DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1920, No. 43

SURVEY OF THE SCHOOLS OF WINCHESTER MASSACHUSETTS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 22, 1920.

SIR: At the request of the school committee of that town, this bureau made last spring a comprehensive survey of the schools of Winchester, Mass., a residential suburban town near the city of Boston. The report of the findings of the committee making the survey, together with constructive criticisms and recommendations for the improvement of the schools, is contained in the manuscript which I am transmitting herewith for publication as a bulletin of the Bureau of Education. This report will be helpful not only to school officers, teachers, and citizens of Winchester, but also to school officers, teachers, and citizens in similar towns in all parts of the country, and to students of education generally.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

THE SECRETARY OF THE INTERIOR.

INTRODUCTION.

At the Winchester (Mass.) town meeting of March 3, 1919, it was—

Voted, That the moderator appoint a committee of 15, to consist of both men and women living in the town, to consider the advisability of having an educational survey of the public-school system of the town made, with a view to improving the same, or of taking any other action with respect to the public schools, said committee to report as early as possible to the selectmen, who may thereupon call a special town meeting to act upon the report, either prior to June 1 or after October 1, 1919.

In accordance with this action a committee comprising representative men and women citizens of the town was appointed. This committee made an investigation of school conditions along the following lines:

1. Collecting the criticisms of the schools made by the parents and considering their merit.
2. A consideration of ways of improving the schools.
3. A consideration of the advisability of having a survey of the schools made by technical experts.

A thorough investigation was conducted by the committee along the lines agreed upon and a well-considered and valuable report submitted. Respecting the desirability of having a survey made by technical experts the committee's conclusion was as follows:

From the beginning we have had an open mind regarding the desirability of having an educational survey. We have read numerous reports of such surveys which have been made for other municipalities, partly with a view of acquainting ourselves with what has been done along this line, partly with the hope that we might draw from the experience of others that knowledge which could lead us to make specific recommendations regarding technical improvements in our schools. This hope, however, was speedily dispelled. We are convinced that no body of laymen should be charged with such a task.

The Federal Bureau of Education, under conditions easily complied with, will undertake a survey of the Winchester schools. The total expense to the town of such a survey, as fixed by the United States Commissioner of Education, will not exceed $2,000. The publication of the report of the survey—necessarily an expensive matter—will be at the cost of the Federal bureau.

In view of all the evidence considered by us, we are of the opinion that such a survey should be undertaken. We deem it to be of particular importance at this time on account of the somewhat unsettled conditions in our schools. We recommend, therefore, that it be undertaken as soon as the necessary arrangements can be made by the Bureau of Education of the Department of the Interior.

Our recommendation that the survey be made should not be interpreted as reflecting on the superintendent. To understand thoroughly the details of the entire school system, to institute and carry out changes in the established order looking toward improvement, is a task not easily or speedily to be accomplished by one individual. We understand he will welcome the proposed survey. We believe it will afford him much assistance.

The recommendations of the committee of 15 were approved at the town meeting of March, 1920, and the Winchester school committee was authorized to take the necessary steps. Arrangements were at once made with the United States Commissioner of Education for a survey to be made by the Bureau of Education under his direction.

To assist the Commissioner of Education in making this study he appointed the following commission:

Frank F. Bunker, Chief City School Division, Bureau of Education, director of the survey.
Julia W. Abbot, Specialist in Kindergarten Education, Bureau of Education.
Thomas W. Balliet, ex-Dean Department of Education, New York University.
W. S. Deffenbaugh, Specialist in City School Administration, Bureau of Education.
Alice B. Fernandez, Specialist in Social and Industrial Problems, Bureau of Education.
Florence C. Fox, Specialist in Primary Education, Bureau of Education.
George R. Twiss, Specialist in Secondary Education, Bureau of Education.

In addition the Commissioner of Education arranged with the division of education of Harvard University to give certain standard educational measurement tests in the elementary grades and to tabulate the results. This work was done under the personal supervision of Mr. Edward A. Lincoln.

A summary of the conclusions and recommendations by the commission will be found at the end of each chapter or important subdivision.

SURVEY OF THE SCHOOLS OF WINCHESTER, MASSACHUSETTS.

Chapter I.

THE ORGANIZATION, ADMINISTRATION, AND FINANCING OF THE PUBLIC SCHOOLS OF WINCHESTER.

CONTENTS.—1. Town and school organization; town of Winchester; school committee. 2. Financial support of schools; expenditure per pupil; property valuation; tax rate of town; expenditures within the system; proportion of city funds apportioned to schools. 3. Elementary teachers and their supervision; training of; experience of; salaries; proposed salary schedule; need of supervision; supervision of special subjects; office hours of principals. 4. School population and progress; school attendance; work permits; age-grade distribution; promotions and failures; grading; health activities. 5. Summary of conclusions and recommendations.

1. TOWN AND SCHOOL ORGANIZATION.

THE TOWN OF WINCHESTER.

Winchester is a typical Boston suburban residential town, 8 miles northwest of Boston, on the Boston & Maine Railroad. It is also connected with Boston by a good highway and by two electric railways. In consequence the city of Boston is easy of access for the many residents of Winchester who have business interests in the city. In area the town embraces about 6 or 7 square miles of territory, the boundary lines making practically an irregular pentagon. Its greatest length is approximately 4 miles and its greatest width somewhat more than 2 miles. The population is densest around the center, from which section most of the children come. It is doubtful whether there are many other suburban towns in any section of the country more beautifully located. Through it flows the Aberjona River, winding around the hills, meandering through the Mystic Valley, and widening here and there into ponds and lakes. Bordering the river and the ponds are spreading trees and grassy banks. To the natural beauty of the place the town has added many artistic touches—roadways winding about the hills, bridges, dams making beautiful waterfalls, homes with spacious lawns, parklike in appear-

ance, laid out with trees and shrubbery. Then there are spaces just as nature made them. The general impression one receives is that of a park partly made and partly natural, with people living in it.

When what is now Winchester was first settled it was included in the region called Charlestown. The valley in which it mainly lies was part of the lands granted to Charlestown in 1640. Two years later it, with Woburn, was separated from Charlestown and then for two centuries it remained a part of Woburn, being known as South Woburn. It was not until 1850 that it acquired its independent standing as an incorporated town, when it was named in honor of Col. Winchester. At that time the population was approximately 2,500. Now it is 10,391, as given in the Federal census of 1920.

While Winchester is largely a residential town, occupied by those having business interests in Boston, a number of local industries have sprung up. For example, a tannery, a laundry, a gelatin and glue factory, and factories for making leather machinery, spindles, felt wheels, etc., employ a number of workers, many of whom are foreign-born, whose children attend the schools.[1] These plants are located for the most part in the northern part of the town; consequently, the homes of the employees are likewise located in that section of the town.

The town government is practically a pure democracy; its affairs being settled in the town meeting, so characteristic of New England. In the town meeting the people elect the town officers—the selectmen, school committeemen, town clerk, etc., and vote funds for roads, bridges, police, the schools, and in fact for everything for which the town expends money.

THE SCHOOL COMMITTEE.

The school committee of Winchester, as now composed, consists of three members, one elected each year at the town meeting. The State law of Massachusetts permits the towns of the State to increase or decrease the number of members so long as the number shall always be divisible by three. In accordance with the provision of this law, Winchester, at a town meeting held in March, 1920, voted to increase the number to six. This action becomes effective in March, 1921.

Under Massachusetts law the power to levy taxes for school maintenance or to determine the amount which shall be provided is not vested in town school committees, as is the case in many of the small cities of the country. Each year the school committee prepares an estimate of the amount needed for the ensuing year. This estimate is submitted to the town finance committee, which, in turn, submits the

[1] For racial analysis of the population, see Ch. II.

budget with its recommendations to vote of the people at the town meeting. After formal adoption at the town meeting, within the limits of the aggregate appropriation the school committee is allowed much latitude, as it should have, in the expenditures which it is called upon to authorize.

While this procedure differs widely from that followed in most States, it has the merit of keeping the schools prominently before the people. The school committee, the superintendent, and teachers are necessarily obliged to inform the people as to the needs of the schools. The present method in Winchester seems to secure results which are as satisfactory as those obtained in places where school boards have more power in the matter of raising revenue.

The school committee is organized with a president, a member of the board, and a clerk who is the superintendent of schools. The plan of having the superintendent act as clerk is a commendable arrangement for a small school system, especially if his secretary attends to all the details. In this way the superintendent is brought into more intimate relations with the business matters of the schools. The plan is also more economical than that of employing some one outside the school system to write up the records of board meetings and to keep the books.

The proper relationship between the school committee and the superintendent of schools seems to obtain. The school committee considers it its function to act largely as a legislative committee, in so far as it can under the town government, and the function of the superintendent to be that of an executive officer of the committee. The superintendent is given power to nominate teachers, to recommend textbooks and supplies, to prepare courses of study, to assign teachers to the schools and grades where he thinks they can do their best work, to promote pupils, and to make up the school budget for the action of the school committee before its presentation to the town meeting. This division of functions is in accord with the best theory and practice in school administration.

2. THE FINANCIAL SUPPORT OF THE SCHOOLS.

EXPENDITURE PER PUPIL.

As previously stated, the funds for the Winchester schools are voted at the annual town meeting. The question may be asked: "How well does the town provide for its schools in comparison with other places?"

Compared with other towns and with several cities in Massachusetts, Winchester ranks well in the amount expended per pupil,

based on the average number belonging, as may be noted from the following table:

Expenditure per pupil for total current expense.

Cities.	Elementary.	High school.	Cities.	Elementary.	High school.
State of Massachusetts (average)	$43.64	$89.58	Arlington	$41.77	[illegible]
Brookline	67.65	133.10	Winchester	48.35	[illegible]
Dedham	43.60	59.58	Milton	40.69	[illegible]
Boston	49.41	97.54	Belmont	39.62	[illegible]
Newton	47.62	85.55	Wellesley	64.17	[illegible]
Springfield	52.51	146.42	Watertown	40.28	[illegible]
Waltham	47.19	75.55			

From the foregoing table it is seen that Winchester expended on her elementary schools $4.71 per pupil more than the average expenditure for elementary schools in the State, and on her high school $14.78 per pupil more than the average high-school expenditure for the State. Compared with the 11 other towns listed in the table in this respect, Winchester ranks No. 6 for the elementary schools and No. 5 for the high schools, when the city with the largest expenditure is ranked No. 1.

If the cost per pupil runs practically the same year after year, the cost of educating a child in the Winchester schools is $804.24; that is, every pupil graduating costs the town this amount. The following table shows what it costs Massachusetts and some cities in the State to take a child through the schools:

Cost of educating one pupil for 12 years.

Cities.	Elementary school, 8 years.	High school, 4 years.	Elementary and high school, 12 years.
State of Massachusetts	$349.12	$358.32	$707.44
Brookline	541.20	532.40	1,073.60
Dedham	348.80	238.32	587.12
Boston	395.28	390.16	785.44
Newton	380.96	342.20	723.16
Springfield	420.08	585.68	1,005.76
Waltham	377.52	302.20	679.72
Arlington	334.16	331.16	665.32
Winchester	386.80	417.44	804.24
Milton	487.92	432.80	920.72
Belmont	316.96	380.64	697.60
Wellesley	489.36	439.96	929.32
Watertown	322.24	359.56	681.80

Compared with a group of cities with between 10,000 and 25,000 population in different sections of the country, the cost per pupil places Winchester in a position of comparatively high rank, as may be seen in the following table:

Expenditure per pupil for total current expense.

Boise, Idaho	$95.25	Fresno, Calif	$58.52
Brookline, Mass	85.97	Parkersburg, W. Va	58.44
Hackensack, N. J	83.02	Clinton, Iowa	58.35
Great Falls, Mont	74.53	Albuquerque, N. Mex	57.07
Sioux Falls, S. Dak	71.02	Newport, R. I	54.89
Wilkinsburg, Pa	69.75	Leavenworth, Kans	54.61
Cheyenne, Wyo	69.16	Phoenix, Ariz	54.45
Winchester, Mass	**64.95**	Burlington, Vt	52.10
Colorado Springs, Colo	62.88	Battle Creek, Mich	50.93
Bellingham, Wash	62.92	Ithaca, N. Y	50.33
Fargo, N. Dak	62.55	Ogden, Utah	49.30
Madison, Wis	61.71	Grand Island, Nebr	48.30
Concord, N. H	59.46	Mankato, Minn	47.49
Salem, Oreg	58.94		

The cost per pupil for Winchester, based upon average daily attendance for both elementary and high school and upon total current expense, is $64.95, while the median for the foregoing group of cities is $58.94.

Another question may properly be asked: "Though Winchester ranks well with the other cities on the amount expended per pupil, is it expending as much as they are in proportion to its wealth"? While it pays much more per pupil than does the State as a whole, it is much more able to do so. Among the 354 towns in the State, Winchester ranks 34 from the top in its ability to pay, based on property valuation per pupil, while it ranks 224 in expenditure for school support per $1,000 valuation. Comparing Winchester with the 11 towns and cities listed in a previous table, it is found that it ranks No. 5 from the top in wealth per school pupil. The following table shows this fact:

Property valuation per pupil, based on average number belonging (1919).

Brookline	$22,471	Newton	$10,161
Boston	14,155	Watertown	8,495
Wellesley	14,114	Belmont	8,205
Milton	12,487	Arlington	6,223
Winchester	**11,208**	Dedham	6,126
Springfield	10,065	State of Massachusetts	8,711
Waltham	10,[illegible]92		

Recently the Bureau of Education collected data to show the tax rate for school purposes in the cities of this country. The rate is based upon the estimated real value of the property assessed. The following table shows the rank of Winchester compared with 24 other cities in different sections of the country with between 10,000 and 25,000 population:

Tax rate on estimated true valuation, 1917–18, of 25 towns and cities.

	Mills.		Mills.
Hackensack, N. J	12.87	Evanston, Ill	7.53
Burlington, Iowa	11.97	Battle Creek, Mich	6.72
Clinton, Iowa	11.06	Phœnix, Ariz	6.25
Elgin, Ill	10.00	Leavenworth, Kans	6.00
Keene, N. H	10.00	Fresno, Calif	5.95
Jefferson, Mo	9.45	**Winchester, Mass**	**5.71**
Sioux Falls, S. Dak	8.23	Mankato, Minn	5.46
Elkhart, Ind	8.13	Colorado Springs, Colo	5.39
Parkersburg, W. Va	8.00	Madison, Wis	5.39
Albuquerque, N. Mex	8.00	Adrian, Mich	5.30
Wilkinsburg, Pa	8.00	Long Beach, Calif	5.20
Boise, Idaho	8.00	Cheyenne, Wyo	4.66
Mont Clair, N. J	7.80		

The rate in Winchester falls below the median by several mills, and scarcely gets into the lower part of the middle half of cities. Neither is the school tax rate of Winchester high in comparison with that of other towns and cities in Massachusetts with between 10,000 and 25,000 population, as may be seen in the table that follows:

Tax rate for schools (1917–18).

	Mills.		Mills.
Wakefield	7.78	Melrose	6.72
North Adams	7.75	Medford	6.45
Revere	7.27	**Winchester**	**5.71**
Methuen	7.12	Winthrop	5.67
Plymouth	7.04	Newburyport	5.37
Milford	6.83	Leominster	5.21
Weymouth	6.87	Watertown	5.15
Woburn	6.76	Peabody	4.22
Marlboro	6.75		

The median city pays for its schools what is equivalent to a rate of 6.72 mills, or a mill more than Winchester pays. Again, in this table Winchester just gets into the lower part of the middle half of the cities listed. Many of the cities paying the highest rate are less able to do so.

From the foregoing data it is obvious that Winchester, in comparison with what many other cities are doing, is well able to expend upon her schools much more than she is now doing. Financially she can well afford to make her schools the model schools of the entire country.

EXPENDITURES WITHIN THE SYSTEM.

Just what proportionate amounts of the funds at the disposal of the school committee should go for general control, instruction, and other purposes must depend to a certain extent upon local conditions. For

instance, a city in the North needs to pay more for operation—janitors, fuel, light, etc.—than a city in the South, where the winters are short.

Since general practice is the only standard by which to compare, the following table has been prepared to show how each dollar of current expense is divided in Winchester and in other cities:

Showing how each $1 of school expenditure is distributed (1917–18).

Purpose.	Winchester.	Cities with between 10,000 and 30,000.	All cities over 2,500.
	Cents.	*Cents.*	*Cents.*
Business	0.5	1.6	1.8
Superintendent's office	3.7	3.3	2.8
Supervisors	2.9	2.7	1.5
Principals	4.7	6.1	5.4
Teachers	60.7	53.4	61.8
Textbooks and supplies of instruction	5.7	4.7	4.1
Janitors	7.9	6.8	6.4
Fuel, water, light, and janitor supplies	8.8	8.0	6.4
Maintenance	2.3	4.9	4.5
Auxiliary agencies	2.8	1.8	2.0
Fixed charges	.0	.5	1.1
Night schools	.0	1.2	1.2

From the foregoing table it may be seen that Winchester divides each dollar in practically the same way as the average city of its size. The proportion paid principals is smaller; also the amount expended for maintenance. The smaller proportion expended for principals is no doubt accounted for by the fact that only two principals—the high-school principal and the principal of the Wadleigh—have any supervisory duties. The smaller proportion expended for maintenance may be accounted for by the fact that the school board employs a custodian of property who himself does much of the repair work or sees that it is done economically.

Another question may be asked: "Does Winchester appropriate as large a proportion of its town income to the schools as do other small cities?" Data collected in 1917 show what proportion of their city funds 41 of the smaller cities appropriate to schools. As may be seen in the accompanying table, Winchester apportions a small per cent compared with that appropriated by the 41 other cities.

Per cent of city funds apportioned to schools (1917).

	Per cent.		Per cent.
Fairmont, W. Va	0.64	East Chicago, Ind	0.43
Muscatine, Iowa	.59	Missoula, Mont	.43
Dubois, Pa	.58	Winfield, Kans	.43
Homestead, Pa	.54	Goshen, Ind	.42
Hackensack, N. J	.54	Adrian, Mich	.41
Parkersburg, W. Va	.54	Emporia, Kans	.40
Beaver Falls, Pa	.52	Spartanburg, S. C	.39
Meadville, Pa	.52	Tonawanda, N. Y	.34
Bethlehem, Pa	.50	Fargo, N. Dak	.33
Lawrence, Kans	.49	Chickasha, Okla	.30
Greensburg, Pa	.48	Lewiston, Idaho	.30
Marietta, Ohio	.47	Boise, Idaho	.30
Trinidad, Colo	.47	Bloomfield, N. J	.30
Warren, Ohio	.46	Melrose, Mass	.30
Hutchinson, Kans	.46	Selma, Ala	.30
Piqua, Ohio	.45	**Winchester, Mass**	**.29**
Braddock, Pa	.45	Plainfield, N. J	.29
Elyria, Ohio	.45	Athens, Ga	.25
Ironwood, Mich	.45	Mankato, Minn	.24
Sioux Falls, S. Dak	.44	Marshall, Tex	.23
Morristown, N. J	.44	Greenville, Miss	.19

Winchester apportions 29 per cent of the entire income of the town, while the median city of the list apportions 44 per cent.

These are the only data available for the smaller cities, but statistics are at hand for 213 cities having a population of 30,000 or more. On an average these cities apportion 30.8 per cent of their total expenditures to their schools, or 1.8 per cent more than Winchester apportions. Judging from these facts, no one in Winchester can say that the town is giving the school department more than its share of the town's funds.

CONCLUSION.

To say that Winchester is not expending more per pupil than is usually expended would be to misstate the facts; to say that it is paying up to its ability as compared with the ability of other towns and cities would also be to misstate the facts; and to say that the town is apportioning an undue share of its funds to the schools would be another misstatement.

3. ELEMENTARY TEACHERS AND THEIR SUPERVISION.

TRAINING OF ELEMENTARY TEACHERS.[1]

The generally recognized minimum educational and professional standard for elementary teachers is four years of high-school and,

[1] For discussion of high-school teachers, see Ch. V.

in addition, two years of normal-school work. With only a few exceptions the Winchester teachers measure up to this standard, and in several cases beyond it. Only 11.63 per cent of the elementary force have attended school fewer than six years beyond the eighth grade and all have attended five or more years, as may be noted in the following table:

Education of elementary-school teachers.

Years beyond elementary school.	Teachers.	Per cent.
1-3	0	0.00
3-5	5	11.63
5-7	33	76.74
7-9	5	11.63
Not stated	0	.00
Total	43	100.00

Thirty-three of the 43 teachers are graduates of high schools and of the two-year normal-school course. Five have three years of normal school or college work. Of the five who have had only five years' schooling beyond the eighth grade, four attended normal school and the other attended college.

Another measure of the preparation of the teacher is her inclination to keep up with the progressive movements in education. A teacher may do this by attending summer school, by pursuing university extension courses, or by extensive reading.

Twenty of the 43 elementary teachers report that they have attended summer school or taken extension courses within the past three years. The number should be larger. Very few teachers can be progressive unless they attend school for several weeks every three years. A normal-school diploma should not end a teacher's preparation, but rather begin it.

Though not all of the Winchester teachers have attended school within the past three years, practically all have read rather voluminously professional books treating of subjects now engaging the attention of school people. Among the books read were those treating of educational tests and measurements, supervised study, motivation, socialized recitation, the project method, teaching children how to study, methods of teaching citizenship, and health teaching.

TEACHING EXPERIENCE.

The majority of the elementary teachers have had ample experience to make them efficient, 25 of the 43 having taught fifteen or more years, and 34 ten or more years. None has had less than four years' experience. Fourteen of the 43 have had less than four years' ex-

perience in Winchester. Seven, or 16 per cent, are teaching their first year in this town. The following table will show the facts:

Experience of elementary-school teachers.

Years.	Total experience.	In Winchester.	Years.	Total experience.	In Winchester.
Less than 1 year		1	9		
1		6	10	6	1
2		3	11	2	1
3		4	12		1
4	2	1	13		2
5	1	1	14	1	3
6	2	1	15 or more	25	16
7	1	2			
8	3		Totals	43	43

TEACHERS' SALARIES.

The town of Winchester is to be commended highly for voting within a year an increase of about $400 a year for each teacher, which brings the salary of most of the elementary teachers to about $1,400 or $1,450, and the salary of the high-school teachers to $1,600 for women. This increase raises the elementary salary schedule to a minimum of $1,250 and a maximum of $1,450. In 1914 the minimum was $650 and the maximum $800. The larger salaries in 1920 represent nothing more than the increased cost of living. In other words, the teachers receive practically the same salaries as in 1914, i. e., the purchasing power of $1,450 is no more, or not as much as the purchasing power of $800 six years ago.

The question may be asked: Were salaries high enough in 1914? Considering the amount of time and money required for a teacher to prepare herself and the demands made upon her in the matter of dress, contributions, etc., the answer obviously is, no.

If it is obvious that salaries in Winchester were not high enough in 1914, they are not high enough now, or at least the maximum is not sufficient either in the elementary schools or in the high schools. Possibly a minimum of $1,200 for elementary teachers and a minimum of $1,600 for high-school teachers would secure good normal school and college graduates without experience.

A principle to follow in making a salary schedule is to pay such a salary as to secure teachers of standard academic and professional preparation and then to increase the salaries to a high maximum, so as to retain the best teachers and to add an incentive for growth and to assist in maintaining the morale of the teaching corps.

After a teacher of standard qualification has been employed at the minimum salary, she should be advanced by yearly increments of at least $75 to $100 for a long period, i. e., if the work is satisfactory and if the teacher is giving evidence of growth. No other should be retained.

In order to provide a better method of promoting teachers, the following schedule is suggested, both for elementary and high school:

Proposed salary schedule.

Group of teachers.	Length of time of appointment.	Salary schedule for each group.				Yearly increase.	Year in which group maximum is reached.
		Elementary.		High.			
		Minimum.	Maximum.	Minimum.	Maximum.		
A. One-year teachers elected each year (probationary for three years).	1	$1,200	$1,350	$1,600	$1,750	$75	Third.
B. Three-year period	3	1,425	1,575	1,825	1,975	75	Third.
C. Five-year period	5	1,650	1,925	2,050	2,350	75	Fifth.
D. Eight-year period	(1)	2,000	2,525	2,275	2,950	75	Eighth.

(1) Until retired.

A schedule such as the one prepared would have teachers who enter group A upon a probationary status subject to reelection for each year for three years. At the end of this period those who are unsatisfactory should be dropped from the corps and those who are rated successful should be promoted to group B, where they will automatically advance by $75 increments for a period of three years. When the teacher has reached the maximum of group B, the board may then promote her to group C if she has met the requirements demanded for promotion or keep her at the maximum salary of group B until she does qualify for group C. In group C the teacher is advanced by $75 increments for a period of five years. When the maximum of group C is reached the teacher who has won promotion by her success in the classroom and by her efforts at self-improvement may be promoted to group D, where she will remain until she retires, except for specified cause. If in the judgment of school officials a teacher has not merited promotion, she can be retained at the maximum salary of the group she is in. The group arrangement permits the school board to set up certain standards to be attained at the end of the periods.

This suggested schedule is based upon the supposition that those teachers entering group A have just graduated from normal school and are beginning to teach their first term. If inexperienced teachers are not employed, teachers who have taught elsewhere may be employed and placed in the group to which their experience and preparation entitle them.

Promotion from group to group beyond the group B teachers should be granted only to those who have shown special merit and have given evidence of valuable professional study. To satisfy the latter condition the board might require the candidate for promotion to spend a year in study at some recognized college or university,

or a year in teaching in some good school system in another part of the country, or perhaps a year of study and travel might be combined.

This suggested schedule is designed to correct a weakness in the Winchester schedule by providing a wider range between the minimum and maximum and to provide a means for recognizing merit. Everyone knows that some teachers in a school system are worth very much more than others, and some grow more rapidly than others. It is known, too, that this worth is not dependent upon length of service. Furthermore, the Winchester scale of salaries furnishes no inducement for special industry or for effort for self-improvement. The recent flat increase of $100 for each teacher is evidence of this fact. Again, there is a tendency among teachers as among all workers on salary, when middle age is reached and the maximum salary is obtained, to permit the desire for a comfortable, easy-going life berth to outweigh the ambition for steadily increasing personal efficiency, which can be gotten only at the expense of hard work and many denials of personal pleasure. A salary schedule with only a range of $200 between minimum and maximum and a maximum beyond which teachers can not advance unless funds are specifically voted at town meeting operates powerfully to inhibit growth.

By adopting such a salary schedule an adjustment can be worked out between a teacher's proper desire for security of tenure and the board's proper desire to eliminate the teachers who do not continue to grow in efficiency. At the same time the teacher knows that efforts at self-improvement will find tangible reward in terms of salary increase.

Sufficient funds to increase the salaries of elementary-school teachers may be had when the small schools are consolidated into two or three large ones. At present there are 39 elementary-school teachers, exclusive of kindergarten and special teachers. The average number of pupils to a teacher is 33. If it were possible to give each teacher 40 pupils, as it would be with buildings planned as recommended in this report, only 32 teachers would be needed, or 7 fewer than at present. This would represent a saving of $9,800, or enough to increase the salary of each of the 32 teachers about $300 a year.

NEED OF EFFICIENT SUPERVISION.

Winchester is in need of more adequate supervision, for as the work is now organized, as pointed out elsewhere in this report, there is little supervision, the teachers working for the most part independently of one another, a situation which is typical of town-school systems.

There are eight elementary-school buildings in the department, a junior high-school building, and a high-school building. The ele-

mentary buildings are all small. None of the principals is allowed any free time for supervision and for attending to the multitude of details which crowd in on the principal of even the small schools.

At present the only supervision of elementary-school subjects, except music, art, and gardening, is limited to what the superintendent can give. A supervisor of elementary-school subjects of the first six grades seems to be very much needed. The commission recommends that such an addition to the corps be made.

The question might arise: What would remain for the superintendent to do if an elementary supervisor were employed? The survey committee finds that the duties of the superintendent in Winchester are large and widely diversified. He must look up new teachers and pass upon their qualifications; he must become acquainted with textbooks, attend educational meetings in the State and elsewhere, consult with teachers and with parents, hold teachers' meetings, make recommendations regarding the general policies of the schools; and, by no means least of all, he must keep the people informed as to the needs of the schools. In consequence of these duties, as the work is now conducted, it is possible for the superintendent to visit the teachers only infrequently, and then for but a few minutes at a time.

In point of fact, the superintendent's work should be so organized and he should be given sufficient clerical assistance to enable him to spend the greater part of his time in the schools. The need for the superintendent to gain a first-hand knowledge of the work of the schools under his supervision is not removed by the appointment of a supervisor of the elementary grade. Her work is of a different character from that which the superintendent can best render. The one can not take the place of the other.

If a supervisor of the elementary grades were employed, the superintendent would not visit less than he now does, but he could work more effectively, since he would have some one to assist him not only in a diagnosis but in applying remedies. He would visit classrooms, and if he noted any teacher that needed help he would assign the supervisor the task of improving the instruction of that teacher; or if the supervisor by means of objective tests or by observation discovered that a teacher is not obtaining good results, the superintendent could help ascertain the cause and suggest methods for improvement. Supervision would not be haphazard, but more nearly on a scientific basis.

Standardized tests in arithmetic, reading, and other subjects have been given by the superintendent and the instruction diagnosed to a certain extent by the aid of these tests; but the principals being teaching principals, and the superintendent having to give so much

of his time to administrative problems, there has not been that constructive criticism necessary. A competent supervisor would supply this.

SUPERVISION OF SPECIAL SUBJECTS.

In Winchester there are special supervisors for music, home and school gardening, and physical instruction. The art instruction is given by the art students of Boston University. These are under the supervision of the university art instructor. This plan is theoretically not correct, and the results are poor. It is practically impossible for these art students to coordinate their instruction with the other subjects, consequently they present it without reference to other school activities. A better plan would be for the school committee to employ an art supervisor on full time, so that a course of study could be formulated with reference to other subjects, and so that the teachers could be instructed in art and in methods of teaching it. If such a supervisor were employed there would be no objection to having art students come to the schools to observe and to assist, but they should work under the direction of some one connected with the Winchester schools, some one who knows its aims and purposes, some one who will relate art to the work in home economics, industrial arts, and other subjects. One of the most frequent complaints heard from teachers was that the work in this department is inefficient through lack of proper correlation with other subjects.

The plan of music supervision seems entirely satisfactory, as does the plan of supervising home gardening. For the home-garden work a teacher is employed the entire year to create an interest in gardening and to give it direction; also to supervise nature study during the winter months.

REGULAR OFFICE HOURS FOR PRINCIPALS.

The principals of elementary schools have charge of a room and are the regular teachers for that room. Besides this, they must attend to the administrative details of the school and must answer telephone calls and meet parents who wish to confer with them. These visits and telephone calls now come at all hours of the school session and constitute frequent serious interruptions to the class work of the principals. To lessen this evil there should be a regular office hour agreed upon by the principals and the superintendent, which should be the same for all elementary schools and should be printed on the report cards periodically sent home to parents, so that it may become fixed in the minds of the parents. Then it

should be announced by the superintendent that parents are requested to call on principals only during the office hour. Telephones in the school should be connected only with the superintendent's office. Parents should have no direct telephone connection with the schools. The schools, both elementary and high, are now seriously and needlessly disturbed by telephone calls from parents, often on trivial matters, to the detriment of the teaching.

4. SCHOOL POPULATION AND PROGRESS.

The number of children in Winchester is known exactly, since the school census is taken each year and is kept up to date by means of a cumulative card-file system. Whenever a pupil moves from the town his census card is withdrawn from the files, and whenever a pupil moves in a card is added. In this way a continuous census is kept. This census is used by teachers and attendance officers to check up enrollment at the beginning of the term and at other times. It is thus known how many and what children are not in school. This being known the attendance officer ascertains the cause of nonattendance.

The school census for the year 1918–19 shows that there were in Winchester 2,144 children from 5 to 16 years of age, distributed according to age, as follows:

5 to 7 years	428
7 to 14 years	1,396
14 to 16 years	320
Total	2,144

The enrollment of children 5 to 16 years of age in public and private schools for the same year was 1,878, distributed by ages, as follows:

Enrollment in schools.

Ages.	In public schools.	In parochial schools.	In other private schools.	Total enrollment.
5 to 7 years	216	54	11	281
7 to 14 years	1,076	248	30	1,354
14 to 16 years	239	2	2	243
Total	1,531	304	43	1,878

By comparing the enrollment with the census, it may be seen that 266 children between 5 and 16 years of age were not enrolled. This is accounted for by the fact that some children do not go to school at 5 years of age. Of the 266 children who were not in school, 147 were between 5 and 7 years of age; 42 between 7 and 14; 77 between 14 and 16. Of those between 7 and 14, some were not in school on

account of poor health and others had valid reasons. Practically all of those between 14 and 16 not enrolled had work permits. Thus, to a commendable degree, the children of Winchester are accounted for, which is necessary for the proper enforcement of the compulsory attendance law.

SCHOOL ATTENDANCE.

While the school enrolls every child legally required to attend school, regularity of attendance could be greatly improved. Only 60.9 per cent of the elementary pupils and 70.6 per cent of the high-school pupils attended school during the school year 1919–20 more than 160 days, or the equivalent of an eight months' term. The record for the entire system was 62.9 per cent.

The table which follows shows what per cent of pupils in each school attended more than 160 days:

Proportion of pupils attending school more than 160 days (1919–20), distributed by schools.

School:	Per cent.
Prince	76.5
Rumford	75.8
Wadleigh	75.6
Chapin	74.5
Mystic	53.5
Washington	52.7
Gifford	49.6
Wyman	43.4
Highland	42.9
All elementary schools	60.9
High school	70.6
Entire system	62.9

Perhaps many in Winchester think that there is greater irregularity of attendance in the Chapin and Rumford Schools, where there are many foreign children, than in the schools south of the center of town, but this is not true, for only one other school makes a better showing than Rumford, while the Chapin School ranks above the Mystic, Washington, Gifford, Wyman, and Highland Schools. Similar data collected for the previous year disclose the same situation as between the schools of the north and south sections of the town in respect to this matter of irregularity of attendance.

No doubt the explanation of the better attendance in the Chapin is that the foreign parents keep their children in school despite inclement weather and that they keep them out less often for afternoon parties and matinées. One complaint heard from teachers and others was that in some sections of the town it is not unusual for chil-

dren to fail to return for school in the afternoon, or else ask to leave before the close of the afternoon session, because of social affairs.

It is far from the wish of the survey commission to condemn social activities. They are needed to help round out the life of the child, but there is a time for everything, and the time for social events in which children participate is not during school hours, nor even during the school week if thereby the children are kept up so late at night that the amount of sleep necessary for health and for good school work is not secured.

Some of the parents in Winchester should realize that the best cooperation that they can give the schools is to see to it that their children are regular in attendance and that they are not to be excused for social functions. Possibly some parents who have been making this a practice have not thought that they are interfering with the work of the school as a whole as well as with the advancement of their own children.

In consequence of this irregularity of attendance, many pupils in Winchester fail in their work. At least, there is a relation between attendance and promotion that is significant. Of the pupils who attended less than 50 days, 62.3 per cent failed in June, 1920; 54.7 per cent of those who attended from 51 to 100 days; 35.9 per cent of those who attended from 101 to 150 days; 14 per cent of those who attended more than [illegible] days, and only 10.7 per cent of those who attended more than 170 days. In other words, as one would naturally expect, the greater the regularity of attendance, the fewer the failures.

WORK PERMITS.

One of the most surprising things observed by the survey commission was the fact that more than 50 employment certificates are granted each year to boys and girls from 14 to 16 years of age. The following table shows the number of certificates granted from 1917 to 1919 and the grades in which the pupils were enrolled when the permits were issued:

Number of work permits granted, 1917–1919, distributed by grades.

Grades.	1917			1918			1919			Total boys and girls.
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	
Fourth										
Fifth										
Sixth	10	3	13	2		2	12	3	15	25
Seventh	5	2	7	5	1	6	14	1	15	28
Eighth	9	7	16	7	7	14	10	2	12	42
Ninth	7	4	11	2	3	5	14	2	16	32
Tenth	3	2	5	3	8	11	10		10	26
Eleventh				7	2	9	2		2	11
Twelfth				2	1	3				3
Total	34	18	52	28	22	50	62	8	70	172

The majority had not completed the eighth grade. Fifty-three of the 172 had not completed the sixth grade. The present law requiring the completion of the sixth grade was not in force the years for which the foregoing data were given.

To the work certificates granted children between 14 and 16 years of age might be added those granted young men and women from 16 to 21 years of age. From January, 1919, to January, 1920, 153 such work permits were issued.

Counting the number of work permits granted to children between 14 and 16 years of age, it would seem that there are enough boys and girls in Winchester at work to make it necessary to organize a continuation school, even if not compelled to do so by the State law, which does not make continuation work mandatory in a town if there are fewer than 200 pupils between 14 and 16 years of age legally at work. Even if there were only 20 in Winchester, a continuation school should be provided. As it is, there are about 100 children between 14 and 16 years of age out of school on work permits. Surely this is a sufficient number to justify organizing a continuation school.

The following table shows that, beginning at 14 years of age, there is a considerable elimination of pupils. This table gives the number of pupils enrolled at each age for every 100 at 6 years of age:

Age distribution of pupils enrolled in 1919-20.

Years of age:		Years of age:	
Under 6	49	13	78
6	100	14	53
7	96	15	56
8	102	16	52
9	80	17	38
10	78	18	24
11	82	19 or more	9
12	99		

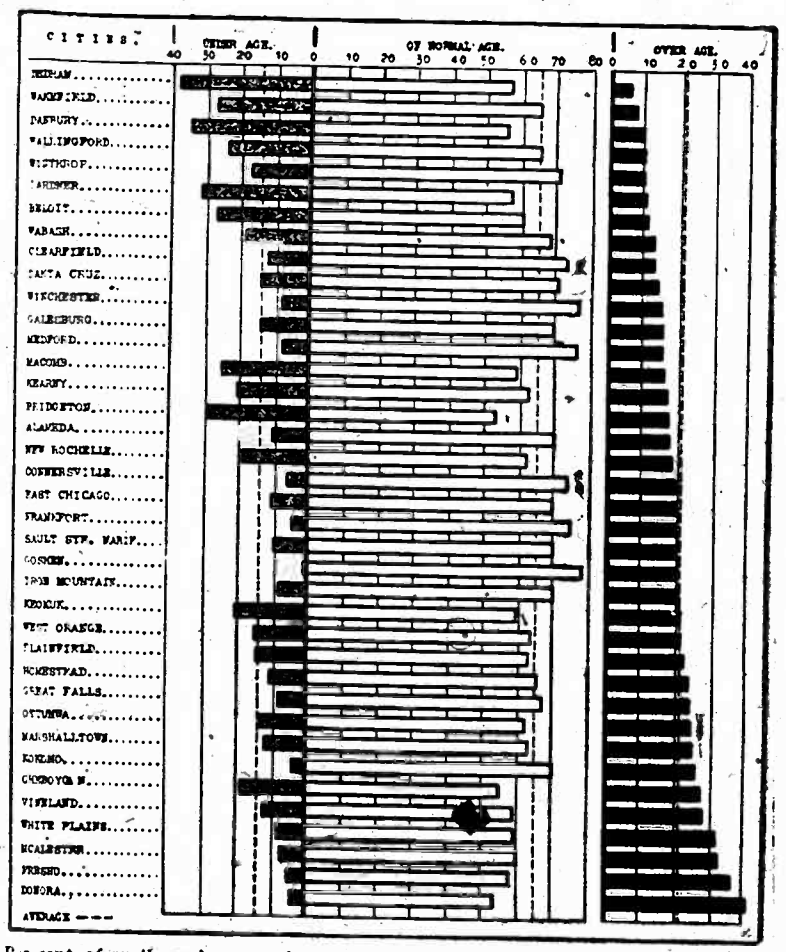
It may be noted that there are only slightly more than half as many who are 14 years of age as there are those who are 6 years of age. This is accounted for by the fact that many secure employment certificates at the age of 14. Of course, the fact must be considered that there are more children 6 years of age than there are 14 years of age.

Data were collected to ascertain the number of children "under age," [3] of "normal age," and "over age" for their respective grades. Two sets of data were prepared, one showing the age-grade as of September 1 and the other as of March 1. Since many children in Winchester enter school at 5½ years of age, it was necessary to take

[3] Children in the first grade not 6 years of age at date ages are taken are considered "under age," those 6 to 8 years of age are classed as "normal age," and those 8 years of age or over are considered "over age."

ages as of March 1, in order to compare with other schools where children enter at 6 years of age and whose ages are taken as of September 1.

