German and they will be placed at a great disadvantage if some points are not made clear to them at the very beginning. German learners might be introduced to English and French through the foreign medium, but the teaching of a richly inflected language to students who are used to an almost uninflected language demands a different method. It seems to me that we have vocabulary problems enough and I do not see why we should deliberately force upon the struggling student a large number of technical words which can never be of any practical use to him. Besides many of the terms are Latin —only an added distraction.

At the end of the book an appendix gathers up the grammar forms for ready reference. Perhaps the best thing I can say about the book is that the young people like it immensely. One of its greatest virtues is that it is well adapted to utter extinction during the recitation. Indeed, I consider its possibilities for disuse in the classroom a splendid test for a beginning book. There can be no loafing in the classroom when the books are closed, dependence upon others is greatly lessened, the class must be alert, above all the teacher must be well trained, bright and resourceful.

The distinguishing marks of difference between Curme's First German Grammar and Bagster-Collins' First Book in German are suggested in their titles. The grammatical statements in Professor Curme's book are as clear and comprehensive and important as they are fragmentary in the Bagster-Collin's book. In the former's work we recognize the efforts of an eminent scholar who has spent many years in the study of the language from the grammar side.

If Bagster-Collins has worked out many clever devices for the teacher who must have a thorough knowledge of the grammar and at the same time be able to make it clear to the students, Professor Curme has left the devices largely for the teacher to work out according to his needs, but in the scholarly grammatical statements teacher and student have a foundation upon which they may build their forms.

If we need to inculcate in our young people the spirit of scholarly attainment, we should not neglect this opportunity of arousing a scientific interest in the language.

Professor Curme has not omitted all the helpful devices, for there are the usual questions based upon each reading lesson and they have been worked out with unfailing attention to the psychology of the learner.

The chapter on Pronounciation, with its phonetic symbols is very complete and is approached from a more scientific point of view than most chapters of the kind. It furnishes the student with a safe haven of reference for his pronounciation difficulties.

The reading lessons begin with conversation about the persons and things in the schoolroom. The student is helped from the very beginning in his home study, for the vowels are marked until the student becomes thoroughly familiar with the word. The Demonstrative has the stress indicated to distinguish it from the article. All words whose accent may be doubtful have the stress mark in the reading lesson as well as in the vocabulary. Thus the student is rescued from the false impression which he might receive during his study hour, and which is often so strongly fixed by the time the teacher corrects it, that it is not easily effaced. He is constantly reminded of quantity and accent. In the reading lessons the grammatical points that are being emphasized, such as adjective endings and the verb in the subjunctive mode are printed in bold face type.

The grammar is developed logically, not through a mass of tedious forms. For instance, the student is told that the demonstratives are of the Dieser type and the modified Der type. The limiting adjective is simply of the Der, Dieser, and Mein types. The Strong adjective is dismissed with the statement that it is like the Limiting adjective Dieser except in the one ending—es of the genitive masculine and neuter singular which is now usually replaced by—en. Below the statement are given only the two forms of the adjective Gut which differ from Dieser instead of the whole declension which must only be confusing if the student already knows this type. And so the verb, too, is built up by the student.

The pictures are very attractive and the reading matter is well chosen and most happily introduced. Before each poem there is a little reading lesson about it, and so the student is put in a sympathetic attitude toward the poem and its author before reading it. There is an abundance of fairly difficult, idiomatic German. Indeed, the space usually devoted to distracting and confusing grammatical forms is used in this book for a surprising amount and variety of good literature.

One of the finest touches in the book is the appendix with the Inflection of Nouns with the general outline and the lists of the plural types.

I can not hope to give an adequate conception of the value of the book. I do feel, however, that its use in the classroom would show up and develope manifold possibilities. In this book at least the great weakness of the beginning books which have been too radically different from the old grammars has been overcome, for it can be used in the second and third year as a reference book. The students who come to me from the high schools are utterly helpless when asked to look up a reference in the grammar. They are at a loss to find any-

thing clear and definite and indeed they can find nothing concise and definite in their books; so they have to feel their way through the second year for their support of the first year fell from them when their reading took them beyond the beginning book. This is worth consideration in choosing a beginning book.

I am convinced that upon a careful examination of the books you will agree with me that with a little more of the mechanical in the First German Grammar and a little more of the technical in the First Book in German we would have two ideal beginning books.

We may never reach a decision as to the best means of conquering the elements of the language; as to the degree of facility in conversation, as to the amount and quality of the written language there may be a long and bitter contention, but standardization on the side of the structural and cultral is very possible. The general character and aim of the excellent supplementary texts with which we have been fairly flooded during the last few years reveal settled tendencies in this direction. I shall mention a number of them by name only, for the description of a few will adequately describe all.

Aus Vergangener Zeit by Werner-Spanhoofd, is, to quote the words of the author, "a collection of historical sketches designed to create an interest in the student for the great and glorious past of a people whose language he is learning." The selections are arranged in the order of their historical occurrence and have been drawn from the works of standard authors. There are questions for every selection.

Deutsche Heimat, by Josefa Schrakamp makes very attractive reading which may be begun early. It is a description of the various regions of the country with customs, songs, legends, and stories characteristic of each region. The boys are interested in the descriptions of Germany's great inventions and in the anecdotes told of the inventors. The appendix with its dialogue for travelers, its outlines of German history, constitution and government, and its tables of German states, cities, and rulers grants an abundance of material for conversation and a teacher may easily conduct a series of exercises based upon these tables as he would conduct a lesson in history or geography in English. The questions must necessarily be short and the nature of the material demands a brief response in simple language and to the point. The student must be made responsible for the verity of the matter being spoken of in the foreign tongue and his classmates must be alert for mistakes of fact as well as for mistakes in grammar. Such an exercise will beget spontaneity in the student who is reciting, and also in the class. Let us demand that the student gather a great deal of good information from short cultural sketches. Thus we will give him much knowledge and at the same time furnish him with a strong incentive for reading instead of translating merely words and phrases which he does not connect and give meaning to, because that is not a part of the lesson. Let us make the student use the language from the very beginning as a means of gaining information. He must learn the history, the literature, the geography, the legend of the country as well as the language.

Kreuz and Quer, by Mezger and Mueller and Deutschland und die Deutschen by Decker and Märkish I shall only mention as belonging to this type of cultural literature and as being as attractive in every way from their

beautiful covers to their last interesting illustration. Hebel's Schatzkästhein, edited by Stern, and Martini's First German Reader are excellently adapted for preparation of material at home for retelling in the class.

Josefa Schrakamp's Ernestes und Heiteres may be begun after the first few weeks although the selections are by the best contemporary authors.

Manley's Ein Sommer in Deutschland is already so popular as scarcely to need mention. Its strength is rather on the side of the conversational where much may be made of it.

Deutsches Lese—und Übingsbuch, by Prokasch is well worth trying. It is a reader and exercise book with all explanations of text and grammar in German. It is designed for use a few weeks after the student has begun his study.

I wish I had time to describe Allen's Easy German Conversation, his German Life and his First German Composition. We have not had anything like them—so fresh, original and bright and withal so dignified and scholarly.

Every teacher should read his hints on the teaching of German Conversation.

Roedder's Schwartzwaldleut' will attract the young people, for all the world loves the Black Forest and its quaint villages. The five stories are well chosen and make a Black Forest literary treasure. Let us hope that this idea will lead to more such superb collections, for every region in Germany has its charm and its singers.

Mogk's Deutsche Sitten und Bräuche, edited by Fossler is the treatise which appeared in Meyer's Das Deutsche Volkstum. Although it is a literary masterpiece and scholarly it is very easy to read and it should be embodied in every two years' course.

There are a great many good texts which I have not time to mention and you know some which I have not seen. However, I think that I have looked over enough to gain the right to say that the efforts in supplementary texts are most gratifying and if my expressions of praise of what we possess and the indications of excellence which I have marked have resolved themselves into a plea for better working material, I shall be glad of the results of my effort and rejoice with you in the anticipation of better things.

The French and Spanish Group held a well-attended round-table discussion of common problems on the afternoon of Friday, November 20th.

Mr. S. O. Rorem, of Danville, presented a paper on "A Few Knotty Problems of French Teaching in High School" in which he made the following points:

The "knotty problems" of the High School teacher of French are in a way the same as confront his university colleague, but they are more generally confined to the elementary years of instruction. These problems may be briefly tabulated as:

1. To make pupils pronounce consonants sharply.
2. To make them distinguish vowel sounds carefully.

3. To keep the class together by urging the timid pupil to attempt the new sound, and by discouraging the ambitious pupil from usurping all the class period.
4. To overcome the parrot-memorizing habits of the grade school.
5. To demonstrate that French is not so easy that it can be learned without effort.

Over and above these difficulties which are more or less common to all language work, the greatest hindrance to the firm establishment of courses in French in the high schools lies in the ignorance of the school authorities, as well as the pupils regarding the usable qualities of French. In these it is readily superior to German, of which the fetish has been that it will "help in business life". This fetish is largely due to the prevalence of the German population in the middle west, and it will become less, as fast as this population becomes Americanized. It can readily be shown that no one can acquire a sufficient knowledge of German to find it useful in business in the time devoted to the subject by the average high school pupil. An yet this fetish dies hard.

The school authorities and people generally in the middle west fail to appreciate the value of French as a literary language complementary to English. They are ignorant of the great number of English words that come from the French. They fail to realize the intimate literary connections of these two languages, which is best seen in the fact that standard English and American writers have a deeper acquaintance with French than with ony other modern tongue. They do not see that for reasons admittedly valid even if largely due to chronological causes the influence of French literary masters upon English and American writers is vastly greater than the influences of German masters of literature.

This linguistic and literary connection is strikingly shown, when one compares the number of French and German "Words and Phrases frequently occurring in English literature, including Proverbs and Colloquial Expressions" as given in an average small dictionary. Here in the first five letters of the alphabet may be found 152 expressions of French origin, and only nine of German origin. Indeed, in the entire alphabet the present writer found only 30 German examples. Even more striking was a similar search in the back of an unabridged English dictionary through the "Quotations, Words, Phrases and Colloquial Expressions from Greek, Latin and Modern Languages, frequently occurring in English books, in Periodicals and in Conversation." Here under the letter A were found 133 French expressions and only one German example.

Another hindrance to the establishment of French in our high schools lies in the failure of the authorities to realize the complemental value of the study of French to the rest of the curriculum, especially to the study of English vocabulary, of English literature and to history in general. As has already been indicated this complementary value is far greater than that of German.

A study of the "mortality" statistics of German in a representative high school is not without interest. In my school there are 250 pupils taking German in 11 classes. Of these only 20 are in classes of the third year (fifth and sixth semesters); only 40 take the third semester's work (beginning of the second

year), and only 30 take a fourth semester's work (middle of second year). Such statistics explode again the "business" fetish of German, since it is seen how few pupils continue the study long enough to acquire any large facility in using the language in a practical way. One sees that only three out of eight pupils take a second year of German, and only one out of twelve start a third year.

Granted such mortality of the German side it seems reasonable to suppose that the time expended in German would yield more valuable results if spent in the study of French. It is easier to acquire a reading and working knowledge of French than of German in the same time, for obvious reasons. This knowledge will bring the student into contact with a language and literature more akin historically to our own tongue.

Dr. A. R. Seymour, of the University of Illinois, presented some important facts concerning "Business Spanish in the High School" and offered the following tentative program for four years of Business Spanish in a high school course:

For some months the business interests of our state have been giving attention to the need of introducing Spanish into our High School curriculum. Our attention has been directed toward the value of Spanish for business purposes, but as yet but little thought has been given to the literary value of Spanish. I believe that the demand for a practical knowledge of Spanish should be met by courses in our High Schools, and at the same time the literary side of Spanish should not be neglected. Even with the most restricted business purposes one needs to know Spanish and Latin American literature and history in order to form friendships in paving the way for building up a trade in any line of business with our southern neighbors.

We may well learn from our German competitors in Latin America. Until the present war began they were increasing very rapidly their commercial control of the Latin American countries except Mexico. If we ask how they did this, we find an answer in the plan of their business schools which taught Spanish and Portuguese, and taught not only the languages but also the history, social customs, commercial geography, mining and industrial possibilities of Latin American countries. The Germans accordingly sent salesmen to Latin America who spoke Spanish and Portuguese fluently, who were acquainted with their methods of doing business, who knew or soon found out the needs of the natives in any particular line of business and who above all equalled the natives in social courtesies. We shall do well to follow methods of preparation used by the Germans.

A Spanish High School Course should not be based on French or German courses for Spanish needs individual consideration. The emphasis should be put on speaking and writing and the acquisition of a good practical vocabulary, with considerable knowledge of history and literature. Following I shall give my outline of a High School course to meet present needs:

Outline of Four Year Course in Spanish for High Schools

First Year—Pronounciation. Practical grammar of useful Spanish. Dictation. Reading of easy Spanish short stories and of a Spanish political and commercial geography dealing with Latin America. Translation from hearing of texts studied and of simple stories related by the teacher. Simple conversation based on everyday life, pictures and on texts read.

Second Year—Grammar, including all the irregular verbs and syntax. Reading of novels and stories giving true ideas of life in Spain and Latin America. Reading of the history of Spain in Spanish. Conversation continued, including the retelling of stories related by the teacher. Composition based on the texts, and original themes on topics concerning everyday life. Translation from hearing. Elementary business correspondence.

Third Year—Reading of Spanish and Latin American novels, plays and poetry. Reading of the history of Latin America. Commercial correspondence and business forms. Study of business conditions and requirements in Latin America, including the reading of government and consular reports in Spanish. Reading of Latin American newspapers and magazines with reports on them and original themes based on current events. Conversation.

Fourth Year—Reading of selections from Don Quijote and a classic play, Spanish American history and Spanish American literature, including extracts from the leading authors of each country. Reading of periodicals, trade reports, and government reports with themes based on this information. Advanced commercial correspondence and business forms. Technical business vocabulary emphasized. Conversation.

Both these topics brought forth a deal of interesting discussion, and developed a fine sentiment of co-operation.

The group instructed the secretary to present to the university authorities its recommendation that faculty men be sent, upon invitation, to the various high schools to explain the advantages of the study of French and Spanish.

Music Section

The Music Section was called to order at 9:15 by Professor Constance Barlow-Smith who welcomed the Supervisors and teachers of applied music. She said, "it was exceedingly gratifying to see how well the state was represented geographically."

In the absence of Mrs. McNair, of Mattoon, Miss Ailsie Goodrich, of Jacksonville, was appointed secretary pro tem.

Professor Smith gave a brief history and explained the purpose of the music section in the High School Conference. The secretary was requested to read the report as given by the committee that was appointed to investigate conditions of music teaching in the High

Schools of the State. Pg. 121, High School Conference Proceedings, 1911.

The secretary then read the report of the committee on courses of music study that should be worthy of credits toward graduation in the High Schools. Pg. 184, High School Conference Proceedings, 1912.

Copies of the Syllabus "A Music Appreciation Course," based upon the adoption of the report of 1912 and prepared by the chairman in accordance with the request of the conference (which was presented and discussed in 1913) together with an appendix containing the reports of committees as adopted 1911-13 were distributed.

Professor Smith said that contrary to general practices the subject of grade work was discussed at length at the previous meeting and the average amount of work that might be accomplished in the grades was agreed upon. The report of this from the High School Conference Proceedings, 1913, page 241, was read.