The following chart shows that the Winchester schools have few "over age" children, compared with the number in 37 other places. These percentages include high-school pupils.



Per cent of pupils under age, of normal age, and over age in the cities of group B, 1917–18.

The following table shows the age-grade distribution of elementary-school pupils, the ages being as of September 1, 1919, and the per cent of pupils "under age," of "normal age," and "over age" for their grades:

Age-grade distribution, elementary-school pupils, Sept. 1, 1919.

Ages.	Grades.								Total.
	1	2	3	4	5	6	7	8	
5	78								78
6	126	63	1						190
7	32	76	35	11					154
8	1	23	61	49	23				164
9	1	8	19	48	46	6			128
10	2	2	7	15	48	46	3	1	124
11		1	4	2	23	59	42		131
12	1			3	5	14	73	50	146
13			1		3	2	37	74	122
14			1		1	1	12	24	39
15							2	9	11
16								2	2
Total	217	174	129	128	149	133	169	160	1,259
Per cent younger	35.94	56.21	27.91	46.87	46.31	39.10	26.62	31.88	36.07
Per cent normal	58.98	37.47	65.89	49.22	47.65	54.89	65.09	61.25	57.42
Per cent over age	5.08	6.32	10.09	3.91	6.04	6.01	8.29	6.87	6.51

From the foregoing it is seen that there are many children in the Winchester schools young for their grades. This is no doubt largely due to the fact that many enter the first grade at 5 or 5½ years of age.

In order to know whether the children progress as rapidly entering at 5, the superintendent and teachers should learn how many years each child has been in school. Data on this point were not available for use in this report.

PROMOTIONS.

By making a study of the failures and promotions by subjects, light is thrown upon what progress the pupils are making. The following table gives the percentage of pupils who failed of promotion in June, 1919, in the elementary schools:

Percentage of pupils belonging June, 1919, who failed of promotion.

Schools.	Grades.								Percentage of number belonging who failed.
	1	2	3	4	5	6	7	8	
Chapin	32.35	0	14.05	0	12.50	3.58	.....	.....	10.06
Gifford	16.07	0	17.57	0	2.04	.....	.....	.....	7.15
Highland	10.52	0	0	0	.....	.....	.....	.....	3.13
Mystic	11.11	8.34	8.34	0	.....	.....	.....	.....	7.25
Prince	.....	.....	.....	.....	.....	0	0	.....	0
Rumford	23.71	10.34	0.37	0	.....	.....	.....	.....	12.80
Washington	21.97	9.10	11.77	0.00	7.00	.....	.....	.....	11.21
Wyman	14.29	0	0	0	2.27	.....	.....	.....	3.09
Percentage of number belonging who failed	19.91	4.06	8.03	1.45	2.54	5.64	0	.....	8.20

The number of failures is greatest in the first grade of each school. The Chapin School, for instance, failed 32.35 per cent of the first-grade children, while the Highland and Mystic Schools failed 10.52 and 11.11 per cent, respectively. The great number of failures in the Chapin School is charged to the large foreign element with their language difficulties. Looking further at the table it is seen that there were no failures in the second grade, 13 per cent in the third, and none in the fourth. This raises several questions. First, whether the first-grade standard is not so high that only the better pupils get into the second grade, and whether they are not again sifted in the third grade. Second, whether the first and third grade teachers are not more rigid in their marking than are the second and fourth grade teachers. This same phenomenon occurs in the first and third grades in the Gifford School. The course of study for the Chapin School possibly needs to be better adapted to the foreign children. It can not be expected that children in this school can meet the same requirements in English as the children in the schools coming from homes in which only good English is spoken and in which they learn to read largely by means of children's books supplied them by their parents.

The failures for each grade except the first are not high and the average for all the elementary schools, the Wadleigh not included, is comparatively low, only 8.2 per cent. Or, stated another way, the average promotion rate is 91.8 per cent, but even if this should be the average rate year after year, many children out of every 100 entering the first grade would fail. For illustration, out of 100 children in the first grade, with 19.91 per cent failing, only 80 would go on to the second grade. Continuing this process on until the end of the sixth grade, there would remain only 64 who had not failed at some time during the six years.

A study of the failures, as shown by the following table, makes it clear that arithemetic is responsible far more than any other subject:

Percentage of pupils in each subject of the elementary schools failing to make the passing mark of 70, June, 1919.

Subjects.	Grades.								Percentage of number belonging who failed.
	1	2	3	4	5	6	7	8	
Reading	17.3	7.02	5.70	3.23	5.77	0	.....	.....	7.57
Arithmetic	16.21	10.16	9.76	4.51	16.76	13.63	3.22	.....	11.73
Language	0	0.78	4.87	5.90	8.55	1.51	3.22	.....	3.71
Spelling	0	8.59	5.69	5.80	5.77	3.03	0	.....	4.53
Penmanship	15.14	4.69	9.76	3.87	2.31	0	0	.....	6.38
Geography	.....	.....	.....	1.29	6.30	18.18	6.45	.....	5.61
History	.....	.....	.....	.....	.....	3.03	0	.....	2.04

One of the things that attracts the attention is the fact that 16 per cent of the children in the first grade fail to make the passing mark in arithmetic, almost as many as in reading. Another point which attracts attention is the percentage of children not up to the passing grade of 70 per cent in penmanship. The question may be asked: Is arithmetic the most important subject in the Winchester schools, and is it so important that it must be taught in the first grade? The answer to this question is found in the part of this report treating of the course of study. The teaching of penmanship is also discussed in the same section.

The failure by subjects in the Wadleigh School is shown in the following table:

Percentage of failures in seven subjects, Wadleigh School, June, 1919.

Subjects.	Grades.			Percentage of number belonging who failed.
	6	7	8	
Mathematics	12.33	21.62	19.16	18.42
English	8.22	13.52	12.50	14.11
Geography	2.74	22.52	1.66	9.54
History	8.22	1.80	7.50	5.59
Spelling	10.96	2.70	.83	3.98
Penmanship	2.74	.90	4.16	2.63
Reading	.00	.00	.00	.00
Percentage of number belonging who failed	6.45	9.90	6.55	7.73

Here again the greatest number of failures is in mathematics. English is a close second. Geography is responsible for a large percentage of failures in the seventh grade, which reached the very high point of 22.5 per cent.

GRADING.

The elementary schools of Winchester consist of the usual eight grades. Where the number of pupils makes it possible, the less gifted of the same grade are grouped together and the brighter ones are grouped together, constituting a grading within the regular grades. Such grouping is done on the basis of scientific tests of native intelligence, which, although not perfect, are after all more reliable than the mere judgment of the teacher or than any other means we have of determining the native ability of a child. Such grading within grades is highly desirable. The teaching can be much better adapted to each group. The mixing of the bright with the less gifted usually works an injustice to the bright and is no advantage to the dull. In many school systems special provision is made for the exceptionally bright as well as the exceptionally dull. The usual grade instruction is adapted only to children of average ability. In making these classi-

tions, it is obvious that a distinction must be made between the actually dull and those gifted children whose mental processes are merely slow.

More adequate provision should be made in Winchester for children of low mental capacity who are not feeble-minded. They should not be grouped with the feeble-minded.

When new and larger buildings are erected and when a real junior high school is organized, promotions should be made semiannually instead of, as is now done, annually. In that case when a pupil fails of promotion he is kept back only half a year, and gifted pupils will be able to skip a half year several times in their course who can not very easily skip a whole year. Such pupils at present do less skipping of grades than is desirable. The possibility of such rapid promotion is a wholesome incentive for work for bright pupils, who usually do much less work than they are easily capable of. Although the average age of entrance to the high school is low, this is in part at least due not to the rapid promotion of the gifted pupils but to the moderate requirements of the course as a whole in the elementary schools.

HEALTH ACTIVITIES.

The health work in the Winchester schools is conducted by two school physicians assisted by the school nurse. Each elementary pupil is given a regular physical examination every other year and each high-school pupil every year. The teeth are examined twice a year in all the grades except the high school.

5. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS.

1. The proper relationship between the school committee and the superintendent obtains, in that the school committee acts as a legislative body delegating all executive functions to the superintendent of schools.

2. While the expenditure per pupil in Winchester is high compared with that in other cities, the expenditure in proportion to wealth is low.

3. The rate of taxation for school purposes in Winchester is low compared with that in other cities in different sections of the country and with other places in Massachusetts having less per capita wealth.

4. The school committee distributes each dollar for each item of expenditure in about the same proportion as in other cities, somewhat less being expended for principals' salaries and for maintenance.

5. Compared with 41 other cities between 10,000 and 25,000 population, Winchester apportions much less of the city funds to schools, Winchester apportioning 29 per cent and the median city 44 per cent.

6. With only a few exceptions, the elementary-school teachers have had four years of high-school education and in addition two years of normal-school work.

7. Measured in terms of experience, the elementary teaching corps ranks high, more than half having taught 15 or more years.

8. Although teachers' salaries have been increased, this increase has not more than kept pace with the increased cost of living. Since salaries in 1914 were too low, they are still below what they should be to secure and to retain the best teachers.

9. There should be a wider range between the minimum and the maximum salaries. The maximum should be about twice that of the minimum and attained only after some years of successful experience.

10. A salary schedule should be prepared so that increases in salary will depend upon advancement in scholarship, experience, and successful teaching.

11. Since the principals teach, provision should be made for more general supervision. To this end a supervisor for the first six grades should be employed.

12. A supervisor of art should be employed to give her entire time during the school year to this subject.

13. Since the principals teach they should not be interrupted while teaching by calls from parents and by telephone calls. There should be a central exchange in the superintendent's office, so that parents and others would not be in direct communication with the various school buildings.

14. Practically every child of compulsory school age is enrolled in the public or private schools.

15. Although school attendance is comparatively good, it could be improved with more cooperation on the part of parents.

16. Each year a sufficient number of children between 14 and 16 years of age obtain work permits to organize a continuation school.

17. Winchester has few over-age children compared with the number in other cities.

18. There are comparatively few failures; only 8.2 per cent of those belonging in June, 1919, failed of promotion. There are, however, many failures in the first grade, the average for the grade being 19.9 per cent. Arithmetic causes the greatest number of failures.

19. The plan of grouping children according to ability is practical and should be continued, but more adequate provision should be made for children of low mental capacity who are not feeble-minded.

20. When new and larger buildings are erected, promotions should be made semiannually instead of annually as is now done.

Chapter II.

A SCHOOL BUILDING PROGRAM FOR WINCHESTER, MASSACHUSETTS.

CONTENTS.—Social and industrial conditions affecting schools; school must provide opportunity for work and play; proportion of foreign-born parents; school enrollment; too many small buildings; the work-study-play plan of organization; three alternative plans for a building program; comparison of costs of the three plans; number of teachers required by each; conclusions.

With the exception of the high school, Winchester has not erected a new school building for 19 years. Five of the nine elementary schools were erected 30 years and more ago. All of the elementary school buildings are small, old, and entirely without modern school facilities. There is not an auditorium in any of these schools, nor a gymnasium; and there are only two shops in all the nine schools, not counting the three special rooms in the Prince School. In spite of the fact that Winchester is a wealthy city, it has provided no adequate playground space for the masses of its children. In other words, the schoolhouses of Winchester are still the little red schoolhouses of olden days, with school seats but with almost nothing else in the way of equipment for the children's education.

CHANGED SOCIAL AND INDUSTRIAL CONDITIONS AND THEIR EFFECTS ON SCHOOLS.

Fifty years ago this would not have been a serious matter, for in those days children had the opportunity for the wholesome work and play outside the school which was as much a part of their education as the study of the three R's in school. There was plenty of playground space for healthful play, and every New England town had the small shops where children could get the opportunity to handle tools and develop the mechanical knack which has always been such an asset in the growth of New England enterprise. There is such a common tendency to identify "schools" with "education" that it is important to emphasize the fact that education has always consisted of work and study and play, and that children must not be deprived of any of these three elements in their education if they are to grow in health and strength and develop initiative, intelligence, and the ability to think for themselves. But during the past

half century the modern city has deprived children of two of the important elements in their education—i. e., the opportunity for healthful work and play. It makes no difference whether the city is a metropolis like Boston or a suburb like Winchester. The point is that the modern city home, whether an apartment house or a suburban home, can offer few educational opportunities in the way of healthful work which develops the ability to think by attacking problems to be solved. Unfortunately for the children, the problems are solved so far as shelter, food, and clothes are concerned. There is no planting and harvesting to be done in the city; there are few, if any, animals to be taken care of; and there are no carpenter shops or forges to "tinker" in, thereby enabling the children to learn the ways of tools and materials. Yet children, until recently, have received much of their education through the opportunity to handle tools, to take care of animals, and to experiment in making and using things.

CITIES DEPRIVE CHILDREN OF PLAY.

But not only does the city deprive children of the opportunity for healthful work, it also deprives them of the chance for wholesome play. Children are not naturally bored with life; they are full of vivid interest in it—in investigating, experimenting, testing, finding out things. And yet one of the tragedies of city life is the number of bored and idle children whom anyone can see standing about on the streets, sitting on doorsteps, idling away the time. And it is not surprising, for what is there in an ordinary city street to arouse the creative, constructive-play instinct in children? The irony of the situation is that when they do try to express their natural instincts in play, they are often arrested for disorderly conduct. Play has become a crime in the modern city. But children *will* play, and if not given opportunity for the wholesome expression of it they will express it in other ways, for the city street is a most efficient educator. It can train children more rapidly in the wrong direction than the traditional school with nothing but books and school seats can educate them in the right direction. Street play means education not in health and strength and wholesome living but precocious education in all the vicious sides of city life, which children never forget.

SCHOOLS MUST PROVIDE OPPORTUNITIES FOR HEALTHFUL WORK AND PLAY.

For all these reasons it has come to be recognized that the city school must not only supply the opportunity for study in attractive classrooms under wholesome conditions but it must also return to the children the opportunity for the healthful work and play which the home no longer supplies. The school must have shops and labora-

tories, drawing rooms and music rooms, auditoriums, gymnasiums, playgrounds, and kindergartens. These are the essential minimum requirements of a modern school plant. It must be a place where the children can not only master the three R's but also find the opportunity to develop their special talents, for democratic education means variety of opportunity in accordance with the needs of each individual. Too many children now are graduated to the sidewalk as failures because the school has tried to make them measure up to a uniform standard instead of giving them the opportunity to express the best that is in them. But that opportunity does not come through exhortation but through the chance for children to try themselves out in many different lines of work. We say that "children learn by doing." If that is so, then the school must give them an opportunity to *do* something; it must become a place where children can live by taking part in the wholesome activities by which children have always been educated. Moreover, if these educational principles are important for native-born children, they are even more important for children of foreign-born parents, who can do far less than the American-born parent in counteracting the undesirable effects of city life upon their children.

FORTY PER CENT OF THE FATHERS OF PUBLIC-SCHOOL CHILDREN ARE FOREIGN-BORN.

The general impressions about a city and the actual facts about it are often very different. The general impression about Winchester is that it is a residential suburb. That is true, but it is only part of the truth. It is also true that in Winchester there are quite a number of industries. There is a tannery, a laundry, a marble factory, a gelatin and glue factory, a watch-hands factory. Besides, there are factories for making felt, felt wheels, petticoats, leather machinery, and spindles. This means that a considerable proportion of the population comprises working people whose children attend the public schools. Moreover, the parents of a large number of public-school children are foreign-born. In 1919 forty per cent of the fathers of public-school children in Winchester were foreign-born. Nineteen countries were represented—Austria, Brazil, Canada, Denmark, England, Finland, France, Germany, India, Ireland, Italy, Mexico, Norway, Poland, Portugal, Russia, Scotland, Sweden, and the West Indies. Of the parents of children in the Chapin School 84 per cent were foreign-born, and 49 per cent of the parents of children in the Rumford School were foreign-born. Thirty-two per cent of the parents of children in the Gifford School, 28 per cent in the Washington School, 39 per cent in the Prince School, 37 per cent in the Wadleigh School, and 37 per cent in the high school were foreign-born. (See following table.)

Distribution of birthplaces of male parents or guardians of children in Winchester schools, May, 1920.[1]

Schools.	United States.		Ireland.		Italy.		Canada.		England.		Sweden.		Scattering.[2]		Total.
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	
High	170	63	38	14	12	5	30	11	6	2	5	2	10	4	271
Wadleigh	137	63	25	11	6	3	30	14	5	2	7	3	8	4	218
Prince	75	71	11	10	5	5	10	9	2	2	1	1	2	2	106
Chapin	14	15	7	8	64	69	2	2	0	0	3	3	3	3	93
Wyman	64	88	.....	.....	.....	.....	2	3	3	4	1	1	3	4	73
Rumford	22	51	11	26	3	7	3	7	1	2	2	5	1	2	43
Washington	36	72	3	6	.....	.....	6	12	.....	.....	3	6	2	4	50
Gifford	36	63	2	4	1	2	6	11	5	9	1	2	3	5	57
Highland	27	87	.....	.....	.....	.....	1	3	.....	.....	1	3	2	6	31
Mystic	28	85	.....	.....	.....	.....	.....	.....	4	6	.....	.....	1	3	33
Parochial	42	28	56	38	34	23	12	8	3	2	.....	.....	2	1	149
Private	53	92	1	2	.....	.....	3	6	1	2	.....	.....	.....	.....	58
Total	707	60	154	13	125	11	105	9	30	3	24	2	37	3	1,182

[1] Each parent is counted once and assigned to school attended by oldest child.
[2] Includes Poland 8, Russia 7, Germany 5, Denmark 4, Norway 2, France 2, West Indies 2, Finland 3, Austria 2, India 1, Mexico 1, Portugal 1, Poland 1, Brazil 1.

This large percentage of public-school children having foreign-born parents means that the educational problem is far more difficult than formerly. It means that the school must really be the "melting pot" of all these diverse elements. It means that it is imperative that Winchester erect the best type of modern school building, which shall serve as a social center, and which shall give the children the opportunity to develop the particular talents which all these different nationalities bring to America. Certainly if the modern city makes it necessary to provide playgrounds, shops, and science laboratories for American children, it makes it even more important to provide such facilities for children of the foreign born, since the crowded conditions under which the latter live are such that public playgrounds are absolutely essential if they are to get the wholesome exercise necessary for every growing child. Again, because of the limited income of their families, these children have, as a general rule, far less opportunity than the American child to develop their gifts in handwork, music, drawing, and science.

There are organizations in Winchester devoted to Americanization work, but apparently there is little realization of the fact that the best Americanization work that could be done would be to erect modern school buildings in which children could be wholesomely occupied all day, and which parents could use in the evening as social centers.

QUESTIONS THAT MUST BE ANSWERED IN PLANNING A BUILDING PROGRAM.

It is obvious from the foregoing that in developing a building program Winchester has much to do to make up for lost time, and also prepare for the future in giving its children the best type of modern educational opportunity. In order to plan a building pro-

gram wisely and with due regard to economy, it is necessary to obtain answers to the following questions (1) What is the present school population? (2) What is the enrollment in the public schools? (3) Has there been an increase in enrollment in the past five years? (4) In what part of the city is the increase in the future likely to come? (5) In order to eliminate present congestion and also to provide for future growth, how many and what kind of new buildings should be erected and in what parts of the city? (6) What appropriation is necessary to carry out an adequate building program?

SCHOOL ENROLLMENT.

On October 30, 1919, there were 1,662 children enrolled in the public schools. Of this number, 1,342 were in the elementary schools. Five years before (Oct. 30, 1914) there were 1,847 children, of whom 1,501 were in elementary schools. In other words, there has been a decrease of 185 children in all the schools and 159 in the elementary schools alone. Obviously, then, congestion is not the chief problem in a building program for Winchester. In fact, as will be seen from the following table, there are four more classrooms than there are classes in the public schools. The problem to be solved in planning a building program for Winchester is to provide school buildings with modern facilities for all the children and buildings so arranged as to make possible a more economical organization of the schools. The situation respecting enrollment and distribution among the schools of the city for the period 1914–1919 is shown in the following table:

Public-school enrollment by schools, 1914 and 1919—Capacity of school buildings; number of regular classrooms, number of classrooms required.

Names of schools.	Grades.	Capacity, on basis of 40 pupils in a class.	Total enrollment.		Increase (+) or decrease (−) in number of pupils 1914–1919.	Classrooms.			Number of teachers.	Principals.
			October, 1914.	October, 1919.		Number available.	Number required.	Excess of available over required.		
1. Chapin	[1] K-1-6	320	260	220	− 40	8	6	2	6	1
2. Gilford	1-5	160	151	132	− 19	4	4	0	3	1
3. Highland	3-4	80	78	61	− 17	2	2	0	1	1
4. Mystic	1-4	80	55	61	+ 6	2	2	0	1	1
5. Rumford	1-4	160	153	116	− 37	4	3	1	3	1
6. Washington	1-5	160	146	117	− 29	4	3	1	3	1
7. Wyman	1-5	160	173	144	− 29	4	4	0	3	1
8. Wadleigh	6-8	320	333	330	− 3	[2] 8	9	[3] 1	9	1
9. Prince	[4] K-Sp. 6-7	200	152	161	+ 9	[5] 5	4	1	4	1
Total elementary		1,640	1,501	1,342	−159	41	37	4	33	9
High school			346	320	− 26				19	1
Grand total			1,847	1,662	−185				[6] 52	10

[1] Kindergarten and grades 1 to 6.
[2] Also 1 shop and 1 sewing room.
[3] One less than the number required.
[4] Kindergarten, special grades, and grades 6 and 7.
[5] Also 3 special rooms.
[6] Also 3 special teachers.

TOO MANY SMALL BUILDINGS.

At the present time Winchester, like many other New England cities, is handicapped by having too many small buildings. This means greater cost of upkeep, as well as of initial outlay; also fewer modern facilities for the children. In a large school with many children a community can afford to give a greater variety of facilities. For example, a school of 1,200 pupils can afford such facilities as an auditorium, shops, gymnasium, swimming pool, library, etc., whereas if the children were housed in two school buildings with separate sites, equipment, teaching force, and janitorial service, the total expense of upkeep would obviously be much greater. In other words, the city has something to learn from the country in the matter of both the social and financial advantages of the consolidated school. As a matter of fact, Winchester has just about enough children in the public elementary schools to make one good-sized school; owing to local sentiment and local conditions, however, it will probably be necessary to have at least three—one for the west side, one for the east side, and one for the north end.

TWO METHODS OF MEETING THE BUILDING SITUATION.

Evidently, to provide for increase in enrollment, and also to provide the modern school facilities in which Winchester is so sadly lacking, especially in view of the fact that it has done nothing in the way of school building for nearly 20 years, will involve considerable expense and careful planning. There are two methods by which the program can be worked out.

The first method would attempt to solve the situation by the usual procedure of adding classrooms or new buildings without changing the traditional school organization. All children would be expected to be in school seats at the same time, and if provision were made for special activities, such as shops or cooking rooms, the classrooms would remain vacant when such facilities were in use. If such special facilities were provided, therefore, they would have to be in addition to a classroom for every class.

THE WORK-STUDY-PLAY PLAN OF ORGANIZATION.

A second possible method of solving the building problem of Winchester is what is commonly known as the work-study-play plan, now in operation in some 30 or 40 cities in the country. This plan developed in an attempt to solve the peculiar school problems created by the modern city. It grew out of a recognition of the fact that, as in the case in Winchester, the growth of cities makes the edu-

cational problem far more difficult than formerly—in fact, has created a new school problem. The plan represents an attempt to meet these new conditions and to make it practicable, both administratively and financially, for school administrators to provide not only classroom accommodations but also such modern educational facilities, as gymnasiums, auditoriums, shops, and laboratories, where children may be kept wholesomely occupied in study and work and play. The following is a description of the plan taken from Bureau of Education bulletin, 1919, No. 50, part 1: The Public School System of Memphis, Tenn.

Briefly, the plan is this: A school is divided into two parts, each having the same number of classes, and each containing all the eight or nine grades. The first part, which we will call the "A School," comes to school in the morning, say, at 8.30, and goes to classrooms for academic work. While this school is in the classrooms, it obviously can not use any of the special facilities; therefore, the other school—"B School"—goes to the special activities, one-third to the auditorium, one-third to the playground, and one-third is divided among such activities as the shops, laboratories, drawing, and music studies. At the end of one of two periods—that is, when the first group of children has remained, according to the judgment of the school authorities, in school seats as long as is good for them at one time—the A School goes to the playground, auditorium, and other special facilities, while the B School goes to the classroom.

Under this reorganization on the work-study-play plan all the children would have not only the same amount of time for reading, writing, arithmetic, geography, and history, as formerly—210 minutes—but also 50 minutes of play every day, 50 minutes a day of auditorium, and 50 minutes a day of shopwork every day in the week for a third of the year; science every day for a third of the year, and drawing or music every day for a third of the year.

The following table gives a possible program for the "A School." It will be recalled that there are 12 classes in this "A School," which are divided into 3 divisions of 4 classes each: Division 1, upper grades; division 2, intermediate grades; division 3, primary grades.

The "A School."

School hours.	Regular activities.	Special activities.		
	Academic instruction.	Auditorium.	Play and physical training.	Cooking, shop, science, etc.
8.30- 9.20	Arithmetic—Divisions 1, 2, 3.	.....	.....	.....
9.20-10.10	Language—Divisions 1, 2, 3.	.....	.....	.....
10.10-11.00	.....	Division 1.....	Division 3.....	Division 2.
11.00-12.00		Entire "A School" at luncheon.		
12.00- 1.00	Reading—Divisions 1, 2, 3.	.....	.....	.....
1.00- 1.50	History and geography—Divisions 1, 2, 3.	.....	.....	.....
1.50- 2.40	.....	Division 3.....	Division 2.....	Division 1.
2.40- 3.30	.....	Division 2.....	Division 3.....	Division 1.

The "B School."

School hours.	Regular activities.	Special activities.		
	Academic instruction.	Auditorium.	Play and physical training.	Cooking, shop, science, etc.
8.30- 9.20	.....	Division 2.....	Division 3.....	Division 1.
9.20-10.10	.....	Division 3.....	Division 2.....	Division 1.
10.10-11.00	Arithmetic—Divisions 1, 2, 3.	.....	.....	.....
11.00-12.00	Language—Divisions 1, 2, 3.	.....	.....	.....
12.00- 1.00		"Entire B School" at luncheon.		
1.00- 1.50	.....	Division 1.....	Division 3.....	Division 2.
1.50- 2.40	Reading—Divisions 1, 2, 3.	.....	.....	.....
2.40- 3.30	History and geography—Divisions 1, 2, 3.	.....	.....	.....

This program represents a change in the traditional method in several important points. In the first place, it breaks up the custom of having all children in classrooms at the same time and letting the classrooms die idle when the children go to the auditorium, shops, and playground. In other words, it applies to the public-school the principle on which all other public-service institutions are run; that is, the multiple use of all facilities all the time. For example, it is evident that our transportation system is made possible because of the fact that all people do not wish to ride at exactly the same time; concerts and theaters are made available to many people because one person can use another's seat when he does not want to use it; hotels can accommodate thousands of people because they are not run on the principle of reserving each room for the exclusive use of a single individual during the whole year. On the other hand, the public-school system has been run on the principle of reserving a seat for each child during the whole year. All children have to be in school seats from 9 to 12 a. m. and from 1 to 3 p. m.; all have to go home to lunch at the same time; and at 3 o'clock all are dismissed and turned out to play.

There would, after all, seem to be no good reason why the principle of other public-service institutions, i. e., multiple use of facilities all the time, should not apply to the school, nor any reason why all children should be in classrooms at the same time, nor why the special facilities should be used only a fraction of the day, provided, of course, that the children receive during the day the required amount of academic work. In fact, it is difficult to see how the problem of providing enough classrooms, or playgrounds, or auditoriums for the mass of children is ever to be met if all children have to be in classrooms at the same time, and if all children have to play at once. Moreover, there seems to be no good reason from an educational standpoint why children should all have to do the same thing at the same time.

PRINCIPLE OF MULTIPLE USE MAKES MODERN EDUCATIONAL FACILITIES FINANCIALLY PRACTICABLE.

Fortunately, however, if the principle of multiple use is applied to public-school facilities, it is possible to provide not only adequate classroom accommodations but also auditoriums, gymnasiums, and shops for the mass of children. In fact, accommodations may be provided in all facilities, if they are in use constantly by alternating groups, at less cost than regular classrooms alone may be provided on the basis of a reserved seat for every child. For ex-

ample. In a 24-class school, under the traditional plan, 24 classrooms are needed in addition to all the other special facilities. Under the work-study-play plan only 12 classrooms are needed. The classroom, however, is the most expensive unit in the school, therefore since only half the usual number of classrooms is needed, i. e., classrooms in a 24-class school, the cost of the remainder is released for all the other special facilities.

FLEXIBILITY OF THE PROGRAM.

A program based upon the multiple use of facilities not only makes possible modern educational advantages for the children but it also makes it possible to have a flexible program. A study of the different types of these schools in different parts of the country shows that it is possible for a community to adapt the program to its particular needs. For example, it is possible to arrange to have the school begin at 8.30, 8.45, or 9 a. m., or any other hour desired. Or, if the school begins at 8.30 and certain parents object to having their children leave for school so early, it is possible to put these children in the "B School," which begins the day with special activities; in this case the children can omit the play period from 8.30 to 9.20 and arrive at school at 9.20. Or again, many parents prefer to have their children take special music lessons after school. It often happens that home work or staying after school interferes with these lessons. Under the work-study-play plan it is possible to put such children in the "A School" and let them omit the play period or the auditorium in the afternoon from 2.40 to 3.30 p. m. There is, of course, no reason why children should not be given credit for these out-of-school activities if so desired. Again, a child who is backward in a special subject, such as arithmetic, and is being held back in a grade because he can not master that subject, can double up in arithmetic for a number of weeks by omitting the auditorium period until he has made up the work and is ready to go on with his grade. As for the special activities, each community and each section of the city can have the special facilities which the school authorities and parents desire.

THE SCHOOL TAKES OVER THE STREET TIME OF THE CHILD.

As has been pointed out, one of the most undesirable elements in the life of city children is the street life in which they have hitherto spent so large a part of their time. The average city school is in session about 180 days in the year. This means that even though all the children attended the entire time, they would still be out of school 185 days in the year. Obviously, because of the conditions of modern city life it is necessary that the school take over some of the time now spent by the child on the city streets, especially the school year. At present if 10 hours of the 24 are allowed for sleep, and 6 for meals and home duties, there still remains 8 hours to be accounted for. Even if the children were in school 5 hours every day there would still be 3 hours left, and as is well known these hours are spent on the city streets and not always to the child's advantage. At least one or two of these should be taken over by the school, and wholesome activity in work and play provided.

The work-study-play plan does this by lengthening the school day an hour or more as each community may desire, and by offering to the children the wholesome activity in shops and laboratories and on the playgrounds, which is so essential for them. It should be borne in mind, however, that this lengthening of the school day does not necessarily lengthen the number of teaching hours of any teacher. It is necessary that she be around the building six hours, but she need not teach more than five hours.

How this plan can be adapted to the school needs of Winchester will be explained in the discussion that follows.

A BUILDING PROGRAM.

Three alternative plans are offered in the following discussion. In all three plans the aim has been to give to all children, whether in elementary schools or junior high schools, modern school advantages—playgrounds, auditoriums, shops, and laboratories. The difference in the plans is that Plan I is based upon the erection of two combination elementary and junior high school buildings (west side and north end), and one 6-grade school (east side). Plan II is based upon the erection of one separate junior high school (west side) and one combination elementary and junior high school (north end) and two 6-grade schools (east and west sides); while Plan III is based upon the erection of one separate junior high school (west side) and three 6-grade schools (east side, west side, and north end). The cost of the buildings and the number of teachers required under each plan are given on the basis both of the work-study-play plan of organization and of the traditional plan of school organization.

PLAN I.

[Based on having two combination elementary and junior high schools.]

1. *West side.*—Erect a new school building on the west side. Make it a combination elementary and junior high school. House in it the pupils from Wyman, Prince, Mystic, the seventh and eighth grades from Wadleigh, and the children of the first year of high school who reside on the east and west sides, thus constituting the ninth grade of this junior high school. The enrollment would then be as follows:

	Pupils.
Wyman School	144
Prince (minus the seventh grade)	88
Mystic School	61
Seventh and eighth grades, Wadleigh and Prince	321
First grade in high school	123
Total (making 19 classes)	737

Make this a 24-class school, thus allowing for a growth of 5 classes or 200 pupils. Under the work-study-play plan the building would contain 12 classrooms and a kindergarten, an auditorium and gymnasium (and swimming pool, if desired), 2 shops for boys, 2 shops for girls, 2 science laboratories, 1 drawing room, 1 music room—21 units. At a cost of $16,000 per classroom unit, this would make $336,000. Under the traditional plan of school organization, 33 units would be needed, which would bring the cost to $528,000.

2. *North end.*—Erect a new building at the north end, to be a combination elementary and junior high school. The pupils from Washington, Chapin, and Rumford Schools should be housed in this building. The enrollment would then be as follows (not including seventh and eighth grade students who now go to Wadleigh and Prince. These pupils should be included in the number to attend the new school, but it was impossible to include them, as it was not possible to get the number in Wadleigh who came from the north end):

	Pupils.
Chapin School	220
Washington	117
Rumford	116
Total (making 12 classes)	453

Make this into an 18-class school, allowing for a growth of at least 6 classes. This would necessitate a building of 9 classrooms and 1 kindergarten, 1 shop for girls, 1 for boys, 1 science laboratory, 1 drawing room, 1 music room, an auditorium, and a gymnasium—15 units. This would cost approximately $240,000. Under the traditional type of school organization, 24 units would be needed, which would bring the cost to $384,000.

3. *East side.*—Consolidate Highland, Gifford, and the sixth grade in Wadleigh into a six-grade school on the east side. The enrollment would then be as follows:

	Pupils.
Wadleigh (sixth grade)	82
Highland	61
Gifford	132
Total (making 7 classes)	275

The enrollment in this school is not likely to increase, as it is in a part of the city that is not growing. This school could be made into an 8-class school. Wadleigh has 8 classrooms, 2 shops, and a room for play or for another shop in the basement. Four of the rooms could be used as classrooms, 1 as a nature-study room, 1 as a drawing and music room; 2 could be turned into an auditorium, and the attic could be made into a gymnasium, which, with the play space downstairs, could give enough indoor play space. The outdoor playground space is too small, but it is large enough for one-sixth of the school to play in at one time, as would be necessary under the work-study-play plan.

As there is not enough space in the Wadleigh School for the kindergarten children, and as it is important to continue to use the Gifford School, it is suggested that two rooms in Gifford be used for the kindergarten, and the other two rooms for additional shops when considered desirable.

The cost of changes and additional equipment would approximate $5,000. Under the traditional plan of school organization, two units plus an auditorium and a gymnasium would be needed. This would necessitate using Gifford as an annex, or cutting out these activities. The cost of reconstruction in either school would be the same, $5,000. But the cost of overhead would be greater.

Summary of costs and capacity[1]*—Plan I.*

Buildings.	Under the work-study-play [illegible]			Under traditional [illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1. New school building for 24 classes [illegible] west side	21	$[illegible]	21	33	$[illegible]	[illegible]
2. New school building at north end, for [illegible] classes	17	210,000	18	24	[illegible]	[illegible]
3. Reconstruction of Wadleigh		5,000	[illegible]		[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] This does not include the cost of sites for (1) and (2).

PLAN II.

Among plans for building programs which have been suggested at various times for the Winchester schools, the proposal has been made that a separate building for the junior high school be erected. Plans II and III show how this can be done, first (Plan II) on the basis of having a separate junior high school for east and west side children, and a combination elementary and junior high school for the north end; and second (Plan III), on the basis of having one junior high school for all children in the city and three six-grade schools.

Plan II would then involve erecting the following buildings:

1. *West side.*—An elementary school to accommodate the elementary school pupils from Wyman, Mystic, and Prince (minus the seventh grade), 293 pupils, or 8 classes. A building should be erected to accommodate at least 10 classes, so as to allow for growth. This would mean a building, under the work-study-play plan, of 5 classrooms and a kindergarten, 4 special rooms, an auditorium, and a gymnasium, 10 units, $160,000. Under the traditional plan, 10 classrooms would be needed, making 14 units; cost, $240,000.

2. A junior high school on the west side to accommodate the seventh, eighth, and ninth grades from the east and west sides, 444 pupils, or 12 classes. It would be necessary to erect a building to accommodate at least 16 classes. This would require under the work-study-play plan, 8 classrooms and 8 special rooms, 16 units, $256,000. Under the traditional plan it would require 24 units, $384,000.

3. *North end.*—Erect a combination elementary and junior high school, as per Plan I.

4. *East side.*—Reconstruct Wadleigh into a six-grade school, as per Plan I.

The total cost of a building program under Plan II would be as follows:

Cost of building program on basis of one separate junior high school and one combination elementary and junior high school—Plan II.

Buildings.	Under the work-study-play plan: Number of units.	Cost.	Number of classes.	Under the traditional plan: Number of units.	Cost.	Number of classes.
1. [illegible] school building, west side [illegible]	10	[illegible]	10	15	$2[illegible]	10
2. [illegible]	16	2[illegible]	16	24	[illegible]1,000	16
3. Combination elementary and junior high school building, north end, [illegible]	1[illegible]	[illegible]	18	21	[illegible]	18
4. Reconstruction of Wadleigh	......	5,000	8	......	5,000	8
Total	3[illegible]	[illegible]	52	[illegible]	1,[illegible]	52

PLAN III.

(Based on the plan of having one junior high school for all seventh, eighth and ninth grade pupils, and three elementary school buildings, containing only grades 1 to 6, [illegible].)

1. Erect a 6-grade school on the west side, as per Plan I.

2. Erect a 6-grade school on the east side, as recommended in Plans I and II; cost, $5,000.

3. Erect a 6-grade school in the north end. Chapin, 220; Washington, 117; Rumford, 116; total, 453, or 12 classes. Make this into a 16-class school. This would necessitate having a building of 8 classrooms and a kindergarten, 1 shop for girls, 1 for boys, 1 nature-study room, 1 drawing room, 1 music room, an auditorium and gymnasium, 14 units. This would cost approximately $224,000. Under the traditional type of school organization 22 units would be needed, which would bring the cost to $352,000.

4. Erect a junior high school to accommodate all seventh, eighth, and ninth grades in the city.

It would then be necessary to erect a junior high school to accommodate 18 classes, thus allowing for a growth of 6 classes. This would require 9 classrooms and 8 special rooms, 17 units, $272,000. Under the traditional plan it would require 26 units, $416,000.

Summary of costs and capacity on basis of one junior high school and three six-grade schools—Plan III.

Buildings.	Under the work-study-play plan.			Under the traditional plan.		
	Number of units.	Cost.	Number of classes.	Number of units.	Cost.	Number of classes.
1. Six-grade school on the west side	10	$160,000	10	15	$240,000	10
2. Six-grade school on east side		5,000	8		5,000	8
3. Six-grade school at north end	16	224,000	16	22	352,000	16
4. Junior high school	17	272,000	18	26	416,000	18
Total	41	661,000	52	63	1,013,000	52

COMPARISON OF COSTS UNDER THE THREE PLANS.

It will be seen from the foregoing that under the work-study-play plan, Plan I would cost $581,000, as against $661,000 under Plan II or III, a difference of $80,000. Under the traditional type of school organization Plan I would cost $917,000, as against $1,013,000 under Plan II or III, a difference of $96,000.

Plans II and III cost the same, the difference being that the junior high school under Plan III would be larger and the six-grade school at the north end smaller than under Plan II.

Let us now consider the number of teachers required under these plans.

NUMBER OF TEACHERS REQUIRED.

According to the 1919 annual school report of Winchester, there were 33 teachers in the elementary school and 9 principals, total 42; in the high school, 19 teachers and 1 principal; and in addition, 3 special teachers, making a grand total in the teaching force of 65.

In the building program as suggested the number of elementary teachers required on the basis of the present number of classes would be as follows: In Plan I, under the work-study-play plan, 47 teachers, or 5 more than at present employed. Under the traditional plan, 57 teachers, or 15 more than at present employed.

In Plans II and III under the work-study-play plan, 54 teachers would be needed, *i. e.*, 12 more than are now employed; under the traditional plan 58, or 16 more than at present employed. (See following table.)

Furthermore, it should be noted that not only are more teachers needed under the traditional plan, but even under such circumstances special teachers of drawing, music, nature study, auditorium, and play are not included. If these special teachers were included, as they are in the estimate under the work-study-play plan, it would

bring the number of teachers under Plan I to 65 and Plan II to 74, as contrasted with 47 and 54, respectively, under the work-study-play plan. (See following table.)

Teachers required under the work-study-play organization—Plan I.

Schools.	Regular teachers.	Special teachers.	Teachers of auditorium.	Teachers of play.	Total.
1. Elementary and junior high school, west side	10	8	2	2	22
2. Elementary and junior high school, north end	6	4	1	1	12
4. Highland, Gifford, etc., 6-grade school	4	4	1	1	10
Teachers required					44
Principals required					3
Total teaching force required					47

This is five more teachers than there are at present in the elementary-school force. It should be remembered that the plan contemplates putting the present first-year high school into the junior high school as the ninth grade, 123 pupils; or 3 classes; therefore some teachers could doubtless be transferred from the high school to make up this deficit.

Teachers required under the work-study-play organization—Plans II and III.

Schools.	Regular teachers.	Special teachers.	Teachers of auditorium.	Teachers of play.	Total.
1. Elementary school, west side	4	4	1	1	10
2. Junior high school	6	8	2	2	18
3. Elementary and junior high school, north end	6	4	1	1	12
4. Highland, etc.	4	4	1	1	10
Teachers required					50
Principals required					4
Total required on basis of separate junior high school					54

Teachers required under the traditional organization—Plan I.

Schools.	Regular teachers.	Special teachers.[1]	Auditorium teachers.	Play teachers.	Total.
1. Elementary and junior high school, west side	20	8			28
2. Elementary and junior high school, north side	12	4			16
3. Highland and Gifford, sixth-grade school	8	2			10
Teachers required					54
Principals required					3
Total teaching force					57

[1] This does not include special teachers of drawing, music, nature study, auditorium, and play.

Teachers required under the traditional organization—Plans II and III.

Schools.	Regular teachers.	Special teachers.[1]	Auditorium teachers.	Play teachers.	Total
1. Elementary school, west side	8	2			
2. Junior high school, west side	12	8			
3. Elementary and junior high school, north end	12	2			
4. Highland, etc.	8	2			
Teachers required					
Principals required					
Total teaching force					

[1] This does not include special teachers of drawing, music, manual training, and household science.

If an average salary of $1,200 is allowed for these teachers, the cost of the different plans in terms of additional teachers can be stated as follows (see following table):

Plan I would require under the work-study-play plan five extra teachers, at a cost of $6,000.

Plan I would require under the traditional plan 15 extra teachers, at a cost of $18,000.

Plans II and III would require under the work-study-play plan 12 extra teachers, at a cost of $14,400.

Plans II and III would require under the traditional plan 16 extra teachers, at a cost of $19,200.

Number of teachers required and estimate of cost of increase under work-study-play plan and under traditional plan of school organization.

Plans.	Under work-study-play plan.			Under traditional plan.					
				Minus special teachers of auditorium, play, music, drawing, nature study.			With special teachers.		
	Teachers.	Increase over present number.	Cost at average salary of $1,200 per year per teacher.	Teachers.	Increase over present number of teachers.	Cost at average salary of $1,200 per teacher.	Teachers.	Increase.	Cost.
Plan I	47	5	$6,000	57	15	$18,000	65	23	$27,600
Plans II and III	54	12	14,400	58	16	19,200	74	32	38,400

CONCLUSION.

It is obvious from the foregoing that Plan I (providing for two combination elementary and junior high schools) under the work-study-play plan of school organization is the most economical plan, both with regard to initial costs and number of teachers required; but any one of the three plans under the work-study-play plan is more economical than any under the traditional type of school organiza-

tion. For example, the highest cost for building under the work-study-play plan is $661,000, while the lowest cost under the traditional plan is $917,000.

Moreover, in regard to teachers, Plan I would require, under the work-study-play plan 5 extra teachers; under the traditional plan, 15 extra teachers. Plan II or III would require under the work-study-play plan 12 extra teachers, while under the traditional plan it would require 16.

ECONOMY NOT THE MOST IMPORTANT CONSIDERATION.

However, economy is not the most important consideration. The essential point is that all the children in Winchester's schools should have the best modern school equipment in the way of playgrounds, auditoriums, laboratories, shops, and drawing rooms, *and the opportunity to use them.* The chief drawback to the traditional type of school organization is not that it is more expensive than the work-study-play plan, but rather that, even when shops and playgrounds and laboratories are provided in the traditional school, the program is so inflexible that it is impossible for all the children to get the opportunity for work and play in the shops and playgrounds every day. It is impossible to give every child in school a well-balanced program of work and study and play every day unless the principle of multiple use of facilities is applied to children's activities as it is to the activities of adults.

Chapter III.

THE WORK IN THE KINDERGARTEN AND THE PRIMARY GRADES.

CONTENTS.—1. In the kindergartens; retardation reduced; an introduction to organized education; habit formation; oral conversations; methods employed; need of purposeful work; how to realize important aims; equipment; relation between kindergarten and first grade; recommendations. 2. In the primary grades; a morning in first grade; oral language; preparation needed by teacher; music; phonics; gymnastic exercises; arithmetic; reading; overcrowded program; housekeeping in first grade; a rainy day in second and third grades; gardening; conclusions.

1. IN THE KINDERGARTENS.

There are five elementary schools in Winchester, only two having kindergartens. While 80 children receive one extra year's instruction in these kindergartens, approximately 120 children are denied this privilege. If kindergarten training has value, it should be available to all the children of suitable age; if the kindergarten has no place in public-school education, the taxpayer should not be asked to support it. That the parents of Winchester consider kindergarten training of value, and that they would send their children to the kindergarten if there were a sufficient number of them, is evidenced by the fact that children from cultured homes ride on the street car in order to attend one kindergarten while children from the poorer part of the city walk over a mile to attend the other kindergarten. This suggests the fact that the kindergarten appeals to all classes of children. It does not exist for either extreme of society. In many progressive school systems it has been incorporated as an integral part of public education.

The inclusion of the kindergarten in systems of public education is based on the modern conception that education is a process of development rather than a system of mechanical training. The impulses, instincts, and interests of the young child form the basis of the course of study in the kindergarten rather than instruction from books which comes later in his school life. Ideas are necessary to understand books; ideas are gained through the senses, our first teachers. The child gains skill with his hands by learning to use many kinds of material. His ear is trained through songs and re-

sponse to the piano in games and rhythmic activities. By means of stories and oral conversation he enlarges his stock of ideas and increases his vocabulary; and in all these kindergarten activities he is gaining power of attention, habits of obedience, practice in expression, and ability to work in a group. Through walks and excursions, through pictures, stories, songs, and games his imagination is quickened and his eyes are opened to the world about him. These interests and habits and skills are basic in all school work, and thus the kindergarten forms the transition from the home to the organized work of the school.

THE KINDERGARTEN REDUCES RETARDATION.

The highest percentage of retardation is in the first grade in schools all over the country. The natural inference is that children in the first grade have been placed too quickly in a highly organized situation. In Buffalo, N. Y., so many children had to repeat the work of the first grade that it was found necessary to remedy this condition, and, as a result, kindergartens were opened in all elementary schools.

A study of the effect of the kindergarten in lessening the number of repeaters was made by a committee, appointed in 1915, of the superintendents and school boards branch of the Michigan State Teachers' Association, reported by Berry. In 19 towns without a kindergarten the percentage of repeaters, all grades considered, was 28.7 per cent greater than in the 75 towns having kindergartens; while in the first grade, taken by itself, the table shows that the percentage of repeaters in the towns having no kindergartens exceeded the towns having the kindergarten by 69.3 per cent.

A study of the question, Does the kindergarten tend to prevent retardation? was made in each of two schools of Louisville, Ky.,[1] in which there have been kindergartens for a period of years long enough to test the progress of the child from the kindergarten through the eighth grade. These studies involved an examination of the records of 959 children and lead to the following conclusions:

That the kindergarten tends to prevent retardation, that the kindergarten child is less liable to fail, and that kindergarten training is equal on the average to a gain of four or five months of school life.

THE KINDERGARTEN AS AN INTRODUCTION TO ORGANIZED EDUCATION.

While the kindergarten helps to solve the problem of retardation, this is not the primary reason for making it a part of every school

[1] An. rep., board of educ., Louisville, Ky., 1916–17.

system; there are values which do not lend themselves to statistical formulation. The kindergarten is concerned with the spirit and content of education, and its object is to help the child live his life to the full in the earlier stages of development, which are recognized as important years of the child's life. The way a child begins school is of great significance, and the kindergarten has proved its value as the introduction to organized education.

How do the kindergartens of Winchester measure up in giving children a basis for more organized work?

The problems of the two kindergarten teachers presented a distinct contrast, because of the different types of homes from which the children came. In this report Kindergarten A will be used to designate the kindergarten where the children come from homes where there is a background of American culture. In Kindergarten B many of the children are from foreign homes, where opportunities for American culture are more limited.

HABIT FORMATION IN THE WINCHESTER KINDERGARTENS.

Habit formation is a necessary part of the educational process. The child's education begins long before he enters school. The kindergarten builds upon the habits that have been formed in the homes and supplements home training. The personal habits of the children in the kindergartens of Winchester were well established, and the kindergarten teachers were alert to this aspect of training. The kindergarten housekeeping was excellent; the children were neat and clean. Individual children were reminded to place the hand over the mouth and turn aside the head when coughing. There was a supply of clean handkerchiefs in Kindergarten B, where the children came from the type of home that does not always supply this needed article. The teachers were careful to see that the children were seated in chairs where their feet touched the floor, and a full half hour was spent out of doors in supervised play in addition to walks and excursions.

Habits of courtesy were encouraged. One child noticed that another's shoe string was untied, and offered to tie it and did it very skillfully. One child was rebuked for shaking his head in assent to the teacher's question, and all the children were reminded of the courteous form of assent and dissent and the use of the right hand in shaking hands in greeting. One little child was corrected for carelessly tearing his paper napkin at luncheon.

The informality of the life in the kindergarten gives rise to situations through which the children learn social behavior. The children were playing "Musical Chairs," each child finding a chair when the music stopped. The children became so interested in the

game that they scrambled over the backs of the chairs, instead of marching around them. The "rules of the game" were then worked out by teacher and children, and followed faithfully. At another time in the morning some of the children wished to play one game, while a second group was just as emphatic in wishing to play another. The teacher did not make the decision, but the children were allowed to vote, and the minority cheerfully yielded to the will of the majority. In these ways the children were helping to work out the problem of government in a group, and were learning the necessity for rules, instead of following blindly an imposed procedure.

In both kindergartens there was a spirit of cheerful obedience. Directions were given in an informal manner, and the children in general gave good attention. When one teacher wished to divide the group into a new formation, she called 12 or 14 names in quick succession. The children had the power to wait until she had finished, and then those whose names had been called passed quickly to another part of the room. There was no elaborate marching with chairs to music from circles to tables. Neither were the children dependent on the piano for signals, which sometimes makes kindergarten children unable to respond to oral directions when they pass on into the primary room.

On one occasion the children talked too freely when they should have been ready for work. It was the teacher's skillful handling of the situation that secured attention, instead of a realization on the children's part that a work period was beginning. Even little children can develop habits of self-control, and there is often danger that children shall be dependent upon the ingenious devices of one type of teacher or upon the mechanical régime of the formal type of teacher, instead of acquiring a body of habits which are the basis for self-control and which may be carried with them through life.

SUBJECT MATTER OF ORAL CONVERSATIONS.

The subject matter in the oral conversation periods in both kindergartens was chiefly about birds and flowers. All subject matter should grow out of the immediate interests of the children. It was natural that in the late spring and in a suburban community like Winchester nature material should have been selected. In both kindergartens the children had been out walking, and actual experiences were the basis for the conversation.

In Kindergarten A the children gave evidence of an appreciation of bird life by freely giving suggestions of their own. The song, "Pretty little bluebird," drew forth the question from one child, "Why can't we play it?" and as the child asked the question her

arms began to sway unconsciously. She was chosen for the bluebird, and David said, "We'll sing the first part, because we're sitting in our chairs." So the children sang to the bluebird, and the little arms that had been swaying unconsciously as an expression of the child's real dramatic feeling moved freely, with the rhythm of the swiftly running feet as the child threw herself into the joyous activity.

The song of the bluebird suggested to one child Stevenson's verse, "Birdie with a yellow bill." The children said the verse with evident appreciation of the forbidden "ain't" in the last line. One little child remarked, "He said 'ain't.'" The teacher said, "Yes; the little bird didn't know how to talk, but what would we say?" And the children said in an assured tone, "Aren't." This teacher did not destroy the playful quality of the Stevenson verse by changing it to a grammatical form, but when the question of technical grammar did come up she handled it with the true art of teaching, through interpreting the spirit of the poem.

The next day one of the children brought his Stevenson's Child Garden of Verses to school, and the teacher read the children some of the poems, and they found the one that said "A birdie with a yellow bill." They showed other poems, saying, "This is about the wind"; and another child said "Way over here it tells about 'The little shadow.'" This is the very best preparation for first-grade reading. The stories and poems that the children become familiar with in the kindergarten through oral language are seen by them in another form on the printed page, and they become interested in the symbols that say these same words that they know and love so well.

These two instances of the dramatization of the song of the bluebird and the interpretation of the Stevenson poem illustrate the fact that these children, with a background of homes with books and mothers who tell stories and say poems, really appreciate the subject matter of the kindergarten.

They were constantly giving suggestion that enriched the program. One child introduced a garden game which he had learned in Sunday school, and he showed power of organization in choosing the children to play the game and in showing them how to play it. He gave directions freely to teacher and children alike. For example (to teacher), "You play the piano; that's the way to make the sun and rain." (To children, who were seeds) "Don't grow up so fast; seeds don't grow that way!"

These children brought material from home, besides picture books. One child brought a clock face with hands that could be made to point to the different hours. At the beginning of the morning circle this clock face had been placed with other treasures in the middle

of the ring, until the time should come to share with all the children what each child had brought from home. Nothing had been said about the clock, but when 9:30 came, one little child slipped quickly into the center of the ring and made the hands point to the same hour as the real clock and said, "It's half past nine!" Telling time was then made the basis of discussion, and many children were able to find the hours and half hours. Another child had brought an alphabet game, and the children were interested in spelling their names. These are but instances that show what a wealth of material the children have in their lives outside of the school. The skillful use made of this material by the teacher, and the fact that the children brought so much to school from their life outside of school, show that there was that real relationship between education and life that is advocated in the modern school.

The background of the children in Kindergarten B presented a sharp contrast. Many of these little children come from homes where they have heard little or no English. Some of them probably never saw a picture book until they came to the kindergarten. They have had little experience in handling different kinds of materials and learning how to express their play purposes as a result of free experiment. The difference in the environment of these children requires a very different kind of program. The great need of these little children is the mastery of a speaking vocabulary of English words that will be useful to them in their contact with people and which will furnish a basis for a vocabulary for the reading of the first grade.

Some of the games observed in Kindergarten B showed a conscious effort on the part of the teacher to enlarge the English vocabulary of these children. In the sense games they were learning such words as bean bag, eraser, rope, paint, dish, apple, and ball; and one game was played with a great deal of spirit where the teacher gave an oral direction, such as "All hands on shoulders!" The teacher always put her hands in a different place from the command given the children, so that the children had to act on the command and not by imitation.

The conversation periods would have been more effective if the children had been divided into small groups on the basis of language ability. This suggestion applies not only to the work with foreign children, but also to kindergartens where there is a large range in the maturity of the children. Breaking the entire number up into small groups for oral conversation enables all the children to take part, which is not possible in the large kindergarten circle. The children could be divided into three groups, one in charge of the kindergarten teacher, another group in charge of the kindergarten assistant, and a third group working independently with kindergarten materials.

The ability to work alone without disturbing the groups of children who are engaged in oral conversation is a valuable habit for children to form in the kindergarten. When children in the kindergarten never take part in any activity that is not directed by the teacher they find it difficult to do independent work in the first grade.

The children in kindergarten B gave evidence of having learned English through informal talk in the kindergarten. One little boy, who had not been able to speak a word of English in September, told the observer about his new shoes, of which he was very proud. He said that his father worked in East Boston and that he had bought these new shoes there. In this school the primary teacher spoke with warm appreciation of the help the kindergarten had been in teaching the children English.

In both kindergartens the children sang with evident pleasure, but it might have been wiser to have had fewer and shorter songs in kindergarten B. Recent books on kindergarten music have emphasized the value of the two-line song. Children should do a great deal of individual singing in the kindergarten and first grade. Only in this way can children become independent in learning melody and rhyme. A mastery of the words of the songs would be a great aid in learning to speak English.

Not only should the songs have been simpler, but it would have been better to have had fewer periods during the morning and to have had the work and play more related. In this way the same ideas and the words which are the symbols of those ideas would have been used many times and so would have become familiar to the children.

In one of the table periods a May basket was made by all the children, but it was an exercise with little or no relation to the celebration of May day. The main emphasis for the day might well have been placed upon the making of baskets for the celebration of May day, which fell on Saturday, the next day.

In both kindergartens the subject matter was not worked out in a vital way through the materials. This point will be discussed under "Methods employed."

METHODS EMPLOYED.

Within the past 10 or 15 years there has been a decided modification of theory and practice in both the kindergarten and the elementary school. The present-day conception that the period from 4 to 8 years in a child's life is psychologically one period makes pertinent the criticism of traditional practice in both kindergarten and primary. Child-study has shown much of the old-time practice in relation to the rigid time schedule to have been opposed to the way a little child actually works and plays. A little child does not hold his interests within 15-minute periods or half-hour periods. Absorption

in work is one of the best habits that can be encouraged, and recent kindergarten studies show that a child's span of interest increases steadily through one or two years as he works with kindergarten materials.

Kindergarten work lends itself more readily to a flexible time schedule than does primary work, because of the organization into classes made necessary by the introduction of reading, but in both the kindergarten and the primary there should be work periods where the children are given time to experiment with materials and to work out projects related to subject matter. As their ability to use materials and to work out problems increases, the projects will carry over from day to day. Too much of the handwork in both the kindergarten and primary school has been in the nature of devices planned by the teacher to keep the children busy and carried out by the children with no demand being made upon their intelligence.

The time schedule in the Winchester kindergartens was in the main broken up into the customary half-hour periods, beginning with the morning circle. Each period was practically complete in itself, with apparently no work carried over from day to day. In many modern kindergartens the children begin their work immediately when they enter in the morning, so the first period is a working period, and the conversation period comes later in the morning. The advantages of beginning the day with a work period is that the children do not have to wait for formal opening exercises. If they have come from home with a fresh idea that they wish to carry out with the kindergarten materials, they may begin to work immediately, without waiting for the kindergarten to assemble. For immature children and foreign children, expressing ideas through concrete materials is a more natural form of activity than is offered by the large conversation group of the conventional kindergarten where only a few children have opportunity to participate.

In Kindergarten B, where the children had little material to work with at home, and where there was a large range in maturity and in English-speaking ability, it is doubtful whether the large kindergarten circle was as good a beginning for the morning as a period in which the children chose their own material and worked in small groups. As far as the observer could judge, the children were given no choice of material, and, although the large group differed so widely in ability, a uniform result, the carrying out of the teacher's idea, was the basis for each lesson.

The children in Kindergarten A were able to gain a great deal through the interchange of ideas in the morning circle. However, the practices of the conventional type of morning circle were held to, in having the children listen to "quiet music" at the beginning of the morning when they have become interested, because of the

empty chairs in the circle, in naming all the children who were absent because it was a rainy day. If the children had been allowed to recall all the names of the absent children, it would have been a good memory exercise and at the same time a recognition of the social aspect of the kindergarten group. The teacher remarked, "There are so many away to-day, let's not take time to say all their names," and then the children had to listen to "quiet music," which occupied the same amount of time as would have been required in recalling the children's names. While the children sat passive in their chairs, it is doubtful whether they gained anything from this exercise, either in the way of music appreciation or as a soothing experience, for it was too early in the day for them to need this kind of specific.

But the rest of the morning circle was filled with interesting conversation, skillfully directed by the teacher. The children contributed freely, and the teacher made wise use of the children's suggestions. The teacher knew when to lead and when to remain in the background.

While there was no formal dictation in the use of the kindergarten materials, the method of obtaining results in all the lessons observed was too largely suggested by the teacher. For example, in building with the "sixth gift" the teacher began the lesson by telling the children to take two bricks and two square blocks and make a window. Then, the children were told to make a number of units like the first and put them together. The children named the results after the units had been combined. "Subway," "Candlesticks to light the big country," etc., were some of the names given the buildings. The results were varied and interesting as results, but the forms obtained were quite accidental. The children had not worked along the line of their own mode of activity for a result which was to them worth while. A better method of using materials is for the children to experiment freely with material first, discovering what can be done with it. Problems arise through the use of material which demand thought on the part of the child. After individual experiment, the child may join a small group on a larger project or the teacher may relate his isolated result to a larger whole. For example, one child may be making a boat and another may be making a train. Building a dock for the boat and running train tracks out on the dock so that freight may be transported gives the child a more complete idea of transportation and also enables the child to relate his ideas to the ideas of the group.

NEED OF PURPOSEFUL WORK.

The great value in using materials for expression is in thinking one's way through to a result that is satisfactory. On the previous

day, when there was a small group because of the weather, the teacher had given the children free experiment with the material. In the main, the activity of the children seemed to lack purpose. M—— built rather an indefinite kind of a building which he first called a hotel, then with few changes he named it a battleship; but soon the erstwhile ship had assumed an ecclesiastical appearance and masts had changed into crosses. When children first come to the kindergarten it is natural that they should be more conscious of the suggestibility of the material than of any fixed idea which is to be expressed. But these children were mature and they were within two months of the end of the year. If M——, who made the hotel-battleship-church combination, had, through the stimulus of the teacher and the other children, worked through that first stage to participation in a group project, the idea would have demanded intelligence in his building. For example, if a group of children were making a community, and M—— had been chosen to make the hotel on a street where there were other houses, his battleship would not have been accepted by the other children. If the church had appeared, another child who had chosen to make the church would have called out, "I'm making the church; you're making the hotel."

The conditions in this kindergarten were most favorable for carrying out large units of work, as there was a workroom in addition to the room for the games and circle periods. This type of work would have made a demand upon the intelligence of these children and would have related technic to the accomplishment of a definite purpose rather than making it an end in itself.

In Kindergarten B the making of the May basket provided a real motive for the work of the children. But as has been said, the purpose was not made clear to these little children, nor was any originality nor art expression on the part of the children carried out in the making of the baskets. The children were shown how to make the 16-square box form and a handle was added. The basket was then decorated with colored parquetry. The children worked in a large group, and the process of making the basket was too difficult for many of them.

HOW TO REALIZE IMPORTANT AIMS.

It has been suggested (1) that in the kindergartens there was not enough relationship between the subject matter of the conversation periods and the manual activities; (2) that there was too little original expression directed toward a child-like result in the handwork. Taking the situation of preparation for May Day for illustration, how could these two aims in teaching have been realized?

In the traditional kindergarten, subject matter was organized in weekly topics, and topics for the day. But as has been previously

suggested, children must grow into the full realization of an idea. The potentiality of May Day had begun with the celebration of Easter, the beginning of new life in the spring time. The children had become more and more conscious of the coming of spring on their walks and excursions, where they had seen the grass growing green, the return of the birds, and the blooming of the spring flowers. Now, a day is coming when the charming old custom is to be revived of hanging the May basket on the door of a friend. A basket must be made for this purpose.

Just as the children have had the experiences of the spring walks as a basis for special emphasis on flowers at May Day, so should they have had a basis for making baskets through previous experiment with paper construction. Children invent many simple forms of baskets in kindergartens where invention is encouraged. In Kindergarten B, when the teacher gave the suggestion of making a basket, one child began to paste two corners together to make his own kind of basket, but as a uniform result was the object of the lesson, the experimentation was not recognized. A number of days before the making of the May basket, the children should have been told of the coming of May Day. Through picture and dramatization they would have received the idea of hanging the pretty flower-filled basket on the door knob and running away before they were discovered. Then they would experiment consciously to make a May basket to hold flowers. They could decorate it with colored crayons, and if the teacher wished to improve the form or decoration she would give suggestions in relation to what the children had already made, seeking to preserve the individual expression of the children, both in decoration and in the form of the basket. The final May baskets completed, they should be filled with flowers. If there were no wild flowers that the children could have gathered, they might have collected leaves and grasses, and the teachers could have seen that on that day the kindergarten was supplied with the flowers. The children would then have had the joy and satisfaction of taking home the little flower-filled basket.

The dramatization of hanging the basket on the door and running away would make a game that would hold the children's interest for a number of days. Through the repetition of this experience the foreign children would be learning such words as mother—basket—run—away—hang—door—flowers—May Day, etc. This is but an illustration of the way a simple vocabulary might be built up through the repetition, in small groups, of exercises that relate to the subject matter of the kindergarten. If a record were kept of the English vocabulary of the children who were to be promoted next term, pictures and objects could be used to supplement the kindergarten situations in giving the children a command of English.

The suggestions that have been given relate entirely to the academic aspect of school work. One very important phase of kindergarten work, the visiting in the homes of the children, has not been mentioned. Both kindergarten teachers were doing valuable work along this line. The work which was being done among the foreign women was particularly effective in matters of hygiene.

KINDERGARTEN EQUIPMENT.

The kindergartens in Winchester are well supplied with Froebelian materials. The furniture and equipment necessary to carry on the activities of the modern kindergarten are lacking. Small tables that seat two or three children, low cupboards where the children keep their materials and to which they have free access, a playhouse consisting of a screen with windows and a hinged door, dolls, doll furniture, toy utensils, toy animals, and large floor blocks, provide for the type of work where children (1) work in small groups, (2) initiate their own projects, (3) reproduce the life of society through their plays of family and community life.

Many modern kindergartens have some playground apparatus in the kindergarten room. The type most commonly used is a slide and a bar which slips into a socket in the doorway, and can be removed when the door is being used. The advantage of having this kind of apparatus in the kindergarten room is that children may find relief from the finer type of work by exercising the larger muscles through vigorous activity. It is more valuable to carry on such exercise out-of-doors, but the advantage of having some play apparatus indoors is that it is always accessible to the children. In the right type of school building there should be a well-equipped playroom for the use of the kindergarten and also for the first and second grades.

Every playground should be equipped with swings, seesaws, slides, horizontal pole bars, walking boards, and sand boxes. The school yards in Winchester were totally lacking in playground equipment. As has been said, the kindergarten teachers were very conscientious about keeping the children out of doors for a full half hour, in addition to walks and excursions, but the need for play apparatus was very apparent. In Kindergarten A the children swung upon a handrailing by the steps until driven off by the vigilant janitor. A group of them played on a wooden door over an area way, playing boat and train interchangeably, and calling out, "All aboard for Atlantic City!" "All aboard for the State of Washington!" "Fifty miles from Providence to Winchester." The play of many of the children, however, tended to be aimless or boisterous. This was natural, because organized ring games are usually artificial out of doors, and

children need apparatus for vigorous play. "Taking turns" is also fine social training.

In Kindergarten B the situation was much worse. These little children needed a well-equipped playground much more than the children of the other kindergarten. They had nothing but a cinder-covered yard and some empty iron frames for swings to greet them when they went out to play in the open. One little Italian "Ty Cobb," picked up a piece of wood and produced a marble from his pocket and tried to start a miniature baseball game. But by this time the kindergarten teacher had organized a circle game, and the baseball player rather reluctantly joined the circle. Two large basket balls, some horse reins, and bean bags would have helped the situation.

The care of living things is one of the most valuable experiences a child can have and is the best kind of nature study. There are no gardens for the kindergarten children in Winchester, although there is plenty of space in the school yards. In Kindergarten A the teacher was preparing to have the children plant in individual flower pots. Children of kindergarten age can only do the simplest kind of gardening, so planting in window boxes and flower pots should always supplement the work in the garden out of doors. But while the care of the school garden during the summer months presents difficulties, there are quickly maturing flowers and vegetables, such as nasturtiums, radishes, and lettuce, which may be gathered before the close of school.

No pets were observed in the kindergarten or first grade. Goldfish and canary birds, and in the spring rabbits and chickens, are pets that may be cared for by the children.

THE RELATION BETWEEN THE KINDERGARTEN AND THE FIRST GRADE.

In most cities where kindergartens have been included in the public-school system it has been recognized that there is a break between the kindergarten and the first grade. No external means, such as creating another grade called "a connecting class," has ever solved this problem. The only solution is a course of study that is based upon the instincts and interests of young children rather than upon the teaching of the formal aspect of school subjects. As has been previously stated, methods and equipment of both the kindergarten and the primary school have been profoundly modified by child study. In some cities supervision of both the kindergarten and the primary by an expert who has had equal experience in the kindergarten and primary grades is bringing about a continuity of development in the school life of the child that has never existed before.

Training students in normal schools for both kindergarten and primary work, so that the kindergarten teacher will know primary

work and the primary teacher will understand kindergarten work, is also bringing about the right relationship between these grades. In Denver, Colo., and in Trenton, N. J., teachers alternate teaching in kindergarten and first grade. In a number of cities, among which may be mentioned Kansas City, Mo., Louisville, Ky., and Trenton, N. J., kindergarten-primary supervision has brought about a type of kindergarten and primary work within public-school systems which is as progressive as the work in some of the private experimental schools in the country.

While this survey of the Winchester kindergartens has shown that in some respects the methods and equipment are of the traditional type, nevertheless it also shows that they are not without freedom and joy and childlike expression. Lack of adequate equipment and the somewhat formal and mechanical character of the work of primary grades operate to make difficult the close adjustment of kindergarten and primary work. In the case of the children in Kindergarten A the situation is even more difficult, because there is no first grade in the building; consequently the children have to carry on their school life in other buildings after they leave the kindergarten.

A better adjustment between the kindergarten and the first grade would be possible if the children were promoted twice a year instead of once a year, as is now the custom. If children are promoted only once a year, there is a tendency either to place immature children in the first grade or to keep them in the kindergarten until they are too advanced for kindergarten work. This is the case in Winchester, where children of 5½ years are permitted to enter the first grade, while children who are only a month younger have to remain in the kindergarten until they are over 6. It would be an advantage if children were privileged to enter the kindergartens at 4 years of age for two years of kindergarten training, thus entering the first grade at the age of 6. However, there should be such a close relationship between the kindergarten and the primary school that children may not be compelled to remain in the kindergarten until the time of the half yearly promotions. They should be promoted when they give evidence of capability to do more advanced work.

All these problems suggest the need for a kindergarten-primary supervisor. The kindergartens should not be supervised by one who has not had kindergarten training. It will be difficult, however, to secure a supervisor who has had experience from the kindergarten to the sixth grade, inclusive. This difficulty might be solved by having an experienced kindergarten teacher give part of her time to kindergarten supervision. The assistant teacher in this kindergarten might carry on the work with the help of a substitute for one day a week in the kindergarten supervisor's absence. Conferences between the

kindergarten supervisor and the primary supervisor and conferences with the groups of kindergarten and first-grade teachers would be necessary to unify the work. The kindergarten teacher should visit the primary room and the primary teacher visit the kindergarten room in each building, and frequent conferences should be the result of this interchange of visits.

The supervision of the kindergarten by a special supervisor does not tend to isolate the kindergarten, if the same educational principles prevail in the kindergarten and primary grades.

RECOMMENDATIONS.

1. There should be a closer relationship between subject matter and the expression of ideas through manual activities. There should be simplification of subject matter, and the curriculum should be developed in larger units.

2. The children should be divided into smaller groups in conversation periods. The formation of the groups should be based upon maturity and language ability.

3. There should be periods when the children are given free choice of materials, and they should be encouraged to develop purposeful activity out of their free experimentation.

4. Small tables, 20 by 36 inches, and low cupboards with a space for each child to keep his own work should be provided.

5. Toys and large floor blocks should be provided, in addition to the regular kindergarten materials.

6. The playgrounds should be equipped with play apparatus, and provision should be made for gardens and pets.

7. The teacher of special subjects should consult with the kindergarten teacher before giving a lesson to the children. The type of lesson and the methods used should be in keeping with the best kindergarten practice.

8. The application of modern principles of education in both kindergarten and first grade would bring about a better coordination between these two grades than now exists. There should be a more flexible system of promotion from kindergarten to first grade.

9. A kindergarten should be established for children from 4 to 6 years of age in every school having a first grade.

10. A supervisor should be appointed who has had both kindergarten and primary training and experience. If this is not practicable, an experienced kindergarten teacher should be detailed to give one day a week to supervising the kindergartens in addition to teaching her own kindergarten.

11. There should be frequent visits and conferences between the kindergarten and first-grade teachers in each building and general

conferences with the kindergarten supervisor and the primary supervisor to integrate the work of these two grades.

2. IN THE PRIMARY GRADES.

A survey of the schoolroom practice in the primary grades of the Winchester schools resolves itself into a report of individual teachers in those grades. There is little unity of method and coordination of subject matter among the same grades in different schools, so far as observation would indicate, except as some special subject like art or music is supervised by a director. Each teacher seems to be a law unto herself, and while this usage may develop individuality among the teaching force, it often tends to fix personal peculiarities in a teacher which eventually become a detriment to the work. The course of study is apt to become disorganized and disjointed when aims and minimum essentials for each grade in all the schools are not similar. The relationship of subject matter to special environment is, of course, a different question and might well be an individual problem in so far as its application to different localities and types of children is concerned. Even here the fundamentals should remain the same and something of uniformity of method should obtain.

Therefore, as the schoolroom practice is so widely divergent, ranging from a mechanical to a high type of artistic procedure, this report must necessarily deal largely with individual cases which may be considered fairly representative, and which may be presented as a series of pen pictures illustrative of the work of the schools.

In passing, it should be said that supervision is one of the essentials of a well-organized school system. This may be one of many types. It may take the form of a committee chosen from the teaching force. In this case it should become a court of appeal wherein a vexing question may be solved which is perplexing any primary teacher. It should build up a standard for each grade in the different subjects of study, reading, writing, spelling, and arithmetic, both as regards curriculum and standards of teaching. It should become a bureau of research and an authority on the best current practice in these subjects. It is understood, however, that this plan is at best a makeshift for a trained and efficient primary supervisor—one who has spent many years in a study of the best ways to teach the children in these grades, and who knows from a rich experience just what and how much it is best to attempt in this early work in education.

A MORNING IN THE FIRST GRADE.

Every condition that might favor the best effort of teacher and pupil obtained in this room—a small class of bright well-nurtured

children, a clean sunny room, a cultured intelligent teacher with funds at her disposal for books and equipment to any amount that she might designate. Here one would expect to find a high order of modern schoolroom practice.

Such an environment fosters freedom from the traditional restraints which are usually upon children in less-favored communities. Small classes provide for individual instruction. They presuppose a higher average attainment. Drills are less essential and time may be devoted to enrichment of subject matter. Time for stories is conserved for dramatization and for other modes of reproduction which help to fix ideas and which train in self-expression. Daily programs may be varied and routines avoided. Field lessons without and experiments within the schoolroom, bird lore and forest lore, house making and keeping, gardening, selling and buying, with barter and exchange of garden products—these are some of the activities made possible in such a school as this.

Books of many kinds one should find here: books for tiny children still reading from pictures and too little yet for texts; shelves of children's classics chosen from E. Boyd Smith, from Kipling's storehouse, from Carroll, Baldwin, and Scudder, from Pierrault and Aesop and Mother Goose, and just as many as possible of the beautiful readers which the schoolbook publishing houses are bringing out in rare de luxe editions. One should see on each of the four walls of this room these shelves of books not 3 feet from the floor and within easy reach of every child in the room. For no seat work ever devised can be compared, either in its appeal or in its educational value, to a number of good books conned over and enjoyed by a child in the primary grades. Every primary room, wherever placed, should be so equipped, and particularly in the wealthy town of Winchester. Unfortunately, however, the rooms of Winchester were as barren of such enriching material as are schoolrooms generally in less-favored communities.

OPENING EXERCISES.

A devotional exercise and the singing of the old kindergarten classic, "Good Morning to You," opened the program. Then a few questions about the weather from the teacher followed. These roused the children to a point of interest, which as soon as gained was dissipated by an abrupt change to another subject in this wise:

(*Teacher*) What month is it? (*Pupils*) April.
(*Teacher*) What comes in April? (*Pupils*) Showers.
(*Teacher*) What rhymes with showers? (*Pupils*) Flowers.
(*Teacher*) What is the name of next month? (*Pupils*) May.

Here the teacher writes the word "May" on the board and the children read it in concert. Then she asks, "Who has a garden?" which calls forth an animated response of waving arms and eager voices announcing, "My father has one!" "We are making one!" "I'm helping plant the seeds!" Avoiding a further discussion of this interesting subject, the teacher declares, "We will have a garden here in school. Who will bring corn, and who will bring beans?" Again a wave of enthusiasm sweeps over the school, and many bits of gratuitous information are added to their hearty rejoinders, "I can bring two papers of seeds," "We have all kinds of seeds at our house," "We had some left from our own garden." At this point the teacher moves to the piano and strikes a chord for silence. "We will sing a song about the garden," she announces, and most willingly these docile little people turn their attention to the singing. They seem glad to follow their teacher through all the varying phases of her many-sided program. No amount of suppression seems to blunt the interest of a first-grade pupil, nor to restrain his cheerful acquiescence.

Reference is again made to the garden project, for after the song this dialogue ensues:

(*Teacher*) What must we have for our garden? (*Pupil*) We must have dirt. (*Pupil*) We must have mud. (*Pupil*) Not mud; but dirt.

(*Teacher*) Mud is dirt when we put too much water in it. Now let us sing our other spring song.

OPPORTUNITY FOR ORAL LANGUAGE.

Here are many openings for the highest type of oral language training. The children are full of the subject, they are more than willing to "talk it over," as their ready responses would indicate. The teacher has but to follow the lead of these ardent little gardeners to find her feet in the primrose path and carried along on the impetus of their enthusiasm. A wonderful incentive this, the making of a garden, to develop a unity of interest and a desire on the part of the children to express that interest. Our oral language is so apt to become static and fixed or to be neglected entirely that the teacher should be on the qui vive to utilize every bit of this desire that springs up in her class, and should remember that the more spontaneous the response the greater its value.

Observations of this kind undoubtedly reveal the fact that little children, especially, are led about from one topic to another throughout the day and are not allowed to assimilate any one of them. When a subject like gardening is under consideration it may well occupy the major part of the program at this season of the year, and may profitably extend over two or three periods in one of these daily

programs. Many phases of this subject will bear a close study in detail, since it includes kindred topics which are of paramount interest to children in these grades.

PREPARATION BY THE TEACHER NEEDED.

Preparation for our work is what we need as teachers in the primary grades. How may one dare to put this question, "What must we have for our garden?" to a group of wide-awake, active, little children? Only by having in one's mind a carefully prepared outline on garden making, a series of problems ready to set these children to work upon, materials on one's closet shelf for experiments to satisfy the eager questions of this little group of animated interrogation points. Preparation is surely needed to meet a controversy regarding even so small a matter as dirt and mud. It opens a way for field lessons in which to collect specimens of soils and to conduct a series of experiments which shall determine their power to retain moisture and their capillarity, leading out to the practical questions of irrigation and dry-farming. It calls for visits to different garden plats in the vicinity, on high ground and on lower levels, and for walks in the country where systems of drainage have redeemed the swampy land and prepared it for cultivation.

Kindred subjects and projects, related to the garden, how many and how vital they are! Bird boxes in the garden, and what to do with the English sparrow; how is this little savage of bird life responsible for the depredations of the Tussock moth; the household cat and his relation to the fruit trees in the garden; the economic value of the American toad, and so on, through many phases of these natural phenomena. How wide a field and how necessary a teacher's broad and intelligent preparation!

Armed with but a single book, that of Hodge's Nature Study and Life, and a few bulletins from the Department of Agriculture, with an open mind and a willing spirit, the teacher may become prepared to meet these questions. With her outline ready, her data at hand, into what fertile fields may she not walk with these earnest little disciples? No need to strike a chord on the piano for silence! Speech is golden, since it shall express all the wonder and all the delight which these eager little explorers shall have discovered in the magical truths of nature.