Professor Smith explained how the Syllabus could be used both with and without outside preparation. She said that an up to date High School with well prepared students, a competent teacher and adequate equipment could accomplish the work in one year with outside preparation, and that the work could be extended into a two, three or four year course, according to the amount of time and material used. She gave a brief analysis of the syllabus before calling for a discussion of the same.

At this time Professor Hollister, chairman of the general conference committee, visited the section and was greeted with a rising salutation. He said in brief that he was deeply interested in the effort that was being made by the supervisors to raise the standards of music-teaching in the High Schools of the State and that he hoped that the teachers who were present would be able to put their schools upon the accredited list in music, as the University was going to grant entrance credits in the subject beginning September, 1915. He expressed the sincere hope that the quality of work of the Syllabus would warrant this step.

Discussion of the Syllabus, Miss Grace V. Swan, Barry, Illinois:

While we are discussing the Syllabus as a standard for the High Schools of the State it will surely be of interest to us to learn just what has been accomplished in some of the High Schools of the State. I can speak of one and shall be interested to know what is being done in others.

In a school which I have in mind music is accredited hour for hour the same as any other High School subject and the organization of classes is as follows:

Alternating classes in history of music and harmony recite five hours per week (with outside preparation) and are accredited accordingly.

For chorus work the school is divided into two sections, first and second year students in one, third and fourth year students in the other, each of these choruses meets for a twenty-minute period every other day with one additional twenty-minute period each week to take care of those first year students who may not have had sufficient preparation before entering High School. One-fourth credit each semester is given for this work.

Glee clubs and orchestra practice from one to three hours per week as may be necessary and must on demand furnish music for any High School occasion. For this work one-fourth credit is given each semester.

With this organization and an equipment of good pianos, a victrola, good texts, and a few standard reference books I have covered in one year practically all of the work outlined in this syllabus, doing perhaps, a little more in history and harmony and a little less in analysis, but in the future I shall profit by these more evenly balanced requirements.

When first I began teaching harmony as a part of the High School course in music I was doubtful of the outcome, but judging from the interest evinced by the pupils and the character of the work obtained it was a success, and those pupils who were making a study of some instrument with special teachers outside of school, claimed it to be the most helpful part of the entire course.

Some teachers of music say that they are rather at a loss to know just how to present the history of music in such a course as this, but I have found it to be one of the easiest and most interesting phases of the work by correlating it with the pupils' work in history, literature and art. In the Syllabus you will find provision made for a lecture during the first month on the beginnings of music. All the pupils study history so in discussing the legends of prehistoric times and the early events of the historic age you can meet them upon a common ground.

Names, dates and events already significant to them can be made to mean infinitely more, and so thruout the course their whole view of history may be broadened and enriched.

It is just as tho you had thrown open for them the portal disclosing a new vista so inviting in its aspect that you have only to lead on and they will follow.

When that most interesting part of the history of music is reached, the transition period from the classic to the romantic it can be explained, well within their understanding, thru the knowledge which they already have of the same period in literature, architecture and art.

History of music abounds in stories more fascinating than the most absorbing fiction, and if properly presented by informal talks and with the aid of a few good texts and reference books, the response from the students is most satisfactory.

All of this means on the part of the teacher, a vast amount of prepartion and a broader view of the whole field of history, literature, art and music, but considering the value of such a course to the boys and girls in the high schools it is not too much to ask.

The discussion of the Syllabus was continued by Miss Mildred Miller, Harrisburg Township High School:

In the Harrisburg Township High School I am using the Syllabus and find it to be a most satisfactory plan for my work. Of course certain alterations will have to be made because of limitations in equipment.

I have a fifteen-minute period the first thing in the morning for assembly singing. At times the principal has the whole body of students march to the music furnished by the High School Orchestra, an exercise that is enjoyed and tends to arouse much enthusiasm and interest in music study. Perfect time is demanded and close attention is paid to the position and carriage of each pupil. Sometimes when the orchestra cannot be assembled in time the piano is used. I have two regular classes in Music Appreciation and chorus work, we follow the plan of the Syllabus as closely as our present equipment will permit. Between ten and fifteen minutes of actual work is done in these classes and much interest is manifested. At the seventh period I have orchestra practice. This organization consists of twelve pieces, four first violins, two second violins, a first and second cornet, a clarinet, a trombone, E flat tuba, the drums and piano. The students read readily and play together unusually well. I have a girl's chorus of twenty-five voices, a girls' quartette, and a boys' quartette. These pupils are interested in their work and always ready and willing to be on High School programs when called upon. As an incentive to good chorus and solo singing, the cities and towns of Southern Illinois hold frequent contests. Each town holds a preliminary contest then a final contest at Carbondale, in February, at which time and place the winners of the preliminary contests compete for honors.

The schools that win at Carbondale are given medals according to the places that they have won. All of this voice training for the solos and choruses of these contests has to be strictly in the hands of the music teacher and it can readily be seen that it gains interest for the teacher and her work from the pupils.

To my mind nothing is more reasonable and beneficial to the High School music student than the line of work as planned out in the Syllabus, because it can be so easily adjusted to every kind of equipment and introduces various important phases of music in the most comprehensive fashion; it provides interesting work for the inexperienced pupil and plenty of work for those who are prepared to do more advanced music study. I find it invaluable and hope that other supervisors will gain as much inspiration and help as I have from the Syllabus.

Open discussion:

Miss Alba Mohr, Watseka, said that she was very fortunate in that she found favorable conditions for her work. The pupils were well prepared for the work of the high school and that she had the sympathy and encouragement of her colleagues. She offers two forty-minute periods a week, and her musical history lectures are given at stated times. She said that while at present no credit was given for the work, she was encouraged to try and secure them as the interest in her subject on the part of students was an incentive.

Miss Helen Parker, Chatham High School, reported a lack of time for specific music teaching. She has only twenty minutes a week for chorus singing. She has, however, a girls' glee club that meets after school three half hour periods a week, and she is about to organize a boys' glee club. No credit is given for music.

Miss Clara Renfrew, of Cerro Gordo and Bement, said she was following the plan of the Syllabus in the Cerro Gordo schools and getting good results. The classes meet twice a week and appreciation work is well under way; not much outside preparation. Credit is allowed. Miss Renfrew has regular musical organizations in both towns. She hopes to start a class in appreciation soon in Bement.

Miss Ruth M. Clapp, of Urbana, said that she had been able to do very little music work in the High School because of the crowded condition of the school where only half day sessions have been held. She expressed the sentiment that the Syllabus "filled a long felt want with her." She has an orchestra that is doing good work.

Miss Edith Mann, of Hoopeston, said that she had four forty-minute periods on Mondays. This plan was made so that each student could select the hour best suited to his or her schedule. She makes chorus singing the foundation of her work and prepares the classes to sing well together, as she has an ensemble class once a week. She usually gave instruction upon the selections, but no stated plan of other instruction. Credit is given.

Miss Ruth Duncan, of Mt. Sterling, has one music period each day. She reported she was following the plan of the Syllabus and extending it into a two year course and that her students were enjoying the work.

Miss Laura M. Honk, assistant supervisor in Decatur, said she was certain that the amount of work contained in the Syllabus could

not be done in the High Schools in that city, because there was too much work to be done in the grades.

Miss Marianne Miller, of Kewanee, divides her High School into two choruses; first and second year students in one and third and fourth year students in the other. Each has two twenty minute periods a week and a glee club meets after school for one hour a week, and an orchestra for two hours a week. About 90 per cent. of the students elect music for which credit is given.

Miss Guna C. Kelley, of Clinton, gives three twenty minute periods a week, chiefly chorus work. Glee Club and Orchestra meet outside of school hours. Also would like to plan for appreciation work. Credit is given.

Miss Dorothy Griggs, of Lovington Township High School, gives a forty-five minute lesson each day. She has a girls' and a boys' glee club, both of which meet after school hours twice a week. Credit is given for regular work.

Principal Livingston, of Lockport Township High School, said that Music received a great deal of attention in his school, that he was trying to make it a center for the musical activities of the town. The supervisor gave private lessons on the violin to the pupils who wished to take them, and that the previous teacher gave private voice lessons as part of the regular school work. He was especially interested in building up a good orchestra. He said he thought that more sight-reading should be done in the High Schools.

Assistant Professor Schwarts, of the School of Music, suggested that the work in "key relationship explained" be pushed forward to the second month and that the drill in writing triads be put in the third month. Professor Smith accepted the suggestion after explaining that much chorus singing is done in vocal harmony by the second month of High School work.

Discussion closed.

The chairman asked if the Conference wished to take action upon the Syllabus. Miss Grace V. Swan moved that the Syllabus be adopted as a standard of work for the High Schools in the State. Miss Hester Cameron of Lincoln seconded the motion—carried.

Notices were read and the meeting adjourned until 2 o'clock.

The afternoon session was called to order at two o'clock. The chairman explained that beginning on September 1st, 1915, the University would grant two units in music for entrance. Schools desiring

such credit should follow the same plan as for other entrance credits and the work would be investigated in the regular way.

The subject of Accrediting Applied Music in the High Schools was opened by J. Lawrence Erb, Director of the School of Music, University of Illinois, who spoke as follows:

According to the Trade Journals, the people of the United States are, and have been for a number of years past, the most liberal supporters of musical enterprises in the world. Statistics go to show that we spend much more money for concerts, for sheet music and music books and for music teaching than any other country, and some authorities are so rash as to say than any other two countries. The educational side of music is being exploited in this country in a manner which can only bring joy to music teachers. Everywhere is the call for teachers of music in one form or another, and it must be frankly confessed that in many cases the call is so insistent that the quality of the teachers does not always have opportunity to measure up to what might be wished for.

Perhaps the greatest musical awakening in the past few years has been along the line of music in the schools. The time was not so long ago when the public school paid no attention to music beyond the familiar elementary sight reading classes, and it is in the very recent past that the introduction of the High School Orchestras and High School Choruses that were capable of coping successfully with the standard choruses and even with the great oratorios created a sensation thruout the country. Now we find not only such work being done in many schools, but courses in Harmony, History and Appreciation find their way more and more into the schools of even the smaller towns.

All this is enough to fill one's heart with joy. There are many of us who are still young who would not have dared to prophesy twenty years ago that what has taken place would be, and we are, perhaps, still too timid in making forecasts. Certainly we are not yet brave enough to go into the land of our heritage and possess it in full. What I am particularly referring to is the most important and indispensable phase of music study, namely, Applied or Practical Music, which has as yet been introduced into the schools in only a comparatively limited number of cases.

It is interesting to notice that whereas the constant trend of education in general has been from the theoretical to the practical, from the abstract to the concrete, from the general to the particular, in music education we are still to a large extent in the first stage. Of course, it is true that too much of our educational energy is spent in studying *about* things, not in studying the things themselves, in being told how to do things and not being made to do them. The multiplicity of books of the "tell how" sort indicate how eager the public is to get information, and also how eager too often it is to find some short cut that will enable it to win the fruits of labor without performing the labor itself. Just here is where too much of the music education, not only of the public schools, but in Colleges and Universities, falls short. There is a vast deal of learned discourse about how a thing has been done or ought to be done, but there is also a lmentable lack of practical training in the doing. Therefore,

I should like to call your attention for a few moments to what is, after all the supreme phase of all education—the education which enables men and women to *do*. Do not misunderstand me, I do not mean that the theoretical end of music study or any other phase of education is not of use, but it should succeed rather than precede the practical. The drill and discipline should insure the ability to perform certain set tasks. There was, after all, a deal of good sense underlying the Gradgrind species of education, which, after having the boy spell "horse" and "curry", sent him out to the barn to do it. So I would like to emphasize the applied, practical, performance side of music study and to urge that its proper place is in the regular curriculum of the school boy and girl.

Possibly there are those to whom the value of applied music is problematical. To such I should like to direct a few observations. The true basis of education is and has always been held to be largely disciplinary,—entirely aside from the value of the information gained or the facts acquired. The training of the mind and will, the muscles and senses, has ever been held of paramount importance. Now in all humility and kindliness, I should like to say as emphatically as I can that the person who has had no experience with the serious study of applied music is absolutely incapable of judging with any adequacy whatever its educational value. Therefore, if our critics know nothing about practical music study at first hand, they should have the honesty and good grace to say so and to step aside in favor of those who do .

Let me say then, without the slightest fear of contradiction from anyone who has any basis of experience upon which to judge, that I know of nothing which so trains the mind in quick and accurate thinking and at the same time co-ordinates brain and muscles in as thoro a manner as does the study of practical music, especially instrumental music. But I will leave the bare statement to make its own impress without taking time to go into arguments or marshalling proofs. For I suspect that most if not all of you are already convinced of the value of applied music. If not, I would simply remind you that New York, California, Massachusetts and, I think, Colorado include applied music among the accredited subjects, besides such cities as Minneapolis, Cincinnati, Pittsburgh and Washington, D. C.

Leaving aside then the arguments for the study of applied music from the educational point of view, let me remind you of perhaps the commonest experience which falls to the lot of the music teacher. A boy or girl begins the study of some instrument, usually the piano, well down in the grades. Considerations of health as well as of general educational policy restrict the time that may be devoted to the practicing, but in spite of the necessary (or supposedly necessary) handicaps, the pupil progresses at a reasonable rate until the High School is reached. Then ensue four years of musical desert. A few of the most irrepressibly musical (or with persistent parents) stick to the music study as best they may, but the great majority drop out *at the most important period in their educational careers,* very many never again to take up their music study, some to do what they can summers, and a few more, hungering and thirsting after musical righteousness, continuing after they get into College or business,—tho with the sad handicap of those four lost High School years. Just at the time when the educational machine is getting in its most important work,

music is forced out of the scheme of things. Do you wonder that American musical atmosphere and artistic attainments still fall far short of what they ought to be?

Of course I realize that many will answer that there are so many necessary things that *must* be included in the curriculum that music must perforce be omitted. Yes, necessary—to the people interested in them. I maintain that so long as applied music is admittedly of high educational value and that its worth is so universally recognized that people everywhere are willing to pay extra and pay well for its inclusion in the educational equipment of their children, they ought at least in fair play to be given the privilege of including it under reasonably favorable circumstances, so long as they are willing to pay for it. Sometime, if this old planet keeps on revolving and not too many Wars of the Nations intervene to retard the progress of civilization, we shall have Applied Music taught our children *at the state's expense,* just as they are taught Manual Training, but I am not bold enough either to hope for or to advocate before this gathering such a step at this time. I should be quite sufficiently happy for *one* man if I could see Applied Music accredited in every High School in Illinois, no matter who pays the bill.

But, let us suppose that all the School Boards and Superintendents in the State should wake up to-morrow morning, convinced by some overnight miracle that it was their duty to accredit applied music, the question would naturally arise "How can we go about it?" For in Music Teaching, tho many may feel themselves called, there may safely be only a few chosen, when it comes to applying efficiency tests. How then may a city select its accredited music teachers? How? How do you select a physician, a dentist, or a lawyer when you go into a new community and don't know whom to call? You naturally turn to the man with the best reputation and, if not the biggest, at least a respectable, practice. For tho there are quacks who prosper, yet in a surprisingly large percentage of cases, prosperity and outward success go to the man who has, if not the best, at least a good claim to his preeminence. For "By their fruits ye shall know them", is true of music teachers as well as of men in other callings. There is one further thot in connection with this matter, and that is, that it would scarcely be found practicable to limit the number of accredited music teachers to one each in Piano, Voice, Violin and so on, even in the small towns. The practice is, in the cities which accredit Applied Music, to accept the teacher whom the student selects, provided the teacher's credentials bear scrutiny and his record is good. It is, however, sometimes found necessary to insist that the student change teachers, it being the right of the High School Supervisor of Music to demand such change where results are not satisfactory.