MUSIC.

So the garden exercise closes, as far as that morning is concerned, and the teacher proceeds to a lesson in technical music. These lessons are directed by a supervisor of music and are uniform through-

out the schools. They consist of formal exercises in note singing, from the blackboard for the first lessons, and later from the book and chart. The course includes, also, a number of rote songs for each grade.

This early training in the mechanics of music carries over into the middle grades with remarkable success, as the exercises observed in reading music in the third and fourth grades fully demonstrate. It is a serious question, however, if the means justify the end in the case of little children in the first grade. An enormous amount of time and effort is expended on these lessons at a period of the child's life when he should be absorbing impressions of tangible things about him, and finding expression for them in various activities, rather than a detailed study of abstract symbols which represent a high order of artistic accomplishment, even for mature and disciplined minds.

A LESSON IN PHONICS.

Phonetics is the next subject considered. Twenty-five or thirty minutes are given to this exercise for each day of the first school year, and the subject is carried on through the second and third grades in much the same way. It is unfortunate that the study of this valuable adjunct to the teaching of reading can not be expedited. Whenever it is taught in this way, it becomes a drag on the course of study.

The phonogram was used in this lesson as the unit of sound rather than the single sound of each letter. This method multiplies the work of teaching phonics indefinitely. There are virtually only 45 sounds to be mastered. Why can not this be done quickly and easily, without the weary drills and exercises one observes in most of the schools? One sound a day would fill only three months of school time and leave 10 days for drills and reviews. Why must an intensive study of this subject be carried through two or three years of school time? Possibly a detailed report of this lesson may throw some light on these questions.

The teacher calls attention to five words that are printed on a side board, evidently for reference, and to be used as key words, since the middle letter in each is one of the five vowels, arranged in their usual order of, *had*, *met*, *it*, *not*, and *put*. The word *put*, by the way, is an exception to the rule and does not illustrate the short sound of *u*.

(*Teacher*) Look over at our little fairies. What does this little fairy say when it is all alone [indicating the vowel in each word and printing them rapidly on the board]? (*Pupils*) *a*, *e*, *i*, *o*, *u* (giving them their short sounds).

(*Teacher*) Now let's put something else with this fairy, *a*, and see what it says then. Suppose I put this, *t*, with it, what does it say? (*Pupil*) (Sounding the letters each time) It says *a-t*, *at*.

(*Teacher*) Put *p* in front of it, May, what does it say? (*Pupil*) *p-at, pat.*
(*Teacher*) Put *th* with it. (*Pupil*) *th-at, that.*
(*Teacher*) *br, dr.* (*Pupil*) *br-at, brat, dr-at, drat.*

The teacher prints the letter *u* on the board and asks, "What does this little fairy say?" She then develops the words *bud, thud, dim, rim*, and many others in the same way.

Cards are passed to each pupil bearing the phonograms *ice, ack, and*, and *end*. Pupils stand, and as the teacher holds up a letter each child combines it with the phonogram on his card.

(*Teacher*) (Holding up the letter *p*). (What does your card say? Put this sound in front of it. (*Pupil*) *P-end, pend.*
(*Teacher*) Put *m* in front of it. (*Pupil*) *M-end, mend.*
(*Teacher*) Put *b* in front of it. (*Pupil*) *B-end, bend.*

After this exercise the cards are collected, shuffled, and redistributed. Other combinations are developed with other phonograms, *ake, over, at, ate, ale, ear*, and *ound*.

(*Teacher*) (Introducing a new phonogram, *ar*). You remember this old ending we had so long ago, *ir*? Sometimes *ar* says what *ir* says, for *ur, ir, er*, and *ar* all sound alike. See how many words there are that sound like *ir*.
(*Pupils*) Bird, birth, birthday.
(*Teacher*) Now I am going to change it and put *ir* with *t*. (*Pupils*) Dirt, thirst, first.
(*Teacher*) Suppose I put *y* on the end of these words, what will I have?
(*Pupils*) Dirty, thirsty.

This exercise seemed to be a waste of time except for the introduction of the new sound, *ar*. The children were already familiar with every part of it, with one or two exceptions, and these should have been dealt with individually. Time in this grade is too precious to spend in drills on facts that are already known.

Moreover, unless an application of these phonetic principles is constantly made in the reading lesson, and the power of analysis acquired in these exercises is used for gaining new words in reading, there is little value in them. Teachers should become aware of this great principle in education, and should put it into practice, namely, that training in one subject does not automatically carry over, even into an allied subject. The transfer must be consciously made with the help of the teacher. For that reason every drill on the mechanics of a subject should be followed up by its application to the solving of problems in other subjects.

GYMNASTIC EXERCISES.

After these exercises a recreation period was announced. This activity took the form of a gymnastic exercise in the trunk and arm movements under the guise of play. The children formed in line and were told to pass around the room and supply themselves with

saws and axes, as they were going to chop down trees and cut them up into firewood. They shouldered these imaginary tools and passed back to their seats.

(*Teacher*) See if you can find a tree. All ready! Chop, chop, chop, chop. Now the tree is fallen what shall we do next? (*Pupil*) Saw it.

(*Teacher*) All ready! Right knee on seat. (*Pupils*) Zee, zee, zee (imitating with voices the sound and moving arms up and down with imaginary saws).

(*Teacher*) Move it along. All ready! Saw some more.

In the midst of this exercise the telephone rang and the teacher left the class to answer a call from a parent. Would the teacher please see that her little girl was sent to the dentist at half past 10? When the teacher returned to the room and had delivered the message she resumed the gymnastics. An exercise was introduced which called for deep breathing. An imaginary Thanksgiving dinner was spread before the pupils. They were told to close eyes and enumerate the different kinds of food by the sense of smell.

(*Teacher*) What do you smell? (*Pupil*) (drawing in his breath through his nose with lips closed) I smell onions. (*Pupil*) I smell cottage pudding.

Just at this point another call came over the phone from a mother complaining of the treatment her child had received on the playground. It would seem that interruptions of this kind might seriously interfere with the work of the school, and that the use of the phone during school hours might be prohibited, or that the telephone might be removed entirely from the buildings. The pupils stood patiently until the teacher returned to the room, and as five precious minutes had been consumed in this colloquy with the parent, the period for gymnastics was over.

GYMNASTICS IN THE LOWER GRADES.

For the lower grades, the first especially, any set gymnastic exercise is of doubtful value. These little children should be playing games, boisterous, laughing, running, and jumping games, under the direction of the teacher. A hearty laugh is the best possible deep-breathing exercise, a quick race to a goal the best possible leg movement. A game of squat-tag exercises every muscle of the body, and the stress of competition stirs up the "inner man" and puts the whole body in a glow of tingling vitality. Leave the gymnastics, even of the wood-sawing variety, to the higher grades, and turn the children out, if possible, into the open air for a run and a jump, a game, or a race at least three or four times during the morning.

Gymnastics are extremely formal drill exercises for the purpose of resting the body and exercising the muscles. Dramatization is a mode of expression and is esentially an art subject. It has to do with emotion, with thought, and feeling. It is a question whether

it is possible to combine the two in the same lesson. One subject undoubtedly has a bearing on the other, just as the drills in phonics may carry over into the art of reading, but it is never wise to attempt to teach both in the same lesson. Why should the physical exercise be weakened by an attempt to dramatize it? Children love these drills. They love the rhythm, the poise, the sense of vitality which they engender. When music accompanies them this satisfaction is greatly enhanced.

The skill acquired in gymnastics carries over into most of the social activities and makes a strong appeal to boys and girls in any grade. Grace and dignity of carriage, poise and freedom from self-consciousness are some of the finer qualities they develop. In so far as these are concerned, they transfer over into the art of dramatization. But in the realm of sports and athletics, in the field of health and hygiene, gymnastics are indispensable in developing self reliance and courage, and all those kindred attributes which build us up in strength and vigor. These purposes should be in the teacher's mind during her gymnastic period, and the subject should be taught in the wholesome, hearty way as a development of the child's physical and ethical nature.

Jennie Jones, weight, 36 pounds.
John Brown, weight, 40 pounds.

and so on down the line, each child making one of these tables, which affords an exercise in writing proper names and enumeration of numbers as well. Then imagine a number lesson of this kind:

(*Teacher*) Jennie, how much do you weigh? (*Jennie*, looking at her chart), I weigh 36 pounds.

(*Teacher*) How much does John Brown weigh, Jennie? (*Jennie*) He weighs 40 pounds.

(*Teacher*) Is he heavier than you or lighter in weight? (*Jennie*) He's heavier.

(*Teacher*) How do you know? (*Jennie*) Because 40 is more than 36.

(*Teacher*) How much more? Who knows?

Other questions follow. "Who's the heaviest boy in the class?" "Who's the heaviest girl?" and so on to any length the pupils can follow; and it is surprising how easily the ordinary class in high first and second can handle these problems. Why? Because they have a "social bearing," as Dewey so often reiterates. They are of personal interest to every member in it. Birthdays, which include a study of the calendar, might be mentioned here, and temperature for each day of the year, which calls for an intelligent use of the thermometer, are subjects of similar interest which may be used as a basis for these lessons.

Another great value grows out of this specific lesson. It disarms the children and changes their attitude toward the work of the health

committee and frees them from a certain self-consciousness which their physical examination seems to entail. To any teacher who desires to follow up this suggestion in applied number the lessons developed on this subject by the division of hygiene in the Bureau of Education at Washington is recommended.

A READING LESSON.

In the reading lesson which followed the exercise in arithmetic the symbol was again overemphasized. The children opened their books to the story of "Crick, Crick," a bold young turkey who meets with a series of exciting adventures, and which furnished excellent material for a reading lesson. Instead of reading, however, the phonetic analysis of new words was taken up. So interwoven are these two processes in this lesson, the teaching of the new words and the reading of the text, that it is difficult to distinguish between the two.

The lesson is reported in detail to illustrate this point and to show that lessons in reading may become mechanical unless they are taught as a means of gaining ideas and not from the standpoint of technical study. The last process is important, but should not obtrude in the regular reading lesson.

The drill upon the new words proceeded in this manner:

(*Teacher*) Tell us the name of this story. (*Pupil*) Crick, Crick.

(Teacher prints the first syllable of the word, "pleasant," on the board and calls attention to the sound of the diphthong, *ea*.)

(*Teacher*) When there are two fairies, which one talks? (*Pupil*) First.

(*Teacher*) What does this first little fairy say? (Pupil gives the short sound of *e*.)

(*Teacher*) What does it all say? (*Pupil*) Plea-.

(*Teacher*) I'm going to put something with it (prints last syllable, *ant*). (*Pupil*) Pleasant.

(*Teacher*) Pleasant what? (*Pupil*) Pleasant voice.

(*Teacher*) Hope's an old friend (prints wash on the board). (*Pupil*) Wash.

(*Teacher*) I'm going to put something with it (prints *ing* on the board). (*Pupil*) Washing.

After the words were developed, the reading began. A verbatim list of comments by the teacher is given to illustrate the fact that during the reading no reference was made to the thought in the story. In every instance the form of the words must have overshadowed and obscured from the child any meaning which the text might have had.

"(*Teacher*) The first three lines go together. Is it for or of? Study the next line at the bottom of the page. Florence the next one. Which house? Now study the next one, one, two, three, four lines from the top. Is the word white? Mildred, there's a period after house, you want to stop. Next page. Ready, read. With her what? That's a good way. There's a period. How.

many fairies in the word ear? Which one talks? Right, next page. Period, dear, now again. That's right, go on from there. That's right, go to the next page. That's right, now see what comes next. Right, go on from there. That's right up at the top of the page. We'll go on from there to-morrow.

OVERCROWDED PROGRAM.

Seven different exercises were given in this grade during the morning—opening exercises, a few questions about gardening, music, phonics, gymnastics, arithmetic and reading—and all were treated from the technical standpoint. All were drills of an abstract nature. Yet outside the sun was shining, the birds were singing, and all the world of nature was beckoning to these children asking not to be forgotten. These boys and girls came from busy homes, where every variety of activity was being carried on while they spent 180 minutes in the manipulation of symbols. Conscientious, careful work was done beyond a doubt, but a change of viewpoint in regard to values would relieve this work of an overemphasis upon the technical side of primary education.

HOUSEKEEPING IN THE FIRST GRADE.

This little lesson in housekeeping was given in a room of 31 pupils, many of whom were evidently from the less-favored homes of the community. There were gathered here a group of children from parents of many nationalities, unmistakably new to American manners and customs and to the English language. A little melting pot of alien babies, shy and inarticulate, but ready to accept any suggestion that their teacher might make.

A few odds and ends for dishes and some tin utensils for silverware were used for this exercise, which consisted of setting and unsetting the table and putting the dishes away in the closet.

(*Teacher*) Who wants to be housekeeper? Who wants to set the table for me? Who's going to be mother? We'll have three people to-day, John and James and Mary. James and Mary may spread the cloth. John may straighten it. Now what shall we need (*Pupil*) Three plates. (*Pupil*) Three spoons. (*Pupil*) Three cups and saucers.

(*Teacher*) Margaret, come up and set the plates. Now, where shall we put the spoons? (*Pupil*) Right beside the plates.

(*Teacher*) Cups and saucers which side of plate? (*Pupil*) Right side.

(*Teacher*) Where shall we put the knife? (*Pupil*) Right side.

(*Teacher*) Where shall we put the fork? (*Pupil*) Left side.

(*Teacher*) Which dishes shall we wash first? (*Pupil*) Silver.

(*Teacher*) What comes after silver? (*Pupil*) Cups and saucers.

(*Teacher*) Who is ready for the next? (*Pupil*) Plates.

(*Teacher*) Now, who will fold the cloth? How many have helped mother clear table? How many have washed dishes at home?

All the children in the room raised their hands in reply to the last two questions; otherwise the exercise excited little interest on the

part of the pupils. How may one account for the apathy and indifference which was manifested by these children during this lesson? Only 3 or 4 out of the 31 responded to any one of the teacher's questions. Was this because they did this work at home? Yet we are told that some phases of the child's home activities should be represented in the school curriculum. Was the exercise of a superficial nature and far removed from actual experience? Yet children love to play housekeeping out of school, to set the table, wash the dishes, and clean up the playhouse. Had this particular exercise been repeated so many times in the same stereotyped way that the novelty had worn off and nothing new was expected? Just what element was lacking to make this lesson a successful one? In the kindergarten and Montessori schools a luncheon period has been a part of the daily program from the beginning and has been of great value as a training in refined and courteous behavior. A real table has been set with real dishes. Food has been eaten, dishes washed and set away, crumbs brushed, floor swept, and room tidied. This period has been one of pleasure and of profit in these schools. Is it because there has been a real motive back of the exercise, a real demand for it in the minds of the pupils? Will lessons of the kind given here repeated day after day be apt to carry over into the home life of the child and make for better living in a school community?

These are pertinent questions which every primary teacher should ask as she is tempted to try out the new ideas which are urged upon her by those who speak with authority from higher schools of training. Let her be wise to question the motive back of her work and quick to read in the faces of her children the effect of her efforts in these new directions. Does not the whole subject resolve itself into this? What am I stressing in this lesson? Am I emphasizing the form or the idea back of it? In arithmetic is it the figure on the board or something real which the figure represents which is in the child's mind? In reading, does he think of the letter and the word on the page or does he get a vision of the meaning which they represent? In setting the table are the dishes only symbols or do the children see behind the formal lesson a table in their own homes set and served in careful, well-ordered comfort?

When we as teachers have become wise in judging of these values in all our lessons we shall have reached a plane of high efficiency, and the pupils under our care shall be led into that kingdom which awaits all those who are truly educated, a quickened and an understanding mind.

Much commendation is due this effort on the part of the teacher to bring an outside interest into her classroom and to incorporate it into her daily program. These are movements in the right direc-

tion and eventually, when shorn of their superficiality, will become a real power in the training of little children.

A RAINY DAY IN SECOND AND THIRD GRADES.

A rainy day brought a change of program to this room because fewer pupils made it possible to allow a greater freedom.

"May I go to the playhouse?" The smallest boy in the room stood at the teacher's elbow waiting. She turned to me. "I'm not following the regular program to-day," she explained. "So few are here, on account of the rain, I'm letting them choose what they would like to do after their work is finished. I hope you think it is all right," she added, deprecatingly.

"I think it's all right for sunny days as well," I heartily responded.

The smallest boy touched the teacher's hand. "I didn't think you'd let us have such a good time," and his face glowed with appreciation.

The playhouse proved to be a large dry-goods box on the floor in the front of the room, with a smaller one on top, filled with books and games and dissected maps and pictures.

The teacher apologized for this. "We brought the boxes from the grocery, and the children bring the books and games and pictures from home. We call it a playhouse, and they love it, even if the boxes are rough and unpainted."

A piece of worn carpet lay on the floor in front of the playhouse on which four children sat working picture puzzles in groups of two for each picture, which were scenes in large sizes of 5 by 12 from the story of Cinderella. Two little girls sat together on a low chair, reading to each other in low tones and talking over the story. One boy was absorbed in reading the Tale of Freddy Firefly, and others were at the blackboard working on arithmetic problems. Strange to say, this seemed like a great privilege when it was not required of them—a motive that might be more often utilized than it is.

ORAL READING LESSON.

An oral reading lesson in this room, as one might suppose, was of the highest order. It furnishes an excellent example of what reading for thought is supposed to mean. A few of the teacher's comments are given to illustrate her skill in helping each pupil to interpret the meaning of the text. It shows that the thought of the story was made prominent, and that the importance of the technical, so often overemphasized, was constantly subordinated to the ideas which words and sentences represent.

A story from Merry Animal Tales, Mr. and Mrs. Black Rat's House Party, furnished the text for the reading lesson. As the pupils read the teacher constantly suggested the idea to be conveyed and its appropriate interpretation by tone of voice and special emphasis, in this way:

(*Teacher*) Mr. Black Rat wanted whom to take the invitation? (*Pupil*) Mrs. Black Rat. (*Teacher*) Then suppose you say, "You take the invitations." (Pupil hesitates at the word "invitations.") (*Teacher*) What is it we send out when we invite people? (Pupil hesitates at the word "sponge.") (*Teacher*) A kind of cake. (Pupil reads hurriedly and is confused.) (*Teacher*) Wait just a minute; get the sense.

Nor was the formal side of this lesson neglected. Certain words in every text need special study, and these received their due attention. The teacher steps to the blackboard and calls attention to two of these as she writes *Mr.* and *Mrs.* on the board.

(*Teacher*) Let's have a good look at these words. Who can spell the words *Mr.* and *Mrs.*? Why are they written in this way? What is a contraction? What letters are omitted from these words?

Perhaps the most difficult point in the lesson came when a definition for the word "imagination" was attempted:

(*Teacher*) What does this mean, "didn't say one word about imagination"? Can you remember anything about imagination in the story? (*Pupil*) His mother thought there wasn't any lion when he said he had climbed on the back of a lion. Imagination is thinking something that you can't see.

VALUE OF SILENT READING.

In this grade the work of silent reading should be made a part of the daily program. There is no doubt that oral reading is overemphasized in all the grades of the public school. Silent reading is cultivated in the homes where children have access to many books, but the large majority of pupils will not have this opportunity. The schools must supply it for the less favored. Only on a rainy day with an entire change of program was this type of reading observed. It is most earnestly recommended that at least once a day the entire reading lesson in the primary grades be conducted as a silent reading exercise. In the first grade easy little primers and picture books can be used for these lessons. The children may have the privilege of using the book if they will report on it, not in a stereotyped way but spontaneously or in answer to questions.

In the third and fourth grades two children may enjoy a story together and talk it over, as in the case of the above report. Then they may tell the class about it. Book reviews of this kind are excellent material for oral language work, and occasionally these reports may be written by the third and fourth grade pupils. In Gray's report[1] on the relation of silent reading to economy in educa-

[1] Sixteenth Year Book of the National Society for the Study of Education.

tion he gives nine reasons why silent reading should be emphasized. Teachers should commit these to memory and bear them in mind as they arrange their daily programs.

1. Silent reading is a tool of first importance in the acquisition of ideas.
2. Silent reading is a more rapid process than oral reading.
3. Comprehension is usually greater in silent reading than in oral reading.
4. The rapid reader is usually more efficient than the slow reader.
5. Oral reading improves rapidly during the lower grades and improves steadily, but less rapidly during the intermediate and grammar grades.
6. Mastery of the mechanics of reading may be acquired more rapidly than ability to get the meaning of what is read.
7. Rate of silent reading increases rapidly during the lower grades and approximates a maximum in the upper grades.
8. Ability to comprehend the meaning of what is read improves steadily throughout the grades.
9. Rate and quality of silent reading may be improved through training.

A sermon might be preached on any one of these pertinent texts, but suffice it to say they are founded upon data secured through much experimentation and research.

GARDENING IN THE FOURTH GRADE.

A big school garden grows on a vacant lot each summer in the town of Winchester. The work is organized and superintended by the special garden teacher who takes her vacation in the winter and stays on the job during the summer. She sees the plowing done in the spring, at the town's expense, by the way, and she is there when the crops are harvested and the produce distributed in the late summer.

Thirty-five plats of land, each measuring 13 by 20 feet, constitute the area donated by the town meeting for this work. Two pupils work together on each plat, paying 25 cents each for seeds, and taking home last summer $5 worth of vegetables for family use per pupil. They meet twice a week for a field garden lesson with their teacher, and any child who is unable to be present or to go on with the work must furnish a substitute. The record for last year in this particular was a very good one. Only 6 plats out of the 35 changed hands during the summer.

The plats are laid out with borders of low-growing flowers of three varieties—marigolds, sweet alyssum, and zinnias. The vegetables are planted in rows lengthwise of the plat in this order: Two rows of corn, one of radishes, two of beans, one of beets, one of chard, and one of carrots.

In addition to this community school garden work, the garden teacher instructs the pupils of all grades above the second in the essentials of home garden cultivation. Her lessons in third grade on planting beans and in sixth grade on planting potatoes are here given in detail to illustrate the possibilities of this type of work in

stimulating interest and arousing enthusiasm among boys and girls for the making and cultivation of gardens, for studies in plant life, their growth, diseases and nurture, and in addition the systematic organization of classroom lessons in such a way that many cross connections are established between the work of the different grades and between the different subjects of study.

CONCLUSIONS.

As a whole the work in primary education in the Winchester schools is found to be formal and lacking in virility. The mechanical side of the subject matter is overemphasized and illustrative material is sadly lacking. An endeavor to connect up the work of the school with the experiences which the child meets with outside was seldom observed, so far as this survey might determine. It is recommended that a primary supervisor be installed in the schools at the beginning of the coming session who shall unify the work of the different grades, motivate the work in reading, language, and number, and who shall so direct the teachers in these grades that they may take up the matter of primary education from a new viewpoint, that of the child's immediate needs, his interests, his desires, his best development, subordinating to these in every lesson the undue importance of the course of study and the amount of subject matter to be covered.

Reference has been made repeatedly in this brief report to the fact that quite generally the child's out-of-school experience is ignored both in the course of study and in the schoolroom practice in the schools of Winchester. Just what does this mean, the child's experience, and how may it become the dominating idea in primary education? What are the child's interests and experiences? What are they before he enters school, what are they now with the added school experience increasing day by day, and what are they destined to become as we look forward toward the future through the next year, and the next, and for many years to come?

What continuity of interest may the teacher in the primary grades hope to establish in her work between these experiences of the child in the past, the present, and the future, and between her grade, the one before, and the one which follows?

How shall she go about it? What material shall she use, what methods, and how shall the traditional subjects of study be fitted into a program that is based upon the child's experience and interest?

The child's home is of paramount interest to him; he is interested in the brute life about him; he loves the flowers; the passing of the seasons and the changing phases of nature affect him; pebbles and stones, the forces of nature, wind and rain and heat and cold, growth of plants in garden and field—all these come within the realm of his daily observation and interest.

Suppose the teacher recasts her program in terms of projects and problems bearing upon these interests and groups her technical subjects of study around them. In one school in a village in another State this was done with the home and its activities as a center of interest at the beginning of the school year. The children in the two first grades began by making observations of their own homes and discussing with the teacher how they are built and how furnished. Then each child made a booklet putting a picture of a house on the cover. Each week the pupils planned the suitable furniture for a room in the house. From catalogues and magazines they cut and arranged furniture for a living room, bed room, dining room, and kitchen.

Reading and language lessons were developed. The sentences were formulated by the children during the reading exercise and were written on the blackboard by the teacher, later to be typed and bound into small reading books which contained eventually all the reading material which this project included.

Early drawing lessons on the blackboard trained in flexibility and control, and led up to the first lessons in penmanship. Outlines of houses and flat drawings of furniture afforded excellent models for this work.

In playtime many lessons in social etiquette were inculcated, since these children had the habit of opening front doors and of wandering at will through any house in the village. The story hour was filled with selections which have a peculiar charm for children, on account of their repetitive quality, the Three Pigs and Their Houses and The House That Jack Built being especially appropriate.

The second grade furnished a house, and dressed a set of dolls to live in it. The third grade watched the building of a house, and as the teacher photographed from day to day with her camera the progress of the building, the pupils made blue prints for a little brochure on house building. The fourth grade in this school made a special study of a general grocery store, bringing small samples of cooking condiments from home and hanging them in bottles on a chart, reporting from time to time on the source and manufacture of these products. The fifth grade made a study of the village with reading and language lessons bearing upon the activities of the town. Booklets were also made in this grade and blue prints inserted of different views of "Our Village." Seventh and eighth grade pupils carried this study of local environment out into a larger study of American cities, how they were founded, their plan, location, governments, etc.

Here was a line of work especially adapted to each grade of the school in separate units and yet with relationships established between the different grades and a line of continuity running through from grade to grade which held the whole plan together and sustained its logical sequence from the beginning to the end.

Chapter IV.

THE COURSES OF STUDY.

CONTENTS.—Aims of a course of study. Principles of method. 1. The separate courses of the elementary schools: language and grammar; arithmetic; geography; history; civics; penmanship; vocational education; handwork in the grades. 2. Courses in the high school; modern languages; science teaching; mathematics; classics in translation; attitude of pupils toward school; supervision; music; drawing. 3. Supervision and organization in the elementary grades.

This is not the place for a full discussion of the philosophy which underlies the making of a course of study, but a comparatively brief statement of its main conceptions seems necessary in order to make clear the point of view in the light of which practical details must be determined.

In the making of a course of study, it must be recognized that education is not confined to schools. Everything that touches life from the cradle to the grave and that influences thought, feeling, motive, and conduct is a part of education. In short, we are educated by our environment, physical, intellectual, social, and ethical, all through life. The school is an artificial environment whose function is to prepare us to be effectively educated by the environment of life. Hence the school must educate with reference to the out-of-school life of the child and to the after-school life of the adult.

This means that the school should begin processes of development which are afterwards continued by the environments or duties of life. In this sense it must connect closely with life. The educational value of a study is therefore not determined by what it does for the pupil while he pursues it in school, but what it does for him all through life. A study which is dropped entirely when school days end has less educational value than one which is continued through life. This distinction becomes important in considering the educational value, say, of Latin or Greek which is dropped and that of vocational studies which are continued after school days are over. The former are more likely to be overestimated and the latter underestimated as means of mental development.

From the above it follows that the highest test of school education is not the ability it gives the pupil to pass examinations in school but the degree in which it projects itself into the out-of-school life

of the pupil and into his after-school life later. To be specific: If the teaching of literature and of science does not lead the pupil to read literature and science out of school, there is something wrong with the school education; if the teaching of drawing and of music in school does not lead children to sketch on holidays for pleasure and to sing in the home the songs taught in school, there is something wrong with the teaching or the course of study. So with the entire curriculum.

A course of study must be constructed not only with reference to the duties of life but also with reference to the after education which life gives. It must not only make the individual socially efficient, but it must also give him the capacity to be effectively educated by the experiences of life.

FOUR AIMS.

The course of study must provide for at least four types of education, each having its own specific aim.

1. It must provide for training in the studies fundamental not only for life but also for all further advanced study. This includes the studies of the elementary school and some of the studies of the secondary school and the college. It must also provide for training in habits of conduct fundamental in life, and for the elements of studies like the sciences, the historical, literary, and philosophical studies, which give an outlook upon life, interpret its meaning, and determine one's attitude toward it.

2. It must provide specific training for some vocation. The time is surely not far distant when the pupil or student will not be allowed to leave school until he has been trained to do skilled labor, manual or mental, in some useful calling. This applies to rich as well as to poor. The moral obligation to do some useful work in the world rests upon both alike. There are abundant signs, which no thoughtful person can mistake, that in this respect the future will differ from the past.

3. It must provide education for leisure. It is probable that the working-day will soon be limited to 8 hours for the mass of workers. This will afford 16 hours for leisure and for rest. It is of vast social and moral and, in fact, also of economic significance how these hours of leisure are spent, whether in pleasures and activities which are elevating or in such as are debasing. This education can not all be given in school, but includes public amusements, public playgrounds, libraries, museums, and other agencies. But the school can make specific provision for it by providing instruction which will develop appreciation for art, music, and literature by developing the play instinct on a high plane and by arousing a deep abiding interest in the pupil's favorite studies, so that he will make them his hobbies in after life.

4. At last, and in no wise least, it must provide for training for citizenship. All right education makes a man a better citizen, but the school must give specific training for this purpose, as outlined below.

Reference may be made briefly in passing to the theory of education once prevalent for many years, and still held by some teachers in colleges, that the aim of intellectual education should be mental discipline; that this is got chiefly by doing hard mental work which is the more effective if one does not like it; and that it is only of secondary importance whether the knowledge acquired is remembered permanently or not. It was further assumed by this theory that a comparatively few studies, like the classics, mathematics, and literature, served this purpose. It may be stated, without disrespect to persons still holding this theory, that it is not held by any serious and scientific student of education to-day. Current educational theory emphasizes content; and it assumes that mental discipline must come as a by-product in the acquisition of valuable content; that mental abilities are of great variety and must be developed mainly by specific means; and that the studies of the curriculum must connect closely with life, its activities and experiences.

It is obvious why, in accordance with this theory, certain studies, like Latin and Greek, which used to occupy a conspicuous place both in secondary schools and in colleges, occupy to-day a subordinate place in both. Greek, in fact, has been abolished very generally in public high schools. Algebra and geometry have been made electives in progressive high schools. Ancient history is being made an elective and will not be taught as extensively as heretofore. All these studies, which are mentioned here merely by way of illustration, have only a remote, indirect bearing on modern life. On the other hand, studies such as the natural sciences, modern history, economics, and sociology, which underlie modern life and interpret modern civilization, are receiving increasingly larger recognition both in secondary schools and in colleges.

While in colleges and universities the courses of study are very similar in all countries of western Europe and the United States, and the various studies are taught in very much the same way, with but minor differences in emphasis, a course of study for the elementary schools, and largely also for the secondary schools, in all countries is and must be national in character. That is to say, geography must be taught with the emphasis on the national geography, and that of other countries only as they affect the national life; history must be the history of the nation and of its historic relations to other nations; the literature taught must be predominantly the national literature, which holds up before the minds of pupils the national ideals and aspirations and interprets the national life. Science in

its applications must be applied to national conditions; and even such a subject as arithmetic must be taught from the national point of view. An arithmetic dealing with pounds, shillings, and pence, or with mark, franc, and the metric system would be unintelligible and useless to American children.

This is only somewhat less true of secondary schools, and is a fundamental principle in program making.

PRINCIPLES OF METHOD.

Before discussing the methods of teaching specific studies in the curriculum, it may be helpful to state briefly some general principles underlying method in the different groups of studies.

There is no general, in the sense of universal, method applicable to all studies, as has been assumed by Herbartian writers, but there are general methods each applicable to a group of studies similar in character.

All the natural sciences, for example, must be taught by the method of observation and induction and deduction. The pupil must be led to observe and analyze the facts, to find their meaning, formulate a generalization and make its applications. Hence the function of the teacher is to stimulate and to guide. Facts which can be observed, and generalization, must not be told the pupil. Here is where such aphorisms as the following belong: Pass from the concrete to the abstract, from the whole to the parts, from the simple to the complex, from the known to the related unknown, etc.

Then there are studies, like music, drawing, and literature, where not thought development but the development of the art instincts is the aim. The purpose is to reach not primarily the thinking but the emotions of the pupil. The appeal must be made through the senses and the imagination. The process must lead not to a generalization but to vivid imagery which arouses the aesthetic emotions. Not the method of analysis, as in science, but the method of synthesis which deals with wholes is the proper one. To teach these studies by the analytic method of science teaching is fatal to interest. We make this mistake when we emphasize prematurely the technical aspects of music or of drawing and when we analyze literature to shreds and overemphasize footnotes. These mistakes are very commonly made. It should be remembered that the most effective interpretation of literature, especially of poetry, is the effective oral reading of it to and by the class. Yet this is usually a subordinate feature of literature teaching.

Then there are studies which deal predominantly with words, the symbols of thought, like speaking, reading, composition, foreign languages. These symbols are arbitrary, and therefore the principle of

prompt telling, instead of not telling as in science teaching, must be observed. The mental process is one of association of symbol with idea. The laws of association must determine the method.

Finally, there are studies like handcraft, penmanship, etc., in which the problem is the forming of correct habits. Here the method must be determined by the laws of habit formation.

These four types or groups of studies all come in some of their features under all these methods, but predominantly in each case under one.

Method is, therefore, determined by the subject matter in large part. It is also determined in great part by psychology, by the way the mind works. Hence the study of psychology is essential to the comprehension of method. It is also partly determined by the maturity of the pupil. Much may be assumed with mature minds which must be taught to the immature, and in science teaching more use may be made of deduction. Finally, method is slightly determined by the special abilities of the teacher. A teacher who is not fluent should rarely use the lecture method. He will get better results with the quiz method.

In teaching a subject—as, for example, arithmetic—it is necessary to analyze the material and decide to which groups the several parts belong. Some parts belong to the science group, others to the language or symbol group, and others to the habit-formation group. To teach all the material in any study by a single method would lead to some bad teaching. This is a common mistake in schools generally.

THE SEPARATE COURSES OF THE ELEMENTARY SCHOOLS.

After these preliminary statements of some of the fundamental principles which must underlie a course of study and method in teaching, we may proceed to discuss briefly, by way of running comment and suggestion, the separate courses of the elementary schools of Winchester.

These courses do not exist in printed form. They have been furnished to the commission in typewritten form. They have been quite recently revised and all the changes indicated in their typewritten form have not yet been made in the schools. The following comments are based on these courses and on personal inspection of the teaching in the schools.

LANGUAGE AND GRAMMAR.

Although Winchester is predominantly a city of English-speaking homes in which the children hear the language well spoken, nevertheless the town contains a growing foreign-born population which has already reached considerable proportions. In those

schools which are largely attended by the children of the former group the language difficulty is not so apparent as it is in the schools attended principally by the children of the foreign born. In estimating the efficiency in language instruction in the schools of Winchester, this distinction must be kept in mind. In general in the schools of both groups it may be said that the instruction is reasonably efficient. Certain individual teachers have shown rare skill and ability in class exercises witnessed by members of the commission.

The book followed by the teachers was prepared more particularly to meet the needs of schools having pupils who must be taught English as a foreign language, and in consequence is more formal than is desirable for the children of many of the classes. It employs too short sentences in its exercises for English-speaking children. Much more freedom and spontaneity is desirable than is secured by following this book closely.

SUGGESTIONS ON METHOD.

The following suggestions on method are offered in the belief that they will aid the teachers:

1. When we write we think not in written but in oral speech. The ability to write fluently and with clearness and freedom depends on the ability to think fluently and clearly in oral speech. The quickest way to learn to think fluently in oral speech is to hear oral speech and to practice speaking.

From this it follows that thorough development of oral speech in the first four years of school life is the necessary condition for fluent written composition in the later elementary school grades. Hence there should be no written composition during the first two years, to speak conservatively, and not much during the third and fourth. Emphasis should be laid on written composition in the grades above the fourth, as suggested below.

Penmanship should, as a regular exercise, be begun not earlier than the middle of the second year, and preferably not before the beginning of the third. Only such writing as children naturally desire, like the writing of their names, should be incidentally taught. Children have no need whatever to express their thought in writing during those early years. Writing, moreover, is a muscular movement requiring delicate coordinations behind which there is no heredity as there is behind speech movements, and the accessory nerve centers controlling the movement are immature and are easily fatigued. For these and other reasons writing should not be introduced earlier than is above indicated.

Likewise set daily lessons in arithmetic should not be introduced until the latter part of the second year or the beginning of the third. The few things which children need, such as counting and learning to recognize the pages of a book, should be taught incidentally. Children at that age have no need of the arithmetic now taught in most public schools.

By banishing formal lessons in penmanship and in arithmetic from the first two years, room is made for reading to the children for a half hour each half day the best children's literature and for outdoor studies. The school would then do for all the children what is done in cultivated homes for the favored few.

Such reading to them would extend the range of their thoughts and their vocabulary; and extensive discussion or oral reproduction of this interesting material would develop their power of fluent oral expression to a degree far beyond what is now attained even in good schools.

Later, when they can read with some degree of fluency, the content of the interesting supplementary reading matter, now to be obtained, should be freely discussed in class. One needs only to observe the contrast between the fluency of speech of children outside of school and the lack of it in school to realize that there is something unnatural in school methods in this subject.

2. So far as written composition is concerned, two aims must be secured—grammatical correctness on the one hand and on the other clearness, freedom, fluency, and ease in expression. These aims can not be secured in the same kind of exercise. Insistence on grammatical correctness, involving persistent correction of errors as they are made, checks freedom and fluency and interferes with clearness of thinking. Briefly stated, correctness in grammar, punctuation, and the other mechanical elements of written speech are best taught by means of dictation exercises regularly given apart from composition writing. The aim of composition writing should be to secure clearness, freedom and fluency in expression, and only incidentally to secure grammatical correctness. Compositions should, therefore, be criticized chiefly for lack in these qualities and only incidentally for such mistakes of grammar as the pupil actually would not know how to correct. If he is held up to his best efforts, he will outgrow all errors which he can correct himself.

The subjects for compositions in elementary and high schools should be taken from the regular school studies and rarely from extraneous sources. The writing should reinforce the instruction in the other studies. Many short compositions should be required rather than few and long ones. In the upper grades and the high school children should be required to write under pressure by being limited

in time. Dawdling will not secure fluency. It is possible to insist excessively on neatness at the expense of fluency and freedom. The manuscripts of men who write what other people want to read are not generally noted for their neatness. Many schools have erred in this respect.

The teaching of practical grammar in the elementary schools of Winchester is effectively done. Technical grammar is begun in the seventh year and continued through the eighth. The merits of the course lie in part in its simplification. Much needless matter often found in textbooks is eliminated. Such subjects as the subjunctive mood and the analysis of complex and compound sentences taught in the grades might be relegated to the high school. In general, all those parts of grammar which actually do not aid the pupil in learning to speak and write correctly and are of importance only as a basis for instruction in foreign languages in the high school should be taught only in the high school.

ARITHMETIC.

If formal lessons in this subject are deferred until the beginning of the second half of the second school year or the beginning of the third, as suggested above, some of the puzzling questions of method become simplified.

If the subject is to be begun the first year of school, as is now done, the course outlined for the first three grades is in general a good one. In the fourth and fifth grades emphasis is properly laid on drill in the four fundamental processes. In the sixth grade tables of weights and measures are emphasized, but without the suggestion that these weights and measures should actually be used in class and that every school be supplied with a set. In this grade, in addition to a simple treatment of commercial discounts, simple interest might profitably be introduced by means of easy problems. Only the finding of the interest or amount, the rate, time, and principal being given, should be taught in this grade.

In the eighth grade foreign exchange should be omitted. It is beyond the comprehension of elementary school children and few of them will ever have any use for it. Taxes, fire insurance, and customs duties might profitably be inserted in grades 7 and 8, provided the emphasis is not laid on the solving of problems, but on a detailed discussion of the subject itself. Children should know specifically what the principal community interests are for which taxes are paid and how they are assessed; emphasis should be laid on the fact that rich and poor pay taxes; that taxes are added to the rent and to the price of goods, and that in consequence the poor as well as the rich pay taxes, and all are interested in the honest expenditure of money collected.