The important matters of the selection of a teacher (or teachers) having been attended to, the next thing that presents itself for solution is the proper manner of conducting the work. The usual plan is to require, for the full period of the school year, one hour or two half-hour lessons a week, with a definite amount of practice, varying from five hours a week to two hours a day, all missed lessons and practice time to be made up within a limited period, (usually a month or six weeks) and no work being accepted for credit which does not run thru the year. The teacher and parent (or guardian) of the pupil must

each send in a report, usually monthly, indicating the amount of work done, its quality and the ground covered. At the end of the year or semester an examination is provided for by an Examiner or Board of Examiners chosen by the school authorities, the expense, (stipulated not to exceed $5.00 in most cases) to be borne by the student. The work must measure up to the standards of the best schools, but may be done either in conservatories or schools of music or by private teachers. Credit is given usually upon the same basis as for any class which recites daily, tho in most cases, the regular courses in Sight Reading, Harmony, Appreciation, History of Music, and so on, are also required, or the Applied Music will not be credited. In some cases, the theoretical work may be taken in the Public Schools or elsewhere, at the option of the student. Practically all the cities adopting the plan of accrediting Applied Music insist that the students receiving credit assist whenever called upon,—with the consent of their teachers—in any musical exercises of the school or in illustrating any History or Appreciation Course, and, in the case of Orchestral instruments, after a year's work, when required in the School Orchestra. In Cincinnati particularly this Applied Music work is encouraged by sending out to students of the eighth grade, toward the close of the year, a letter outlining the work of the course and urging such as are considering the serious study of music. especially professionally, to plan for this Course.

The credit granted for Applied Music in High School varies as much as it does in the College and Universities. While the scale of credits is practically uniform,—a credit a year (or semester) upon the same basis as in a course with five recitation periods a week,—the total number of credits which may be earned varies, the highest proportion being in the schools of cities such as Cincinnati and Pittsburgh (in the latter, a total of eight credits may be earned in Appplied Music out of a total of 32 in all subjects for graduation).

From this hasty survey it will be seen that the accrediting of Applied Music is rapidly becoming a fact,—or rather has become a fact in the schools of most of the leading cities of the country and many progressive small towns,—and that at least four states have already adopted the scheme officially into their educational system. That the work is being done upon a sound educational basis and with a definite end in view is apparent, as witness the insistence upon monthly reports, examinations, public performances when required, and so on. In fact, the experimental stage is past, and Applied Music is established in the educational systems of the more progressive communities upon a firm foundation. It will soon be as much an evidence of backwardness in a town to fail to accredit Applied Music as it is now to fail to include the study of music in any form.

A word in closing as to the relation of the University of Illinois toward this matter. Those of you who are acquainted with the entrance requirements for 1915-16 will observe that of a total of 15 units required for entrance, two may be in Music, either Theoretical or Applied. This is a very fair proportion, you will admit, and points the way toward what the University of Illinois may reasonably be supposed to expect from High Schools of the State. The time is past when a serious College or University feels its musical obligations fulfilled if it offers any kind of music courses at all, no matter what their grade.

The better institutions of higher learning are all lining up for the elimination of what we call the Preparatory Grades of music (usually the first three years) and are restricting their activities more and more to the Collegiate Grades, which is, of course, their legitimate work. And the only reason why they have had to be handicapped so long with the beginners and poorly prepared students of piano, voice and what not, is because the High Schools have not done their proper work in this regard. Therefore, the University of Illinois, in common with all other Universities and Colleges, calls upon the High Schools to shoulder their responsibility and make it possible for the institutions of higher learning to be what they ought to be, the crowning glory of the educational system of the State, resting upon the Grade Schools and High Schools as their solid foundation. And, because no man is truly educated unless he is symmetrically educated,—his body and intellect, not only, but his esthetic and moral senses as well,—I would urge again, as a last refrain, as it were, the accrediting of Applied Music in the High Schools of Illinois.

The discussion of Director Erb's paper was opened by William D. Armstrong, Alton.

Mr. Armstrong's remarks were as follows:

In considering this subject there are four departments of music available; these are:—History, Theory, Vocal and Instrumental Music.

The History of Music could be substituted for one of the major or minor studies in either the literary or historical branches, because it includes both; and is so interwoven with the development of the world from a religious or material standpoint, that when one comes to consider the extent of the knowledge obtained from this source, the subject appears to be of the first importance.

Of course this, as in all branches of education, depends upon the text books used and the ability of the teacher to interest the pupil. From the first records we learn that—"The morning stars sang together and all the sons of God shouted for joy." This is music. Music was the first of the arts, to be followed by painting and literature. Later we find combined, music and literature resulting in song,—then music, literature and painting, resulting in opera. Charlemange, in his first university included music as one of the important studies in the curriculum. It has always been considered one of the serious studies, both for mental development and recreation.

In our high schools, one year's work in either the junior or senior years would be sufficient to give an outline of musical history and awaken in the pupil a desire for further research. So far as I can observe, there has not been written a practical text book on this subject; as the field is large and the material voluminous. So—in this paper I shall not endeavor to specify any particular books, but cannot refrain from mentioning "A popular history of music" edited by the late W. S. B Matthews, published by Mr. Clayton F. Summy, of Chicago.

In some schools harmony is already being taught and credits given for such work. Here again, the matter of text books presents itself; some treaties start out at once with Open Harmony, others Close; some plunge at once into

difficulties without explaining previous steps; others have no rules but flounder around from one subject to another, leaving the student in a quandry and wondering what it is all about. Further, with one or two exceptions, our harmony books have been translated from the French or German and the author's meaning, in many instances is hidden.

This situation has been threshed over by the music teachers' associations both National and State, and from evidences obtainable, all the teaching of harmony in this country has failed to produce many good harmonists or teachers of this subject. Mr. Stephen Emery, late professor of harmony in the New England Conservatory of Music says:—"Let the fact be understood that every hour devoted to the study of harmony is itself an indispensable part of one's study in every department of music, enabling one to sing or play recognizably better than could otherwise be possible." Harmony is to music what grammar is to literature; it defines the rules of the art, and gives the interpreter ability to understand and execute music correctly. It is an extremely interesting subject, not difficult to comprehend as is generally supposed and should be an integral part in the education of both amateur and professional.

Of the two methods of conducting examinations now extant; viz—The subject given in the school by the music supervisor and he, or she examining the student; and the local teachers preparing the students to be examined by the school authorities,—the first procedure is the most preferable, as it is known just what ground has been covered. By the latter method of examination, the paper has already been prepared by some other institution or individual and does not always include the work done by the student and therefore is more or less unsatisfactory to all parties concerned.

The first test should practically not go further than the Seventh Chords and should occur near the close of the junior year, special attention being given to the Intervals, Scales, then the Major, Minor, Augmented and Diminished Triads and their Inversions, followed by the Dominant, Secondary and Colateral Seventh Chords.

The second test of the senior year would include the Diminished Seventh Chords, the Augmented Sixth Chords, Suspensions, Anticipations, Modulation and other related subjects.

The matter of the Syllabus has been discussed this morning and public school music is largely catalogued and placed. The further proposition for giving credits in vocal music for instruction given in or outside the school by local teachers seems to resolve itself into this situation:—As there are literary clubs formed for which the pupils receive credits, so choral clubs might be formed consisting of male and female sections and then a combination of both, the work to be so graded that the students passing successful examinations for work done in sight singing and interpretation, would receive proper credits. This of course, could only be done where there is a local supervisor of music to select the material and conduct the examinations.

In regard to solo work, the students who are in our high schools are simply passing through the formative period and while not very much can be accomplished at this time, still credits could be given for work done. This same rule might apply to instrumental music. Students could form clubs and

give performances of classic and modern works, also could present lists of compositions studied under local teachers. The whole question then seems to assume this aspect:—The music in our public schools depends entirely upon the supervisor or other principals and teachers who are proficient in music. So far as singing and public school music are concerned, there has been a great advance made in the past twenty-five years, still, as yet, it is not resolved to a unit or a perfect system because local conditions have to be met in every case.

It is not much of a difficulty to classify public school music and give credits for work done, but when these other items are to be taken into consideration, then the troubles begin to multiply. The solution of this matter will be in a more extensive education of our music supervisors who should not be only vocalists and instrumentalists, but theorists as well. This is quite a demand to make on one and when one fits onesself for such work, there are wider fields and opportunities than in our public schools, but as the subject of this paper indicates, if these conditions are to be complied with, the suggestions that I have ventured will have to be carried out.

Mr. E. R. Lederman, Centralia, continued the discussion:

The Illinois Music Teachers' Association, which is the greatest organization of musicians in our state, is in existence for the purpose of advancing musical knowledge and education.

One of the principal aims of the I. M. T. A. has been to have applied music accredited in all the high schools of the State, and such credits to be accepted as part of the entrance credits in our state university in the department of liberal arts. The announcement made by the university authorities that entrance credits will be granted in music on the same basis as other studies, is indeed welcome news, not only to the members of our association, but to all those interested in musical education in our state, the number of which probably includes ninety per cent. of the residents of Illinois.

Our association has advocated the granting of such credits so that all those who intend to make music their profession, either as teachers, artists, or composers, would be enabled to get the general education offered in a complete high school course, so absolutely necessary for a successful musical career, and also for the benefit of all other music students, who, on entering high school, would either have to give up the study of music, or continue it under difficulties.

Our I. M. T. A. appreciates very highly the most excellent, unceasing efforts of Professor Constance Barlow-Smith, of the University School of Music, for the realization of this important aim of our association. The problem of accrediting music study with outside tutors has been solved very successfully in many high schools in all parts of the country, and there is no reason why it could not be put into practical operation in all schools of our state. Superintendents and boards of education in most schools favor the placing of music as a major study on the curriculum, but to many it seems to be a difficult task to make satisfactory arrangements in regard to grading the work of music students, and to some extent supervising the selection of outside tutors by high school students.

As a model for grading work, I would mention the requirements for music study and examinations in the Oak Park High School, while under Mr. Otto Miessner's supervision. In schools where the number of those who had musical instruction by private tutors is not large, it would be advisable not to set the standard too high,—to give less difficult work the first year so that a good foundation may be the result.

Members of glee clubs, orchestras and other ensemble classes should devote as much time for their work in music study as those who have outside tutors, to earn credits granted for such work.

Supervisors of music in high schools who have the necessary education for such a position, who spent the same number of years in preparation for their work as the other teachers, will have no difficulty in making such organizations a success, and the credits given to the individual members would be earned. But are all our high schools so fortunate as to be able to prove that they have efficient music supervisors? This is the weakest spot in regard to accrediting music in high schools. I have listened to songs by high school choruses, which were sung so well that it surprised me. The director was a thorough musician. The result was remarkable. At other times I have heard singing directed by a "music supervisor", which could not be classed as music in any sense of the word, and those people received "credits" for their efforts.

The remedy for such conditions is simple. The people will have to pay for it, but it will be money well spent. The music supervisor should measure up to the standards of the other high school teachers, and receive the same remuneration for their work, or more, because such a musical education is far more expensive, as it has to be paid for by the individual without assistance from the state. In case a school cannot engage an efficient instructor for financial reasons, two or three schools in a county could co-operate and secure the services of one for two or three days per week. If such a plan would be adopted, all high schools in our state would within a few years be supplied with competent music supervisors, and the others would be eliminated.

In regard to supervising the selection of outside tutors by high school students, a number of schools have followed the plan of making a list of approved music teachers, and advise the pupils to select their private tutors from that number. This plan may work well, and it may not. The ability of a music teacher is judged by the work of his average pupils. It would probably be a better plan and more just to let the pupil select his outside tutor, and if he cannot pass the examination in music at the end of the school year, then advise him to make a better selection. But very likely this advice will not even be necessary.

Inasmuch as the accrediting of work done by outside teachers is an extension of the high school faculty, the school authorities have the right to demand that the musician thus engaged should measure up to the standards of the high school teacher in every respect. Our I. M. T. A. has placed itself under obligation to standardize music teaching in our state, and for that purpose offers examinations in different branches, including public school music. The examinations will be given for three degrees,—Licentiate, Associate, and Fellow.

Our association fully realizes that the teaching of music should be standardized on the same plan as those other subjects taught in the high schools and universities. By offering examinations for music supervisors, we also hope to increase the number of efficient music teachers in our public schools.

In conclusion I would suggest as a good plan that the authorities of the Illinois University School of Music, in co-operation with the I. M. T. A. board of examiners, should grade the work to be done in music study in the high schools of our state.

Continuing the discussion, Mr. O. V. Shaffer, of Danville, said:

I shall speak from the viewpoint of one whose entire work has been done in a private studio, and whose teaching has been, almost exclusively, the piano. My own personal observation and experience has been that high school principals and teachers are doing the best possible, under present conditions, for the music student, and I think that it is almost universally admitted among school authorities that it would be a wise thing to allow credits for work done in applied music provided that it is done in a proper manner. Good will and kindly opinoin are well enough, but unfortunately, this does not help the poor boy or girl who has to toil over books at home every night, and who goes to his (or her) music lesson shamefacedly, with the ever-present excuse of lack of time to prepare it on account of school lessons. Public opinion must always precede any new departure, and as we have abundant evidence that hearty co-operation will be given by both school authorities and parents, I think it is merely a question of how credit shall be given.

The biggest problem of all confronts us at once in the chaotic state of music teaching as it is at present; but (thanks to men like our esteemed friend, Mr. Lederman, who honors us today by being here) that problem is being solved, and I believe it will be a stisfactory solution. Nothing can be done, however, with the problem of credits until the outside teaching is standardized. Next May, we music teachers will have a chance to take an examination which some of us hope to be able to pass, and from comments I have heard, the plan is looked upon with much favor throughout the state. We may reasonably hope, then, to have within a few months a number of teachers available who can produce some tangible evidence of their professional standing and capabilities. Our problem today then is to blaze a path in the following almost unexplored realms.

Entrance requirements.

Examinations, when and by whom given.

Whether tuition shall be private or public.

Amount of work necessary to receive credit

Nature of course to be given.

How the theoretical and historical side of music study may receive best attention.

I believe that no high school student should be allowed to choose piano as a study unless he has already attained to some proficiency. The standards set and the outline of such a course should preclude the possibility of one starting in at that time as a beginner. The fact that one would have to pass a

certain grade before being allowed to choose piano for study would operate to advantage in several ways. There are always with us, those who would never become players were they to keep on trying until the last trump has sounded, and it is a notable fact that those persons are usually the last ones to find it out. I think it would be a kindly act for the high school entrance examination to put them out of their misery (for they could be depended upon to choose piano as a study if that course were open to them) and possibly save much innocent suffering to those who are compelled to listen to their practice. The bright young boy or girl who has been coming up through the grades will work harder at his music (possibly I am looking at it selfishly now) if he is planning to make the piano one of his studies in high school and his parents will see to it that he does practice, and get to the place where he can pass the tests required. The talented pupil, of course, will be the one who will benefit most by the extra time given her, and that is where another problem steps in. Sometimes we have a talented one who has reached as advanced a stage of piano study before arriving at high school age as others may reach only after hard work through a whole four years high school course. Shall we then examine and make an accurate survey of the starting point of each of these? I think there is no other alternative. It seems to me that the minimum requirement for a student entering for piano study should be the ability to play music of the grades of Clementi's Sonatines Op. 36, No. 1, 2 and 3, and that they should at least know the major scales well enough to play them in rythms of quarters, eighths, and sixteenths at a metronome marking of ♩= 72. I shall not speak of voice, as that is a different problem, except to say that I should judge that a student wishing to study voice should also be required to study the piano (according to a much easier schedule) for the time required for vocal practice is necessarily much less than that of piano, or any instrument, and to accomplish results they should by all means have the piano study in conjunction with it. As to the course, a very fair arrangement would be to allow one credit each semester on the basis of one lesson per week with nine hours practice. This I would consider a rather low standard, but probably the best until the system would have a trial. Two lessons a week would bring so much better results that some incentive might be given to students who could take them and do additional hours of practice. The course should include compulsory attendance in a class Harmony and Musical Appreciation. This part of the work should be done in classes, and where access can be had to a victrola and a player-piano if possible, for the private teacher without equipment could not do the work as well in private lessons, nor would he have the time to devote to it without seriously affecting the time so necessary in working out the individual problems of technique and interpretation. The teacher of Theory and Appreciation could be made a member of the faculty, and could plan her work with the outside teachers so that the course would have a maximum of co-related effort. This course would form the basis from which examinations and tests could be given, and with the reports of the pupils' progress, and the weekly gradings which should be required of the private teacher, I believe a rather accurate summing-up of the pupil's work for the semester could be arrived at. As to the examinations, it seems to me that the plan adopted in Chelsea and Brookline, Massachusetts,

is a very feasible one. Their examinations are conducted by a Board of Examiners nominated by the New England Advisory Board (which is a committee on music from the New England Education League), and approved by the local school board. Due allowance should be made for nervousness and the examinations should be conducted under circumstances where the pupil would not be under too great a strain. There are many pupils who have worked faithfully and should have credit for it, who, if put to a severe test before a strange examining board would probably fail, even though they had put many more hours of hard work on their music than would have been required in some other study to make a credit. There is a greater disparity between what different pupils will accomplish in applied music even with the same amount of practice than in any other branch of study. Sometimes in a pupil's recital the one we have pinned great hopes on will make a very poor showing, owing to physical or temperamental reasons while the pupil with plenty of "ego" and not half as much real knowledge will "bring down the house". This would all be understood, undoubtedly, by any one eligible as examiner and taken into account. The Examiners would, no doubt, be guided in a great measure by the periodical reports of the private teacher and the work done in the Harmony and Appreciation classes, rather than the ability at a given moment to play glibly the allegra movement from some sonata. The teachers' reports should be on file and should cover thoroughly the technical work done, compositions studied and progress shown from time to time. Arrangements could probably be made with the Illinois Music Teachers' Association or the Faculty of the State University to nominate examiners for any high school. The cost to a school of this service could be reduced by having lists of available and capable men and women in different parts of the state, and whose proximity would have something to do with their being chosen.

The same topic was further discussed by Miss Minerva Hall, Normal. Following is substantially her contribution to the discussion:

Why should we credit outside study of music under private teachers during the high school period?

Music is occupying an important place in the community life of our country. Its greatest utility in the social, domestic and religious life of the people is unquestioned. The influence of the musician as a leader in our cultural development and as an educational force is fast assuming national importance.

The community has the right to expect the influence to be of the best and highest; and, by giving the music student every possible advantage, the schools will be doing their part in giving the country musicians with a broad education, and fitted for the musical leadership of our country.

To those who are making music their vocation, a broad training is difficult or impossible to attain. With the crowded curriculum, out-of-school study is almost impossible. As a result, students of music are generally compelled to lose the educational advantages of the high school, in order to keep up their music study. Some try to do both but, finding the task too hard, break down physically or become superficial in both the high school work and music study.

The high school studies are grouped into courses; college, business, and scientific. Pupils, on entering high school, are given an opportunity to elect work to prepare them for their future vocation or profession. Music students should have equal right to special preparation.

With the sympathy and hearty co-operation of my superintendent and principal, I was able to put in a Music Course in the Decatur High School, February, 1914, in which credit was given for applied music. The following may be of some interest to you:

This is a plan for accrediting in the Decatur High School of the study of music outside the High School. Credit will be given to students of voice, pianoforte, organ and instruments of the symphonic orchestra.

One hour of credit will be allowed for a course of one semester, under an approved private instructor, in which the student recites not less than thirty minutes per week and practices not less than five hours per week.

The teacher must deliver reports on the student's work to the principal of the High School every six weeks. These reports must cover the following points:

1. Number of lessons taken.
2. Average number of hours' practice a week.
3. Technical progress made by the pupil since preceding report. A detailed statement is desirable.
4. List of compositions studied by pupil, with remarks concerning the scope and quality of the work done on each composition.
5. A mark, on the plan used in the Decatur High School, showing the teacher's estimate of the standing and progress of the pupil. This mark will go on the pupil's monthly school report. The teacher's reports are to be delivered to the principal of the High School by mail or in person.

An examination will be given in January and June by the High School.

Director Erb closed the discussion and the chairman asked for an expression of opinion with regard to the size of the committee. Should it consist of three or five members? A vote was taken and it was decided to keep five.

Nominations were called for and the following people were elected:

William D. Armstrong, of Alton, 1916.

E. R. Lederman, of Centralia, 1915.

O. E. Robinson, of Chicago, 1915.

Two of the previous list remain on the committee, Assistant Professor Constance Barlow-Smith, 1916, and Mrs. Elizabeth McNair, of Mattoon, 1916. Professor Smith, Chairman.

Adjourned.

Miss Ailsie Goodrich, Secretary pro tem.

Physical Science Section

The meeting was held in the Physics Lecture Room and was presided over by Chairman C. M. Wirick, of the Crane High School, Chicago. The program proved to be of special interest to the teachers present. Professor A. P. Carman of the Physics Department read a paper which described some of the problems under investigation at the University and which at the same time pointed out the important recent developments in physics. Dean Eugene Davenport, of the College of Agriculture, followed with an interesting discussion of the production of crops, showing from the standpoint of science some of the limiting factors. Dean W. F. Rice, of Wheaton, presented a method he had developed for reducing the cost of illumination in his college, and gave also some interesting remarks on the function of the teacher in laboratory work. Mr. L. A. Pinkney discussed the results of his experiments on falling bodies, and showed a new method for determining "g." The program was concluded by the demonstration of wave motion by Dr. F. R. Watson, of the Physics Department.

T. M. Barger, Bloomington, was elected to fill the vacancy on the Executive Committee caused by dropping out of J. P. Drake.

[The papers or abstracts of them follow in the order of their presentation.]

F. R. Watson, Secretary.

Abstract of paper by Professor A. P. Carman on:

Some Recent Advances in Physics.

This paper consisted of a discussion of three lines, (1) photoelectric cells, (2) X-ray spectra, and (3) the variation of mass with velocity. In the case of the photoelectric cell the importance of discovering the velocity of the emitted electron with the frequency of the light consists in its bearing on the whole field of radiation of energy. An important application of the photoelectric cell is in photometry of very faint light sources such as those of the stars. Recent experiments by Stebbins, Kunz and Schulz have shown that the photoelectric cell promises to be the best photometer for stellar work, and Stebbins is already using it in the astronomical observatory at the University. The use of reflecting surfaces of crystals for getting X-ray spectra was described and some photoelectric plates were shown in which the spectrum lines of X-rays appear. The variation of the mass of the electron with its velocity in the cathode ray is important as giving us an electron theory of matter. Some photoelectric plates obtained in the physical laboratory of Mr. L. T. Jones showing the method by which this variation in mass with velocity is proved and meas-

ured, were shown. Other recent advances in physics were incidentally referred to.

Abstract of Dean Davenport's paper on:

The Limiting Factors in Agricultural Production.

It has become traditional with us to accept food as a gift of nature like the sunshine and the rain, seldom troubling ourselves with considering how much human exertion goes with its production, how slender is the thread on which our existence depends, how narrow at all times is the margin of supply, or what are the conditions both controllable and uncontrolloble which determine the limits of production.

We do well as individuals and as a people to inform ourselves thoroughly about so important an essential as food; whence it comes and how, what are the limitations to the supply and why, and what can be done, if anything, to insure safety at this point both now and in times to come. In the matter of food, conditions are complicated. First of all, it is not free like air, but costly, requiring as it does a full third of all the people to feed themselves and the rest of us, and demanding more than half the time and earning power of the average man who buys what his family eats. Besides the human factors of its cost there are certain natural elemental conditions that fix an absolute limit to production. It is exceedingly important, therefore, that people generally be informed at this particular point, indeed it is a matter of public policy, for some of these conditions are under control and may be improved, while others constitute permanent and national limitations to yield.

In general plants and animals live upon each other somewhat promiscuously but in the last analysis all life is limited to what plants can do, for no one of the higher animals is able to feed directly upon the crude natural supply in the atmosphere. We may regard vegetation, therefore, as fixing, quantitatively at least, the limits of life, and farming as the business of increasing and equalizing the supply.

Plants are dependent upon certain food elements,—some of which come from the air, others from the soil, and upon energy or power for combining these elements into their own definite structures, this energy coming from the sun. What definite form this structure shall take depends upon the seed.

In this way we may say that all life is determined by inheritance from its created ancestors, through the seed, using the seed in its biblical sense, but that its sustenance and prosperity are conditioned upon food, which comes from the air and the soil, upon energy, which comes from the sun through the medium of plant life, and upon certain economic considerations that must be reckoned with.

Security of racial and national life, therefore, depends upon successful management of plants in crop production, wherefore the conditions that determine yield become objects of special interest and study. They are as follows:

1. Air, which is everywhere abundant and therefore from the practical standpoint to be ignored.

2. Water, which is widespread but variable and more than any other factor limits production; controllable within but narrow limits.
3. Temperature, which is practically uncontrollable.
4. Sunlight, which is universal but variable; uncontrollable.
5. Climate, the peculiar combination of water, heat and sunlight in their various alternations and which we express under the general term, climatic conditions; practically uncontrollable.
6. Season, the climatic condition of a given crop year.
7. Fertility, universal but exceedingly variable; controllable within narrow limits.
8. Economic conditions and principles, which are controllable.
9. Seed, under control of breeding.
10. The farmer himself, under control by breeding, education and economic and social environment.
11. Educational ideals and standards of living; fully controllable.

If these conditions and limitations to yield are discussed in some detail, it will be seen how powerless is the farmer at most points and how futile are some of the plans proposed for our agricultural salvation. One of the most promising improvements lies in the education of the child, especially the children who are to become farmers. They can be taught the plain facts concerning the problems of the world's food supply. If in addition they can be inspired to follow high ideals in moral and physical life a great step will be taken in the right direction to improve the present uncertain status of our food supply. The responsibility of doing this lies largely with the teacher.

The generations come and go,—each doing the best it can with the agencies nearest at hand and largely without much thought ahead. It is the student and the teacher that tie the generations together and out of it all weave the fabric of the race.

Paper by Dean W. F. Rice, Wheaton, on:

Original Devices for Teaching Chemistry and Physics in the High School.

The subject "Original Devices" seems to invite discussion from a personal standpoint, therefore no apologies are offered for anything in this paper that may be entirely from the writer's own experience.

In the laboratories which the writer represents there is no effort at originality. Those laboratories have been in use for over fifty years. They have apparatus which can not be found figured in any recent catalog or text book, for example: a single plate electrical machine that stands six feet high and 12 feet long. There is also a complete set of apparatus for carrying out the experimental work of one of our most modern text books in college physics and in chemistry the most approved forms of apparatus are in use. A five foot shelf of apparatus catalogs from all over the United States and from six countries of Europe suggest a wide field for selection of additional equipment.

With costly laboratories, built and maintained with no regard to expense except that they shall justify their maintenance by the results they are able to

show in the increased efficiency of the manufacturing plants with which they are associated, and their methods and appratus freely offered as models to schools, as are those of the Western Electrical Co., and of other great companies employing highly trained men, what need of originating new devices in our secondary schools?

The universities and scientific societies of Europe and America have been engaged for seventy years and more in devising the most perfect and simple apparatus, in point of accuracy and of educational utility, for demonstrating every abstract or concrete principle of physical science. The results of their endeavors are freely offered to all schools for copy. Then why should a secondary school teacher of physical science seek to devise anything original in illustrative methods?

There come to our library weekly, proofsheets from the Library of Congress naming handbooks and laboratory manuals from practical teachers' shops. An increasing number of periodicals in this country and in Europe are devoted to the description of methods and apparatus for the experimenter. Our mail order houses publish columns of titles of manuals of experimental mechanics and electricity. Committees chosen from educational societies of which some of us are members are publishing the results of their attempts to devise standardized apparatus. Why, then, should the secondary teacher use his valuable time in competing with so varied a body of workers, the greater part of whom are better equipped for the work than he?

There is little honor and less profit in being the inventor of an original device in this much worked field. Very seldom shall we be able to originate a means of demonstrating a physical principle which shall have such surpassing excellence as to warrant its general adoption to the exclusion of other apparatus already in use. The construction of apparatus in the home shop should not be undertaken with a view to entering the field of production.

The writer was invited to lecture before a neighboring school a number of times recently, where a new equipment, purchased from a well known apparatus company and devised to illustrate a justly popular text book in physics had just been installed. Cheapness of construction or simplicity of design can hardly be found more consistently developed. Home construction is not warranted on account of cheapness alone.

Much of the apparatus offered in sets, much of that which has become classic through the enterprise of our favorite dealers is greatly lacking in simplicity, in durability, or in adaptability to the end for which it was designed but we need not buy in sets, we need not purchase the undesirable since we have so large a field from which to gather worthy devices. For none of these ends is the exercise of home talent and genius in the field of scientific instrument invention imperative.

The arguments for devices which may by courtesy be called original, which have no known precedent in fac simile, lies elsewhere. There are such arguments. They are numerous. They are weighty. They are founded on good psychological and economical principles.

Our laboratories are properly for the purpose of educating in physical science.

They exist because we believe them to be the best means of teaching some portions of the subjects. The methods used should be the best methods to attain the ends sought. The whole teaching process is, at its best, the mere production of the most suitable environment possible for bringing about the activities appropriate to growth in our pupils which shall culminate in the fullest and most efficient development. A science laboratory is the place, of all the school, where the pupil's whole environment is most completely determinable by the teacher, yet it is very often the scene of confusion and idleness. The trouble is that the teacher has somehow failed in making himself the principal and controlling part of the environment. He has failed to impress his personality on the work of the laboratory. The teacher should be the atmosphere of the laboratory as well as of the recitation room.

The teacher does not expect to enter the recitation room with anything undetermined about the work of the day, then he keeps in close contact with the pupil throughout the period. It is too often not so in the laboratory. If he is part of the waork at all, he either destroys its character by making of it an illustrated lecture, or he just "butts in." He ought to be master of his laboratory, not of the pupil only, but of everything there. It is important that he shall know why his apparatus behaves as it does, what the observational errors of his pupils with any given piece may reasonably be.