In fire insurance the one thing to emphasize is its necessity and the folly of running one's own fire risks. The solution of problems is unimportant. Customs duties is of value only when it is made the subject for a clear discussion of the revenues of the National Government, the subject of the tariff, and the distinction between a tariff for revenue and a tariff for protection. This, like taxes, is essentially a topic in civics, and if taught there may be omitted in the arithmetic. A similar treatment of stocks and bonds is desirable. The solving of problems here also is unimportant beyond that of finding the rate of income on an investment. The important thing is a clear discussion of the difference between stocks and bonds—that the former are evidences of ownership and the latter of indebtedness; the relative safety in the same corporation of the two; the fact that, as a rule, a moderate rate of income on a security indicates safety of principal and a high rate the reverse; that in all investments the first thing to aim at is safety of principal. These are generalizations which can be made clear enough to pupils of this grade to render them immune to the temptations of the purveyor of swindling schemes, in which, according to Government estimates, the people of the United States "invested" in 1918 to the extent of $500,000,000.

In general, the Winchester course in arithmetic as a whole is a good one. It deserves credit for the elimination of much that has been retained in many schools through tradition.

METHOD IN ARITHMETIC.

In regard to method, there is room for considerable improvement. Too early emphasis is laid on the mechanical operations with figures and altogether too little emphasis on concrete illustrations of arithmetical thought processes. Every number process new to the pupil should be taught concretely, no matter in which grade it is taught. Objective illustration must not be limited to the primary grades, and the fear of some writers that there is danger of its being continued too long is unfounded in fact. Every process with whole numbers, with fractions, with decimals, and percentage should be concretely taught. Every proposition in the multiplication table should be concretely presented, not merely in the numbers up to 20, as is customarily done in schools. The multiplication table consists of mathematical equations; to have the pupil memorize them without being able to prove them is as objectionable as to have him later memorize equations in algebra and geometry without being able to prove them.

This overemphasis on the mechanical processes is probably due to the fact that the arithmetical tests of these processes used in the schools are more accurate than the tests of reasoning and more easily applied. The use of these tests is valuable, only teachers must guard

against losing their appreciation of relative values in the use of them. Mechanical accuracy and speed are far easier to secure than ability to reason. The Winchester schools emphasize the former quite enough; they will strengthen their instruction by emphasizing the latter more. The use of concrete illustrations in developing every new thought process forms the foundation for training pupils in reasoning in arithmetic.

Apart from such greater use of concrete illustration of thought processes, the methods employed in the schools are well adapted to develop the power of reasoning in arithmetic. A very good statement has recently been drawn up by a committee of elementary-school teachers of Winchester giving sample problems for each grade above the second, together with suggestions as to method.

GEOGRAPHY.

The tendency in American elementary schools is to extend subjects taught through most or all of the grades. Penmanship is usually taught in all the grades; so are arithmetic and spelling. There is a general custom of beginning geography and history in the third grade. In European schools this tendency is not so marked. It is doubtful whether anything of the formal textbook type of geography teaching can be introduced with profit before the fourth grade, although there is much of the out-of-doors type which can be profitably presented, beginning even with the first grade. The topics usually assigned to this grade, as in the Winchester course, are essentially topics in nature study, and had better be so grouped. This would suggest a broader treatment.

The topics prescribed for the fourth grade are well suited to this grade, and the reference books and supplementary reading matter recommended are admirable. But the portion dealing with plants and animals had probably better be transferred to the course in nature study. The correlation with geography can easily be made. The topic "cause of changes of seasons," assigned to grade 5, is too difficult for this grade, and, in fact, too difficult for most pupils in any grade of the elementary schools. Contrary to general custom, it should be relegated to grade 8 or the high school. It is retained in textbooks by force of tradition.

The course might well attempt more in grades 7 and 8 in physical geography or physiography. The description of physical features is well provided for, but some provision should be made for instruction as to their genesis. A brief general description of the ice cap in America and the effect of glaciation on the course of rivers, on the formation of lakes, waterfalls, and water-power, and on the distribution of soil; drowned coasts and drowned river valleys and their

bearing on navigation; the simpler facts of erosion, the formation of soil, the work of rivers; the general facts of cyclonic conditions in the temperate zones determining daily weather changes—these are examples of topics which have been successfully treated in their elementary phases in the last two years of the elementary schools.

The fault of most schools, and textbooks as well, is that they attempt to teach too many topics and disconnected facts and fail of teaching thoroughly the essentials. The maps of textbooks are crowded with nonessential details which obscure the essentials and mislead teachers. The course would be improved if it should state principles of selection to guide the teachers. For example, a statement to the effect that in teaching the location of cities in the United States, only those large centers which are of much commercial and industrial importance should be fixed in the memory; that in teaching the location of rivers only those (1) which are used extensively for navigation, (2) those which furnish water power extensively used in manufacturing, and (3) those few greatly noted for their scenery should be fixed in the pupil's memory. Likewise, in teaching products, only such as enter extensively into commerce, especially our foreign commerce, should be taught; and in making production maps there should be included, not all the localities in which a given product is found or produced, as is done in our textbooks which simply copy our Government maps, but only those regions in which a product, like wheat or corn or cotton, is produced in large quantities for the markets of the world.

Suggestions of this nature would eliminate much useless material from the subject upon which time is wasted, and would make room for the more thorough teaching of the essential facts.

The course could be improved by providing specific training in the interpretation of maps in their various uses, some of which are simple and others difficult. (1) A map shows the boundaries or coast line and general shape of a country. This is easily grasped by the pupil. (2) It shows location. This is also comparatively easy. (3) It shows direction. This is easy in the case of maps of comparatively small areas on which lines of longitude and latitude run nearly in accordance with the cardinal points of the compass; it is difficult for young pupils in the case of maps of large areas, like those of the continents, in which direction is indicated wholly by meridians and parallels of latitude. (4) A map shows elevation. This for most pupils is the most difficult interpretation of all to make; hence the advantage of actual relief maps.

The interpretation of a map, like the reading of a working drawing, must be taught. Mere map study, such as is customarily found in schools, will not give this training. Such training in use of maps

even in its simplest form should not ordinarily begin earlier than the fifth grade.

The course taken as a whole is good. With effective supervision, discussed below, the results should prove satisfactory. The lessons observed in the schools indicate intelligent interpretation of the course and skill and judgment in handling specific topics.

HISTORY.

This course is based on the "Report of the Committee of Eight" and follows it fairly closely. The lessons observed indicate intelligence and skill on the part of the teachers and interest and ready grasp on the part of the pupils. A course briefly outlined, giving clear perspective and proportion, with the report mentioned as a supplementary guide, would probably be of assistance to the teachers. A course in civics in connection with history is given in grades 7 and 8, as outlined in the history text used.

Concerning the course in history in the elementary schools, two suggestions are offered:

1. The plan of teaching a sketch of European history as the background of American history in one of the earlier grades (usually the sixth) of the elementary schools, outlined in the "Report of the Committee of Eight," if justified at all, is too ambitious and covers too much ground. Certain phases of medieval history do furnish a background for the earlier stages of American history; they make clear the motives for the explorations and for the early emigrations to this country. But Greek and Roman history have no more direct connection with American history than the history of the Creation had with the history of New York in Knickerbocker's famous history, and should be omitted. Such a sketch of European history had probably much better be given in the eighth or ninth grade, after pupils have a knowledge of the phases of American history for which it constitutes a background, or it should be given incidentally in connection with American history. This, however, is a question for the full discussion of which sufficient space can not be allowed in this report.

It should be added that the texts prepared to provide for this sketch are written in an interesting style, with much pedagogic skill, and are profusely illustrated. The teaching in the classes visited was skillfully done. But immature children, even if they absorb the facts, can not know and appreciate the historic setting which gives them their real significance.

2. A course in history for the elementary schools should include a sketch of the history of Canada and of Mexico and a briefer sketch of the history of the South American Republics, especially the history of their struggle for political freedom. The ignorance of even

educated American citizens of the history and of the racial, social, economic, and educational conditions in Mexico is a serious danger to our country to-day. The majority of our citizens know less about this subject than school children should know. Furthermore, the original significance of the Monroe doctrine, which has always been and is still a topic taught in all American elementary schools, is unintelligible to persons who do not know the history of the struggle for independence of our southern neighbors. And the best concrete illustration of its effectiveness is the history of the effort of Maximillian to become Emperor of Mexico. Such knowledge of our Latin American neighbors would also be the most effective single means of establishing friendly feelings and mutual good will.

3. In the ninth and tenth year it is desirable to give a background of European and Asiatic history. This can most profitably be done, however, not by offering systematically organized courses in the history of foreign countries, but by making significant epochs and movements in our own history the starting point and tracing the influences back to European or Asiatic sources, as these naturally develop in the discussion. In such manner the significant things about European history will be surveyed not as is too frequently the case as units of study in themselves but in their relations to our own problems. Thus, naturally, there will pass before the pupils' attention such important matters as the French Revolution, the unification of Germany and the World War, important developments in English history, the remarkable rise of Japan, the stages of industrial development since the middle of the eighteenth century, etc. Such a course should be compulsory for all pupils, for it is necessary to adequate preparation for citizenship.

CIVICS.

"Civics" and "education for citizenship," like "Americanization," are somewhat vague terms to the public and are not altogether clear and definite to teachers. Civics to the public and to many teachers still means a study of the National Constitution, and usually of the State constitution as well. While from the standpoint of training for citizenship every pupil should be grounded in the important matters comprised in our State and National Constitutions, nevertheless the old-time, dry-as-dust grind on the details of both which has constituted almost the whole of civics teaching in so many paces is unwise and should give place to that type of civics instruction coming to be known as "community civics." Such a course should emphasize, not the duties of public officials but the everyday civic duties of all citizens.

The course in civics given in connection with American history in grades 7 and 8 of the Winchester schools fulfills this purpose fairly

well and is well taught. In the high school the more advanced course should be made compulsory on all pupils.

But more than this should be done in the high school. Graduates of high schools, colleges, and professional schools should make the public opinion which proverbially is said to control government in a democratic country. Helping to make intelligent and sound public opinion is perhaps the highest civic duty of the educated citizen. Hence, in high schools and in higher institutions of learning all students should receive the training necessary to enable them to think clearly on public questions on which political action is necessary.

Now, most of our so-called political questions are economic in character, or rest on an economic basis, and can not be understood by anyone who does not know at least the elements of economic science. Others are sociological in their character and usually rest on an economic basis. These can not be understood without at least an elementary knowledge of economics and sociology. Again, all economic, and more especially all sociological, questions are in the last analysis also ethical or have important ethical implications. It is obvious without argument that for the educated citizen who attends school at an age when these sciences can be grasped at least in their elements, the most vital training for citizenship is the study of them, together with modern European history, as above explained.

Hence, the elements of economics, of sociology, and of ethics, as a minimum, should be made compulsory studies upon all pupils of both sexes in all high schools. Until colleges make these studies compulsory, as a few do, pupils in high schools fitting for college should not be excused from taking them.

STUDY OF CIVICS AND AMERICAN HISTORY MADE OBLIGATORY.

An act passed by the Massachusetts Legislature, effective in August, 1920, makes it obligatory that: (1) Every pupil take both American history and civics prior to graduation from the elementary school; (2) every pupil in the high school take at least one course in American history and at least one course in civics. In executing these provisions of the act the commissioner of education of Massachusetts has made the following wise recommendations: (1) That civic instruction be made continuous throughout the grades; (2) that systematic course in community civics be required of all students before the end of the tenth year or grade; (3) that an advanced course in American history and an advanced course in civics be required of all students in either the junior or senior year of the high school.

PENMANSHIP.

The method of teaching writing has recently been changed in Winchester, and the schools are in a transition stage in the subject,

which makes it difficult to estimate their ultimate efficiency. Formerly the pupils used the finger movement in writing in all grades, with which speed is attained only at the expense of legibility. This is the reason why most adults "unlearn" after school days are over the handwriting learned in school. The schools have changed to the "muscular" or forearm movement, which has been taught in good schools for a great many years and has no essential features that are new or original.

In the present transition stage the results are not satisfactory, but it is a change in the right direction; and when pupils have adjusted themselves to it and teachers have mastered the method, there will be a marked improvement in the writing.

As stated above, writing as a regular exercise should be deferred at least until the latter part of the second school year or the beginning of the third, for the reasons given. If it is retained, the children ought to be allowed to use the finger movement during the first three years. So long as children have not mastered the form of the letters completely their writing movement must be slow, so as to make it possible for the eye to follow and guide the movement. This is not possible with the rapid muscular movement. In the fourth year of school the transition to the forearm movement can be made in a short time without difficulty, as has been abundantly demonstrated in good public schools.

There is great need of supervision of this subject at this transition period. The teachers feel keenly the need of help and direction and would welcome it. There is, however, no need of a special supervisor of it, if a general supervisor of the elementary schools is appointed, as elsewhere recommended in this report.

VOCATIONAL EDUCATION.

With the exception of the commercial training in the high school, no provision is made in the school system for strictly vocational education. This is a serious defect, and would be more serious still if Winchester were less of a residential and more of a manufacturing town. Yet the majority of pupils will follow callings other than professional and have a right to the necessary educational facilities to fit themselves for them.

It is recognized that it is difficult to establish in a small community the variety of types of education to meet the needs of the variety of types of mind, and yet the rights of children to education do not vary with the size of their home town. The solution lies clearly in State action in the matter. The State should be petitioned to organize a vocational school in a locality accessible to pupils of Winchester and of several adjoining towns. Such a school should contain both

prevocational courses and courses fitting for such trades as local conditions make desirable.

It is well known that certain labor organizations object to vocational schools; but, briefly stated, such opposition rests on two objections which are valid and which can and should be avoided in any system of vocational education. First, they object to trade schools in which pupils can get a smattering of a trade and then as half-trained workmen compete in the labor market with well-trained men. Secondly, they object to trade schools in which the training is narrow and confined almost exclusively to the handwork of the trade. They fear that such training will tend to create a servile class and close the door to advancement to the so-called higher walks of life. These objections are sound.

For the obviating of the first objection labor unions and employers must aid the schools. Pupils from a trade school should be refused employment and membership in a labor union unless they complete their trade education. Legislation extending compulsory school attendance can also aid.

The second objection can be removed by the school unaided. In brief, a course in a trade school should, first of all, include as required studies all the technical and academic studies which have a direct connection with the trade. Second, it should include as electives as many other academic studies as the pupil has the capacity to take. In this way pupils would receive as broad a general education along with their specific training in a trade as their minds can take on. Such vocational education is probably the broadest and most effective general education for a majority of pupils in public schools generally. To pupils so trained the door of advancement can not be closed, except by their own lack of native ability. The valid objections to vocational schools lie, therefore, not against vocational schools as such but against vcational schools of the wrong type.

It may be added that the learning of one trade in which the pupil is deeply interested at the time, even if later he decides to follow another, is a better preparation for the learning of such other trade than dawdling over mere books in which, apart from their connection with his desired trade, he has no interest, as this class of pupils now usually do in the upper grades. Compulsory laws can only compel attendance; they can not compel a pupil to study.

HANDWORK IN THE GRADES.

Much more handwork is desirable in the grades than is now given in the Winchester schools. It is confined almost wholly to the upper grades of the elementary schools. It should be a part of the work in all the elementary schools. The argument for educational hand-

craft is too familiar to require restatement here. It should be extended in the grades usually constituting a junior high school, and should at least include metal work, lathe work, and printing. At present it is confined to woodwork. The appointment of a supervisor of instruction, as elsewhere recommended, will solve this problem, and detailed recommendations are unnecessary here. The problem is not a new one and will be easily handled by the superintendent and a competent supervisor.

INDUSTRIAL WORK IN THE PRINCE SCHOOL.

The industrial work in the Prince School is an admirable beginning for making provision for feeble-minded children, who can profit much less from book education than is commonly assumed. For them motor training is the only effective education; it is the most effective means of awakening the limited mental capacities which these unfortunates have. The work of this type should receive liberal support, and an effort should be made, by furnishing free transportation to those living at a distance, to induce all pupils of this type in the town to attend.

2. COURSES IN THE HIGH SCHOOLS.

MODERN LANGUAGES.

The feeling created by the war made the study of German in most high schools and in many colleges unpopular and caused a marked reduction in the classes. French for the same reason has gained in popularity. This change is very marked in the Winchester High School.

French is now taught in the eighth grade and in the high school, and a pupil may take a five-year course if he so desires. It is taught by the direct method in the eighth grade; and by a combination of the direct, or conversational method, and the indirect, or translation method, in the high school, with great predominance of the latter. In grade 8, only those pupils are permitted to take it who make a high grade in their other studies, which is unquestionably a wise policy, as explained below. In the high school in certain courses either French or German must be taken.

The teaching of French in grade 8, so far as method is concerned, is unquestionably of the right character, and results will clearly show this in due time. In the high school neither the method nor the results are what they should be. This is not because the teachers are not competent, but is due to the fact that college requirements make such extensive demands in regard to translation and grammar that

the teachers feel that these demands can not be met by the extensive use of the direct method in the early part of the course. College entrance requirements unquestionably vitiate much of the teaching in eastern high schools in such departments as modern languages, English, mathematics, and to some extent in science. This is much less true of high schools of the West.

High-school teachers, however, yield to college domination, so far as method of teaching their subject is concerned, far more than is necessary if they adapt their methods to these requirements throughout the entire course. They can greatly minimize their evil effects by teaching their subjects as they should be taught, regardless of college requirements.

The high school should not be looked upon primarily as a college preparatory institution; rather the college should accept pupils of requisite school experience where they find them in point of training. The methods of instruction employed by high-school teachers, as well as the content of high-school studies, should not, therefore, necessarily be determined by college requirements. Nevertheless, it doubtless would be desirable to reserve a brief period toward the end of a course in a language which shall be given over partly to a review of the grammar of the language and intensive drill on the constructions. Such brief review and drill ought to enable pupils to meet college entrance requirements without vitiating the work of the entire teaching period.

It ought to be added that the teaching of French in the high school is as good as the teaching of this subject in all except the best high schools; and the change required is that from the indirect, or translation method, to the direct in the earlier years of the course.

The following brief general suggestions may be helpful in making the desirable change:

MOTIVE.

The educational value of a modern language lies not in the discipline or mental culture, acquired through the process of learning it, as is commonly assumed. This probably has some value, but is not sufficient to justify the time required. Its real educational value lies in the use made of the language in life after it has been acquired, either in the way of reading or business.

In addition, then, to those who wish to study a given language for its literary value, only those should be encouraged to study French or German who may need one or the other for scientific purposes, while the study of Spanish should be advocated only for the few who may need it in business.

In the eighth grade, where the question of entering a higher institution of learning can not be definitely decided, all pupils who make

a high grade in the other studies should be allowed to take one modern language. This, as above stated, is now the policy in the schools and is the correct one to follow.

METHOD.

The direct method is so named because it avoids translation at first and makes a direct association between the learner's ideas and the foreign vocabulary, while the method by translation makes an association between the foreign vocabulary and the learner's native vocabulary, and therefore an indirect association with his ideas. With the latter method the pupil never learns to think in the foreign language, never can speak it fluently, must mentally translate it in reading, and hence never can read it rapidly and with ease.

The direct method is also sometimes called the "natural method," because it is the method by which children learn their vernacular. But, as frequently used, the direct method is not wholly a natural method. A few comments on this point will make it clear.

1. Little children hear the vernacular spoken to them a year or more before they try to speak it. They understand what is said to them before they can say a word. They learn to think in their mother tongue by hearing it spoken; then speaking it later becomes easy. Cases are on record where children did not speak until they were 4 or 5 years old, and spoke complete sentences the first time they tried.

Applying these facts to the direct method, the suggestion is made that the teacher speak the foreign language in class for a long time and let the pupils answer in English until they have learned somewhat to think in the foreign language. This also makes for correct pronunciation, as pronunciation turns on correct hearing.

2. Children in learning their vernacular become fluent before they become grammatical and before their pronunciation becomes correct. In school we demand grammatical correctness and fairly correct pronunciation from the beginning, and seldom get fluency. We have not the courage to let mistakes pass uncorrected.

3. We often make the mistake in high schools, when reading texts in the foreign language, of not giving pupils a great deal of easy reading matter, written in the vocabulary and idioms of everyday life, and rushing them too early into literature, even into poetry, which is not the language in which even educated natives habitually think and speak.

After the direct association between thought and the foreign vocabulary has been made an habitual process, translation will not change it; later in the course translation has its place. In grammar only such parts should be taught as actually help the pupil in learn-

ing to speak and understand the language, and they should be taught only when needed. Grammar should be treated as a means and not as an end.

With these modifications, the direct method now used in the eighth grade should be extended through the high school. There is no reason why children who have studied a modern language for four or five years should not speak it fluently, as in fact they do in foreign countries in secondary schools.

SCIENCE TEACHING.

It was the custom until recent years even in the best high schools to teach the natural sciences as pure sciences, using the laboratory method. The teacher described the experiment to be made by the class; the class performed it according to directions; by the quiz method they were led to formulate the generalization; then they copied it into a notebook. That was the end of it. Occasionally one or two applications were suggested. In physics, especially, texts degenerated into mere laboratory manuals giving directions for performing specific experiments. College requirements were expressed in terms of experiments, the number and kind of experiments being quite definitely prescribed. The old "Harvard physics," of 20 years ago, was the most widely known example. The result was that the sciences were comparatively unpopular in high schools, and the per cent of pupils who elected them declined during a series of years.

This has all been changed in recent years in the best high schools. While mature students in college and university are interested in the abstract truths of the sciences, immature pupils in elementary and high schools are not. Their interest lies in the applications of these truths to concrete situations and phenomena. Hence the trend is to teach applied science in elementary and secondary schools, and leave pure science mainly for the college and university. For immature students the explanation of situations and phenomena is the motive for knowing.

The manipulation of apparatus and the making of an experiment under specific detailed directions, and then formulating a generalization with the help of the teacher, was not only uninteresting to pupils, but it also required little thinking; and the teaching of the sciences was a distinct disappointment as a means of training in thinking.

On the contrary, applied science begins with the observation of the situation or phenomenon to be explained, analyzes it, formulates a tentative explanation or hypothesis, then takes this hypothesis into the laboratory and tests it under conditions which can be controlled; and finally, if found true, applies it to numerous similar situations or phenomena. This requires a maximum of analysis and thought.

The motive for the experiment is found out of doors, and the final explanation is again carried into the outside world; the laboratory experiment is simply an indoor stage between two outdoor stages of the process. In short, the aim of the process is to interpret to the pupil the physical world about him. There is more educational value in formulating one generalization in this way and making 50 applications of it than in formulating 50 generalizations and making no applications of only one of each. Each new application is an additional proof of the truth of the generalization, and, what is more significant, it is also a new interpretation of its meaning and scope. This has come to be known as the "project method," a term borrowed from the manual training school in which it was first used. It is essentially like the "case method" in law schools.

As situations and phenomena are to the pupil the motive for study, and as few situations and phenomena which interest him find their whole explanation in any one science, the elements of most or all of the natural sciences must be included in an introductory course in science. This has given us what is known, for want of a better name, as "general science." Such general science is followed in high schools by an individual treatment, properly coordinated, of the different sciences, to be taught as applied sciences, in which the formulation of generalizations is effected with no less care for accuracy than was insisted upon in the teaching of pure science years ago. In brief, science teaching for the young should begin with applied science and gradually merge into pure science. This order is the reverse of the order followed in the past.

MATHEMATICS.

In a similar way the teaching of mathematics has been changed in the best high schools. In arithmetic thought processes are developed from the concrete, followed by training in the abstract, as already explained. This is the only way to secure intelligent thought.

In algebra, graphs and other concrete illustrations are freely used; and in the best teaching applications are made to technical and commercial problems which appeal to the pupil and which make the truths of algebra significant and vital.

In geometry an introductory course should be given in experimental, or "inventional," or "concrete" geometry before abstract definitions and abstract demonstrations are attempted. Under the best teaching the text gives only the propositions to be demonstrated, with such hints as the pupil may need; and all the work is "original," as this term is commonly used in this connection. Geometry is applied to problems presented by the outside world and in this way, like the natural sciences, is made vital to the pupil.

In short, mathematics should be taught in elementary schools and in high schools as applied science. The order is from the concrete to the abstract, from applied to pure mathematics, not the reverse. In this respect the teaching of mathematics in the Winchester schools can be strengthened.

LATIN.

Greek has been eliminated from all high schools in the West and from most high schools in the East, and may be disregarded in this discussion. Latin is everywhere on the defensive; and while it may be permanently retained, it will be elected by fewer pupils than is the case now. This is not the place for a discussion of the merits of the arguments for and against it.

But it is practical to suggest that many pupils in high schools generally who now elect it should not do so. If a pupil has a special taste and talent for it, and consequently can make rapid progress in it, he can no doubt get a great deal of good from it. But if he needs an entire year, with a daily lesson, to acquire the ability to read Caesar's Commentaries, he could far more profitably pursue some other study, of a more practical nature, for which he may have talent. In general a pupil who during his first year of the study of Latin has not shown an aptitude for it should not be allowed to go on with the study. Under a system of semiannual promotions, elsewhere recommended, classes in other subjects which such pupils could enter could easily be made to begin in the middle of the year.

While a modern language should be begun early and by the direct method, as already explained, Latin, taught by means of translation and grammar, should be begun late, when the mind is mature enough readily to grasp the principles of grammar. Experience has abundantly proved the correctness of this statement. Three years of Latin, with a reduction of the amount required by the colleges, would permit the study to be begun the second year of the high school instead of the first. One of our leading eastern colleges has recently made this change and others must follow.

In the best teaching of Latin to-day great emphasis is laid on its bearing on English etymology, and the subject is further vitalized by means of illustrations from Roman life, Roman history, and Roman thought.

CLASSICS IN TRANSLATIONS.

While it is no longer practical to require a study of the classical languages as a part of general education at this day when there is so much science that must be known by every educated person, the proper substitute for the classical languages is not the modern languages but classical literature in translations. The high schools by

largely dropping the classical languages have brought about only one-half of the reform. The other is the introduction of the classics in translations—much of the Iliad and the Odyssey; Plato's Apology, Crito, and Phaedo; several of the plays of each of the three great Greek dramatists; and much of Virgil's Æneid should be read in every high school, partly in class and partly out of class. This would give pupils a far better insight into classical life, thought, and civilization than the present study of the classical languages.

ATTITUDE OF PUPILS TOWARD SCHOOL.

In the high school, and to a less extent in some of the elementary schools in Winchester, the attitude of pupils toward their school work is not all that could be desired. They do not take their work seriously enough, and in the high school many who could do much better are satisfied with a mere passing mark. The idea of what is called a "gentleman's grade" in college seems to have crept into the high school. The pupils here referred to come more frequently from cultivated homes. It ought to be stated that this evil is not an unusual one in suburban communities where there is a large number of pupils from prosperous homes. It is a besetting evil in many private schools as well, often bitterly complained of by teachers in these schools in private.

For this condition the responsibility rests partly upon the teachers and partly upon the parents. Many of the pupils have too many distracting social privileges outside of school, and are not sufficiently controlled in their life habits and their habits of study in the home. Without the hearty support of the parents, the teachers can not change this condition. It is, taken all in all, the weakest single spot in the high school, and it is for the parents to wake up and take the matter seriously in hand.

In general, it may be said in regard to all the schools that criticism of them and of the teachers should not be made in the home in the presence of the children, and yet this is common in most communities. It is almost as unfair and as harmful to children for parents to undermine their children's respect for their teacher as it would be for the teacher to undermine the children's respect for their parents. Criticisms of schools are entirely in place. They bring about improvement when intelligent and just. But they should not be made to or in the presence of the children.

SUPERVISION.

While the teaching corps, taken as a whole, is efficient, and everywhere there is evidence of a fine professional spirit, there is great need of more effective supervision of the instruction than the super-

intendent, with his other administrative duties, has time to give. The administrative problems are well handled by him. His reports for 1918 and 1919 are admirable; they deal intelligently with vital current problems and show that he keeps in close touch with the educational thought of the day and with the latest developments in methods of administration, such as intelligence tests to determine the native ability of children as a basis for classification and efficiency tests to ascertain the efficiency of the instruction. But such testing of efficiency is mainly negative in character. Its purpose is to discover the weak and the strong features of the instruction. What is greatly needed in addition is a supervisor whose aim is to guide and aid the teachers in making their teaching more effective. There should be appointed a supervisor who will spend all her time in the schools, helping teachers by suggesting better methods and devices and teaching model lessons to illustrate her suggestions. Such supervisors should hold frequent meetings of teachers, after school hours, to discuss with them in a most practical way their vital problems. Occasional meetings of all the teachers of the elementary schools should be held for the discussion of problems common to all and for the discussion of general principles of education. These should be followed by frequent joint meetings, not less than one a week, of several grades whose problems are similar or closely related.

These meetings should rarely be given up to a discussion of petty details of discipline or to a miscellaneous expression of opinion, but should be devoted to a systematic treatment by the supervisor of the methods of teaching each subject in the curriculum and the psychological principles underlying them. Each subject of the curriculum should be treated in a series of systematic, consecutive meetings of this kind, very much as it would be treated in a practical university course. Such training of teachers in the service should simply be a continuation of the professional training begun—but only begun—in our best normal schools.

It is a mistake to assume that the theoretical training of teachers is completed in a good normal school, and that all the young graduate needs is practice and experience. The fact is that students in normal schools are too immature and their academic training is too limited for them to grasp the philosophical basis of the general educational problems or the psychological basis of methods of teaching.

University extension courses are meeting in part the need for this advanced training, but only in part. They can not meet it adequately because they come too infrequently and are not followed by the instructor in the schools to aid teachers in practically applying the instruction. Furthermore, teachers are entitled to receive without cost to themselves much of this instruction to which they contribute their time.

The teachers' meeting of the nature described is the most effective single means of building up a system of schools, and without it the finest professional spirit and the most efficient teaching can not be developed. Instruction can not be effectively supervised and directed from a central office by printed directions. There is need of the personal contact on the part of the supervisor with the teachers, both in the teachers' meeting and in the schools.

Such supervisor for the elementary schools in Winchester should be a woman of broad academic and professional training and of considerable experience in teaching in the elementary schools. Men seldom have this experience. She should have, besides, the personal and social qualities of leadership which the successful direction of a corps of teachers requires. She should have charge, under the superintendent, of all the instruction in the elementary schools, including penmanship and practical arts, except that in drawing and music, for which special supervisors are required.

MUSIC.

The supervision in music is in general efficiently done, except that more emphasis should be laid on voice quality in all the grades. The reading of music in the grades above the primary is well taught, but the voice quality in all grades is not as good as it should be. In the primary grades the chief aim should not be to train children as early as possible to read music, but to love and enjoy it. To accomplish this, emphasis should be placed on tone quality and on the singing of beautiful simple songs learned by rote. Music is art, and the chief function of art is to be enjoyed. While the more advanced study of all art requires the mastery of technique, which is not necessarily enjoyable; in the art education of children, technical training should not be prematurely emphasized so as to make the study a task and rob it of its enjoyment. There is altogether too much emphasis on technical work in the primary grades of the Winchester schools.

DRAWING.

The drawing in the elementary schools is taught by art students from the normal art school of Boston, and is supervised by a representative of the faculty of that school. While this representative is highly competent, she is unable to give enough time to this supervision to make it effective, and she strongly urges the appointment of a special supervisor who will give his entire time to it. The instruction in this subject, given as it is exclusively by inexperienced but well-trained students, is not satisfactory. There should be appointed a special supervisor who, as stated, will give all his time to

the work. If this should be deemed for any reason not feasible or possible, then a supervisor should be appointed who will give three days a week to this work and two days to like work in some near-by town, as the supervisor of music is now doing. Such supervisor should hold teachers' meetings, and should teach the lesson in the schools on at least two visits out of four. Between his visits the lessons should be taught by the regular grade teacher and by the students from the normal art school. With such supervision these students would do more efficient teaching and would profit more by their experience. They should be required to attend all teachers' meetings on drawing.

3. SUPERVISION AND ORGANIZATION IN THE ELEMENTARY GRADES.

To summarize, the pressing need of close supervision by a skillful supervisor of the elementary schools is strikingly evident from the unsatisfactory condition of the penmanship at this time. Some of the teachers feel helpless and discouraged because they are not getting results satisfactory to themselves; virtually all feel the need of competent assistance. It is further evident from the absence in the lower grades of the hand craft, or manual training, which is to-day found in progressive schools. To organize and direct this line of work, expert supervision is needed. The general supervisor of the elementary grades will be able to direct both these lines of work.

The teachers of Winchester, while differing widely in degree of native ability and of efficiency, as any teaching corps will, are well trained. They are all graduates of good normal schools or of colleges. While there is much good and some admirable teaching done in the elementary schools, the efficiency of the corps as a whole can be very considerably increased by a competent supervisor. Effective supervision is probably the most economical part of any school system.

There is at present considerable complaint by teachers in certain places of "oversupervision." This complaint usually comes from the large cities, where the machinery of administration is more complex than in smaller communities. The cause and significance of this complaint must not be misunderstood. It is not the supervision here recommended of which teachers complain. They would heartily welcome it. They object to the so-called supervision found in many of our large cities which consists not in systematic visiting of schools and helping teachers to do their work in more skillful and effective ways, but which consists in issuing printed directions and orders, in requiring multitudes of statistics which, without clerical help, it is laborious work to collect, and which seem to the teachers

and often are in fact not worth the labor when collected. They object to a supervision which is rigidly prescriptive and robs them of the freedom of using their own judgment. They object to being made simply a part of a huge machine.

Teaching under such conditions becomes as deadening as work in a shoe factory or a cotton mill, and teachers feel that these conditions are the more intolerable because they realize that they have a moral responsibility which they can not discharge.

Teachers further object to being pushed and driven by special supervisors of such subjects as drawing, music, etc., who know only their own subjects and do not know the rest of the program which teachers are held responsible to carry out.

A general supervisor of the type here recommended would be in a position to coordinate the various lines of work and prevent undue pressure by specialists for their own specialty. It ought to be added that there is no evidence at present that such pressure exists in the Winchester schools. In drawing, as already noted, the supervision is inadequate, and more time should be given to the subject.

Aside from dealing with the administrative and the financial problems of the schools, the superintendent should spend much time in the schools to discover the strong and the weak spots in the teaching. A very essential part of his work should be to study new phases of elementary and secondary school work in different parts of the country; to keep informed of the important educational experiments that are being made in progressive communities and in private experimental schools. He ought to be the channel through which new ideas are brought to the teachers in the schools and to the community at large.

From time to time he ought to hold teachers' meetings at which he can present new points of view, and at which teachers can find an opportunity to express their own views. Not the least of his functions is that of interpreting the work of the schools to the community, arousing public interest in them, and securing hearty public support.

In short, his function is that of leadership in educational matters in the community of such sort as will secure the hearty cooperation of teachers and citizens in the work of the schools, rather than in dealing with minute details.

Chapter V.

THE WINCHESTER HIGH SCHOOL.

CONTENTS.—1. The pupils; effect of college entrance requirements; enrollment by curriculums; the most attractive curriculum; human and social aspects; success in preparing pupils for college. 2. The curriculums; basis for reorganized curriculums; college preparatory curriculum; commercial curriculum; home-economics curriculum; industrial curriculum. 3. The teachers and their work; training of; experience of; teaching load; duties of part-time teachers; size of classes; promotions, failures, and eliminations; marking of teachers' marks; comments on teaching; errors of teaching technique; good things observed. 4. Organization, administration, and supervision; the administrative personnel; misuse of school telephone; principal's office hour; supervision of instruction; directed study; pupil self-government; socialized recitations; educational and vocational guidance. 5. Building and equipment. 6. Conclusions and recommendations.

1. THE PUPILS.

The enrollment of the high school in March, 1920, was 311, and that of the elementary schools was 1,335. The total for all schools was 1,646. The high-school enrollment was 18.9 per cent of the total. This percentage is an index of the high school's holding power. It means roughly that, out of every 100 pupils enrolled in all the public schools of Winchester, 19 are enrolled in the high school. In order to know how good this percentage is it must be compared with a similarly derived index from other schools in essentially similar towns. These are not available for the present year; but similar percentages for several Massachusetts towns with which Winchester is comparable have been calculated from reports made to the United States Bureau of Education for the year 1917–18, and are shown in the following table:

Relative holding power of Winchester High School.

Towns.	Per cent of all public-school pupils who are enrolled in the high school.	Rank according to per cent age.
Wellesley	17.6	1
WINCHESTER	17.5	2
Belmont	15.4	3
Brookline	14.4	4
Milford	12.6	5
Norwood	12.2	6

For these six towns, then, Wellesley stands first in holding power, with an index of 17.6, while Winchester is a very close second with an index of 17.5. For the entire State of Massachusetts in the year 1916, the latest date for which figures are available, the ratio of pupils enrolled in high schools, both public and private, to those enrolled in all grades of both public and private schools, including colleges, was 12.89 per cent. With reference to this ratio, California ranked first among all the States (14.55 per cent) and Massachusetts was second among all the States.[1]

The fact that the Winchester High School, as to holding power, is thus seen to rank high among the best towns of approximately the same population as that of Winchester, and this in a State that ranks second among all the States as to the proportion of all its school youth who are enrolled in high schools and colleges, should afford the people of the town some degree of satisfaction. The people should remember, however, that when only 18 in 100 are in the high school, instead of nearly 33 (which would be the approximate normal percentage if all came through), there is a large loss all along the line. Efforts should always be made to get into the high school and keep there as nearly as possible all boys and girls of high-school age. Individual development and culture, the duties and responsibilities of citizenship, and the necessity of making a living and contributing to the Commonwealth—all alike demand universal high-school education. One of the most effective ways of doing this is to provide a program of studies which is rich in courses that appeal to the varied interests and meet the various needs of adolescent boys and girls. This phase of the school problem is discussed in another section of this report.

HOW DO COLLEGE ENTRANCE REQUIREMENTS AFFECT THE SCHOOL?

In common with most New England high schools and with many outside of New England, this school spends a larger proportion of its effort on college preparation than is justified. If all who entered the college preparatory curriculum came through successfully and entered college the disproportionate emphasis on college preparatory work could be successfully defended. The facts, however, do not justify such emphasis. The tables following show what small fractions of the pupils remain to graduate from the college preparatory courses, and how few of these graduates actually enter college. Sixteen out of fifty seniors are in the college preparatory courses. These represent a selection of 16 out of 151 pupils who started in as ninth graders four years before, or 10.6 per cent. Not more than one pupil in eight

[1] Rep. of the U. S. Commis. of Educ., 1917, Table 2, p. 23.

or nine comes through the school prepared for college, and not all of these actually enter college. Does not this fact suggest that greater proportional effort should be made to meet the needs of the seven out of eight who will never go to college?

For the overemphasis given to college preparatory work, the colleges which dominate the high-school situation in New England through their entrance requirements are largely responsible. For years the officials who administer these requirements have shaped them according to the demands of convenience in administration from the standpoint of the college official. In every community, on the other hand, are a few people who are much more interested in obtaining from the school free preparation of their children for certain colleges than they are in having the school function largely for the welfare of all the children of high school age in the community. The high schools are intended to be democratic institutions. They do not exist solely for the purpose of enabling a few boys and girls each year to get into college. Rather they exist for the training, in the things that are fundamental to good citizenship, of all the youth in the community who are approaching maturity and who can profit by what the high schools can offer.

On the one hand high-school officials and high-school teachers feel the pressure from college requirements, and not without reason, for in New England a school suffers serious loss of prestige if any of its pupils fail to pass entrance examinations, or to "make good" in college if they succeed in gaining entrance. On the other hand a few parents whose children do not succeed in college entrance examinations or in the pursuit of studies in college may unthinkingly and unjustly charge their children's failures against the teachers when the fault really lies with the children, or with themselves, because they have not trained the children to obedience and industry.

Two or three such parents can do more to destroy public confidence in a high school than 50 satisfied parents will do to establish and maintain it. Fear on the part of the teaching staff of this kind of criticism at home is another factor that helps the colleges to dominate detrimentally the high schools and their curriculum.

The rapid dwindling of the classes due to leaving school is strikingly shown by the next table, which also shows for the classes that graduated in 1918 and 1919 how very few of the pupils actually entered college.

Diminishing membership of high-school classes as they progress through the grades.[1]

Class entering in September.	Ninth grade.	Tenth grade.	Eleventh grade.	Twelfth grade.	"Fifth year."	Graduated.	Entered college.	Graduating in June.
1914	145	127	91	40	8	48	7	1918
1915	163	110	87	54	1	58	15	1919
1916	151	100	67	50	5	.....	.....	1920
1917	138	81	59	.....	.....	.....	.....	1921
1918	107	70	.....	.....	.....	.....	.....	1922
1919	124	.....	.....	.....	.....	.....	.....	1923

[1] Compiled from reports of the superintendent of schools.