He ought to give a word of commendation when a little better work than usual is done, or request a redoing at once of careless work. He should not wait until next week, "after the note books are looked over," before he gives a word of needed criticism. His method should be something like that of an efficient foreman of a shop. He should be equally prepared to wear white gloves and offer the encouragement of a friendly critic when everything goes well, or to don the overalls and overhaul the whole machine when apparatus breaks down.

Those devices produced in the laboratory may be altered or repaired in the laboratory without the necessary delay of sending apparatus to the factory or the expense of duplicating pieces of infrequent use. This is an economy of time and of expense, if proper limits be observed. The question of limitations is an important one as they are a mathematical function of the teaching force. If the teacher has the ability, through original means, to exercise his personality in arriving at true teaching ends he has a powerful tool whose uses are as varied as are the personalities of the users. The plea of this paper is for personality in the laboratory.

Our teaching of physical science must not be cold-blooded. Through it the teacher has as real an avenue into the hearts, the lives, and the homes of the pupil as through the teaching of any other subject.

There is more opportunity for "local color" than in most subjects. Reasons and methods for the doing of more every day practical things are possible to be taught in the laboratory of physical science than anywhere else about the school. This demands larger resources, more ready adaptability, and more sympathetic administration than is possible in following one text book with a stereotyped laboratory manual and a set of apparatus carefully

prepared and photographed for illustrations to these books. Don't misunderstand me. I want these things also.

The teacher needs to be as much a student as his pupils, but not in the same class. The product of his study if he be a laboratory worker of any parts at all, will occasionally be a method of illustration of a device for doing something, which is better at the time than any well prepared apparatus which lacks the combining power of the nascent idea from a mind in the very act of bringing it forth.

The high school laboratory is a place for learning how to acquire knowledge as well as for acquiring it. The apparatus should become only tools for doing things, not subjects of study, to the pupils. The more closely they are fitted to the hand of the user the more effective is their use. That apparatus which the pupil sets up for himself is more truly a tool for his use and less a machine of which he is often an unwilling part. It is the mere mechanical activity that reduces the laboratory work to another phase of text-book work, with impedimenta, which the original device transforms and invigorates. The original device of the pupil satisfies the creative impulse, and should not be undervalued, though it cannot be required, and must be infrequently expected. The original device of the teacher is suggestive of the possibility of original investigation by the pupil—if it is actually an efficient device, executed in a reasonably workmanlike manner.

To illustrate what has been said, we have two illustrations here present. This is the way we escape the rigidity of a single manual. We have a very great number of these pressed board cards, cut to this size, which accomodates two pages of an ordinary manual on one side. We buy a number of copies of every manual that strikes our fancy. We cut up two of them and paste the best exercises on cards, assigning each card a number. Each teacher and each assistant has a complete copy of the book. For the larger manuals we have a larger card. The use of different methods of doing the same thing at adjoining tables enforces the principle through the pupils' own work better than the teachers' explanation could do.

This second illustration is an exercise which is going forward as a laboratory exercise in the economics of lighting. Actual inspection by the pupils is encouraged. The lighting of all our buildings is under the immediate charge of the physics department. Current is purchased from the Western United Gas and Electric Co. Each building has its own meter. Certain students of the College classes are given charge of the lamps in different buildings. The Academy Students might be given this task if thought best. It is well within their capacity. This chart tells its own story of some hundreds of dollars of saving. Each month's electricity bill gives it new interest. This board is an ocular illustration of the lighting power of various sorts of lamps now used and of those which have been displaced. Different combinations of lamps are inserted for the preparation of a chart of wattage, voltage, amperage, and candle power of the various lamps. The tests are made by the attachment of the various meters directly to the board. This is intended to introduce Ohm's law well within the pupil's environment. He applies it practically and may apply it as frequently again as he chooses. It is one of the devices to make the laboratory

a part of the pupil's life. We claim no originality for it, though we have never seen it in use elsewhere.

Mr. L. A. Pinkney's presentation of:

An Apparatus for the Determination of "g"

The first experiments of value that were made in the investigation of the laws of falling bodies were those of Galileo. It was he who gave us the historic formula $s=\frac{1}{2}gt^2$, and who came to the conclusion that all bodies, neglecting the resistance of the air, fall in the same time irrespective of their size and weight. Since his time, various types of apparatus have been devised to show the laws of falling bodies. Among them the Atwood's machine has come down to us as a classic.

There are several objections, however, to the Atwood's machine. It is not good pedagogically, since it does not deal with a freely falling body. Corrections for friction and the moment of inertia of the wheel must be made in order to obtain satisfactory results. Difficulty is also experienced in the accurate measurement of time. In a new type of Atwood's machine, manufactured by the Cussons Apparatus Company of London, these difficulties have been largely overcome.

In any apparatus which makes use of the direct fall of a body, two important problems must be solved; first, to begin the time measurement simultaneously with the motion of the falling body, and second, to measure accurately the small time interval involved. The method usually employed in the first case is to use an electromagnetic release. This is inaccurate, since it is impossible to eliminate entirely the retardation produced by the magnet. In the second case, a pendulum is so adjusted that the time of fall is equal to a quarter of the pendulum period. This method requires considerable patience in making the adjustment.

Under the direction of Professor Carman, an apparatus has been devised, making use of a fuse-wire release. The fuse wires (one ampere) are connected in series and blown by an e. m. f. of 110 volts. For the time measurement, a pendulum is used, but instead of adjusting it for a quarter period, the ball is allowed to strike where it will, marking its position by means of a carbon paper on another slip of paper suitably placed on a rectangular block of wood which forms the bob of the pendulum. If the ball strikes at the center of the block, then the time is equal to a quarter period. If it does not strike at the center, the distance x between the center and the point marked by the ball can be measured. The amplitude, r, is also measured and the ratio $\frac{x}{r}$ gives the cosine of the angle which represents that portion of the path through which the pendulum has traveled during the time of fall. This is true when the pendulum's motion is regarded as uniform circular motion through a circumference, whose radius is equal to the amplitude r. The number of degrees corresponding to the ratio $\frac{x}{r}$ over 360° represents the fractional part of the period of the pendulum that is taken for the ball to fall. The distance fallen, S, can be measured

and then the values for t and S can be substituted in the formula $S=\frac{1}{2}gt^2$ and "g" calculated.

By a series of determinations with this apparatus, using an amplitude of about 6 cm. for the pendulum, and a ball of about 1.5 cm. diameter, and distance fallen varying from 80 cm. to 130 cm., it was found that consistent results for the value of "g" were given within an error of about .5%.

Social Science Section

This Section met in Room 308, Lincoln Hall. Dr. J. W. Garner presided over the Morning Session; Dr. Cole over the Afternoon Session.

This meeting was probably the most interesting that the Section has ever held. The attendance was large throughout the day. All the papers and discussions were presented in the way they were provided for in the official program. The papers for the most part were well prepared and were well met by the discussions that followed. All available time was taken up by others in commenting on or criticising the various papers and discussions. There was no lack of interest at any time.

Miss Frances M. Morehouse, of the Normal University, Normal, opened the program with a paper on "Some Criticisms on the Customary Form of the History Recitation." Her paper here follows in full:

The title given this paper in the program indicates that it is far more destructive than it really is. The title was furnished, in fact, by an obliging committee because the author failed to send in her title before the program went to press; and it represents a very good guess as well as a skilful generalization.

However, my criticisms of the recitation in its usual forms may be summarized very briefly; and after that, I wish to consider the possibilities of a method of history teaching which has received much off-hand condemnation, but which has been neither carefully formulated with reference to secondary school conditions, nor adequately tested by trained and able teachers.

Concerning the usual form of history recitation, I think it may be said that under the direction of teachers adequately prepared, the discussion and recitation of a unit of study, prepared from a text, usually with some supplementary reading from standard histories, or occasionally a reference to sources, is fairly satisfactory so far as the recitation itself is concerned. Our American children, when caught early and subjected to the proper kind of training, really develop a very praiseworthy facility in reciting. Brought up in the nurture and admonition of the topical method, they are usually able, when they reach the high school, to give a very intelligent account of what

they have read. Moreover, they are not slow in discussion, for they are trained to express their opinions long before those opinions begin to be based upon any adequate knowledge of facts. As a rule they are quite clever enough at thinking out the small problems which good teachers are always setting for children to solve. In short, the recitation is not bad, other things being equal. The trouble with our history work is that, while we have no definite information upon the subject, we feel that the work does not make for permanency. From the standpoint of the recitation it may pass muster, but from the standpoint of the final personal equipment of the high school graduate it falls short. Too many fourth year high school pupils, having passed through the Greek history class in first or second year, stumble over allusions to Demosthenes and Pindar in their fourth year English. Too many high school graduates of a few years' standing have forgotten, when the question comes up in a political discussion, whether it was Thomas or Oliver Cromwell who "so treated his king." The ultimate effectiveness of present methods is, apparently, the one greatest question confronting students of history method; and in the discussion which follows, it is this ultimate effectiveness, rather than the immediate end of a good showing in recitations, which is regarded as the true aim of history teaching, and the criterion by which methods are to be judged.

The Attitude of Authorities

Those who "teach teachers to teach" have condemned few things more wholeheartedly and consistently than they have condemned the use of the lecture method in secondary schools. College graduates going out to their first positions are especially warned to beware of the terrible lecture method. Village principals send to headquarters heartrending accounts of the ravages wrought in their schools by other college graduates who, unwarned of the sinister lecture method, have blithely transplanted it from its native habitat to the secondary school, where it has such frightful results. An examination of the very limited literature upon history method shows that writers either consider it altogether unworthy of notice, or condemn it as a matter of course. Bourne mentions its use in Germany, and says that there its success depends upon the individual teacher. In the Report of the Committee of Seven (1903) Prof. Lucy Salmon describes the German method, saying that it secures "concentration of attention, alertness of mind, quickness of apprehension, and an enviable ability to grasp the salient features of a subject considered as a whole." But, she avers, it fails to give certain results deemed necessary in American schools—especially the satisfaction of curiosity, and the development of initiative and judgment. The chapter on method, however, does not mention the lecture method; nor does Hartwell, in his little manual on The Teaching of History (which contains more practical suggestions than any other book that I have found), nor the University of Indiana Report of 1909, refer to this way of teaching in any manner. Arnold in his *School and Class Management,* (page 105) briefly pays his respects to it by saying, rather dogmatically, that it is "a common form of verbalism."

All this silence can not be because no one ever heard of the use of the lecture method in high schools. One is driven to the conclusion that it must be something quite too disgraceful to talk about; something that no authority on the teaching of history would deign to mention. Perhaps the practical results of its use, when transferred bodily by ingenuous imitators from college halls to the secondary school, have really been so bad as to warrant the present low estate of the lecture method in high schools. To attempt to teach high school boys and girls in the same way in which college professors instruct their classes is manifestly a very foolish proceeding. No one could be guilty of it, save those bachelors of arts who, without any saving salt of pedagogy to their credit, enter our high schools every fall to serve up knowledge to their younger brothers and sisters. Plainly, the lecture method has not justified itself as a legitimate way of teaching history in high schools.

An Unbiased Inquiry

But on the other hand, a lecture method for secondary schools has never been systematically worked out—at least, not by anyone who has given the results of his experimentation to the public. The college lecture method in high schools has been universally and rightly condemned, but a high school lecture method has never, so far as I know, been given a fair and extended trial. This paper does not champion such a method, for it is not yet proved a good one; but it will attempt to set forth some possible arguments for a sane and appropriate adaptation of the lecture to the needs and abilities of high school students. It attempts to make an unbiased inquiry into the outcomes desired from history instruction, into the means that will secure these outcomes, and into the possibilities of the lecture method, in using these means. Lastly, it will suggest some experiments that will enable teachers to test their own ability to use this method in classroom work.

Outcomes

It is assumed that the outcomes of history instruction in high schools are fairly agreed upon. They include a conventional knowledge of the past, sufficient to enable one to sustain one's social position—to understand what one's neighbors say, and to avoid making egregious blunders; an interpretive knowledge of the past, enabling one to understand something of the nature of the institutions, customs and ideals that one encounters in today's world; a socializing knowledge of the past, giving one a sympathetic understanding of peoples and movements that, judged only in the light of our own time, can hardly appeal to our interest or our support; a preparation for the further study of history, either formally, in college courses, or informally through any of the countless means of self-culture; and, by far most important of all, an emotional stimulus to social service. This last, the highest and the ultimate aim of instruction in history, we hope may find flower in efforts for good government, in effective peace movements, in better industrial conditions, in higher moral standards in public and private affairs, in wisely managed social effort, in charities that do not blunder.

Whether the topics and the relative emphasis usually given them are the ones best adapted to the gaining of these ends or not, it is plain that in order to secure them at all the subject-matter must become a very real part of the mental equipment of the students. It must be well learned if it is to be of value. Therefore the process of realizing the outcomes which are the goal of history study is important; and out of this importance of the process grows the necessity of good method in teaching. Now the means used by teachers in the history-learning process may be very briefly summarized as follows:

1. The stimulation of the imagination to the picturing-point; the securing of a vivid mental impression of the events or movements included in any given unit of study.
2. The organization of these concepts into correctly constructed systems, so securing historical continuity, with regard to causal relations, to chronology, and to the geographical location of events.
3. Memorization of these systems of mental pictures, these ideas.

History proper, as we understand it, does not go farther than this, although the history teacher may lead his students to generalize and moralize as much as he thinks profitable. But history is an account of facts, and when those facts have been as correctly and fully learned as is suitable, the immediate end of history-teaching has been reached. The outcomes of good history-learning, already named, should then be attainable.

A Reasonable Lecture Method for High Schools

With these prospective outcomes, then, and with a process of learning which involves imagination, organization, and memorization, in mind, let us inquire whether there may be at least a theoretical justification for a lecture method in high school history classes. Since the recitation can never be dispensed with in the high school, and since the comparatively untrained powers of young people of this age require constant review ,drill, test and correction, it is plain that the daily lecture must be combined with daily recitation. Therefore the lecture must be shorter and less comprehensive than that of the college instructor, who depends upon occasional written tests as a check upon the efficiency of his instruction; and who has, or at least usually fells less moral obligation to insure a certain minimum attainment in all the members of his class. The problematic nature of the work must not be forgotten, and a sensible use must be found for a good text in connection with the lectures; for the value of our excellent texts is conceded by all who appreciate the working conditions in American schools. Considering these things, the following adaptation of the lecture method is suggested as a prcticable one:

The recitation period is divided into two approximately equal parts. In the second half the instructor tells the story of the advance lesson for the morrow, and gives an assignment of reading to cover it. He does not give all the details, nor does he necessarily interpret the facts for his pupils. His aim is rather to give a "big" view, a comprehension of the entire unit of advance study. Details for the most part should be left untouched, but sufficiently indicated to give many stimuli for careful reading. Besides this assignment of details to be determined, there are many lessons which are capable

of an organization upon some other basis than the one used by the teacher. Suppose, for instance, that the instructor has described the events of the early years of the reign of Charles I of England as a struggle between different regilious sects. The class may be required, after reading over again the events as narrated in the text or a standard history, to reorganize those events as an epoch of parliamentary history.

Again, where there is a difference of opinion as to actual facts, at least part of the class should be sent to a differing authority. Incidentally this comparison of authorities is worth much in developing an attitude of openmindedness and suspended judgment.

In the first half of the subsequent day's history period, the class is required to recite upon the unit assigned. There should be thorough discussion, test, and drill where it is needed. The next lesson is similarly covered in lecture during the latter part of the hour.

The difference between a lecture method and one entailing a careful topical assignment has sometimes been said to be immaterial. There is, however, a real and intrinsic difference. In the assignment, however long and detailed, the problem of discovering something unknown, through the student's own activity, is uppermost. Only such information is given as may be necessary to enable the pupil to discover for himself the main facts in the advance lesson. But in the lecture the main facts are told by the instructor, and minor points only are left to be discovered by the student's investigation. The lecture is affirmative, the assignment interrogative. The lecture assumes the ability and office of the teacher to teach; the assignment refers the student to the authority of a book.

We have next to inquire the degree to which such a method as that just outlined, might be expected to secure the ends in view. In the first place, the *viva voce* presentation gives an opportunity for vivid story-telling. The imagination is aroused by the spoken account as it can rarely be by a printed account. Most teachers have observed the sureness with which their casual remarks return to them on test-papers and in review recitations, when the text-book's most eloquent sentence is forgotten. This is because the teacher's remark fulfils the psychological conditions for memorization, as the printed statement does not. The question of the increase in the efficiency of history instruction is mainly a question of two specific gains; first, the improvement of memorization; second, the increase of the emotional content of the material treated, resulting in higher ideals and more effective stimuli to action. Relative to memorization, James says (Psychology, abridged, 1892, pg. 298) that all improvement of memory consists "in the improvement of one's *habitual methods of recording facts.*" He gives three sets of methods—the *mechanical,* which "consist in the intensification, prolongation, and repetition of the impression to be remembered;—and goes on to commend those methods of teaching which utilize more than one sense in gaining impressions; the *judicious,* which depend on analysis and rational systematization, and the ingenious. It is worth while to remember that memorization is mental habit-building, its success depending upon the vividness of the thought-habit, and the frequency of its repetition. Notice that three methods emphasized by James are served

in the lecture method as outlined—the vivid, emotionalized or clarified presentation by word of mouth, giving the maximally effective initiation; the repetition, secured by the triple presentation in lecture, text, and recitation; and the rational systematization which the instructor should and can give.

In the second step of the history-learning process, that of organizing the concepts formed into correct systems, into correct ideas the student of untrained and immature judgment needs more help than in either the imaging or the memorizing of data. There is an important distinction between the organization possible to the teacher directly in charge of a given course, and that of the average textbook. That of the textbook is progressive and cumulative; that of the teacher, who knows exactly what he should and wants to cover in his course, may be, and should be, successively detailed. The lack of working-in is perhaps the one greatest reason for the ineffectiveness of our history instruction. I mean by working-in, the process of passing successively from larger to smaller units in the view given to the students. That is to say, it is through analysis rather than synthesis that clear conceptions of the nature of past events come to the learner. Historical synthesis is the business of the trained philosopher in the historical field; it is for the learner to see clearly what has happened, as interpreted by the best thought obtainable, rather than to attempt to build up for himself a conclusion of the course and meaning of events, from his first simple study of those events. My own experience has been that a beginner understands any course better when the general trend of events, the chief characteristics of the successive periods treated, and the final result of the changes that it is proposed to study, are at the beginning briefly but clearly indicated. For instance, suppose that a class is to spend a semester in studying the history of England. The lessons as they come will be attacked in a much more intelligent way, if at the beginning the progress of England from a condition of barbarism, through many stages of successively higher culture, to her present estate, be clearly set forth in outline. It is not necessary, as many seem to think, that the succession of events be studied with the same absolute ignorance of what is to come next, as blinded the eyes of those who lived those events. It is not the purpose of history study to relive the events of the past as the participants of those events lived them; but to see them, objectively, placed properly in as large a section of their true fields of connected events and circumstances, as can be made conscious to the student. It is to give to young people of limited knowledge, this setting for the panorama of events, that the prelimning of the course of history by eras and periods, each with its briefly indicated events, tendencies, and results, is given by the instructor. It can not be read, but it can be told. Visualized by means of diagrams and outlines on the board, it is not beyond the comprehension of the average intelligent high school boy or girl; although beyond doubt it is beyond the ability of a great many history teachers to give—for the very reason that they have never approached to adequate preparation for high school history, they will not thrill to the presentation of such an epic. Youth knows none of that slavery to small things which years of academic routine breed in older minds. Flint to our steel, youth responds to the pageantry of events with a quickness of imagination which we remember in ourselves in

years gone—a quickness that waits the touch of worthy tales and big conceptions.

Aside from the advantage in analysis which the lecture method gives, there is afforded by it a facility of illustration by means of visualized outlines, and diagramatic representations, which the printed page rarely affords. The value of the visualized organization, the chalk-talk, the frequent appeal to the eye, can not be overestimated. Conceptions of chronological relationship are especially clear when events can be indicated on a blackboard with a permanent time-scale marked upon it. I doubt very much if the average adolescent student has any real conception of time-relations without some scheme of mental picturing. Probably few mature minds really image anything so abstract as the passing of time, without in some way calling up a series of mental pictures in the effort to think the idea. The teacher's story gains in vividness from the ready recourse to board and chart, always close at hand.

Memory

Memorization, the third step in the learning process, is materially helped in the double presentation by the voice and by the printed page, before the class discussion. A stronger initial impression can be made by an oral presentation than is usually given by even the most skilful text-book account; for no literary skill can, day in and day out, equal the living story presented by a speaking voice, and colored by that always-changing connotative commentary which passing events and the personality of the class dictates. Moreover, the problematic nature of the assignment is not obscured by the need of mastering elementary facts; these are covered in the lecture and as a problem with an immediate background is more concrete and interesting than one with a remoter background, there is greater motivation for the solution of the problems of detail and relation than there is when these must be superimposed upon the primary problem of ground facts.

Necessary Conditions

To summarize: So far as theoretical justification is concerned, the lecture method may be said to present a case which is at least strong enough to warrant careful and extensive trial. The objections urged are, usually, that this method fails to develop initiative in students; that it substitutes the interpretation of he individual teacher for that of a person who, having "writ a book," must be an authority; that it takes too much time; that it robs the students of their prerogative, fondly cherished for them by American educators, of "expressing themselves"—that is, of talking most of the time. I shall not answer these objections categorically; for the double reason that my time is limited, and that I have no wish to steal the thunder of the people who may wish to discuss this paper. It may be remarked that the objections are grounded in pedagogical principles, that are ancient and respectable if not sound; and to deny them would launch one on a sea of iconoclasm that falls outside the limits of this paper.

There are two conditions, not now generally holding in our secondary schools, which are indispensable for the success of such a method as that

outlined. They are, however, conditions for which all history teachers hope, irrespective of the method of instruction employed. One is, that the time allotted to history be long enough to enable the instructor to assign comparatively short units. No such travesty as a twelve-week's course, supposed to cover the history of England or of the United States could be committed, were such a method in vogue. It requires time for slow and thorough work. The time given to history and other social sciences in American high schools is, however, increasing steadily as their importance is increasingly recognized.

A second condition is that the teacher who essays to teach history,—and the special characteristic of this method is that the teacher does teach—must be well-prepared, sure of himself, sure of the confiidence of students and patrons and of his chief in the school system. It is no method for half-prepared teachers. Its general use would be absolutely incongruous with the type of history teacher employed in schools wherein the social sciences are divided up among any teachers who may have some spare time. Inexperienced young girls, trying out a possible ability to teach through the friendly toleration of an easy-going school board, could not qualify for it. No calamity could be greater than that it should be adopted for use in any school without the most painstaking selection of the instructor by whom it should be used, for qualities of real scholarship, of personal dignity, of imaginative sympathy with all sorts of people of moral worth. It appears to the writer in the light of an ideal, to be realized with comparative ease in many schools, where the history instruction is already in the hands of trained and enthusiastic men and women, entirely capable of realizing the greater possibilities which seem to him to inhere in this way of teaching; and to become practicable in those other schools, laboring under the disadvantage of less fortunate conditions, when the conditions of adequate courses and well-trained instructors are given.

Experimentation

I do not doubt that there are many here who have used the lecture occasionally—to supply some omission in the text, to correct a false impression, to prepare the class for some special work in the course—an indulgence in which the real student takes real delight. I am very anxious to know with what results you have dared to use the proscribed lecture method. I am desirous of gathering together such data as I may, with regard to the experience of teachers in its use. Also, I want to know what modifications and adaptations have been found necessary or advantageous, in high school practice. If the experience of every one of us could be brought together, collated, and reported in such manner as easily to be understood, we should all of us feel, I am assured, that something in the direction of a definite and correct and maximally effeective history method for American high schools, was being developed. I ask your coöperation in doing this; or at least in making a start at it. I ask, first, that you all freely give us your experience and opinions in the general discussion which will follow Mr. Trams' discussion of this paper; and, second, that you report to me the results of such of the experiments which I am going to suggest, as you may find it practicable to make. I want to know of your fail-

ures as well as of your successes; for it is well known that the advocate of a theory is not an altogether reliable experimenter.

1. The full and explanatory assignment is a step in the direction of a high school lecture method. Note the results in oral recitations following: (*a*) A mere page assignment in the text. (*b*) A topical assignment, with problems clearly indicated, covering, say, five minutes. (*c*) A topical assignment, with a general explanation of the most important points in the advance lesson, details for study being clearly indicated, and covering ten to fifteen minutes. (*d*) The telling of the story of the advance lesson as vividly as possible, mentioning further points to be settled by study, and requiring additional reading for the purpose of fixing the lesson. Time, half the class period.

2. After using each of these methods for a fortnight or more, test by written quizes as a check on their comparative worth in memorization. Be sure the amount of drill given is as nearly equal as possible.

3. Divide a class into two sections, as nearly equal in numbers, preparation and ability as possible. Use the high school lecture method with one and the text-book method with the other. Test on daily recitations and examinations. Keep the drill equal.

4. At the end of the year, or after a lapse of several months, test again to ascertain the value of the two methods with regard to permanency of retention.

5. Please report results to Miss Frances Morehouse, Normal, Illinois.

Principal A. F. Trams, of Bridgeport, led in the discussion. He spoke substantially as follows:

I might begin my discussion by saying "Amen". But before saying Amen I should like to ask how long we must wait before this Utopian desire of "long periods and well prepared teachers" shall obtain? And how soon will the unbiased inquiry bring results? When may we expect (here I quote from the speaker) "conventional, interpretive, socializing and preparatory knowledge of history" to function in "emotional stimulus to altruistic effort in government, peace propaganda, industry, charity and missions, etc.?"

But meanwhile. What shall we do meanwhile?

That is the tormenting, pragmatic thought that will not down, but rises like Banquo's ghost at all our Utopian feasts.

The means, according to the plan that has been outlined, of realizing the desired results just mentioned is a "reasonable and practicable High School lecture method." This method is to consist of lectures on advance work, with assignments of reading on the subject matter contained in the lecture. These reading assignments are to be varied. The teacher is to designate the details to be fixed; or she is to assign matter of reorganization upon a basis other than that used by the teacher. If she wishes to vary still more, she may give another assignment by another authority. The lecture and the assignment are to be thoroughly discussed and tested in class the next day. To carry this out successfully the advocate of the lecture method would have good long periods and well prepared teachers. So far, so good. But whence the long periods? How produced the well prepared teachers? At present we have neither. An over-

crowded curriculum precludes the one; and universities fail to produce the other.

This class-room recitation that we are discussing is a present condition—not a theoretical possibility. And under present conditions, I think the lecture method in high schools is neither reasonable nor practicable. I for one, do not see by what route of reasoning I can arrive at a conviction that high school pupils will give back in the next day's discussion anything more than a garbeled rehash of what was told them the day before. And a test at the end of a week would develop about the same sort of a result that Snap-shot Harry gets in the funny page of the Chicago Herald. You who are listening, how many times have you been paralyzed by some pet phrase of yours flung back at you in a test paper, but so out of its original setting that you had to bump your nose on the desk, or sit down on a tack, or do something to convince you that you were awake and had read aright. That's when you feel like eloping with a moving picture John Bunny hero. You who have never tried the lecture method, do so. You will get as many thrills as you have pet phrases. They'll all come back to you, plus.

But granting its reasonableness, what shall we say of its practicability? How about the equipment for such a method? How many high schools, where history is now taught, have the necessary library facilities? Among the one out of a hundred teachers now qualified, intellectually, to undertake the work, how many could make history more vivid to the pupil than it would be if he read it for himself? How many could keep out of a lecture personal philosophy, personal bias? It is the personal element that makes a lecture vivid. And it is mere nonsense to say that we should simply describe things as they were, for that is the very question: How were they? No interpretation, be it history or any other subject, is free from the personal equation. Why, then, should we expect the content of the lecture method to be free from the personal element? It may be, of course, that high school teachers in history classes are more vivid and less personal than my experience has led me to believe. But I have grave doubts. And my best judgment leads me to believe that this lecture method is a counsel of perfection too far in the future to be practicable at present.

And what would become of the universities if this lecture method were carried out to its greatest efficiency? Also, what of the professors for whom the university exists? They would have no excuse for being. Pupils would learn all the history necessary in the high school, and the professor would be minus a position. He might, of course, go to Europe just now, and make history instead of trying to teach it to a few on lecture method bent. But that could last only until the war is over. After that, oblivion.

But levity aside. The formal lecture, as a regular means of instruction should have no place in the high school, no matter what the subject of instruction may be. Personal experience, daily observation, and considerable reading for and against, have convinced me that invariably the lecture first liquefies in vague impresions, and then evaporates in "just talk". And just talk is not what teachers are paid for. The funnel-method of instruction is a thing that we once believed in. Not so now. But even if we have not discarded it entire-

ly, we at least have reversed the funnel. But more than that, I believe that "a subject to the development of which the pupil is not himself always contributing soon ceases to excite his interest." I find this so true that several times a year it becomes necessary to consider this matter with my teachers in some of our bi-weekly talk-festivals. Too often it develops that in conducting the recitation, the teacher has been active and the pupil passive, the teacher has been doing the reciting, the pupil has been listening. That sort of condition, we know, spells failure so far as the aim of the class period is concerned.

This hour that pupils and teacher are together should be given to colaboration. The pupils should ask at least as many questions as the teacher. It should be a constant give and take affair. And I believe that about the most wholesome effect upon our recitation period is the legitimate questions asked by pupils upon topics of the day. It usually results in a harmless, but successful, operation upon the teacher for a sort of intellectual sclerosis, with which many of us are afflicted.

In our school, down in Southern Illinois, we are not at all afraid to let one of the pupils take charge of the class while the teacher identifies himself with the class-group. Questions are put to him by the pupil-teacher just as if he were a pupil. The result upon teacher and pupil, is most satisfying. Try it. Watch the interest of the class grow until it overflows and extends into the class of the teacher to whom the pupils next report. We do this sort of thing in Latin, Civics, English and other classes. The experiment has worked best in my history classes, and my Civics. It's a splendid tonic for the teacher; one of the best cures for "lotus eaters" that I know of.

Again, we are not afraid to use magazines in our work. "The World's Work", "The Outlook", "Review of Reviews", "The Independent", "The Scientific American", and the "Literary Digest", are all good reading. And I am glad that there are teachers who are not willing to sweat in the tread-mill of a uniform course of study, but who are willing to undertake the harder, but infinitely more interesting and vital work of directing pupils to read intelligently matter pertaining to our present political, social, and economic welfare. To these hopeful heretics and willing workers, we owe much. I know of nothing that is better for our history classes than a systematic study of some good magazine.