The falling off of the ninth grade enrollments during the past three years, as seen in the second vertical column, may be attributed partly to the fact that when the ninth elementary grade was discontinued pupils from both the eighth and ninth grades were promoted to high school; so the ninth grade high-school enrollment was larger then than usual.

The following table shows the numbers of boys and girls who are pursuing each of the five curriculums, distributed by grades:

Enrollment of high school by curriculums, grades, and sexes, September, 1919.

Curriculums.	Ninth grade.			Tenth grade.			Eleventh grade.			Twelfth grade.			All grades.			Post-graduate.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.
College	19	21	40	8	10	18	4	11	15	6	6	12	37	51	88	....	3	3
Technical	10	1	11	8	....	8	4	....	4	4	....	4	27	1	28	1	....	1
Commercial	16	29	45	7	17	24	3	12	15	3	11	14	29	69	98	....	....	....
General	6	16	22	0	9	15	5	14	19	3	14	17	20	54	74	....	1	1
Household arts	....	6	6	....	5	5	....	6	6	....	3	3	....	20	20	....	....	....
All curriculums	51	73	124	29	41	70	16	43	59	16	34	50	113	195	308	1	4	5

The most striking fact brought out by this table is the falling off in enrollment, in each curriculum excepting the "general," as we glance from left to right through the ascending scale of the grades. This is a condition which exists in nearly all schools, but it is much worse in some than in others. It is especially marked, in general as it is in Winchester, in passing from the ninth grade to the tenth. It may be due to one or all of three causes:

(*a*) Increase in the number of pupils received into a given grade from lower grades or from outside the system.

(*b*) "Piling up" in a given grade or retarded pupils, those who failed of promotion to the next higher grade, but who remain as "repeaters."

(*c*) Elimination of pupils who drop out of school before entering the next higher grade.

All three causes are operative in all grades in most schools, but usually with diminishing effects through the ascending grades. In Winchester, however, the first cause has not been operative during the past four years, as may be seen by reference to the preceding table. We must therefore attribute the falling off in enrollment to retardation by failures and to eliminations from school.

The first horizontal line of this table should be read as follows: The college preparatory curriculum enrolls 37.3 per cent of all the ninth grade boys, 28.8 per cent of all the ninth grade girls, and 32.2 per cent of all ninth grade pupils of both sexes. Also in this curriculum, the number of senior boys is 31.5 per cent of the number of ninth grade boys, the number of senior girls is 28.6 per cent of the number of ninth grade girls, and the number of both boys and girls in the senior class is 30 per cent of the number of both boys and girls in the ninth grade. The other four horizontal lines show similarly the corresponding ratios for each of the other curriculums. Since the ninth grade enrollment has changed but little in the past four years this ratio of seniors to ninth graders tells us approximately how well the different groups hold to their curriculum till the finish. The "general" curriculum appears to make the best showing; but reference to the following table shows that this is due to accessions of girls in the two upper years. The practice is followed to some extent of changing from the college preparatory or the commercial curriculum to the general, when unsuccessful in the required subjects of the former curriculums. In this there is danger that the general curriculum may become a recognized dumping ground for weak pupils instead of a well-planned course of training framed according to an intelligent educational policy and affording special lines of opportunity for pupils with various types of specialized interests and needs.

Proportion of boys and proportion of girls enrolled in each curriculum in the ninth grade, and percentage ratio of seniors to ninth graders in each curriculum.

Curriculums.	Percentage of each sex enrolled.			Ratio of seniors to ninth grade.		
	Boys.	Girls.	Total boys and girls.	Boys.	Girls.	Total boys and girls.
College preparatory	37.3	28.8	32.2	31.5	28.6	30.0
Technical preparatory	19.6	1.4	8.9	40.0	0.0	36.7
Commercial	31.4	40.2	36.3	18.7	38.0	31.2
General	11.8	21.9	17.6	50.0	87.5	77.3
Household arts	.....	8.2	4.8	.....	50.0	50.0

WHICH CURRICULUM ATTRACTS THE MOST PUPILS?

The two preceding tables show that the college and technical preparatory curriculums appeal most strongly to the boys, attracting 57 per cent of them, while these curriculums attract only 30 per cent of the girls. It also shows that the commercial curriculum, which is specially planned to turn out stenographers and bookkeepers, appeals most strongly to the girls, attracting to itself 40 per cent of the girls and 31 per cent of the boys. It also indicates (last three columns) that from one-half to two-thirds of the pupils drop out of each curriculum before reaching the senior class, and that while a few of these latter continue school work in the "general" curriculum, most of them leave school. The technical curriculum holds the boys best, or else it selects the most persistent; and the commercial does the same for the girls.

In connection with the college preparatory curriculums, it should be noted that the scope and character of the curriculum is probably not the primary factor inducing the students to pursue it. The primary reason why they choose it is that the colleges to which they intend to apply require them to be "prepred" in certain studies and by certain traditional methods; and they must take these courses in order to get this preparation whether the curriculum suits their native abilities and interests or not. The kind of education which these pupils must select, therefore, is not determined by a plan and policy of secondary education developed democratically within the school and community. It is determined mainly by authority emanating from the colleges, and this authority, whether so intended by them or not, is autocratic. Subservience to this authority by parents who are willing to submit their children to the arbitrary entrance conditions of certain favored colleges, rather than sending them to others whose views of secondary education admit of a broader and more liberal type of preparation, tends to increase the pressure of these autocratic requirements on the school.

This school is probably typical of many others in New England in that it is forced by external pressure to be more subservient to traditional college requirements than is consistent with the development of a real policy of its own in secondary education.

It would be well for secondary education in New England if the leaders in high-school education and the professors of education in these colleges would get together and outline a policy as to entrance requirements for these institutions which would allow the high schools larger liberty of internal development for the benefit of all their pupils. It would be healthier for both colleges and high schools if college educators would look beyond the entrance machinery set up for mere administrative convenience and would begin to

interest themselves more in the broader aims and purposes of secondary education and the best means of realizing these aims.

Finally, in Winchester only 7 pupils out of 145 who entered high school in 1914 entered college in 1918, and only 15 out of 163 who entered high school in 1915 entered college in 1919. If, as is quite probable, this condition is typical of high schools in New England towns and small cities, it would be quite worthy of the abilities of the best New England college professors and schoolmen to consider what the other 138 entrants of 1914 and the other 148 entrants of 1915 were getting out of the high school that was worth while to them. Either the college preparatory curriculum should dominate the high school to a much smaller extent, or else it should be permitted to be reconstructed so that it would have more intrinsic value and greater holding power for the 90 to 95 per cent of pupils who start on it but never reach the college doors.

WHAT OF THE PUPILS FROM THE HUMAN AND SOCIAL STANDPOINT?

Turning from pupil-statistics to the young people themselves, we find here in the Winchester high school a body of healthy and normal boys and girls rather more homogeneous, and apparently with a somewhat higher average of intelligence and initiative, than student bodies in many cities of the size of Winchester the country over. In general we find their attitude toward their work and their teachers to be good, and their outlook on life to be sound and sensible. Their general information seems to be well up to the average or better, and their preparation for their lessons averaged well. Their success in the tests that were given was good, their median scores being above the tentative standards corresponding to the tests. Their interest in problems and thought questions was particularly noticeable; and when given a chance in discussion they entered into it with zest and enthusiasm. It was always easy to appeal successfully to their idealism and to secure their cooperation. This was particularly noticeable in administering the tests. Altogether they seemed to us a body of youth who presented a strong appeal and challenge to the best efforts of their teachers.

Opinions have reached the commission to the effect that the morale of the high-school pupils has not been what it should be, and that the spirit of school patriotism which is so important for the success of every school as a socializing institution has been somewhat lacking. However this may have been in the past, there is no convincing evidence now that the students are deserving of such criticism. We have seen schools where the morale is distinctly higher than it seems to be here, and where the school spirit is evidently more coherent and enthusiastic. We believe that both morale and school patriotism can be im-

proved and placed on a higher plane through the execution of an adminstrative policy consciously shaped toward this end. We believe that such a policy should be determined on and carried out, yet we think that the patrons of the school should be assured that the present morale of the student body in the high school is in no way seriously defective. However, it can and should be improved, and the public can materially assist in this improvement by refusing to repeat unverified items of criticism.

Nothing could be more influential in building up a fine morale among the pupils than a neighborly, cooperative attitude on the part of the parents toward the principal and teachers of the school. Parents should never criticize or belittle teachers in the presence of their children. Such a practice is all too common in families everywhere, and it undermines the pupils' pride in their schools and destroys their respect for their teachers. Parents should become acquainted with the teachers of their children and cooperate with them on a basis of mutual understanding and united endeavor for the good of their own children and the upbuilding of the school. With such cooperation all incidents or practices which seem to the parent to be open to criticism can be candidly discussed and equitably adjusted. The members of the survey commission can say without hesitation or reservations that the members of the high-school faculty are ladies and gentlemen of character, culture, and refinement, with whom anyone may be proud to associate and to whose care he may commit his children with entire confidence.

IS THE SCHOOL SUCCESSFUL IN PREPARING PUPILS FOR COLLEGE WORK?

Many of the comments unfavorable to the high school which are reported to have passed current in the community carry the idea that the students either fail in getting into college or do not attain success in college work when they succeed in getting in.

We have not been able to secure any data bearing on the number of applicants failing to get into college, although we have already called attention to the fact that the ratio of college entrants to graduates of the college preparatory curriculums is very small. The fact that only a small proportion of the latter do enter college, however, is not proof that only that proportion could have got in if they all had wanted to go. It more probably indicates that many pupils enroll in the college preparatory curriculums for reasons other than a strong and persistent desire to go to college.

Of those who actually apply, however, the number rejected must be relatively small, for the school has the certificate privilege with all colleges that accept candidates on certificate; and those colleges which do not do so are relatively few. Hence it is not probable that many

pupils who work hard enough to attain graduation from the school fail to get into college.

The second criticism, that the students who enter college do not make good, is probably founded on hearsay and rumor rather than on fact. If the following figures from the records of the school are complete, they are convincing on this point and should silence this kind of vague and general criticism against the school. Even if they are not complete, they probably constitute a sufficiently large and fair sampling so that they may be taken as truly representative of the product of the school. From the table it may be seen that while the percentage of failures in college of Winchester graduates for the 4-year period 1911–1914 was 10 per cent of all courses entered, for the four years 1915–1918 it ranges from 3.6 per cent down to zero.

Record of Winchester High School graduates in first year of college.

	1911-1914	1915	1916	1917	1918
Number of pupils	41	6	18	7	7
Courses taken in college	213	30	86	31	28
Marks equivalent to credit or better	61		25	10	14
Marks equivalent to passing	125		61	23	12
Failure in certified subjects	9	0	2	1	0
Failures in subjects not certified	16	0			1
Ratio of all courses failed to all courses taken, per cent	10.3	0	2.3	2.9	3.6

[1] Incomplete; includes all reports received to date.

Detail of failures by subjects.

	1911-1914	1915	1916	1917	1918
English	3	0	0	1	0
German	1	0	0	0	0
Mathematics	3	0	2	0	1
Latin	1	0	0	0	0
Chemistry	1	0	0	0	0

Marks received in 1919 by Winchester high-school graduates attending colleges which report back to the school.

Grades.	Maine.	Dartmouth.	Mount Holyoke.	Boston.	Total.
A. Excellent		1			1
B. Superior or good		7	3	3	13
C. Average or fair	4	5	8	3	20
D. Inferior or unsatisfactory	1				1
E. Failure or conditional		2	4		6
Total courses	5	15	15	6	41
Number of students	1	4	3	1	9

The accompanying table shows the actual marks for the first semester of 1919–20 reported from four colleges for nine pupils who entered college in 1919. Out of a total of 40 enrollments in various classes 6 marks of failure or condition were received. This does not reflect seriously on the quality of work done in the high

school, since 14 out of the 41 marks, or more than a third, are in the two higher grades, either good or excellent, and half of them are fair or average.

Taking all these records into consideration, we judge that the rumors that have been current to the effect that the school has not prepared its pupils well for college is not proved. That the work and methods might be much improved is not to be doubted, yet many of the shortcomings of the school with reference to efficient teaching are due in no small measure to the restrictions that the colleges themselves place on the schools through their domination of the content and methods of instruction. Furthermore, the survey commission is convinced that recent changes that have been made in the organization of personnel and in the administration of the school have already resulted in improved teaching in some departments and give promise of eventuating in better work in all departments.

2. THE CURRICULUMS.

The survey commission recommends that a reorganization of the high-school curriculums be undertaken and carried forward as rapidly as the necessary changes can be formulated and fitted to the conditions of the school with administrative efficiency.

The principles on which such reorganization should be based are well recognized, and are as follows:

1. Each pupil should complete at least 15 or 16 units for graduation.

2. These 16 units should include two major sequences each consisting of three or four consecutive courses in a single subject or in closely related subjects. They should also contain two minor sequences of two-unit courses each. Furthermore, each pupil should be required to complete a minimum of two units of English, two of social studies (including American history and civics—or better, the problems of democracy—and taken in the eleventh or twelfth grade), one unit of mathematics, and one of science. These units may or may not be included in the major or minor sequences mentioned above.

The purpose of these specifications is to secure breadth of insight into the knowledges that are of greatest social and civic value, and at the same time to compel continuity of effort along the lines of the pupils' strongest ambitions and best aptitudes.

3. The subjects from which the major and minor sequences may be chosen are English, natural sciences, social studies (history, civics, economics, sociology), commercial studies, manual arts, household arts, and fine arts (including applied design), Latin, and modern foreign languages.

The curriculums now in use are shown in the following table:

HIGH SCHOOL COURSES OF STUDY (1919–20).

	FIRST YEAR. REQUIRED SUBJECTS.	Periods per week.	Diploma points.[1]	SECOND YEAR. REQUIRED SUBJECTS.	Periods per week.	Diploma points.	THIRD YEAR. REQUIRED SUBJECTS.	Periods per week.	Diploma points.	FOURTH YEAR.[2] REQUIRED SUBJECTS.	Periods per week.	Diploma points.
College entrance course.	English I	4	4	English II	4	4	English III	3	3	English IV	4	4
	Algebra	5	5	Plane geometry	5	5	Review mathematics	3	3	Review mathematics		2
	Latin I	5	5	Latin II	5	5	Latin III	5	5	Latin IV	5	5
	Ancient history	5	5	French I or German I	5	5	French II or German II	5	5	French III or German III	5	5
							French I or German I or Chemistry	5	5	French II or German II or American history	5	5
								7	5	or Physics	7	5
Technical course.	English	4	4	English	4	4	English	3	3	English	4	4
	Algebra	5	5	Geometry	5	5	Review mathematics	3	3	Review mathematics	2	2
	Science I	5	5	French I	5	5	French II	5	5	Physics	7	5
	Ancient history or Latin I	5	5	Biology or Latin II	5	5	German I	5	5	American history	3	3
							Solid geometry	2	2	German II	5	5
Commercial course.	Community civics	3	3	English II	4	4	English III	3	3	English IV	4	4
	English I	4	4	Commercial correspondence	2	2	Business English	2	2	Current history IV	2	2
	Current history	2	2	Current history II	2	2	Current history III	2	2	Typewriting II	5	2
	Commercial arithmetic	3	3	Bookkeeping II	5	5	Typewriting I	5	3	Stenography II	5	5
	Bookkeeping I	5	5	Typewriting	2	1	Stenography I	5	5	Business and office methods	2	2
				Stenography	2	2						
Household arts course.	English I	4	4	English II	4	4	English III	3	3	English IV	4	4
	Current history I	2	2	Current history II	2	2	Current history III	2	2	Current history IV	2	2
	Science I	5	5	Science II	5	5	Chemistry	7	5	Household arts II	7	5
	Cooking I	6	3	Cooking II	4	2	Household arts I	7	5	Dressmaking II	6	3
	Sewing I	4	2	Sewing II	6	3	Dressmaking I	6	3	Millinery	4	2
	Drawing I	2	2	Drawing II	2	2						
General course.	English I	4	4	English II	4	4	English III	3	3	English IV	4	4
	Science I	5	5	Science II or Foreign language	5	5	English history	5	5	American history	5	5
Five-year course.	English I	4	4	English II	4	4	English III	3	3	English IV	4	4
	Algebra	5	5	Geometry	5	5	Review mathematics	3	3	Review mathematics	2	2
	Latin	5	5	Latin II	5	5	Latin III	5	5	Latin IV	5	5
							Modern language I	5	5	Modern language II	5	5

	Electives.			Electives.			Electives.			Electives.		
All courses.	Chorus	1	4	Harmony and theory II [3]	2	2	Mechanical drawing III	2	2	Mechanical drawing IV	2	2
	Harmony and theory I [3]	2	2	Mechanical drawing II	2	2	Arts and crafts III	2	2	Freehand drawing IV	2	2
	Mechanical drawing I [3]	2	2	Freehand drawing II	2	2	Freehand drawing III	2	2	Arts and crafts IV	2	2
	Freehand drawing I	2	2	Arts and crafts II	2	2	Cooking III	2	1	Cooking IV	2	1
	Arts and crafts I [3]	2	2	Cooking II	2	1	Spanish II	5	5	Office work	10	5
	Cooking I	2	1	Sewing II	2	1	Sewing	2	1	Spanish III	5	5
	Sewing I	2	1	Manual training II [3]	2	1	Manual training	2	1	Sewing	2	1
	Physical training	2	1	Spanish I	5	5				Manual training	2	1
	Manual training I [3]	2	1	European history	5	5				Economics	5	5
	Biology	5	5									

[1] A "point" is the equivalent of one prepared recitation per day for one year, hence 4 points are equivalent to 1 unit; 72 points (equal to 18 units) are required for graduation.
[2] Fifth year of "five-year course" includes ancient or American history, 5-5; modern language, 5-5; chemistry or physics, [illegible]; review of English and Latin.
[3] Not offered this year.

It will be seen that the college-entrance curriculum requires English, Latin, college-preparatory mathematics, one modern foreign language, and ancient history. The pupil has no choice of anything else whatever until the third year, when he may at his option take a third foreign language or chemistry, and in the fourth year continue with his third foreign language or choose American history or physics.

However satisfactory this arrangement may or may not be to the officials who are responsible for the administration of college-entrance requirements, the poverty in useful content to which these preparatory pupils are condemned by it during their most important and impressionable formative period must seem pitiful to the thinking man on the street, no less than to the modern and progressive student of secondary education. If these pupils want to study live civic problems they can not do so, but must take ancient history instead; and if they want science they must be content with the conventional college-preparatory brand of chemistry and the "forty sacred experiments" in physics. Fortunately they have a teacher in physics who encourages them to experiment "on their own," with projects outside the sacred forty; but if they want to have this opportunity, they must forego the study of their country's history and its big imminent problems. To anyone who is in the habit of getting below the surface in thinking on educational problems, this must seem nothing short of tragical. The children of Winchester, all unconsciously, perhaps, to the community, are being robbed of their birthright as American citizens. A careful analysis of the other curriculums will show that these are no more consistently conceived.

BASIS FOR REORGANIZED CURRICULUMS.

As a guide in the work of setting up something better, the survey commission recommends that curriculums be offered to meet the needs of different groups which will include all the pupils:

1. Those preparing for colleges and technical schools—a college-preparatory curriculum.
2. Those who intend entering commercial occupations before or after graduation from high school—a commercial curriculum.
3. Those girls who do not expect to enter college or business, and who therefore need a well-balanced curriculum in preparation for life as home makers and intelligent women citizens—a home economics curriculum.
4. Those boys who expect after leaving high school to go directly into occupations on the production side of industry—an industrial curriculum.

Curriculums embodying the foregoing principles, and having adequate flexibility, are presented as representative of what is needed for children having the varied interests and occupational oppor-

tunities afforded by the diversified commerce and industries centering in and around Boston.

It will be said at once that Winchester has a home economics curriculum and that the girls are not attracted by it; but the commission is of the opinion that the reason for the failure lies in the curriculum as it now is and in lack on the part of the community of appreciation for the home economics idea, and not in the girls themselves. If a richer curriculum be provided, and if its advantages as affording a broad, all-round education for girls be once understood by the people, we believe that it will turn out to be one of the most popular curriculums in the school.

THE COLLEGE PREPARATORY CURRICULUM.

Study sequences.	Ninth grade.	Tenth grade.	Eleventh grade.	Twelfth grade.
Foreign language.	I	II	III	IV
English	I	II	III	IV
Mathematics	Algebra.	Plane geometry.	Solid geometry; Advanced algebra; or Physics.	Chemistry IV or mathematics III or physics III.
Natural science	Civic biology or	General geography or		
Social studies	Advanced community civics.	Ancient and mediæval history.	Modern history.	American history or problems of democracy.
Physical training	I	II	III	IV
Fine arts	(1)	(1)	(1)	(1)

(1) Music or art or both may be elected for three periods per week.

Foreign-language sequence may be four units of Latin or French or Spanish, or two of one and two of another.

Girls may take two years of household arts work instead of foreign language III and IV or instead of geography or history II and English, mathematics, or physics III, or they may take it as a part course elective instead of music or art for two or three periods per week, if with the approval of the principal. Boys may take two years of shopwork instead of foreign language III and IV, instead of geography or history II and English, mathematics or physics III, if with the approval of the principal.

THE COMMERCIAL CURRICULUM.

Studies.	Ninth grade.	Tenth grade.	Eleventh grade.	Twelfth grade.
Drawing and shopwork (boys). Household arts (girls).			I, II, or III or I or	II, III, or IV or II or
Music or art				
Language	English composition, spelling, punctuation, literature I.	English composition, rhetoric, literature II.	Foreign language I, or English composition and literature III. or	Foreign language II, or English composition and literature IV. or
Natural science	Civic biology or	General geography or	Physics.	Chemistry, agriculture, or botany, and forestry.
Social studies	Community civics (advanced).	Modern history.	American history	Problems of democracy.
Mathematical studies	Commercial arithmetic and bookkeeping.	Bookkeeping and office practice.	Costs and contracts, salesmanship and advertising.	Auditing, banking, and finance insurance and investments.
Commercial studies	Stenography and typewriting.	Stenography and typewriting.	Office and factory management, personnel work, elementary business law.	Elements of economics IV.
Physical training	I	II	III	IV

Music or art or mechanical drawing and shop work may be elected in the first and second years up to three periods per week; also in the third and fourth years if full courses in either of these subjects have not been chosen as indicated above.

THE HOME ECONOMICS CURRICULUM.

Studies.	Ninth grade.	Tenth grade.	Eleventh grade.	Twelfth grade.
Art	Drawing, color and design I.	Drawing, color and design II.	Drawing, color and design III or	Drawing, color and interior decoration IV or
English	Composition, spelling, punctuation, literature I.	Composition, rhetoric, literature II.	Composition, literature, history, of literature III.	Composition, literature, history of literature IV or economics IV.
Social studies	Civics or	Modern history or	American history	Problems of democracy.
Natural sciences	Civic biology	General geography	Household physics and chemistry.	Dietetics, care and feeding of children, first aid, and nursing.
Home economics	Foods and cooking (3) I, textiles and sewing (2).	Foods, cooking, and sewing (2) textiles and sewing (3) II.	Dressmaking and millinery III.	Household management, housewifery, budgets and accounts, laundry IV.
Physical training	I	II	III	IV

Music may be taken each year as an elective fractional unit up to three periods per week. Two, three, or four units of Latin or a modern language; or one, two, three, or four full units of music; or one, two, or three units of mathematics may be elected instead of art, if with the formal approval of the principal.

THE INDUSTRIAL CURRICULUM.

Studies.	Ninth grade.	Tenth grade.	Eleventh grade.	Twelfth grade.
Drawing and art	.....	.....	Freehand drawing, color and design I or	Freehand drawing, color and design II, or prospective and projection II or
Language	English composition, spelling, punctuation, literature.	English composition, rhetoric, literature.	Foreign language I, or English composition and literature III or	Foreign language II, or English composition and literature IV or
Mathematics	Algebra (5), or algebra (2), geometry (2), graphs, and geometrical construction.	Plane and solid geometry (5), or algebra (2), geometry (2), graphs, and geometrical constructions (1).	Advanced algebra, trigonometry, and elementary coordinate geometry.	
Social studies	Civics or	Modern history or	American history	Problems of democracy.
Natural science	Civic biology	General geography.	Physics	Chemistry.
Industrial practice	Mechanical drawing and woodwork.	Drawing and cabinetmaking, wood turning and pattern making, bench-metal work or sheet-metal work.	Forge work, foundry practice, or drawing and machine shop.	Machine drawing and machine-shop.
Physical training	I	II	III	IV

Art or music may be taken each year as an additional part unit elective up to three periods per week, excepting art in the third or fourth year, when full unit art courses have been chosen as electives.

PROPOSED CURRICULUMS.

Because of space limitations, these curriculums are here presented without argument or detailed explanation. The character, content, and educational values of the various sequences of courses and the arguments for the curriculums as constructed are quite fully set forth in the report on the public-school system of Memphis, Tenn., United States Bureau of Education Bulletin, 1919, No. 50, part 2, Chapter II (Government Printing Office, Washington, D. C.). We recommend that the administration and teaching staff of the high school make a careful study of this discussion with reference to setting up similar curriculums in Winchester. Assuming that the school committee is willing to provide the equipment and instruction for a four-year sequence in shopwork, the problem to be solved is, How much of the proposed flexibility of these curriculums can be realized in a workable time schedule without conflicts and without producing many very small recitation sections as to carry the per pupil costs beyond the limits of reasonable liberality? Rich and flexible curriculums usually cost more than such purely formal ones as now exist in Winchester; but manifestly they are worth more. The ultimate question is not so much, "Is the cost high?" as "Is it worth what it costs and can the community pay?"

The commercial curriculum is so planned as to give the maximum of useful and available training to a considerable proportion of pupils who must drop out at the end of the second year, or tenth grade. For such pupils it gives as good prevocational training and outlook as any course is likely to give them. For them, in such a short period no real vocational training can be effectively attempted.

Typewriting should be begun in the junior high school in the seventh or eighth grade by those pupils who have attained a business standard of proficiency in penmanship. In the ninth and tenth grades for prevocational training, and in the eleventh and twelfth for vocational training, stenography and typewriting practice should go on together. What is taken down in stenographic notes should in most cases be written out directly on the typewriter.

Putting these subjects in the ninth and tenth grades is no untried experiment. They have been successfully taught in those grades in schools of standing known to members of the commission for more than 25 years. The commission favors the expansion of the art sequence to cover a major of four years' work in drawing, color, and design, with differentiation in the two upper years into projects of specialized sorts, such as interior decoration, costume design, advertising poster work, and so on. Such a sequence should appeal strongly to many pupils in a community near Boston, where pure and applied art interests are so well developed and established.

Similarly, we favor a four-year major sequence in music, credit for parts of which may be obtained by outside study and practice under the instruction of approved professional music teachers and under the direct supervision of the music supervisor of the schools.

These sequences and also part courses of two or three days per week running through the four years should be open to all pupils under the proper restrictions.

3. THE TEACHERS AND THEIR WORK.

HOW WELL ARE THE TEACHERS TRAINED?

All the teachers have had good training. As will be seen by inspecting the following table, only 4 out of 20 are not college graduates. One of these is a substitute, teaching commercial subjects and has had two years' training in commercial subjects beyond high school and two years' practical experience as an accountant. Another is the art teacher, who has had seven years' training in art schools, with study and travel abroad. The third is a domestic science teacher who has had two years of college work, together with summer and extension courses in good institutions. The fourth is the girls' physical director, who is a graduate of the Boston School of Physical Education.

Those teachers who hold degrees received them from the following colleges: Bates 1, Boston 1, Brown 1, Colby 2, Harvard 1, Howard 1, University of Maine 1, Mount Holyoke 1, Radcliffe 3, Simmons 1, Smith 2, and Tufts 2. This list shows a wide distribution of New England colleges, which is well for the school, as it serves to bring into it educational viewpoints from many different centers.

The status of these teachers with respect to their special pedagogical training, expressed in the number of semester hours work in psychology, principles of education, and other special studies in the science and art of education, is as follows:

One teacher reports 158 semester hours, one 150, one 35, one 12, two 10, one 6, one 5, and two 4. Nine of the 19 teachers reporting have had no special pedagogical training.

The minimum standard required for schools accredited by the North Central Association of Colleges and Secondary Schools is that all teachers of academic subjects shall be graduates with a bachelor's degree from a standard college or a four-year normal course, including special training in the subject matter of the studies they are teaching and 11 semester hours of special training in psychology, and other studies in pedagogy and educational theory and practice.

As to degrees and professional training of teachers, Winchester may fairly be compared with 559 schools accredited by the North

Central Association having enrollment of from 151 to 430 pupils. For these schools in 1917 the average number of teachers not new to the schools who were not college graduates was 11.76 per cent, and the corresponding average for teachers new in the schools was 6.09 per cent.[2] All the teachers of academic subjects in the Winchester high school are college graduates excepting one, who teaches community civics half time. This makes the ratio for Winchester of nongraduate academic teachers to the whole number of academic teachers as ½ to 13, or 3.9 per cent, as compared with from 6 to 12 per cent for the North Central accredited schools. This school, therefore, is found to be well in advance, when compared with similar schools in the Middle West, with respect to the college training had by its teachers.

Distribution of high-school teachers according to training and college degrees.

Total years of training above elementary school	Number of teachers having such amount.	Teachers with no degree.	With bachelor's degree	With master's degree.
Less than 6	0			
6 but less than 7	3	3		
7 but less than 8	2	1	1	
8 but less than 9	4		3	1
9 but less than 10	8		7	1
10 or more	3		1	2
Total	20	4	12	4

With reference to special pedagogical training for the 559 North Central schools of medium size, 10.40 per cent of the new academic teachers and 13.20 per cent of the not new academic teachers, in 1917, had not had as much as 11 semester hours of such training. The corresponding rates for Winchester teachers of academic subject is ¹⁰⁄₁₃, or 76.9 per cent. It is clear that both on the basis of their individual records and on that of comparison with academic teachers of medium-sized North Central accredited schools, the teachers of Winchester high school as a body are relatively very deficient in special pedagogical training. It is probable that if data were at hand by means of which they might be compared with teachers in eastern territory, their records in this particular would not be so deficient when compared with the latter. New England school authorities generally may be somewhat more insistent that their teachers be college graduates than are those of the North Central States, but the requirement for special pedagogical training receives

[2] Davis, C. O. Accredited Secondary Schools of the North Central Association. Bul., 1919, No. 45, U. S. Bu. of Educ., pp. 49–52.

generally far less attention in the East than in the West. In this important factor of teachers' qualifications the East appears to be behind the times. Several of the Central and Western States require from 15 to 30 semester hours of pedagogical training as a prerequisite for entrance into examinations for a teacher's license. All school boards should require a minimum of pedagogical training as a condition of employment, and they should make it a factor in determining promotions and salary advances.

Two important factors of professional growth in teachers are the reading of professional literature and training during service through the agency of teachers' reading circles, extension courses, and summer courses. As to professional reading, the Winchester teachers were asked to name the professional books and magazines read during the last year. The replies are as follows: Two reported no such reading, five reported 1 title, four 2 titles, three 3 titles, two 4 tiles, one 6 titles, one 7 titles, and one 8 titles. For the most part, the titles named were of books and magazines that discuss current educational problems from the viewpoint of modern educational theory. This makes a very good showing for nearly half the teachers and should incite the remainder to do better. Every professional person should make some attempt to keep up with the technical literature of his or her special branch of the profession. Engineers, physicians, dentists, lawyers, and college teachers consider this essential, and do it as a matter of course. Why should not high-school and elementary teachers do this also?

The teachers were asked to name the colleges in which they had taken extension and summer courses within the past three years. Six teachers named none. Simmons College was named by 3, Harvard by 2, University of Maine, Boston University, and North Eastern College each by 1. One teacher reported three—Teachers' College of Columbia University, Simmons College, and Boston University. One reported having taken two business courses, another attended two foreign-language schools, another was taking private lessons in a foreign language. Hence 12 out of 18 teachers, or 67 per cent of them, had taken some summer or extension-work or other professional training during the past three years, which is a creditable showing.

ARE THE TEACHERS EXPERIENCED?

The next table shows (column 2) the number of teachers in the Winchester High School who have had various amounts of total experience (indicated by the numbers in column 1). Similarly, it shows in columns 3 and 4, respectively, the numbers who have had various amounts of high-school experience and various amounts of experience in the Winchester High School.

This table tells us that the teachers are all experienced, only one having less than four years' experience and none less than three. One teacher is in her first year of high-school experience, but all the others have been in high-school work three years or more. Five are new in the school this year, and three more are in their second year's service in this school. This is not a large proportion of new teachers in these days when so many teachers are leaving individual schools or leaving the profession for better-paid positions.

The table shows that the situation is good in respect to the stability and solidarity of the school staff. Such stability makes for unity of aims and school policies. It is always good for a school to hold its teachers for a long time, unless it is found that they have stopped growing professionally and are "going to seed." The latter is most emphatically not true of the teachers of long experience in this school. Most of these could profit greatly by further professional study of various phases of their work; but they are professionally open-minded, and listen readily to progressive suggestions.

Distribution of high-school teachers by years of total experience, experience in high schools, and experience in Winchester High School.

Number of years' experience in teaching.	Number of teachers having each amount.			Number of years' experience in teaching.	Number of teachers having each amount.		
	Total.	In high schools.	In this school.		Total.	In high schools.	In this school.
1	0	2	5	10	0	0	0
2	0	0	3	11	0	0	1
3	2	1	3	12	1	1	0
4	4	4	2	13	2	1	1
5	0		1	14	1	1	0
6	1	1	1	15–29	6	6	1
7	1	2	1				
8	1	0	0	Median	10½	8½	2½
9	1	2	1	Total	20	20	20

ARE THE TEACHERS OVERLOADED?

An important factor affecting the teaching work of a school is the total duty load of the teacher, or the total amount of work of all kinds that he or she is expected to do. This includes teaching, library and study-room supervision, special direction of study, individual help outside the classroom, committee or clerical work, conferences with parents, and so on.

Good administration requires that duty loads should be equitably distributed, and that no teacher's burden should be too heavy; for an overworked teacher can not long continue to give efficient and inspiring instruction. Furthermore, no body of teachers will do good teamwork if there are glaring inequalities in their burdens, unless those who are able to carry the heavy burdens are rewarded with correspondingly greater compensation. If the loads vary some-

what widely, and if this variation is necessary, then other things being equal the teachers carrying the heaviest loads of work and responsibility should receive the highest salaries.

It is very difficult to get an accurate quantitative measure of the total duty of any teacher, because many teachers do much work outside the classroom which varies so greatly from time to time in amount and arduousness that they can not estimate it accurately. However, the data contained in the next table, compiled from definite information given by the teachers and principal, afford considerable illuminating information as to the distribution of work among the teachers.

High-school teachers' assignments of work and annual salaries, 1919-20.

Teachers	Subjects.	Total periods per week.	Total pupils enrolled.	Teaching load.	Library and study-room load.	Total duty load.	Annual salary.
No. 1	Spanish	20	16	[illegible]	30	[illegible]	$1,[illegible]
No. 2[1]	Mathematics	20	60	[illegible]			
	Gymnasium	6	135	[illegible]	[illegible]	[illegible]	2,300
No. 3	Art (½ time)	[illegible]	[illegible]	21[illegible]	0	219	1,[illegible]
No. 4	Bookkeeping and typewriting	21	191	370	30	[illegible]	[illegible]
No. 5[1]	History	[illegible]	[illegible]	[illegible]	200	72[illegible]	2,[illegible]
No. 6	Household arts and sewing (½ time)	7	25	131	60	191	1,750
No. 7	French	25	96	380	135	515	1,600
No. 8[1]	Bookkeeping and community civics	26	84	588	60	618	1,500
No. 9	Physics and chemistry	13	39	[illegible]	140	[illegible]	1,[illegible]
No. 10	Latin and French	30	126	630	0	630	1,600
No. 11	Upper mathematics (½ time)	9	53	1[illegible]8	0	1[illegible]8	1,750
No. 12	English, economics, and psychology	19	136	127	150	652	1,000
No. 13	Gymnasium (½ time)	13	[illegible]	326	0	326	1,6[illegible]6
No. 14	English	20	68	392	230	507	1,600
No. 15[1]	General science and community civics	17	80	310			
	Gymnasium (athletic coach)	2	16	[illegible]	0	381	2,[illegible]
No. 16	English and current history	16	170	341	165	427	1,600
No. 17	Stenography	14	72	17[illegible]	280	313	1,600
No. 18	English	20	123	492	158	650	1,[illegible]
No. 19	Biology and cooking (½ time)	14	10	581	45	626	1,350

[1] Men teachers.

Column 3 of the preceding table shows the total number of periods per week during which each teacher gives class and laboratory instruction. Column 4 tells the number of different pupils that each teacher meets during each week. Column 5 gives the weekly teaching load for each. This is expressed in pupil-periods and is obtained by multiplying together for each recitation section the number of pupils in the section and the number of periods per week that the section meets and then adding together the products corresponding to all the sections. For example, if Mr. A has 5 sections, each for 5 periods per week, and the numbers of pupils in the section are 25, 24, 26, 23, and 27, his teaching load is $25 \times 5 + 24 \times 5 + 26 \times 5 + 23 \times 5 + 27 \times 5 = 625$ pupil-periods. This is a fair weekly teaching load, provided that not much of the other kinds of work is required. When more work of other kinds is required, the teaching load should be proportionately

lightened. The library and study-room load is similarly obtained. Here, however, the number of pupils supervised[a] at a given period varies from day to day, and the estimated average attendance was used.

The total regular-duty load, column 5, was obtained by adding one-half the study-room and library load to the teching load. This is done on the arbitrary assumption that such duty, requiring no outside preparation, is equivalent to one-half that involved in handling an equal number of pupils in a class-room for the same time. All the teachers in this school are expected to remain for a half hour after the close of each session to give individual help to pupils needing it, but this work has not been included in the total load, because the amount of help given and the number of pupils aided vary so much that trustworthy estimates could not be made. Probably 10 per cent added to the load of each teacher would cover it fairly; and if comparisons were to be made with other schools, probably this per cent should be added to each teacher's load. Also, since the period here is 45 minutes or ¾ of an hour, if for purposes of comparison with other schools it is desired to reduce these loads to pupil-hours, the number of pupil-periods should in each case be further corrected by multiplying it by ¾. This distribution table plainly reveals several important facts:

1. None of the Winchester high-school teachers giving full time to high-school work is overburdened, and the duty load for half of them is light as compared with that in city high schools generally. The median is 543, a very reasonable load, while for the lowest three teachers the load is below 300, or very light.

2. There is a very wide range of variation in the duty loads of these teachers.

3. There is no relation between duty loads and the corresponding salaries.

Nearly all the cases of abnormally light loads are caused by the small enrollments in certain subjects, notably French, Spanish, bookkeeping, typewriting, stenography, sewing, and cooking. Column 2 shows only one case of a full-time teacher who teaches during fewer than 19 periods per week; so it is clear that with this exception the very light loads are not due to this latter cause. In this one case the teacher was given light work because she was nearing a breakdown. She is a remarkably energetic and skillful teacher of her subject, and the policy of giving her a light assignment in order that she may regain her normal physical strength is not only fair and generous to her, but also plainly to the advantage of the pupils. The maximum duty load permitted in accredited high schools by the

[a] Study-room duty here means maintaining quiet and order only. There is no organized plan of "directed study" for the whole school, but there is an organized plan for giving individual help to those who get behind in their work.

accrediting standards of the North Central Association of Colleges and Secondary Schools is 35 periods per week, with a maximum of six recitation periods and one study period per day, and with not more than 30 pupils in a recitation or laboratory section, and no limit to the number of pupils in a study section. It is the large schools in the large, growing cities like Chicago and St. Paul, where the growth in population is continually outstripping the provisions for schooling, that have forced the association to allow such heavy loads while strongly disapproving them. Assuming that an average study section in such a school has an attendance of 60, and that a teacher is loaded to the limit, as many of them are, his load would be

30 pupils×30 periods+½ (60 pupils×5 periods)=1,050 pupil-periods.