Just because scholastic authority has prescribed text books as fit food for the uneducated is not proof conclusive that the sort of nourishment so obtained is the best food for education. Even our present standard of education may be amenable to change. We don't always hold the same ideals. It may be that our present theory of teaching will in time be classed with the theory of infant damnation, unventilated sleeping rooms, and the divine right of kings. In fact I think there are those in every community, even now, who are engaged upon some such a classification.

We hear much to-day about the desirability of a closer relation between the school and the home. In my civics class and in my English class this desire is approaching satisfaction through our study of the Literary Digest. One boy told me he paralyzed his family at the dinner table the other day by explaining the "War Tax", and the effect that the European conflict would have

upon the rate of interest upon permanent investments. "You bet I let them know we were up on such things," he said. This is much. If a school is to fit us for life, let's talk about live things while we're getting fitted. Let us abolish the ether cone, cease talking about "Text-book", "Topical" „Source", and "Lecture" methods; look ourselves full in the face, accept the accusation that we are more concerned about perpetuating the machinery of education than we are about the welfare of the child upon whom the machinery operates; and reform ourselves, our schools, and our methods altogether.

In support of my own attitude let me quote a paragraph from J. N. Larned. He says:

"I assume that the general purpose and aim of the work done in our school rooms is not to stock the minds of the young with a provision of knowledge, in any department, that will suffice them for their lives; but rather to introduce them to knowledge,—prepare them to be receptive of it,—acquaint them with its attractions and its uses,—put them in the way of pursunig the acquisition of it through later life, and familiarize them with the paths of that pursuit. This must be so in the matter of history, if in nothing else. The service of the schools in this matter must simply be such as to evoke the appetite of its pupils for historical reading, and to prepare judgment and taste for a right choice of writers and books."

So much for Mr. Larned's idea of what history teaching in the schools should purpose to do. I believe he is right. I also believe that none of the methods now generally used, nor the one advocated, will adequately accomplish that purpose. I should like to suggest, as a substitute in some cases, as an aid in others, a sort of free excursion into the fields of history. I should want to use a good brief text as a guide, and all the master story tellers of history (I emphasize the word story) together with modern magazines, to be my traveling companions. I believe that the journey would be enjoyable and profitable.

In the general discussion that followed, Miss Ullrich, of New Trier, asserted that the History teachers of the northern part of the state are very much alive and are doing efficient teaching. The History pupils, she asserted, were as good as could be found anywhere. She suggested a supervision of study whereby the principal facts of the lesson could be brought out. Professor L. M. Larson thought that the success of the recitation depends on the teacher. Some teachers have success with one method, some with another.

"Some Observations on the Preparation of Students Entering the Elementary Courses of History at the University of Illinois" was the subject of the paper presented by Elizabeth P. Brush, of the University. The speaker stated some conditions for observation in Freshmen classes at the University and asserted as her opinion that the quality and kind of instruction given in the preparatory schools was far more important than the number of courses taken or offered.

The kind of work done in college depends on the mental habits taught or encouraged in the high schools. Miss Brush quoted from statistics that she had taken in her History classes at the University to show that pupils who are doing unsatisfactory work can eventually turn out a fair quality of work if they will really work hard, not merely spend so many hours on assigned readings, and will think clearly.

Following is a brief abstract of Miss Brush's paper:

During several years of teaching university freshmen in our course in general European history, I have had abundant opportunity to observe the work of students and to talk with them, and I have reached some fairly definite conclusions with regard to certain rather common defects in their high school preparation.

The students in our course in any particular year may be divided, to use a very simple classification, into satisfactory and unsatisfactory students. This is not a stationary classification. Many who are unsatisfactory at the beginning of the year develop into satisfactory students in the course of a few weeks or months. I spend an undue amount of time in the effort to reduce the numbers of the unsatisfactory class, and it is necessary to do so, for the whole class is hampered so long as a considerable percentage of it is unable to do satisfactory work.

For the purpose of this discussion I am disregarding the class of students, happily small, who are disqualified by the meagerness of their mental endowment. The deficiencies of the much larger class who have sufficient mental ability but are inadequately trained for university work in history, are to be attributed, I believe, in large measure, to the kind of instruction they have previously received not only in history but in other subjects. They have not been equipped with good mental habits. On the contrary many of them have developed habits so slovenly that we find it impossible to correct them, although we spend most of our energy during the first part of the year in the attempt.

The habits of fundamental importance to a student are perhaps those of hard work and of clear thinking. Students often tell me that they have never had to work hard in school before, and their written and oral work too often testifies to the fact they have never been held to clear, accurate, systematic thinking. Their first year in college, difficult at best because of the inevitable adjustments to new liberties and new responsibilities, is made doubly hard in that they must acquire what the high school has already given their more fortunate fellows. They must learn *how to study*.

The encouraging aspect of this matter is that year by year the situation improves. The class of students who do not know the meaning of hard work, who have never learned to think clearly, is appreciably smaller now than it was four years ago. Wih a greater percentage of our class trained to habits of industry and accuracy we are doing more advanced work than we could do four years ago. But the number deficient in this sort of training is still far too large and I look to the high school teacher as the logical one to face the problem.

Mr. Arno Bratten opened the discussion of the topic presented by Miss Brush. He spoke as follows:

As a basis for discussing the preparation of high school graduates to do good work in college history, it may be of some value to state what the high school history course should do for pupils by way of general training. What, then, are the things which the teaching of history should give to the pupil as permanent possessions, and which may be used with equal effect either in the activities of life outside of school, or in the pursuance of more advanced work in the social sciences? First, it should give to him a reasonably extensive and accurate knowledge of useful history facts; second, it should create in him a real interest in man as a political and social being; third, it should develop in him the true student attitude; and, fourth, it should develop in him the ability to do an assigned task in any field of the social sciences.

No doubt, all will accept these as important possible contributions of the high school history course. But there may be no such agreement concerning the degree to which high school teachers are successful in their attempts to make these contributions the permanent possessions of their pupils. So far as the first point is concerned, if we are to judge by the estimate which high school teachers of history place upon their efforts, their pupils are well supplied with facts. An examination of grade books would show that a high percentage of pupils make their credits in history. A study of the grade cards of eighy-six freshmen taking history last year at the University of Illinois, shows that their teachers of history in high school rated them higher, on the average, than did their teachers of any other subject.

On the other hand, if we are to judge of their stock of knowledge by the records made by high school graduates taking examinations for entrance to some of our colleges, we are forced to admit that our estimate of it has been very much exaggerated. A discussion in the History Teachers' Magazine for November, 1913, shows that only 38.1 per cent of the 1862 boys and girls taking an entrance examination, received a rating of 60 or over. Evidently something is seriously wrong when no better results are obtained; and we are forced to admit that the boys and girls were not wholly responsible for the defects, for the pupils whose teachers had reported as having had "full and satisfactory preparation", made but little better showing than the entire group representing all degrees of—*lack* of preparation. Of those reported as fully and satisfactorily prepared in history, only 42.5 per cent received a rating of 60 or over. Therefore, the history knowledge possessed by our pupils seems to diminish rapidly between those two widely-different ordeals—June graduation and entrance examination.

It is of course not possible to measure definitely the results of our efforts to create in our pupils a real interest in man as a political and social being. Such results are necessarily remote in their application; we cannot immediately check them up as we can the results of our efforts to teach a new principle in algebra, or the spelling of twenty new words. But, reasoning by analogy from the results of our efforts along other lines of history endeavor, it is safe to assume that

we are not revolutionizing the political or social institutions of the world to any marked degree!

But when we come to consider the results of our efforts to make of our pupils real students, and to develop in them the ability to do an assigned task in any of the social sciences, the case is somewhat different. True, we cannot even here fully determine the extent to which we are responsible for their successes or failures, but there are more or less definite means of determining an approximate measure of such success.

The means with which we are now especially concerned, is the pupil's ability to make a creditable showing in his history work in college. With this in mind, I again call attention to the group of freshmen mentioned before, whose average in history was higher than in any other subject taken in high school. This average was 87.07, but the average of the same group of students in freshman college history is 77.36. The full significance of this fact is not seen until we discover that this average in history is lower than the average made in any other subject taken by this group of pupils. When high school teachers of history rate their pupils higher, and when college teachers of history rate the same pupils lower than they are rated by teachers of any other subject, it is fully apparent that something is wrong. Either the ideals of teachers of history in high school and college are radically different, or there are just as striking differences in the amount of subject matter presented, and in the methods of instruction used in the two types of schools. Perhaps there is some truth in both inferences; but the facts indicate that most of the trouble is due to the reason last suggested.

The most important, as well as the most difficult, thing that can be done in this discussion, is to determine why teachers of history in high schools are not securing better results. Then, what are the most serious faults of history teaching in the high school?

First of all much of the failure is due to poor teaching. This is one of the tritest of trite statements. However, as much as we hear about poor history teaching, we do not always, nor even usually, hear of it in its full significance. For one, I do not believe that the poor results obtained in high school history, are all due to poor teaching on the part of the teachers of high school history. Any one at all familiar with history teaching in the grades below high school, knows that the efforts there are just as ill-directed, and the results just as disappointing as they possibly could be in the high school.

I trust that I may not be misunderstood here. I am not attempting to shift nor to evade responsibility, but merely to state the facts as they really exist. Neither is it any part of my duty to discuss the mistakes made in teaching grade history, but it is perhaps in order to say that the great majority of pupils come into the high school with no ideals of study and with no real interest in history. Of course, this does not excuse us entirely for sending them on into college in the same condition; but it does seem that any one acquainted with the psychology underlying the teaching of children in the grades, must confess that such conditions partially excuse us, and go far toward explaining the poor results obtained by us in our efforts to teach history in the high school. Does anyone, who has attempted the difficult task, doubt the statement that

more real skill is required to arouse and maintain real interest in the average Ancient History class than in any other class in the high school?

Nor do I believe that poor teaching of history in grades and high school is sufficient wholly to explain the poor showing of our history students. Miserably poor teaching of another subject is largely responsible for it, and that subject is English. Surely one of the fair measures of the teacher's success, is the pupil's ability to use his knowledge in the general affairs of life, and as a tool in acquiring further knowledge. And measured in this way, we find the pupil's knowledge of English woefully deficient. Many pupils fail in their efforts to master the history assignment, for no other reason than that they cannot read. This condition too frequently continues into and through the University. The defect is sometimes explained on the ground that Latin is being minimized in our high schools, but surely defective teaching of the mother tongue is an equally valid reason for it.

But in spite of poor history teaching in the grades, and in spite of ineffective teaching of English all along the line from chart class to the senior year of high school, it yet remains true that much poor teaching is done by high school teachers of history. And as I see the matter, there are two general reasons for this. First, much of it is due to the teachers themselves; second, much of it is inherant in the very nature of the subject itself.

So far as my first reason is concerned, we have heard so much concerning it, that I cannot hope to say anything new or even interesting about it. Ask any one for reasons for the poor showing of our history students in high school, and the first answer you receive is that our teachers are not adequately trained for this work; that any one who can read is thought by boards of education, and even by some high school principals, to be capable of teaching history; and that the history course is broken up and passed around as odds and ends to the teachers of other subjects, who have a little spare time, but no interest whatever in history.

No doubt there is too large an element of truth in all these indictments; yet, a little investigation sometimes reveals some interesting facts. I have already referred to the grade cards of the freshmen taking history in the University of Illinois for the year 1913-14. These students are representatives of a large number of high schools, ranging from among the smallest to among the largest in the state. Believing that but one phase of the problem of the special teacher has been emphasized, I arranged these cards into two nearly equal groups, one group representing the smaller schools, and the other the larger schools having one or more special teachers of history. Nor was I greatly surprised with the result of my study; for I found that these larger schools, with their special teachers, did not send their group of pupils to the university any better prepared to do good work in history than were the pupils from the smaller schools. The two groups made almost the same average, not only in all their courses taken together, but also in history when considered alone. In the whole number of courses taken, the average of each of the groups is 81.7; and the average of each of the two groups in history is about 77.36.

I am aware of the fact that the comparatively small number of schools and pupils used in securing these results, does not warrant one in drawing

any general conclusion and proclaiming it to be infallible. But are not the results at least significant, and do they not lead to the inference that all the trouble encountered by college teachers is not due to the fact that many of the high school teachers of history are not devoting all their time to the line of work they are attempting to do?

In my opinion these averages do not prove at all that our old practice of trying to teach without equipment is sound; neither do they prove the wisdom of giving the history classes to the teachers in other departments, who have a little time to spare, but who have no interest in the history courses. But in spite of the fact that they do not argue at all against the just demands for the special teacher of history, do they not tend to show that in actual practice the larger schools with their special teachers and their better equipment, are not getting the superior results which we might reasonably expect them to get?

What, then, is the reason for such failure on the part of the average so-called special teacher? I believe that a thorough investigation of all the available facts would show that there is almost a dead level of method used in teaching history, whether in the large school or in the small one, and that this method is a wrong method. But it is easy enough for me to say that our methods of teaching high school history are defective; it is quite another matter for me to point out the defects. So if I am to say anything about it at all, I am forced to say what is more or less stale. As a general statement, it is safe to say that about all the bad pedagogy used in the teaching of any other subject, is also used in our attempts to teach history. I shall mention but three of these mistakes which seem to be prominent in our special line of work.

First, far too much is attempted. Fewer topics should be dealt with in order that we may have the time to treat them fully enough to show their significance. This would lead to the elimination of many history facts, but the pupil's stock of accurate *usable* knowledge would be increased; he would be led to make the proper correlation of topics, and to see how events and movements are related one to another as cause and effect; and through such teaching a lasting interest might be aroused in the pupil. Our writers of history text-books could help us in this plan. I believe that far better results would be obtained if the average text, say in Mediaeval and Modern history, contained from one-third to one-half as many topics, with from three to five times as much interesting, well-organized information concerning each topic. At any rate this plan should serve as a temporary means of securing organization and correlation, until the millennium comes in history teaching, when each teacher will be a specialist capable of writing his own text-book!

Next, lack of effective drill work in our teaching is one of the reasons why our pupils fail to make a better showing in examinations, or more favorably to impress their teachers of college history. The need of effective drills is especially great in history, because of the very nature of the subject matter itself. In mathematics the pupil is constantly forced to use and to re-use material passed over; so he really gets sufficient drill work in spite of poor teaching. In history this is not true; hence, the greater need of it under the guidance of a skillful drillmaster.

The last defect which I shall mention in connection with the teaching of the text, is closely related to drill work,—the lack of the right sort of reviews, I have said that reviews are closely related to drills, but I am inclined to think that too many teachers make no distinction at all, and that they imagine they are doing effective review work, when in fact they are only doing a little ineffective drill work. The drill is necessarily mechanical and its purpose is to make the facts which we teach permanent; while the review is not so mechanical and its purpose is to organize and to make significant the facts which are to be made permanent.

But, after all, our best service to our pupils does not consist in teaching, drilling, and reviewing a definite body of facts until they are properly associated and made their permanent possession. This is important, but more as a means to an end than as an end in itself. For it is even more important that we make of our pupils real students, able to delve into available material and to organize it in such a way that they may do an assigned task without the constant guidance of the teacher. And as this is our important duty, it is also the duty in which we are most completely failing. We are not giving our pupils accuracy as a habit; we are not giving them ability to read, to interpret, and to organize accurately; we are not giving them an interest in good books; in short, we are not making students of them. And I believe that I have suggested one reason for this; we are so busy stuffing them with every detail in the text, that we have no time left to devote to a systematic effort to give them the student attitude. We foolishly act as though we were trying to make scholars of them by a force-feed method, instead of sanely attempting to give them an attitude toward scholarship that might sometime lead them to its possession through their own efforts.

I have stated the second general reason for poor teaching of history to be due to difficulties inherent in the nature of the subject itself. There is but little in history, as outlined in an ordinary text-book, that appeals to the natural interests of the average high school boy or girl. Interest must be secured by skilful teaching, and to assist in this we need extensive library material more extensively and effectively used. But above everything else we need real teachers of history in our high schools, not teachers who merely have a knowledge of history, but teachers who have enough faith in their work to be enthusiastic about it,—real teachers who are not "born short" in ability to perform the teaching act.

But the reasons why freshmen get poor results in college history are not alone due to bad teaching in high schools. There is too large a gap between high school and college. We recall to mind that the average grade of freshmen taking history in the University of Illinois last year, is lower in history than in any other subject; yet, the average of the same pupils in high school was higher than in any other subject. I account for the long assignments, special reports based upon collateral reading, and the extensive use made of the lecture method in these courses.

Then, too, there is one other reason why those taking freshman history make a poorer showing than those taking other courses. If I am correctly informed, there has been no such definite body of facts organized as a pre-

requisite for college work in history as in most other important subjects. While it is true that the mastery of such a body of facts is not so essential to good work in more advanced history as in most other subjects, it is also true that such requirements would do something toward narrowing the unusually wide gap which we have found to exist between the history work of high school and college.

This plan would bring about another important result; it would do more than anything else to give history its proper rating among high school teachers in general, and to secure for it the relative amount of time which it deserves. Neither of these conditions prevail at the present time in a majority of the high schools. Yet, no one has ever given an adequate reason, so far as I know why as much time and effort should not be used in securing a high school credit in history as in mathematics, English or any of the sciences.

If I am correct in my conclusion here, it seems to me that the department of history could render no better service to high school teachers of history than to indicate some such minimum course, with as definite methods of teaching as it is possible to provide. What we need most of all just now, in addition to live teachers, is a clearing of the foggy atmosphere of method, and a clear, definite fixing of the goal toward which we should be striving. A few college credits in history, more or less, added to our stock of knowledge, will never get us anywhere so long as we do not even know where we are trying to go. Most of us are wandering around in a hazy labarynth of doubt, which at times seems to lead us everywhere, and consequently which finally leads us nowhere. Help us to find out what we ought to do, help us to find out how best to do it, and most of us will respond by better preparing our graduates to do successful work in college and university history.

Miss Brush, in reply, agreed with the speaker that there is a gap between collegiate and secondary History, due not so much to scope and character of information as to mental habits expected and permitted.

Ex tempore discussions were indulged in by Dr. Coles, Dr. Lybyer of the University, A. F. Trams of Bridgeport, Miss King of Oak Park, Miss Ullrich of New Trier, Miss Renich, Miss Brush and Mr. Bratten, A. S. Kingsford of West Aurora and Miss Olive A. Smith of Eastern Illinois State Normal.

It seemed to be the consensus of opinion of those taking part in the discussion that too long assignments, inadequate assignments, diversity in grading, assigning of history courses to any teacher to fill up his schedule, lack of skill in questioning and inability to induce pupils to organize their material are the serious causes of poor high school work.

The discussions also tended to show that there is a wide diversity as to what courses and how much History should be offered and taken

in secondary schools. The purpose of History and what shall be given to further that purpose presents another problem for solution. If the tone of the Social Science group meant anything there is much yet to be done for History in Illinois.

"The High School Text-Book in Civics" was the subject of a paper by E. T. Austin of the Sterling Township High School. Most of this paper was devoted to a brief analysis of at least ten well known text books.

Following is a brief abstract of the paper:

The High School Text Book in Civics.
E. T. Austin.

Place and Arrangement in the Course

The general plan throughout the state is to place the teaching of civics in the fourth year, generally the last half, although some teachers prefer to carry it paralell with American history giving equal time to each subject. The latter plan permits a closer correlation with history and has the added advantage of keeping the class in closer touch with the movements of practical government throughout a longer period. If the emphasis is placed on local and state government it is especially desirable to have the time allotment correspond as far as possible with the practical government nearest at hand. Many teachers, however, feel that the gain of the parallel plan does not equal the loss of time and interest due the passing from one subject to the other during the week. Both subjects suffer thereby and often civics is made a mere adjunct to history and as such takes on the nature of constitutional history.

Aims and Limits of the Subject.

Practically all of the books in use today require at least a half year to complete. There seems to be a general agreement that the time should not be made shorter than a half year. There is quite a diversity of opinion as to the aim of the subject. The titles of some recent books such as "Civics," "Civil Government," "Goverment of the United States," "American Citizenship," suggest the lack of agreement as to the ends to be attained. The emphasis in the earlier books was placed on the constitution of state and nation. If there was any enlargement on the text of the constitution the discussion was along the line of political science which was beyond the comprehension of the average high school student. In recent years the desire for a more practical presentation of the subject has led many teachers to place the emphasis on civic duty and the relation of the citizen of his neighborhood. Some have gone so far as to place emphasis on the sanitary, aesthetic, and even moral condition of the citizens' surroundings. In this later form the subject is adapted to the elementary school and may be very profitably pursued in many schools.

The field of study for the high school lies between that of the elementary school and that of the college and partakes of the nature of each. It seems to me in the high school course the teacher should avoid the more elementary phases of the subject, such as street cleaning, the water and gas supply, inspection of the plumbing, fire protection, etc.—phases which may be so well treated in the lower grades. Neither should the subject be treated as political science which is clearly the province of the college. It is doubtful if political intelligence can be developed and civic consciousness awakened before the high school years. It is in the high school that the great majority of the future citizens are to receive instruction for the very important duties of citizenship, and it is in the high school that sound notions of political morality, and political responsibility are to be imparted.

Topics and Emphasis.

It is generally agreed that the order of topics should be local government, followed by state and federal. Treating the nearest at hand seems to be pedagogically correct and has the further advantage that it follows the logical and historical order of political development. It is not so easy to apportion the time and emphasis upon the three divisions,—local, state, federal. Most of the books are written with undue emphasis on the federal government, since they must sell in all the states. The authors have, therefore, enlarged on the treatment of the federal government. State governments vary so widely that only general statements can be made about them. Such books give a wrong notion about the scope of government and the relation of the student to it. If we could have our books written expressly for the state it would be much easier to place the emphasis in such a way as to give the pupil right notions of the importance of the different portions of the subject.

To sum up briefly:—The text should furnish material for a half year or semester, about ninety periods of forty or forty-five minutes each; it should teach local government first, then state and national; it should devote somewhat more than half the space to local and state government; and should be written with the pupils of a given state in mind. The field of the elementary school should be avoided, as well as the field of the college and university, confining the attention to the awakening of political intelligence and developing civic consciousness with the thought in view that most of the pupils will make no further study of the subject. As stated above, sound notions of political morality and political responsibility are to be imparted.

This topic, too, was the subject of much discussion. Mr. William Harris, of Altamont, opened the discussion. He stated that the course should be determined by local needs and the preparation of the teacher. The course should not be taught by the History teacher unless he is well qualified in each subject. The "laboratory" method should be used, for much of the illustrative material can be found near home.

Mr. Schutte, of Herrin, gives one year to the subject and is strongly of the opinion that a one-half year course in Civics is a joke. He wanted the Section to go on record for a one year course in Civics, but his motion was not seconded. Further discussion in the section developed the fact that more time ought to be given the subject, but with our present high school curricula there is no time nor place for an extension of the subject.

There was a substantial agreement as to the purpose and scope of Civics. The speakers also emphasized the fact that it is a very vital subject and should never be omitted by a pupil from his course.

The final paper on the program was presented by Supt. E. V. Latham, of Kinmundy, under the title, "The Use of Current, Events in the Study of Historical Geography." The following abstract is given:

The Use of Current Events in the Study of Historical Geography

The study of historical geography is all important, as the history of a nation is practically determined by its geography.

In taking up the discussion of the teaching of historical geography I shall confine myself to the history of Western Europe, as events are taking place there as in no other place in the world, which may be emphasized in the teaching of its past history. The teacher must use great care in selecting the events. Only the fudamental points should be taken up. Time spent in discussing battles, bombardments, etc. is time wasted. Time spent in discussing the reasons for a certain strategic move, why certain territory is contested or why the races are pitted against each other is time well spent.

The daily newspaper is indispensible to the teacher of history. Interest the boy or girl in reading the newspaper and you have interested him or her in history. There is no reason why history should be dry and uninteresting. It is as interesting as any story that has ever been written, and should be read with more pleasure because it is a true story of the lives, thots, and actions of the human race.

In my classes in history I have endeavored to collect all the war maps possible, many good ones have come out in the daily papers in the last three months. I have on all occasions tried to show the relation of the present crisis to those which have gone before. Numerous questions were asked such as, "what caused the war?" "why is England in it?" "which side will Italy join should she enter the conflict?" "Is the alliance between England, France and Russia a natural one?" "Why did Germany violate Belgian neutrality instead of attacking France from the East?" I have tried to answer these questions as some connection has occured in my history class.

The war map was a constant companion when studying the Roman Empire and also when the German mercenaries under Odo captured Italy for themselves. The war against the German barbarians under Charlemagne and his

final subjugation of all the provinces until all western Europe became German. The climate and surface conditions did not make it easy to hold so great a kingdom together. Gradually parts began to get away and set up independent duchies. Finally the divisions which formed the basis for the present kingdoms of France, Italy, and Germany were made by the treaty of Verdun, merely because Louis the Pious had three sons. This was an unnatural division and has been a source of trouble ever since. The student can easily see why there is so much jealousy between France and Germany on one side, and Russia and Germany on the other. It is the natural sequence of the failure to have barriers or physical divisions between the countries.

The student can readily see why Belgium is the battle ground of Europe. Belgium with its low, level plains forms a marked contrast to the higher regions of the south. Had Belgium offered no resistence, the German forces could have swooped down from the north and struck the heart of France in an instant.

England makes plain her reasons for joining the war when she issues her proclamation to Germany concerning Belgian neutrality. She is not protecting Belgium for ethical reasons, but that she may prevent Germany gaining a foothold on the sea coast, and thus becoming her maritime rival. England cannot afford to have so strong a rival as Germany just across the channel. It would be a constant menace to her own safety and commercial supremacy. As long as she can keep Germany with only the Baltic sea for a coast line she has no fear of a naval rival. On the other hand if Germany is to maintain her national existence it is absolutely necessary that she crush the militarism of France and Russia leaving her free to compete with her rival across the channel.

The conquest of territory has affected the geography and been a constant menace since the time of Charles the Bald and Louis the German. They took the Strassburg Oaths and squeezed Lothaire out of all his kingdom except that south of the Alps. They then began the contest for supremacy against each other. Alsace and Lorraine have been contested territories since the treaty of Verdun when they were ceded to Lothaire. They were taken from him by the treaty of Mersen about 1870, and ever since that time have been contested territory between France and Germany.

The student readily sees the connection between events if properly presented. The danger lies in taking up too much time studying the present war. The teacher must not forget that the development must be taken up from the beginning and stress must only be put on present current events, that in some way connect them with the past.

A good current event paper may be used in class and read by each of the pupils. However, the teacher must exercise wisdom in the use of these papers as the pupils will be prone to read the current war news and neglect the lesson assignments.

If one chooses, the world geography may be brought in by studying the colonial possessions of France, Germany and England. Should Turkey enter the conflict, both geography and religion will play an active part. The Musselman subjects of Great Britain may refuse to fight against their Mussulman brothers.

Egypt may revolt and try to throw off the overlordship of Great Britain, etc. These things are intensely interesting but can be easily over done.

I would say to the teacher of history, use current events if the use will make you a better teacher of history, but be wise in their choice. Prepare the events to be used as you do your daily assignment. Lead your pupils to see the gradual unfolding and development of the nations, gradually leading them to see for themselves how nations have been made and unmade, thru their own wisdom or follies, and how geography has influenced the height to which they might attain. These things if properly done will in time lead the pupil to be a thinker for himself, able to formulate his own opinions concerning events both past and present.

In the discussion that followed, Dr. Lybyer cautioned the members of the Section against using current events as a separate course. He suggested the use of events from point to point to fill up as it were the stream of past events. History simply explains the present. The war in Europe should be used only to create an interest in courses dealing with Europe.

Other discussions were mainly devoted to a discussion of the part pupils should play in selecting current events and what magazines should be used or read by the pupils.

A summary of the Section's proceedings would indicate that there is need for better trained History teachers in the high school; that History courses should be standardized so as to avoid the haphazard way of assigning the subject to teachers to fill in their teaching hours; that History should have a more important place in the courses pursued by secondary pupils; and, finally, that there is too great a gap between the grade of work done in the secondary school and that done in the University.

The only business of the session was motion made by Mr. Austin, and seconded by Mr. Latham, That the Chairman appoint the successor of Mr. Silas Echols, member of the Conference Committee, for the Social Science Section. The motion was put and carried. Dr. Cole appointed Mr. Echols to succeed himself.

THE UNIVERSITY OF ILLINOIS

THE STATE UNIVERSITY

Urbana

EDMUND J. JAMES, Ph. D., LL. D., President

THE UNIVERSITY INCLUDES THE FOLLOWING DEPARTMENTS

The Graduate School

The College of Liberal Arts and Sciences (Ancient and Modern Languages and Literatures; History, Economics and Accountancy, Political Science, Sociology; Philosophy, Psychology, Education; Mathematics; Astronomy; Geology; Physics; Chemistry; Botany, Zoology, Entomology; Physiology; Art and Design; Ceramics)

The College of Engineering (Architecture; Architectural, Civil, Electrical, Mechanical, Mining, Municipal and Sanitary, and Railway Engineering)

The College of Agriculture (Agronomy; Animal Husbandry; Dairy Husbandry; Horticulture and Landscape Gardening; Veterinary Science; Agricultural Extension; Teachers' Course; Household Science)

The College of Law (Three years' course)

The School of Education

The Courses in Business (General Business; Banking; Accountancy; Railway Administration; Insurance; Secretarial; Commercial Teachers')

The Course in Journalism

The Courses in Chemistry and Chemical Engineering

The Courses in Ceramics and Ceramic Engineering

The School of Railway Engineering and Administration

The School of Music (Four years' course)

The School of Library Science (Two years' course)

The College of Medicine (in Chicago)

The College of Dentistry (in Chicago)

The School of Pharmacy (in Chicago; Ph. G. and Ph. C. courses)

The Summer Session (eight weeks)

Experiment Stations: U. S. Agricultural Experiment Station; Engineering Experiment Station; State Laboratory of Natural History; State Entomologist's Office; Biological Experiment Station on Illinois River; State Water Survey; State Geological Survey; Mine Rescue Station

The *library collections contain* (October 1, 1914) 328,000 volumes, including the library of the State Laboratory of Natural History (8,100 volumes), the Quine Medical Library (14,000 volumes), and the library of the School of Pharmacy (2,000 volumes).

For catalogs and information address

THE REGISTRAR

Urbana, Illinois