This North Central limit of 1,050 pupil-periods is undoubtedly too high. It should be as low as 900. Even this load, however, is not required of any Winchester high-school teacher, the heaviest load being 720 pupil-periods. This with say 10 per cent added for the detention period, teachers' meetings, etc., gives a possible maximum for this teacher of 792, a figure still 11 per cent below that which the survey commission regards as a reasonable maximum limit.

The commission, however, does not recommend that each teacher should be loaded to the limit. On the contrary, it commends the policy of assigning loads between 450 and 750, according to kinds and types of work, and according to administrative necessities; and it also recognizes that in some cases, as in the one mentioned above, much lighter loads may at times be entirely proper.

From the preceding table it appears that with reference to their total duty loads the full-time high-school teachers are distributed as follows:

Relation of duty loads to salary.

Teachers' regular duty-loads expressed in pupil-periods.	Number of teachers having each amount.	Corresponding salaries.
700-749	1	$2,200
650-699	2	$1,600, $1,600
600-649	3	$2,300, $1,500, $1,600
550-599	0	.....
500-549	2	$1,600, $1,600
450-499	0	.....
400-449	1	$1,600
350-399	1	$1,600
300-349	1	$1,600
250-299	1	$1,600
200-249	1	$1,600

The lack of any correspondence between loads and salaries is here quite apparent. It is a fair inference from this array of facts that both the conditions back of the teaching loads and the methods of

determining compensation need careful study, with reference to some sort of consistent readjustments. While the teaching load should not be the only factor in fixing the salary of a teacher, yet it should be taken into account.

WHAT DO THE PART-TIME TEACHERS DO?

The part-time teacher, designated as No. 3, gives three-fifths of her time, or three days per week, to the Winchester High School, and the remainder is spent outside the Winchester system. No. 4 teaches 7 periods a week in the high school, supervises the study room 2 periods, directs the operation of the cafeteria 5 periods, and teaches in the elementary grades 13 periods. We estimate her load of elementary teaching at approximately 200 pupil periods, but the work is probably much more arduous and difficult than the same amount of high-school work. The cafeteria work involves the full responsibility for a business of $5,000 a year, and includes the direction of 1 paid worker and 16 student assistants.

No. 11, in addition to her teaching load, is study coach, dean of girls, and general assistant to the principal. Her service to the school is very efficient and valuable.

No. 13 gives half her time to teaching and supervision of physical training in the elementary schools. Her teaching load there figures out approximately 335 pupil periods, which would give her a total load, high and elementary, of 661. However, 335 for her elementary work is probably far too small a measure of the actual work and strain that she carries. She visits nine different elementary schools and gives instruction for 20 minutes once every two weeks to each of 40 classes, varying in number between 20 and 49 pupils, and enrolling a total of 1,342 pupils.

Besides this she does a large amount of work which we have not been able to estimate quantitatively. She spends eight hours per week coaching teams, half an hour per week with a class in pupil leadership, holds occasional meetings with the grade teachers, and spends considerable time taking and recording physical measurements of the girls. She recently staged a splendid athletic exhibition which must have required a great deal of time, energy, and organizing ability to carry through so successfully. We believe that this teacher is overworked. Also we believe that the needs of the pupils demand that she should give her whole time either to the high school or to the elementary work, and that another teacher should be assigned for full time to develop the work in the department relinquished by her. This would increase the efficiency in both departments. What is needed is a physical teacher in each of the new large schools.

No. 15 is athletic coach for the boys in addition to his teaching load of science, civics, and physical training.

No. 19 gives approximately one-third of her time to the elementary grades in addition to her 626 pupil periods in the high school.

This review of the work assignment of the teachers shows that the administration with a very few exceptions has been liberal in its demands on the time and energy of the teachers, and therefore has a right to expect that they put much energy and enthusiasm into their classroom work, that they be generous in their efforts in giving individual help and attention to the pupils most in need of it, and that they devote much of their time outside of school to reading, study, and professional growth and to community welfare. We believe that most, if not all, the teachers are willing to do so, but that they need more definite leadership and help in organization in order to accomplish greater results in these fields of effort.

ARE THE CLASSES WELL ORGANIZED AS TO SIZE?

It is possible that a careful study of individual problems of organization would disclose means of securing a more even distribution of teaching loads than now exists. Such a study would naturally turn first to a consideration of the sizes of recitation sections.

The next table shows the size of different sections.

Numbers of recitation sections in each subject of the sizes indicated, Winchester High School, 1919-20.

Subjects.	Number of pupils in recitation sections.									Total.
	0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41 or more.	
Spanish		3		1						4
Algebra				1		1		1		3
Geometry and trigonometry	1	1	1	1	1					5
Art			2		2					4
Bookkeeping			1	1	1		1			4
Typewriting			2	1		1				4
Stenography		1	2	1						4
History				2		3				5
Household arts	1		2							3
French			1	4		1				6
Biology				1	1					2
Civics			1	1	1					3
Physics		1								1
Chemistry		1			1					2
Latin			1	1	1	1	1			5
English			3	1	9	4				17
General science				1	2					3
Current history			2	1	1	2				6
Gymnasium		1		4		2	2		2	11
Economics and psychology						1				1
Total	2	8	18	22	23	16	4	1	2	96
Percentages of total number of schools	2.1	8.3	18.8	22.8	23.9	16.7	4.2	1.0	2.1	100

This table reveals the location of the small and the very small sections. Twenty-eight sections out of 96, or 29 per cent of all, are undersized, having fewer than 16 pupils. Forty-five sections, or 47 per cent, are within the optimum range, enrolling between 15 and 26 pupils. Seven sections, or 7 per cent, are excessively large, enrolling more than 30 pupils. Of these last, two are gymnasium sections in which moderately large numbers ordinarily are not disadvantageous; but one is in first-year algebra, a subject in which no large sections should exist if it possibly can be avoided. The teacher of this particular group, though a capable and interesting instructor, and using for the most part very good methods, was unable at all times to hold the pupils to efficient work.

There are 10 excessively small sections enrolling fewer than 11 pupils each. These are in Spanish, solid geometry, stenography, cooking, physics, chemistry, and gymnasium. Such small classes should not exist in a school if there is any way to avoid them without sacrificing essential or specially important educational values or fundamental rights. They entail an inequitable distribution among the pupils of public funds in the form of teacher service, and also they do not furnish the social incentives to individual effort that larger groups afford. It is usually impossible, however, to avoid them entirely, and it is relatively more difficult to do so in a medium-sized or small high school than in a large one. Such small classes, nevertheless, should be carefully investigated. They are the principal cause of high cost of instruction per pupil. It is, therefore, quite proper with reference to any section for the principal to consider, first, whether it can be done away with through distributing the pupils, and second, if this can not be done, whether the advantage to the pupils is worth the cost to the community.

By way of illustration, suppose that a teacher whose salary is $1,500 per year is assigned a fourth-year French class with only 5 pupils, and that this class absorbs one-sixth of her time and effort. Each pupil in this class receives from the school board $50 for instruction in this one subject, while each pupil in a section in civics enrolling 25 pupils under otherwise equal conditions receives $10 for instruction in that subject. Is this fair? Are the pupils of this costly French class getting out of it something that is going to contribute five times as much to their economic and social and spiritual value as that which accrues to 5 pupils in the civics section? Is some important department in the school being deprived through lack of funds of essential maps or other equipment which the $250 that has been handed over to those 5 French pupils might have procured? Is it just as important to the town and the State that 5 pupils should put in a year translating two or three French stories or plays and learning the fine distinctions of the tenses in the subjunctive mode

as that 25 pupils should be investigating the civic, economic, and vocational activities and conditions of their town and State? Perhaps so, but be the answers to these questions yes or no, such questions should be raised and settled with reference to every undersized class. Every possible effort, consistent with a broad and liberal program of education should be made to keep the membership of recitation sections within the optimum limits or as near them as is possible—that is, for most subjects, between 20 and 30. Every course of study in the program should be evaluated from the standpoint of its economic, social, civic, and spiritual worth to the community as a means of training its junior citizens in the best ways of individual living and cooperative effort for the common good.

Granted that a study can be shown to have undoubted value from this point of view, there are two ways in which the waste of small sections can sometimes be avoided that are seldom if ever considered, but which in the opinion of the survey commission should always be attempted. The first is by a revision of the curriculums that would both bring them into line with the best thought concerning the selections and sequences of studies, and would probably bring about, automatically, larger enrollment in the classes of such important subjects as civics, household arts, physics, chemistry, biology, economics, and history. The second is that of organized publicity within the school and community intended to set forth the advantages of certain studies, and the reasons why more pupils should pursue them. Why should only 8 boys and no girls be studying such an immensely important and interesting subject as physics? Why does chemistry, which lies at the foundations of practically every important industry, enroll only 6 boys and 23 girls? Why should not more than 51 girls and 22 boys out of 308 be studying drawing and applied art? A large majority of American girls marry or otherwise become the operators or managers of homes. Why, out of 195 girls in this school, should only 4 be studying the science and art of dietetics and cooking, and only 28 learning the arts of sewing and garment making? These practical subjects need be no less cultural than other subjects because they are practical; to-day as never before the world needs women who master them on an intellectual and scientific plane, as well as on the plane of manual skill. If the girls of Winchester and their parents were better informed as to the utility and cultural value of these subjects when properly organized in the curriculum and properly taught, the classes would be filled to overflowing.

ARE TOO MANY PUPILS FAILING AND DROPPING OUT OF SCHOOL?

One way of measuring the efficiency of the teaching staff of a school is to make a study and exhibit of the distribution of failures and eliminations. If all school subjects were equally attractive and

equally difficult, and if no pupil failed or dropped out because he left town or because of other reasons wholly accidental, if all pupils were equally bright and equally inclined to work, and if all teachers had the same conception as to the meaning of the passing mark, this method would furnish a very satisfactory measure of the relative efficiencies of the individual teachers.

The absurdity of assuming it as a sole measure or even as the best measure is evident, however, from the statement just made. Nevertheless such a study is of value in any school.

Promotions, eliminations, and failures in the Winchester High School.

Subjects.	Teachers.	Pupils enrolled.	Pupils dropped.	Pupils remaining.	Pupils promoted.	Pupils promoted conditionally.	Pupils failed.	Pupils repeating subject in same grade this year.	Per cent of enrolled who were dropped.	Per cent of remaining who failed.	Per cent promoted of those enrolled.	Per cent of those enrolled who failed.	Per cent enrolled who were dropped or failed.
Bookkeeping and community civics	1	64	12	52	52	0	0	0	18.7	0.0	81.3	0.0	18.7
Algebra and geometry	2	100	7	93	82	3	8	3	7.0	8.6	82.0	8.0	15.0
Art	3	96	4	92	92	0	0	0	4.2	.0	95.8	.0	4.2
Bookkeeping, office training, and typing	4	98	12	86	69	12	5	8	12.2	5.8	70.4	5.1	17.3
Latin	A	21	1	20	19	0	1	0	4.8	5.0	90.5	4.8	9.6
	B	22	4	18	18	0	0	0	18.2	.0	81.8	.0	18.2
Household management and dressmaking	6	27	1	26	26	0	0	0	3.7	.0	96.2	.0	3.7
Physics and chemistry	9	43	2	41	41	0	0	0	4.7	.0	95.3	.0	4.7
Mathematics	11a	43	3	40	37	0	3	0	7.0	7.5	86.0	7.0	14.0
	11b	55	0	55	39	0	16	0	.0	29.1	70.9	29.1	29.1
English and economics	12	153	16	137	132	0	5	6	10.5	3.7	86.3	3.3	13.8
History	C	122	11	111	102	0	9	6	9.0	8.1	83.6	7.4	16.4
General English	14	54	5	49	46	1	2	1	9.3	4.1	85.2	3.7	13.0
Community civics and general science	15	61	11	50	43	0	7	1	18.0	14.0	70.5	11.5	29.5
Current history and general English	16	137	11	126	110	0	16	4	8.0	12.7	80.3	11.7	19.7
Commercial arithmetic and stenography	17	94	13	81	70	1	10	3	13.8	12.3	74.5	1.1	14.9
German and Spanish	D	55	5	50	45	0	5	4	9.1	10.0	81.8	9.1	18.2
College English	18	112	10	102	93	0	9	6	8.9	8.8	83.1	8.	16.9
Cooking, sewing, and biology	10	40	5	35	34	1	0	0	12.5	.0	85.0	.0	12.5
Total		1,397	133	1,264	1,150	18	96	42	9.5	7.6	82.4	6.9	16.4

This table, compiled from returns made on blanks furnished the individual teachers, tells for each of them how many pupils were enrolled in his or her classes last year, how many and what per cent of these dropped out of school, how many and what per cent of these failed of promotion, how many were promoted conditionally and how many and what per cent were promoted unconditionally. This table is useful as a diagnostic sheet. It tells, almost at a glance (columns 10, 12, 13, and 14), the individual teachers whose class work should receive special study in order to find the causes for unusually large or unusually small percentages of failures or eliminations from their classes. For example, we learn from the bottom line

that, of the 1,397 individual enrollments in all the 96 recitation sections, 133, or 9.5 per cent, dropped out of their classes before the end of the year; and of those remaining, 96, or 7.6 per cent, failed of promotion. These failures constituted 6.9 per cent of the total class enrollments, and failures and eliminations together constitute 16.4 per cent of it. This is not by any means a bad record for the school as a whole. Unfortunately again we have no country-wide norms for comparison, but the record of 82.4 per cent unconditional promotions and only 16.4 per cent failures and eliminations is distinctly good, compared with the few schools whose records we know. Glancing up column 14, however, we find that in a number of individual cases there are wide variations from this average. Two teachers, No. 11b and No. 15, had abnormally large losses, of 29.1 per cent and 29.5 per cent, respectively, while three others, Nos. 3, 6, and 9, had abnormally small losses of 4.2 per cent, 3.7 per cent, and 4.7 per cent, respectively. The case of No. 11b is easily explained and also justified. This teacher has the upper mathematics classes. With teacher No. 11a, 7 per cent of the pupils dropped out and 7 per cent failed—less than the usual percentage of casualties in the battles with college preparatory mathematics.

On the other hand, the cases enumerated under teacher 11b are all pupils who are selected for special study—coaching, because they were behind on account of absence, or were failing for other causes in various classes in school. Of these 55 "special help" pupils this teacher held *all* to the end of the year, and enabled 39, or 70.1 per cent, to achieve promotion. This is probably as well as anyone could be expected to do with such a group. But why should the casualties in community civics and general science be so high? These subjects are usually not so deadly as to eliminate or fail 3 pupils out of every 10. Does the fact that this teacher is the athletic coach (and he is rated as a very good coach) throw any light on the cause of his high casualty list? Has he been assigned work which his special training and qualifications do not fit? These questions and the methods of teaching these subjects should receive special study by the administrators of the school.

Again, it may be asked whether the very low mortality in art results from the fact that this branch is elective and only those who are gifted and enthusiastic in this line of work are enrolled, or whether the teacher's instruction is so much more efficient and inspiring than the average, or whether on the other hand the teacher, having no recognized standards of achievement, exacts too little and marks too high. If it is the first, it must be evident that along with the unfit many must be eliminated from this subject by never attempting it, who if they did attempt it might succeed and get much

of profit thereby. If it is the second, other teachers might learn much that would be of benefit to them and their pupils. If it is the last, then this teacher should receive some supervision and advice in correcting the fault. Be it any one of these or a combination of all, special studies of such cases by the teachers themselves and especially by the supervisory officers is needed and should be forthcoming. Similar remarks apply to Nos. 6 and 9.

Another line of inquiry also is suggested by this table. Of the six teachers who reported that none of their pupils failed, two reported that 18–19 per cent dropped out of their classes before the end of the year; one had 12.5 per cent of eliminations, and two had 4–5 per cent eliminations. Were some of the teachers in the habit of keeping their failures down by eliminating them before the day of final reckoning? Were things going so badly in some of the classes that pupils left school rather than go on in them? Was there trouble in any of them which justified the principal or the parents in withdrawing the pupils before the end of the year? Is any subject itself of such a nature that it does not make a vital appeal to the pupils? All these questions are pertinent, and touch conditions which it is part of good school supervision to investigate. Any one or all of them may apply to every class in which the percentage of eliminations is abnormally high. Every case that looks unusually good should be studied in order that if it really is good it may be understood, so that other teachers may learn from the unusually successful ones how to improve conditions in their own classes. Every case that looks unusually bad should be studied so that if it really is bad it may be corrected.

The teachers were asked to give the reasons why their respective eliminates dropped out, so far as these were known to them. The reasons for the cases are given in the order of their frequencies, as follows: Unknown, 61; left town, 22; went to work, 15; went to private schools, 5; overloaded, subject dropped to lighten program, 5; left school, 4; ill and left school, 3; illness, 3; gave up college preparation, 3; poor scholarship, 3; were failing and are now repeating subject, 2; were obliged to help at home, 2; changed curriculum, 2; sick, but returned and passed examination, 1; to take up music, 1; demoted, 1; total, 133. In nearly half the cases the causes are unknown. This is common in all schools, but it ought not to be so. There should be machinery for keeping track of all pupils, and, if possible, getting at their real reasons for dropping out of classes or for leaving school. In considering this list one should remember that any one of the actual individuals leaving town or leaving school might be so reported by from three to five teachers, for, in this case, he would, of course, drop out of all of his classes. On the other

hand, if he left school and the fact were not generally known by the teachers, he would be reported "unknown" by from three to five teachers. Aside from the few who moved out of town, it is probable that most of the eliminates drop out of classes or out of school because of poor success or lack of interest. Either they are not intellectually capable of mastering the kind of work offered, or the kind offered does not meet their aims and needs; and they fail not by reason of lack of ability but by reason of the lack of vital interest in the subject.

These facts as to eliminations and failures, to whatever extent and in whatever schools they are found, point toward the need of an administrative and instructional feature, which as yet is as rare in schools as it is necessary—a system of vocational and educational guidance carefully set up and continuously and vigilantly maintained. This department, through the cooperation of the teachers, should act reciprocally on both pupils and curriculums, guiding the one and modifying the other so as to bring them together.

WHAT DO TEACHERS' MARKS MEAN?

Closely related to the subject of failures in school work is the question of teachers' marks. The marking system in a school and the conceptions of the various teachers as to just what a given mark means, and especially what the minimum passing mark means, are factors which largely determine whether many or few pupils are promoted. In order to find out something about these factors the survey commission asked for a distribution table for each teacher of the marks assigned to his or her pupils for the work of the half year preceding the survey. These were kindly furnished by Principal Thomspon, with the assistance of the teachers.

The data furnished us in the distributions of the individual teacher's marks have been combined in the next table so as to show by teachers and subjects how many pupils in a given subject, with a given teacher, received a mark from 91 to 100 per cent, inclusive; how many received a mark from 81 to 90, and so on down the scale. In the second column, under each step, the numbers are reduced to percentages of the teachers' total enrollment of pupils in the subject. This is done in order that the distributions of marks by different teachers may be comparable one with another and with the totals at the bottom.

Numbers and percentages of pupils receiving marks within the ranges indicated at the tops of the columns, distributed horizontally according to values of marks, and vertically according to teachers and subjects.

Teachers.	Subjects taught by these teachers.	Pupils receiving marks within the range of –																						Total number of pupils.
		11-20		21-30		31-40		41-50		51-60 E		61-70 D		71-80 C		81-90 B		91-100 A						
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.					
1	Spanish							1	2.2	1	2.2	6	13.0	8	17.4	24	52.2	6	13.0					46
2	French					1	1.1			4	4.5	16	18.0	42	47.2	21	23.5	6	6.7					89
10	Latin					1	1.1	6	6.7	6	6.7	18	20.0	28	32.2	21	23.3	9	10.0					90
18	English									2	1.7	25	22.6	66	57.4	21	18.3							115
12	do											9	16.1	31	60.7	13	23.2							56
11	do									2	2.2	24	26.1	51	55.4	15	16.3							92
16	do							1	5.0	4	20.0	7	35.0	8	40.0									20
18	Current history					1	.9	2	1.7	7	6.0	27	23.0	66	56.1	13	11.1	1	.9					117
5	History					2	1.6	2	1.6	9	7.4	34	27.0	49	40.2	24	19.7	3	2.5					122
12	Economics											6	22.2	18	66.7	3	11.1							27
8	Civics											2	5.6	29	80.6	5	13.8							36
17	do									1	6.7	2	13.3	5	33.3	7	46.7							15
2	Alg. I a 9, geometry 10					2	1.6			4	3.1	24	18.9	49	38.6	41	32.3	7	5.5					127
3	Solid geometry 11, trigonometry 12											4	28.6	6	42.8	4	28.6							14
4	Typing and bookkeeping					9	3	2.9	5	4.8	20	19.0	47	44.8	23	27.6								105
8	Bookkeeping											7	13.0	39	72.3	8	14.7							54
17	Stenography	1	1.9	1	1.9							12	23.1	21	40.4	13	25.0	4	7.7					53
6*	Household arts and sewing													6	25.0	18	75.0							24
19	Cooking															5	100.0							5
9	Physics and chemistry											4	10.5	31	81.6	3	7.9							38
15	General science					2	2.9	2	2.9	6	8.8	20	29.4	22	32.4	11	16.2	2	2.9					68
All	Total: All marks	1	.1	1	.1	19	1.5	17	1.3	51	3.9	257	20.3	625	47.7	301	22.9	38	2.1					1,312

This table brings out the following very interesting and significant facts:

The distribution of the 1,312 marks that were given to the 308 pupils by the 17 teachers included in the table is very similar to the distribution of the grades of intelligence of 82,936 literate enlisted men, as revealed by the results of the Army Intelligence Test. This distribution is such that the majority of the men are found in the medium grades, very closely clustered about the average, with about equal numbers above and below average, while equal smaller percents are found in the superior and the inferior grade, and equal very small percents are found in the highest and lowest grades.

That the distribution of all the marks given by the teachers conforms closely to this type can readily be seen by a glance at the bottom line of the table. It is also shown in the graph which follows, in which each of the black vertical bars represents by its length the number of pupils in each 100 that received a mark within the range indicated by the figures below that bar. It will be seen that if the small percentage of cases at the left or lower end of the distribution be disregarded, the distribution of marks is approximately symmetrical, and a smooth curve or "stream line" connecting the tops of the black bars gives a close approximation to the type of curve that

would be outlined by the cut edges of a bell which has been sawed vertically through the middle. This species of bell-shaped curve is known among statisticians as the *normal probability curve*.

This is what happens when any biological fact is measured in the individuals of a group of 1,000 or more, when assembled by any chance method; that is, when selected at random or without picking out systematically any individuals having certain definite characteristics related to the one that is being measured. This kind of distribution is called a normal distribution, or a distribution according to the normal probability curve.

Teachers' marks usually distribute themselves in this way if all the marks given by a considerable number of teachers and to a large number of pupils are included in the distribution.

Studies of high-school and college marks made by several reliable investigators show that this is true for both types of institution; but that when the marks of individual teachers are so distributed, not all teachers are found to distribute their grades normally. Some turn out to be easy markers, giving a majority of their pupils the highest or second highest marks of the scale. Others are very severe markers, giving an abnormally large number of low marks. The same difference that prevails among teachers with regard to marking prevails among schools when the distribution of all marks in one of a number of schools is compared with those in each of the others. In some schools easy marking prevails. In others severe marking prevails. In still others the marks are found to conform more or less closely to the normal distribution. Winchester belongs to the last of the three types, as has been noted above. Thus, according to the consensus of opinion of the investigators above mentioned, a good distribution of marks in high school and college should be approximately as follows: Very superior or excellent, 3 to 10 per cent; superior, 15 to 22 per cent; medium, 40 to 50 per cent; inferior or unsatisfactory, 15 to 22 per cent; and very inferior or failure, 3 to 10 per cent.

This admits of putting more pupils in the highest and lowest grades than would be there in accordance with a purely chance distribution of ability, but it should be remembered in the first place that high-school and college students are to some considerable extent a selected group from which very inferior ability has been excluded, and in the second place that when relatively small numbers of individuals are measured the variations of individuals are relatively more marked, so marked in fact that the probability curve and the law of averages can not be applied to small groups except by combining them into larger groups.

Glancing at the lowest line in the preceding table, we see that 47.7 per cent of the Winchester marks lie between 71 and 80 per cent,

which, according to the distribution by Winchester teachers, is evidently the medium grade. In the grades immediately above and below this are 22.9 per cent and 20.3 per cent, respectively; in the highest grade (91–100) are 2.9 per cent; and in the lowest grade (51–60 and below) are 6.2 per cent. Taken as a whole, therefore, we may say that the Winchester High School teaching staff finds that general school ability is normally distributed among its students, which is what we ought to expect.

When, however, we come to examine the distribution of marks by individual teachers, we find some striking variations from the school norm. This norm is shown in the top line of the next table, which is the same as the bottom line of the preceding table and is designated at the left by the word "all." No. 5, the teacher of history, conforms very closely to this norm in the distribution of his marks. So does No. 7, French, while No. 16, current history, places fewer pupils in the first and second grades and more in the medium grade.

Teachers' marks distributed according to the percentages of pupils receiving marks as indicated by the ranges at the tops of the columns, and grouped so as to show characteristics of distribution.

Teacher number.	Subjects.	Pupils receiving marks of—								
		11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
	All	0.1	0.1	0.8	1.3	3.9	20.3	47.7	22.9	2.9
16	Current history			.9	1.7	6.0	23.0	56.4	11.1	.9
5	History			1.6	1.6	7.4	27.9	40.2	19.7	2.5
7	French			1.1		4.5	18.0	47.2	22.5	6.7
1	Spanish				2.2	2.2	13.0	17.4	52.2	13.0
10	Latin			1.1	6.7	6.7	20.0	32.2	23.3	10.0
2	Algebra and geometry			1.6		3.1	18.9	38.6	32.3	5.5
17	Stenography	1.9	1.9				23.1	40.4	25.0	7.7
12	Economics						22.2	66.7	11.1	
12	English						16.1	60.7	23.2	
18	do					1.7	22.6	57.4	18.3	
14	do					2.2	24.1	57.4	16.3	
16	do					5.0	20.0	35.0	40.0	
9	Physics and chemistry						10.5	81.6	7.9	
15	General science			2.9	2.9	8.8	29.4	32.4	20.6	2.9
15	Civics					6.7	13.3	33.3	46.7	
8	do						5.6	80.6	13.8	
4	Typing and bookkeeping			.9	2.9	4.8	19.0	44.8	27.6	
6	Household arts and sewing							25.0	75.0	
10	Cooking								100.0	

The extreme variation from the norm is made by the teacher of Spanish, No. 1, in whose judgment 65 per cent of her pupils have first and second grade ability in Spanish, only 17.4 per cent have medium ability, and 17.4 per cent have ability that is below the 71–80 grade, which represents medium ability according to the collective opinion of the teaching staff of this school. Like the Spanish teacher, the Latin teacher finds relatively few of her pupils to be of medium ability. She places about a third in that grade, a third in the two highest and a third in the grades below medium. The English teachers, Nos. 12, 18, 14, and 16, are in sharp contrast with the teachers of stenography, mathematics, Latin, and French, and

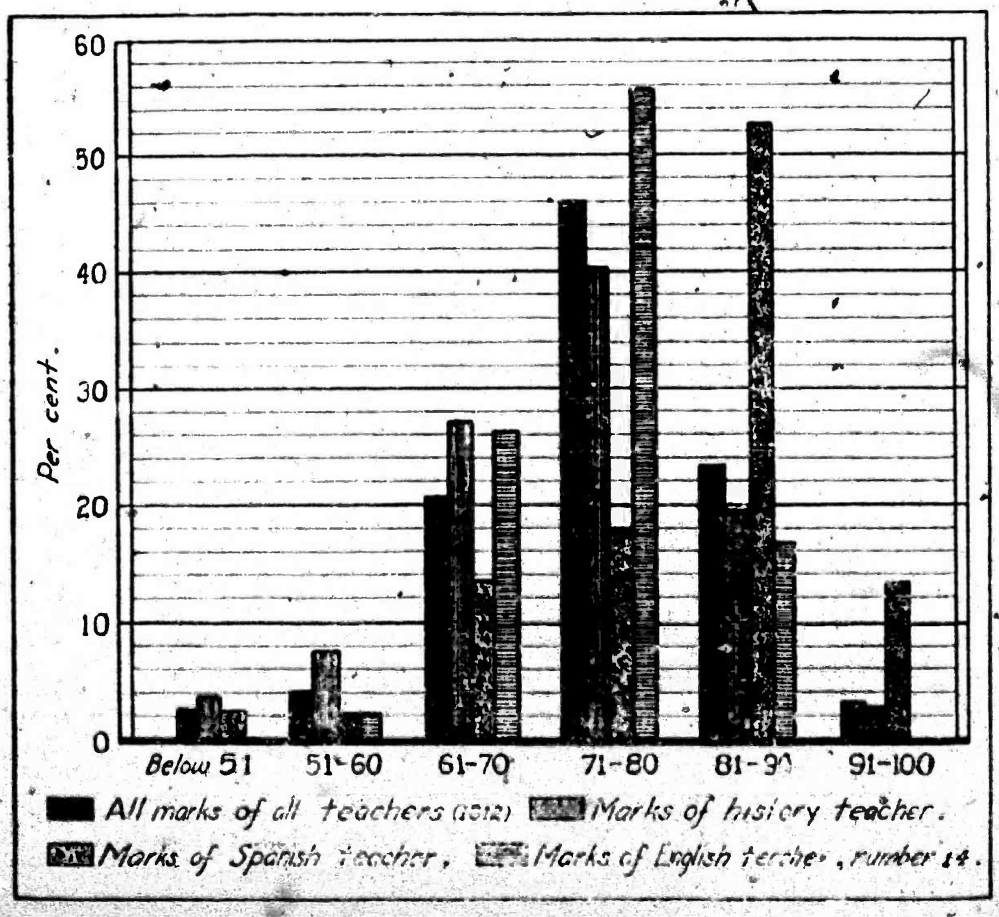
especially in contrast with the teacher of Spanish: for the former group find in all their classes not a single pupil whom they regard as showing first-grade ability in English.

This is most remarkable, for ability in foreign language and ability in English usually are found to be somewhat closely correlated. All those 90–100 per cent pupils in Spanish, stenography, Latin, and French, are in one or another of the English classes. Why have none of them shown their brilliant talents in that subject?

Are half the teaching staff, of whom the English department is typical, correct in judging that they have in their classes no ability of the first grade, or are they holding to some vague standard of absolute perfection or some quality of adult achievement which none of their pupils can reach or even approximate? Or again, are their standards right but their methods such that only fair, mediocre, and inferior abilities are actually shown in their pupils' responses? We are frankly skeptical as to the absence of first-grade ability in these subjects; and also we do not believe it to be as common as the marks of the Spanish teacher indicate.

The explanation is that the teachers have no conscious consensus of opinion as to what the percentage marks mean.

The variations which we have described are strikingly shown in the following graph:



Note the close correspondence of the history teacher to the staff norm as indicated by the approximate equality of the vertically shaded bars and the black bars. Note also the piling up of the marks in the two highest grades by the Spanish teacher, whose marks are represented by stippled bars. Finally, by means of the horizontally shaded bars, note the piling up of the grades of the English teacher No. 14 in the 71–80 step of the scale and the absence of any marks in the lowest and highest steps. Evidently the English teachers find among their pupils only mediocre ability, or ability of the grades close to mediocrity, if their marks really express their judgment.

This variation among teachers in their conceptions of what the marks mean creates a situation which to say the least must be complicated and difficult when it comes to administering the passing marks for promotions. This study shows that, if things go on as they are now going until the end of the term and the passing mark is placed at 71 and adhered to, 26.5 per cent of the grades given are going to doom their recipients to failure. Of the pupils taking history, 27 per cent would fail. Of those taking Latin, 34 per cent would fail. If, as is very common, 75 were to be taken as the passing mark, approximately 40 per cent of the marks given would entail failures.

WHAT IS THE BEST POLICY WITH REGARD TO PROMOTIONS AND MARKS?

What shall the principal do when the day of reckoning comes? There is only one thing that he can do that is obviously fair to the pupils. This is to make each teacher say, after careful consideration of each pupil's work and the marks given to him, whether he is capable in that teacher's opinion of carrying on successfully the work in that department through the next highest grade. If he is, the principal should promote him in that subject, and if not he should mark him failed. In general it should be seen to that the failures in any class should not exceed 10 per cent of those remaining in that class at the end of the year.

Direct inquiry as to the practice in promotions brought out the fact that promotions in the school recently have been made on substantially the principle that is outlined above. But this method is not quite sufficient to cover the case, as the wide range in the percentages of failures shows. Next year, then, studies should be made of the eliminations and failures of the year 1919–20 and of the distributions of teacher's marks for 1920–21; and through these studies and through conferences to be held for discussing them, the teachers should be trained to distribute their marks approximately according to the normal distribution of ability as outlined above.

This can not always be done with justice, especially in the case of small classes, but when the distribution does not come out fairly

approximating the normal, the cases constituting the apparent variations from a normal distribution should be carefully reviewed and studied in all lights available. It often happens in the case of a small class that the standing can not be distributed normally without resorting to a forcing of the marks, with obvious injustice to certain individuals. Teachers should clearly understand that they are never to mark a individual higher or lower, in order, merely, to conform to a theoretical distribution, when such a revision goes contrary to their best and most careful judgment on the known merits of the case. However, each teacher should clearly comprehend that his marks for all his classes taken together for any one year—or, if these do not constitute a large enough number, the marks of all his pupils for two or three consecutive years—should give a distribution approximately normal. If his marks taken collectively do not distribute themselves normally, it is clear that he has either a false or an inadequate conception of the meanings of the marks that he assigns.

Teachers who are required to make distribution tables of their marks at stated intervals and after tests have been given in their classes soon reach a standard of marking which is fairly near normal in each case and is therefore fairly uniform. This practice, if adopted here, would result in closer approach to uniformity in the percentages of eliminations and failures than is shown. Such a closer approach to uniformity is certainly desirable; and in fact is imperative if thoroughgoing school efficiency is to be attained. In this connection comparisons in the cases of individual teachers are illuminating. It will be noted in general that the teachers who vary widely from the normal type in respect to the distribution of their percentage marks are also those who vary most widely from the schoolnorm in respect to their percentages of eliminations and failures.

The reader should not leave this discussion with the idea that the Winchester high-school teachers are in general worse than other high-school teachers with respect to their estimates of their pupils' achievements. Taken as a whole they are better with respect to this factor of school work than the teaching staffs of many schools, and, we think, probably better than the average. Yet the majority of them are in need of constructive guidance in the matter of marks and promotions.

In addition to our suggestions for more careful study of the theory and practice of handling the marking and promotion systems, we recommend and urge that no pupil be eliminated by the principal or any member of the teaching staff unless for the benefit of the pupil himself or unless for some reason his retention does harm to the school. Every reasonable effort should be made to hold pupils in

their classes until the end of the year unless obviously they are misfits, in which case they should be shifted early to classes where they have more vital interests and better chances of success.

In general, no pupil should "be failed" at the end of the year if it is reasonably certain that he is able to do the work that lies ahead. However, any pupil having good ability but not using it to a creditable extent should be promoted conditionally and held rigorously to the work of the higher grade, and should also be made before the end of the year to pass a searching examination in the work of the previous year on which he was conditioned. If this policy is adhered to in every case, and if the teaching is so conducted as to make a vital appeal, "loafing" in the school will be reduced to a minimum.

OBSERVATION OF TEACHING.

Taken as a body, the members of the teaching staff are of unusually fine and forceful personality. Their attitude toward the school and their work are characterized by a fine spirit of service and loyalty. With two exceptions their spoken English is unusually good. They are almost without exception in good rapport with their pupils. In general their classroom management and teaching tend to be quite conventional, but are characterized by conscientiousness and thoroughness. There was little evidence, however, of any outstanding initiative and originality in the methods. There was the same tendency that characterizes the average level of teaching in most high schools, the tendency to emphasize book subject matter, and the reproduction in recitation of what the books contained, to the exclusion of thoughtful debate and discussion. In almost every class the teacher did too much of the talking, questioning, and deciding, and the pupils too little.

Modern educational theory, which by the way is far ahead of the present general educational practice, demands that every school subject be analyzed with regard to its utility as a means of training for the following main objectives:[1] Health, command of fundamental processes, worthy home membership, vocational efficiency, citizenship, resources for the worthy use of leisure, and ethical character.

In connection with the attainment of these objectives, the training in the various subjects and activities of the curriculum should aim for the development of widely applicable habits and skills, of usable information, of worthy ideals, of concepts of efficient methods of procedure, and of resources for the profitable enjoyment of leisure hours.

It will be appreciated at once, without argument, that any extensive and genuine realization of these objectives can be accomplished

[1] See Cardinal Principles of Secondary Education, U. S. Bu. of Educ. Bul. 1918, No. 35; also "A Survey of the School System of Memphis, Tenn., U. S. Bu. of Educ. Bul. 1919, No. 50, pt. 2, Ch. II, pp. 115–121.

only by calling out and exercising the initiative of the pupils. Habits are formed, skills acquired, ambitions aroused, ideals appreciated and appropriated, concepts of method built up, and tastes, aptitudes, and appreciations for profitable recreation accumulated only through self-activity.

Moreover, self-activity is ineffective for the purpose unless it involves practice, many repetitions, with interest and zest, of the kinds of acts that are to be crystallized into habits and skills and of the kinds of thinking that exemplify effective methods, and of the kinds of emotions and experience that develop ideals, tastes, appreciations, and sound judgments of real and permanent values. Hence real success in constructive teaching demands a great deal more than merely getting the pupils to reproduce the subject matter of the books. It involves the promotion of real intellectual growth and character development, through awakening the ambitions of the pupils and helping and guiding them in doing what they want to do mainly for its own sake, and not so much as tasks in formal training. This means that the project-and-problem method should largely prevail. It follows, therefore, that each subject must be analyzed and evaluated on the basis of its possible contribution of project and problems that will afford practice leading toward the objectives that have just been named.

To make such analyses of his subject, to search out such vital projects and problems, and to try out and perfect such methods is the really professional part of the teacher's work, as distinguished from the artisan or routine side; and it goes without saying that the former side is vastly the more important. It is the main business of the supervisor to stimulate and guide this professional phase of the work; for if the teachers are ordinarily competent the routine side usually takes care of itself.

In general we may say that the routine side of the work in this school is better than the average in history, art, physics, Latin, stenography, typewriting, and bookkeeping; that it is about equal to the average in English, mathematics, chemistry, modern languages, and home economics; that it is considerably below the average in biology and general science; and that it is very poor in civics.

As to what we have called the professional side, there were observed evidences here and there of some special points of excellence; but examples of the use of special methods, based on analysis of educational values, and carefully designed to reach such objectives as have been named above, were few; and these did not seem to have been reduced to a smoothly working technic. This then is the side of the work which in the judgment of the commission needs most

careful fostering and development. What specially should be done with this development will be stated under the topic of supervision.

COMMON ERRORS OF TEACHING TECHNIC.

There are found in almost all high schools certain kinds of faulty technic from which the teaching corps of this school are by no means wholly free:

1. Use of questions that can be answered by either yes or no. Of all answers to such questions 50 per cent will be correct whether the pupils answering know anything about it or not.

2. To a similar category, though they are not quite so bad, belong questions that can be answered by a single word, such as the name of a person or place, a date, and the like. The most common form of such a question is the inverted form, ending in what, when, whom, where, etc.

3. Another vicious form of question is the mutilated or blank-filling form in which the teacher makes the statement which the pupil should be expected to make, but leaves out a single word or short phrase here and there which he pauses for a pupil to supply. Such questions are usually strung together in a running discourse, all of which is carried on by the teacher excepting the few words which the pupils supply to fill the blanks or pauses. This method trains the pupil in self-deception, for he is led to believe that he is doing some intellectual work when there is really no work left for him to do.

4. The false start, or the hesitation question. Here the teacher fails to think out his question before beginning to utter it; so he either makes two or three partially completed questions before getting his question out in its final form or else he pauses at short intervals during the utterance of his question to think up the wording or phrasing of what is to come next. The pauses are usually filled in by "a-a-h," "er-r-r," etc., as if he were afraid to permit himself a moment of silence.

5. The long statement, followed by "isn't it," "was it not," etc., to which the pupil needs only to "look intelligent" and nod assent, or say, "yes, sir" or "yes, ma'am."

6. Repeating the pupils' answers after them.

7. Permitting volley answers—half a dozen or more pupils answering the same question simultaneously, each giving a different answer. In such a case nobody knows what anybody else has said and nothing whatever is accomplished.

8. Calling too frequently on a few willing and well-prepared pupils and ignoring a large majority who either are ill-prepared or who are timid or indifferent.

9. Allowing half the class to remain idle while the other half is putting work on the blackboard.

10. Devoting one's self to one pupil who may be having a difficulty, and becoming oblivious of the existence of all the others.

All of these faults were noted in the school; most of them were relatively infrequent in the case of the large majority of the teachers, but many of them were habitual with four or five.[6]

For example, in one room during 20 minutes the observer counted 19 "inverted what" questions, two repetitions of pupils' answers by the teacher, and three hesitation questions. There were many more that got by without being counted. The following are examples, taken down verbatim: "The independence of the Thirteen States was recognized, by what, when? And the Articles of Confederation were the beginning of what?" Answer: "The Federal Constitution." Teacher: "Yes: the Federal Constitution." Two of which teachers with whom these faults are habitual used poor methods throughout, and showed weaknesses in technic and educational conceptions with nearly all the means of diagnosis employed. With nearly all the others such crudities of method were relatively infrequent, though by no means wholly avoided.

The most common fault was missing opportunities to let the pupils debate, judge, and decide as a result of their own thought processes; instead, the teachers would give their own opinion and stop there. This of ocurse is stultifying to the pupils' initiative and thinking powers. Too many teachers fail to distinguish between thinking and merely recalling facts without any reference to their relations. They believe they are training the pupils to think when in reality they are giving them no opportunity whatever to do so. No one can think unless he is faced with a problematic situation which he must analyze. Having analyzed it he must set up an hypothesis for its solution, and then test out the hypothesis by comparing it with known or observed facts. In most of the recitations little of this sort of thing was seen.

Another common fault is failure to arrive, in the class, at a clear and correct explanation of a fact, event, or phenomenon; so that when the discussion of the fact has closed, every one in the class has a clear and definite concept of the principle behind the fact and the manner in which the principle applies to it. This fault usually is the result of hazy and inadequate knowledge on the part of the teacher. This was the outstanding weakness in the teaching of general science, civics, and biology in the school.

In some of the science classes words were mispronounced or principles and definitions misstated by pupils; and the teachers in at-

[6] For a more complete discussion of these errors in method see the Memphis Survey Report, Bul., 1919, No. 50, U. S. Bu. of Educ., pt. 2, Ch. II, pp. 158–170.

tempting to correct them gave wrong pronunciations or statements themselves. It is not expected that a science teacher should know everything; but certainly he or she should never give any false information. This, of course, usually results from insufficient complete and careful preparation. In some cases in Winchester, in the judgment of the commission, it results from inadequate general knowledge of the subject.

SOME GOOD THINGS THAT WERE OBSERVED.

In several classes and subjects, good topical recitations were heard. In this kind of recitation, ordinarily, each of a number of pupils is assigned a topic or question for investigation and report. He is to get from books or periodicals in the library, or from any other reliable sources to which he has access, all the needed information that is available. With this in hand he prepares a brief exposition of the topic or an answer to the question, with the evidence for and against his answer.

In most of the classes where such topical reports were made they were well worked up and were well read, but it would have been far better to train the pupils to deliver them without being tied to their manuscripts. A good way to do this is to have the pupil put on the blackboard a brief skeleton outline of his points and then extemporize with the brief as a guide. One boy who was reading a report on radium read only fairly well, and did not completely hold the attention of his audience, but when a question or two were asked him afterwards he spoke extemporaneously with force and clearness. This illustrates the point that we are making, that the reports should be prepared in written form, or at least as rather complete briefs, and should then be so well digested that they can be given with freedom and power.

In connection with the physics class, there was a fine spirit of comradeship between the pupils and the teacher. Most of the boys had on hand some volunteer project or other involving knowledge of some phase of the subject, and the teacher showed active interest in these. There was much informal consultation about them during and between recitation periods. A wireless club has been organized by the class; and wireless communications are frequently transmitted and received by the members. They try to keep up to date on the developments in this field.

In a class in science elsewhere an experiment in ventilation was being demonstrated. Suggestions for variation of the conditions, to test out ideas that came to them, were made by some of the pupils, and the teacher immediately put these to the test. This was very good, and tended to foster the true experimental spirit; but unfor-

tunately when the experiment was finished the principle which it was to illustrate was not clearly stated and explained, and was not well understood.

In a class in a foreign language, instead of having each pupil translate one short sentence only, as is an all too prevalent custom, the teacher at one time required each pupil called on to translate the entire paragraph or section and speed up. This is a practice that should be generally adopted and more completely carried out. If the pupils are obliged to prepare for such a method of recitation they must gain sufficient command over the entire lesson to translate or read it fluently. It will therefore make them study much more effectively; and the frequent repetitions of the entire passage thus secured help immensely in giving all of the pupils more of what is sometimes called a feeling for the language as well as a grasp of the thought; and it gives them practice in rendering that thought into good English idiom. Instead of so much translation it would be better in both Latin and the modern languages to have the pupils read the passage in the original rapidly, clearly, and with good intonation and inflection, and then tell what it means in English. Insistence on much of this sort of thing, instead of so much nearly literal translation, would tend to train the pupils to grasp the thought directly from the foreign words instead of first thinking of the equivalent English words and then getting the thought from these.

In every room there is a placard which says, "Say it in good English." This is an excellent way of keeping the ideal before the pupils and undoubtedly it has its effect.

The spirit of the socialized recitation was well exemplified in one of the English recitations that was observed. A student president and secretary sat at the teacher's desk, and the teacher retired to the rear of the room. A formal literary program was carried out, most of the pupils' contributions being in the form of short essays or topical reports. In reading from his program the president leaned awkwardly over it instead of holding it up to the proper level for effective delivery. When the observer suggested holding the paper up and taking a better position, the boy accepted the suggestion in the spirit in which it was made and took great interest in trying to acquire better form. This was on the whole a very good socialized recitation of the more formal sort, but it would be better if there were in the school more socialized recitations in which much informal discussion should be carried on by the pupils concerning definite points of a debatable nature, or for the clearing up of difficulties. Recitations of this type are very effective in calling out initiative, stimulating interest, and promoting real, independent thinking by the pupils.

In another recitation in English a collection of photographs of the Scotch lakes and the Trossachs was handed around. This was to help

create interest and establish an apperceptive mass or basis of comprehension for the study of Scott's "Lady of the Lake." This is a thing that is done very generally in literature classes in progressive schools; and a great deal more of it ought to be done in Winchester than is done. Lantern slides are very effective in this kind of work. They usually prove to be more attractive than hand pictures, and they economize time because all the pupils see the same picture simultaneously, and the teacher and pupils can talk about it while all are studying it.

The work in current history which is being given in all grades is stimulating thought and original study perhaps more than any subject pursued in the school. Conscientious study is incited and care is inculcated in the formation of opinions on current events of national and world significance. The class is organized as a forum for discussion, and topics are assigned by the chairman. The recitations are mostly of the socialized type. This work is worthy of high commendation in most of its features, but it is not a substitute for a well-worked-out sequence of studies in history and civics. In many cases this work is too heavy and difficult. The notebooks are too detailed and laborious in their accumulation of facts, and the percentage of failures and eliminations in these classes is too high. It would be better to reduce the amount of work required and make it a part of the study in the English courses, giving less attention to details and more to the significance of those details which can be made to stand out clearly as the essential factors in events and movements.

4. ORGANIZATION, ADMINISTRATION, AND SUPERVISION.

THE ADMINISTRATIVE PERSONNEL.

The present administrative personnel of the high school consists of the principal, a principal emeritus, a dean of girls, who is also study coach and part time teacher, and a cafeteria manager, whose main duties consist in regular teaching of home economics in the high and elementary schools.

To the members of the survey commission, who lived with the school or were in close touch with its activities for a period of two weeks, it seems evident that there is great need of two additions to the administrative staff, a competent stenographer-secretary for the principal and a librarian.

STUDENT ASSISTANCE IN CLERICAL WORK.

Much of the clerical and stenographic work of the school is now done by students of the commercial department under the very competent direction of the teacher of typewriting. This is an excellent idea as an educational principle to be applied in the teaching, for it gives the pupils a chance to do real clerical work whose utility

and significance they can be led to appreciate. It also promotes the spirit of community interest and cooperation within the school. Furthermore, it may be so organized as to make for real economy and efficiency of administration.

We commend the idea involved, and recommend its extension and its more careful organization; but we are convinced that such an arrangement is no proper substitute for a principal's office secretary in a school of this size.

AN OFFICE SECRETARY NEEDED.

Such a person must be permanent, so that she may be trained to carry out the manifold clerical and secretarial duties that are involved by a progressive up-to-date policy of administration and supervision. Especially is such a secretary needed to assist the principal in the tabulations and calculations connected with the use of modern educational tests and standards of measurement. She should also act as recorder and have complete charge, under the principal, of all pupils' record cards and all other permanent records of the school. With these and many other burdens of a clerical nature lifted from his shoulders, the principal would be left free for planning the administrative work, for perfecting the organization of the curriculum, the teaching staff and the pupils, for intimately supervising the classroom work, for leading the teachers in self-training in methods, and for representing the school, its needs and its achievements before the community.

EXECUTIVE WORK WELL DONE.

The executive work of the school and the general administrative leadership were being splendidly and efficiently carried on by the principal during the stay of the survey commission; but the other things mentioned above, especially that of supervising the work of the teachers and of leading them in round-table studies, were not being done. It never can be done adequately unless the principal be supplied with a secretary and given freedom for it, as we have suggested.

MISUSE OF THE SCHOOL TELEPHONES.

Another condition which we found standing in the way of effective development by the principal of his larger and more important functions was the lack on the part of many parents of the school children of any appreciation of the fact that they have no right to make unnecessary and disproportionate demands on the principal's time.

Parents call on or phone the principal or a teacher at all times of the school day and before and after sessions, asking them to call their children to the telephone or deliver messages to them. This

is in most cases absolutely unnecessary, and it is tremendously wasteful of the pupils' time, and indeed of the whole school. If the same young people were working in a store, office, or shop, it would not be tolerated, and it should not be tolerated in the school. The school committee should forbid the use of the telephone, or the sending of messages between the school and the home excepting in cases of extreme emergency. The school and the time of school officers are for the benefit of all the community and not for the convenience of the careless few who lack the foresight and energy to establish an understanding in the morning of the program of family appointments for the day.

THE PRINCIPAL'S OFFICE HOUR.

The school committee should establish an office hour for the principal, and support him in adhering to it. As it is, he is interrupted at all times of the day by parents, many of whom seem to assume that he has nothing else to do but listen to long talks about relatively unimportant details concerning their children. Conferences with parents about their children's interests are, of course, very important at times, and the way must always be open for them, but they should always be by appointment as conferences are with business men and the appointments should be during the principal's regularly schedule office hour.

A TRAINED LIBRARIAN NEEDED.

The administration of a school library can not be carried on with efficiency by details of teachers whose main duties and interests lie in other fields. No unity of library policy or operation can be secured in this way; and the library feature, one of the most important phases of school work, can not be adequately developed.

There should be a librarian present during the entire day, and she should be trained both as a high-school teacher and a librarian. She should assist the teachers and cooperate with them in giving instruction in the use of the library and the choice of books for recreative reading, and in planning reference work in connection with all the subjects and in promoting a love for books and reading. She should keep the card catalogues, reference lists, and other library records up to date, and render assistance in getting out the school publications.

The library is generously supplied with books, but is not so well balanced as it should be. More fresh, readable, and authoritative books are needed in science, geography, and travel, commercial and industrial subjects, applied art and design, and home economics. A rich literature for high-school pupils on vocations and on elementary

economics and sociology is also growing up, and the school should have some of the best of this type of literature.

THE CAFETERIA.

The management of the cafeteria is apparently efficient, so far as it can be under the physical conditions, but the physical conditions are not what they should be. The basement hall where the cafeteria is operated is insufficiently lighted and very badly cramped for space. The result is that nobody can eat there with comfort. Such conditions do not make for health. Something should be done as soon as possible to remedy this condition.

SUPERVISION OF INSTRUCTION.

Adequate supervision implies an intimate study of the theory and practice of teaching and familiarity with the best modern methods in teaching the various high-school subjects.

To give it, the principal must have time for study, reflection, testing, and investigation of classroom conditions. He must spend much time in visiting classrooms. He must confer with individuals and with groups or with the entire teaching staff in round-table discussions concerning the excellencies and defects that he finds in the class work, to the end that all may profit by the successes and failures of each. These should be considered impersonally. Such leadership by the principal of round-table discussions on principles and methods of teaching is scarcely less important than classroom supervision. In fact, the two are correlative and inseparable, if the best possible professional attitude and esprit de corps are to be worked up.

Another purpose served by the round table is the stimulation toward professional study and reading, and the guidance of educational measurements and experiments which may be carried on in connection with it. A good beginning along this line has been made, and the attitude of the principal and teachers toward such activities gives promise of a fine future development for it. With a secretary to take care of clerical details of the principal's office, it is the belief of the survey commission that the principal can and will give splendid leadership in such work, and that the teachers without exception will cooperate with him gladly and effectively.

DIRECTED STUDY.

Study coaching for pupils who are behind in their work is being carried on in the school with good effect, but there is no organized plan of directed study for all pupils. Good pupils as well as poor ones need to be taught how to study effectively.

The commission recommends that the teachers make a careful study of this subject and that a plan for trial and gradual introduction of a system of directed study in the ninth and tenth grades be worked out and put in operation.

An ingenious time schedule, providing longer periods with directed study in view, has been worked out by Clarence D. Kingsley, State agent for high schools of the Massachusetts Board of Education. This scheme is recommended to the principal and teachers for careful study with reference to its feasibility in the schools.[6]

PUPIL PARTICIPATION IN SELF-GOVERNMENT.

All schools give their pupils more or less opportunity to govern themselves, especially in connection with the various student organizations. No one advocates setting up a school city or other political organization and turning over the school government to school officers. The principle is to give them as much responsibility for their own control as they can and will carry successfully. The purpose is not to relieve the teaching staff of responsibility, but to train the pupils in teamwork for the accomplishment of worthy public ends. The more practice they have in this while in school the more independent thinking they will do, the more balance and poise of will they will have, and the better will they be prepared to undertake the duties, obligations, and responsibilities of adult citizens when they reach their majority. This school has developed certain school organizations to this end, and it is recommended that the principles of self-government already in operation to some extent be further developed and perfected.

The right kind of beginning in the training of pupils for self-government has been made in connection with student organizations. There is a student council consisting of one representative from each of the high-school grades, which advises with the teaching staff in matters of cooperation involving the student interests and enterprises. There is a school magazine, "The Recorder," edited, managed, and published by representatives of the students under the direction of some of the teachers. The senior class elects the editor, who in turn appoints his editorial and business staff, subject to the approval of the administration of the school.

The football, baseball, basketball, and girls' hockey team are democratically managed under teacher supervision, as are also the athletic associations, the debating clubs, the freshman English club, and the senior boys' wireless club.

The commencement of 1919 also was largely a student affair in which many took part. There was an essay on Americanization, an

[6] Report on High Schools. Bul. of Mass. Bd. of Educ., 1918, No. 5.

original poem, a vocal solo, and two other essays—all by students. Also there was a pageant illustrative of Americanization, written by one of the girls and staged by a score or more of the pupils. The costumes were worked out by the pupils and teachers of the various departments, and the music was furnished by the music department. Such a cooperative plan bringing into the enterprise as many members of the various classes as possible is, in the opinion of the survey commission, a far greater educative and socializing force in a school than the traditional formal commencement in which the principal, the president of the school committee, and an imported speaker do all the talking, while the senior class sits on the stage and the remainder of the school are inactive spectators.

Besides the commencement there are held during the year a play and a musical comedy in which the pupils themselves under the direction of the department of instruction do the greater part of the work. Such cooperative enterprises are highly to be commended as practical opportunities for learning teamwork under educative direction and supervision. The one danger to be guarded against is that of allowing certain versatile and enthusiastic pupils to dissipate their energies by getting into too many extra curricular activities.

SOCIALIZED RECITATIONS.

The form of the socialized recitation may not always be the same. It is the spirit and not the form that counts. Usually it takes the form of a parliamentary or club organization and discussion. The essential principle is that the pupils enter voluntarily into an orderly discussion of the problems of the lesson, each doing his part because he wants to contribute something instead of reciting because he is called on by the teacher and must say something to get a mark.

There has been a limited use of the socialized recitation in the school, but the great possibilities for effective learning through this form of school activity have not been fully realized. We recommend a gradual and experimental introduction of this method in all classes with conferences among teachers to discuss methods and results. Not all teachers are successful with this method, and such as are not convinced that they can get good results with it ought not to be compelled to use it.

Its great utility consists in the strong motivation for effort that it engenders and its tendency to call out initiative from pupils who do not show this quality under the formal question and answer methods. It is one of the best types of pupil participation in self-government. Another strong point for it is the training it gives in parliamentary procedure and in public speaking.

EDUCATIONAL AND VOCATIONAL GUIDANCE.

This is another much-talked-of feature of school work, which, though of very recent development, is of immense value. We shall soon come to regard it as an indispensable part of the school's work. To set up a system of educational and vocational guidance it is necessary to assign the responsibility for the function to a competent and trained leader who understands the principles on which such guidance must be based. One guidance officer to head the work in both high and elementary schools would be needed. He should direct both teachers and special deputies in the schools. One teacher in the high school might be deputized to specialize on leadership in this line. His other work should be lightened accordingly. All the teachers should make a study of some of the standard books and articles on the subject, for one of the most important factors in vocational guidance is the building up of a wide knowledge of vocations, their obligations, limitations, and rewards. Every school subject should contribute something to this end.

The school has as yet done little or nothing toward setting up a system of guidance. The commission recommends that steps be taken to introduce such work, gradually if necessary, but with the serious intention of giving it an important place in the administration and instruction of the schools.

5. BUILDING AND EQUIPMENT.

The high-school building is situated on high ground overlooking the lower portion of the town. As an architectural feature of the town it is well designed and well located, but as a school building to be used for school purposes there are some unfortunate features both of location and design. The first thing that obtrudes itself on the attention of a school man is the utter absence of playground space adjoining the school. This is not compensated for by the fact that there is a public playground in the town, for other schools besides this one lack adequate playgrounds, and the public playground is neither sufficiently large nor sufficiently near any one of them to be adequate for all. Every school needs its own playground, and in a small town there is usually no good reason why it should not have one. This is a condition for which the community should find a remedy. A serious mistake has been made in the past with regard to this important matter, but nothing whatever can be gained by seeking to place the blame for it. The only thing to do now is to find some way to remedy the blunder by providing for the high school an ample playground over which the high school shall have control and on which its students shall always have the right of way.

The building is adequately lighted, but four of the rooms are not properly lighted. They receive the greater part of their light from the rear, instead of only from the left as they should. The only rule now approved by the best authorities on school hygiene is that all rooms where writing or drawing is done shall be lighted from the left only, that the clear glass window area shall be not less than one-fifth of the floor space (better one-fourth if there are neighboring obstructions to light), that the windows shall reach to or very near the ceiling and be at least half as long as the room is wide, and that the windows be grouped in threes or fours with narrow beveled mullions between the sashes instead of wide pillars as was customary in the past.

Another fault in the design of the building is that most of the rooms are too large, while the small rooms are too small.

The building is well cared for and kept in excellent repair. It is a matter especially to be commended that the window shades were all in good order and were for the most part being intelligently used by the teachers. This is a rather exceptional condition, though obviously it ought to be the case throughout the schools everywhere.

We have already mentioned the entire inadequacy of the space available for the cafeteria.

One very desirable feature of equipment in which this school is unusually rich is that of artistic pictures and casts. These may contribute largely to general as well as to æsthetic education if they are wisely used and all their possibilities realized. In spite of the general wealth of pictures some rooms are nearly bare. It would be well therefore to redistribute the pictures at the expense of the corridors and to the benefit of these rooms. It would be well also to stimulate gifts of pictures by graduating classes and alumni until every room is well supplied.

The school has some good maps, but not enough. History, English, and classical literature and languages, commercial and economic studies, all require maps and charts in considerable variety. The school can not be considered as having adequate wall-map equipment until it has a complete set of historical maps for European and American history, a full set of political maps, a full set of physical maps, and a good assortment of blackboard outline wall maps. Also, if general geography is introduced as we recommend, the school ought to have a considerable assortment of the United States topographic maps and special folios and a few coast charts and lake and river survey maps.

The science rooms and equipment are inadequate in many ways.

The physics room should be equipped with a demonstration table and a good line of demonstration apparatus, sufficient, in addition to that now on hand, to cover adequately by demonstrations all the

topics included in the course. There should also be added sufficient storage cases in which to keep this apparatus. The physics laboratory is very well stocked in some lines, but other important phases of the subject are inadequately provided for. This is particularly true as to demonstration apparatus for mechanics and sound.

The provision of apparatus and supplies for the study of chemistry is, on the whole, more complete than that for the other science subjects, but is none too generous. A demonstration table is needed in the chemistry room, as there is only one such table for the subjects of chemistry, biology, and general science. This is in the classroom adjoining the chemical laboratory and is needed for the exclusive use of the classes in the latter subjects. The equipment for biology includes several good microscopes, but beyond that there is very little of what should be provided. There should be a combined laboratory and classroom for these subjects, with laboratory tables for individual student experiments, a demonstration table for experiments to be made by the teachers before the classes, and chairs for the pupils to occupy during the demonstrations and recitations. General science should be placed in the seventh and eighth grades and required of all pupils. The rooms in which it is taught should be adequately equipped for demonstration and laboratory experiments. Civic biology, including physiology and hygiene, should be made a stronger, more practical, and more attractive course in the ninth grade.

The equipment for cooking and sewing is fairly complete and sufficient to accommodate the small numbers of high-school classes, but is too small for the elementary-grade classes now using it.

The high school has no equipment at all for manual arts. Considering the fact that so few pupils graduating from the school now go to college, the lack of facilities for a complete 4-year sequence of work in manual training constitutes a serious defect. It is found in many schools that many of the boys who are preparing will carry manual training successfully as an extra subject if they are given the opportunity, and such opportunity often seems to hold in schoolboys in the college preparatory curriculum who otherwise would lose their interest and drop out. Then there is that large percentage of boys who are preparing for industrial and commercial careers. The latter obviously need this type of prevocational work; and at least some of it would be of great advantage to those boys who are preparing to enter office or selling positions in manufacturing lines and would gain much from the insight into manufacturing materials, tools, and processes which instruction in constructive manual work affords.

The commission recommends that equipment for drawing and woodwork be installed just as soon as it can be done, and that this

be followed by the introduction of forge and sheet metal work and machine shop as fast as the classes come on prepared to do the work. This would mean the completion of the shop installations in four years. With a competent instructor much of the requisite equipment could be made by the boys themselves as a part of their regular manual training practice. This has been successfully accomplished in many a school.

All of this equipment, of course, will involve some outlay of money; but the survey commission finds that the community can afford to invest it, and believes that such investment will return good dividends, first, by stimulating interest and holding pupils in school who otherwise would drop out, and, second, by contributing to the economic and social efficiency of the students. The community should realize that in this matter of a broader and richer program of studies and of adequate equipment for it, the Winchester School, though a splendid school in many other of its characteristics, is very decidedly behind the average of other schools in communities far less prosperous; hence the recommendations of the commission for a broader educational policy and a more liberal equipment.

6. CONCLUSIONS AND RECOMMENDATIONS.

1. As compared with other schools of its class, the Winchester high school is attracting and holding its pupils well; but not nearly so well as it ought and might. To this end the commission recommends a broader and more democratic educational policy, involving less subservience to traditional college entrance requirements, broader and richer curriculums for both college-bound and noncollege-bound pupils, and better methods of teaching, to be brought about by better methods of organization and supervision.

2. The commission especially urges cooperation between the high-school principals and leading teachers on the one hand and the college authorities on the other hand. The purpose of such cooperation should be to broaden and enrich the college preparatory and the other curriculums, so that more options and more appealing types of work may be offered by the schools and accepted by the colleges for entrance credits. Such cooperation has been carried on in the Middle West for two decades through the North Central Association of Colleges and Secondary Schools and has resulted in great benefit to both high schools and colleges.

3. The school has been criticized locally because of the alleged failure of its graduates in colleges. Reports from the colleges indicate that there is little or no foundation in fact for this criticism. The real cause for concern lies in the fact that the school sends to college such a small proportion of its graduates, and that it provides in both

college-preparatory and nonpreparatory curriculums so little training that has real significance in community life.

4. Citizens of the community should refrain from criticism of the schools until they are in possession of the facts of the case. Under no circumstances should the administration or teachers be criticized before the children; and no criticism should be made publicly until it has first been made without avail to the administration and the school committee.

5. The commission has embodied in this report constructive recommendations for the rebuilding of the high-school curriculums, and urges that thoroughgoing curriculum revision be begun during the coming year and consistently carried out during the next four years. In connection with such revision, not only the arrangement but the content and methods of the sequences of studies should be carefully considered and thrashed out. Round-table meetings of the teachers and administrators should be held frequently for this purpose, and representatives of all departments should take active part in them.

6. As to the training of its teachers, the Winchester High School stands well in comparison with other schools, as far as is indicated by college degrees, but most of the teachers are short on training in special professional courses for teaching.

7. About half the teachers did a creditable amount of special professional reading and pedagogical study during the past year. The half who did less than a creditable amount should be stimulated to do better. Special reading circle and round-table studies should be organized for this purpose, and the topics of study should be determined by the needs for improvement in the various phases of the school work. The philosophy of the curriculum and the general principles of secondary education should be studied cooperatively by the teachers, led by the principal. The studies should be centered on the special problems involved in remedying such defects as have been pointed out in this report in improving such conditions as have been described as fair or average, and in carrying to the level of excellence such features as have been commended as good.

8. Sixty-seven per cent of the teachers have taken more or less summer term or extension work of various sorts. This is well, but the administration should not relax effort to stimulate this kind of work as a means of keeping the teachers growing professionally. "One hundred per cent with master's degrees" is a good ideal for a teaching corps to set before itself. It is an ideal not likely to be reached in the present educational situation, but it is a mighty good one to work toward. Meetings in which experiences are exchanged by those who are taking university extension, correspondence, and summer courses

would be useful in promoting enthusiasm and unity of purpose among the teachers in their professional study.

9. Study of the duty loads carried by the teachers shows that the loads carried by them vary more widely than is desirable, mainly on account of the wide variations in the sizes of the class enrollments. A few of the loads are too light for good economy, but only that of the girls' physical director is too heavy. The commission recommends the employment of an additional instructor, so that a full-time director can be employed on high-school work and another on grade work.

10. A study of the sizes of recitation sections reveals a wide variation in the enrollment of the sections in different studies. Some of the sections are too small for reasonable economy. Effort should be made either to eliminate these by giving these subjects in alternate years or possibly by dropping the subjects in favor of others that are more significant and desirable, or by promoting and advertising these subjects in the school with a view to attracting more pupils into them.

The ninth grade algebra sections are too large. This probably is one reason why they did poorly on the standard tests. The remedy is to form three sections instead of two. The sections so made should distribute the pupils according to ability. Thus more exacting requirements and greater speed may be and should be insisted on from the pupils having superior ability, while less speed and more drill and explanation should be the rule for the section containing the slowest pupils. The middle section should progress at about the customary rate.

11. A study of the percentages of eliminations and failures shows that the losses in the Winchester High School are quite moderate. However, as is usual, there are wide variations among the different teachers in the percentages of eliminations and failures. The commission recommends that each year a careful study be made into the causes of these variations, to the end that the most successful methods may be more generally adopted and the unsuccessful methods be discontinued.

We recommend the adoption of a system of vocational and educational guidance, as a means both of preventing eliminations and failures and as a means of helping bright and ambitious pupils to find themselves and use their opportunities to their best advantage.

12. A study of the distribution of teachers' marks shows that the staff as a whole distributes its marks in a nearly ideal way, giving about the right percentage of marks in each of the five grades A, B, C, D, and E. On the other hand about half the teachers distribute their marks in a very erratic and unskilled manner. Such variations are productive of gross injustice, and supervisory measures should be taken to secure a better consensus of opinion as to the meanings of

the marks used, and a closer adherence by individual teachers to the norm established by the staff collectively.

13. Standard tests were given in several high-school subjects. The showing was remarkably good in the United States history test, very creditable in Latin, about average in physics, French, Spanish, and English, and poor in ninth-grade algebra. The typing tests seem to indicate very creditable work.

14. The commission finds that the teaching tends too largely to be bookish and conventional. We recommend that the teachers be stimulated to analyze the subject matter with regard to fundamental educational values, and to use the project-problem method in order to secure these values. A few of the teachers habitually use faulty types of questioning and class management, but most of them are relatively free from glaring technical imperfections. Some especially good methods and devices were observed. More thorough supervision and more frequent teachers' round-table meetings would help to make the good methods more common and the technical falts less so.

15. The commission recommends more frequent and more skillful use of the socialized recitation, and of visual aids of all kinds.

16. The gradual introduction of organized plans for directed study and for more extended participation by pupils in the government of the school is also recommended.

17. We recommend the employment of a competent stenographer-secretary for the principal, who shall also act as recorder and have charge under the principal of all school records. The intent of this recommendation is to free the principal from clerical details in order that he may have time and strength for the intensive supervision which, in our judgment, constitutes the greatest need in the school.

18. The school needs a trained teacher-librarian to be on duty throughout each school day, and the library needs new and up-to-date books in certain important lines.

19. Adequate playground space should be provided and equipped for the high school.

20. The school is in need of an additional room for a science laboratory (biology) and additional demonstration tables and equipment for physics and chemistry. If general geography is introduced, as we recommend, a room should be specially set aside for a geographical laboratory.

21. We recommend the immediate installation of a wood-working shop equipment and the installation during the next four years of a forge shop, bench and sheet-metal shop, and a machine shop, thus making possible a four-year sequence in industrial arts.

22. The commission also strongly indorses the junior high-school form of school organization, and recommends that in the readjustment of the schools of Winchester adequate provision be made for this type of school.

Chapter VI.

RESULTS OF THE STANDARD EDUCATIONAL MEASUREMENT TESTS IN THE WINCHESTER SCHOOLS.

CONTENTS.—1. In the elementary schools: The Courtis arithmetic test; the Ayres spelling test; the Monroe silent-reading test; the Stone reasoning test in arithmetic. 2. In the high school: Algebra tests; Hennon's Latin tests; Handschin's French and Spanish tests; Sackett's scale in United States history; Thurstone's physics tests; English composition test; test in typewriting.

1. IN THE ELEMENTARY SCHOOLS.

Mere opinion regarding the results of the teaching activities of the school, expressed in terms of the progress of children in some of the subjects, which the school offers, has given way to fairly accurate methods of determining the progress of pupils in such subjects as spelling, penmanship, arithmetic, and reading. An educational yardstick is now at hand by which efficiency in these subjects can be judged and the relative standing of schools or of classes determined. There is much of the work of every good school, however, that is too intangible to admit of definite, precise measurement—the character-creating influence of the school, to mention but one illustration. On the other hand, there is much of the work of the school that is, or should be, definite, tangible, and hence measurable. It is in this field of the school's activity that educational measurement tests can render a school system an important service.

Only those tests that have been well standardized were given in the elementary schools of Winchester, thus making it possible to compare the results secured in the Winchester schools with those obtained in other systems under the same conditions. The tests were: The Courtis Arithmetic, the Ayres Spelling, the Monroe Silent Reading, and the Stone Reasoning Test in Arithmetic.

THE COURTIS ARITHMETIC TEST.

The most widely used test for judging of the efficiency of schools and classes in the operations of addition, subtraction, multiplication, and division with integers is that devised by Dr. S. A. Courtis, of Detroit. By testing thousands of children of all grades and in all

types of schools throughout the country, he has formulated a standard of attainment in both speed and accuracy by which other schools can be rated.

The series consists of four tests printed on a four-page folder, one test to each page. Twenty-four examples of equal difficulty are given in each. A time-limit is set for each test, 8 minutes for the additional test, 4 minutes for the subtraction, 6 minutes for the multiplication, and 8 minutes for the division test. Within these respective time-limits each pupil tested is required to solve as many examples as he can. The papers are then marked for the number attempted (speed) and for the number which are correct (accuracy). In order that all tests may be standardized, no credit is given for examples incomplete or partially correct. The following are sample exercises of the four tests, the remaining examples of each are of equal difficulty:

Test No. 1.—Addition (8 minutes).

927	297	136	486	384	176	277	837
379	925	340	765	457	783	445	882
756	173	988	524	881	697	682	959
837	983	386	140	266	290	594	603
924	315	353	812	679	366	181	118
110	661	204	466	244	851	778	781
854	794	517	355	796	535	849	756
965	177	192	834	850	323	157	222
344	124	439	567	733	229	953	525

Test No. 2.—Subtraction (4 minutes).

115364741	67298125	92057352	113890936
80155261	29346861	42689637	42556840

Test No. 3.—Multiplication (6 minutes).

3876	9245	7368	2594	6495
93	86	74	25	19

Test No. 4.—Division (8 minutes).

37)14467   86)60372   94)67774   25)9750

OBSERVATIONS ON THE COURTIS TESTS.

Reference to the following table shows that there are wide differences between schools, both in the rate and accuracy of the work in arithmetic. It is a rather striking fact that the average attempts of the eighth grade fall below those of the seventh in most cases. This may be due to the fact that the pupils of the seventh grade have had better training, or that they are a group superior in natural

ability to the pupils of the eighth grade, or the reason may be found in the lessening of formal arithmetical work given in the upper grades.

Among the other variations that may be noted are the scores in grade 4 in the Wyman and Chapin Schools, the latter surpassing the former both in speed and accuracy.

Grade 5 in the Chapin School is made up of two divisions, 11 in one and 26 in another. The better scores made by the larger division is no doubt due to the fact that the brighter children of the grade are placed in this division.

These inter-school and inter-room variations are of interest chiefly to the superintendent and the principals. Knowing that there are such differences, the superintendent then has the problem of discovering why the results in some schools are better than in others, and whether it is possible to bring the poorer schools up to standard. He will find that some of the differences may be due to any one or all of the following factors: Different teachers, different methods, difference in native abilities of the pupils, the policy of grouping pupils according to abilities as shown in previous work.

In order to discover the cause of variation the superintendent should supplement the standard tests by some of the intelligence tests and by careful observations of teaching methods. If this is done it may be discovered whether a class making a low score is lacking in ability or whether the cause may be looked for in the teaching.

It may be said that already the superintendent is supplementing the subject tests with intelligence tests so as to diagnose the school system. The survey commission recommends that these be combined and that such correlations be worked out as will show definitely why some classes and individual pupils are not doing acceptable work.

Inter-city comparisons.—In the next table comparisons are made between the results obtained in Winchester and those obtained in other communities.

In the speed of addition, Winchester appears about one grade behind the general Courtis standards and two grades behind the scores made in the Boston schools. The medians are, however, very close to those obtained in Brookline and from the general tabulation of small cities.

In the speed of subtraction the Winchester scores are nearer those of the standard and of Boston. In the fourth grade the Winchester score is above the others. The medians are somewhat better than Brookline results in the fifth grade and decidedly better in the sixth. Comparison with the small city standards shows Winchester above the fourth, sixth, and seventh grades, but below in the eighth.

In the speed of multiplication only the fourth grade median is above that of the Courtis standards or Boston. The fifth and seventh grades made scores approximately equal to the seventh, while the sixth and eighth grades scored considerably lower. Winchester medians are about a grade above those for Brookline and approximately equal to those in the small cities.

In the speed of division Winchester medians are above the Courtis standards in the fourth and seventh grades, but the other three grades are below. They are below the Boston scores except in the fourth and seventh grades. Winchester stands slightly below Brookline in spite of the fact that it has done better than Brookline in the other operations. The fourth and seventh grades in Winchester made scores higher than those in the small cities. The other grades were somewhat below.

In general the speed shown in the Brookline schools is somewhat below the Courtis norms. However, grade 4 does considerably better, and grade 7 also equals or exceeds the standards in all operations except addition. Boston scores are higher than the Courtis standards; so Winchester falls below these, generally by at least one grade. Brookline is a community which is probably very like Winchester, and in comparison Winchester does slightly better. The small city medians are usually very close to the Winchester scores except that in grade 7 the Winchester results are somewhat higher and in grade 8 uniformly lower.

In the accuracy of addition Winchester falls considerably below the Courtis standards and the Boston scores. There is little or no improvement in Winchester through grades 5, 6, and 7. The Brookline medians are almost the same as those in Winchester, and this is also true of the small city scores except that in grades 6 and 7 the Winchester medians are somewhat lower.

The accuracy scores for subtraction are about a grade below the Courtis standards and Boston medians. They are somewhat better than Brookline scores and almost the same as the small city medians.

In the accuracy of multiplication Winchester is below the Courtis standards except in grade 7 and is below the Boston scores throughout. Brookline is lower in the fifth but higher in the sixth grade. The Winchester scores are decidedly below the small city scores except in grade 7.

In the accuracy of division grades 5 and 6 fall nearly a grade below the Courtis standards. Grades 7 and 8 practically attain the standards, while grade 4 is substantially above. Winchester scores are below the Boston scores except in grades 4 and 7. They are practically a grade below Brookline and somewhat below the small city standards.

In general, the Winchester medians are lower than those with which they have been compared. The difference is not always great, but it runs as high as two grades in some places and frequently is as much as one grade. There are only a few rooms in which the median attainment equals the standards for the same grade. These findings suggest that some further emphasis on drill in the fundamental arithmetical operations will be profitable to the pupils making low scores.

COURTIS TESTS.

Interschool comparison of grade medians.

Grade and school.	Number of cases.	Addition. Attempts.	Addition. Accuracy.	Subtraction. Attempts.	Subtraction. Accuracy.	Multiplication. Attempts.	Multiplication. Accuracy.	Division. Attempts.	Division. Accuracy.
Grade IV	121	6.5	90.1	8.4	77.1	7.6	63.5	5	[illegible]
Chapin	17	6.5	65.0	[illegible]	82.9	7.5	[illegible]	[illegible]	[illegible]
Gifford	21	7.0	70.0	8.5	70.0	6.7	60.0	[illegible]	[illegible]
Highland	12	7.5	61.0	8.5	75.5	7.0	58.1	7.5	[illegible]
Mystic	[illegible]	6.5	70.0	9.0	77.0	[illegible]	[illegible]	[illegible]	[illegible]
Rumford	[illegible]	8.0	65.0	9.5	84.0	7.8	67.9	10.8	[illegible]
Washington	11	7.7	[illegible]	9.3	96.7	7.7	[illegible]	[illegible]	[illegible]
Wyman	[illegible]	[illegible]	51.9	6.0	65.0	3.9	56.7	2	39.8
Grade V	120	[illegible]	69.2	8.5	81.9	7.5	69.2	5.7	64.2
Chapin	11	6.8	62.5	7.5	82.0	7.5	12.0	6.5	[illegible]
Chapin	[illegible]	8.5	70.8	8.5	81.2	8.4	78.7	[illegible]	[illegible]
Gifford	12	6.5	57.5	8.3	83.7	7.8	[illegible]	4.5	[illegible]
Gifford	37	8.2	[illegible]	8.0	81.8	7.7	[illegible]	[illegible]	[illegible]
Washington	21	[illegible]	50.0	[illegible]	66.3	6.8	75.0	[illegible]	[illegible]
Wyman	21	7.3	[illegible]	[illegible]	82.0	6.7	[illegible]	5.4	[illegible]
Grade VI	[illegible]	[illegible]	[illegible]	10.2	[illegible]	[illegible]	60.7	6.5	[illegible]
Chapin	31	8.8	66.7	[illegible]	81.7	9.0	73.3	7.3	[illegible]
Prince	34	9.1	50.4	10.5	84.1	8.3	75.0	5.8	60.0
Wadleigh	36	9.0	66.4	11.6	87.3	9.9	75.0	7.5	[illegible]
Wadleigh	34	[illegible]	53.8	9.7	70.0	[illegible]	61.9	6.4	60.0
Grade VII	128	9.1	75.8	11.5	85.1	10.5	81.5	[illegible]	[illegible]
Prince	[illegible]	10.5	71.0	15.7	93.1	10.5	84.5	13.6	[illegible]
Prince	28	8.3	60.8	11.9	90.8	9.5	62.8	8.7	[illegible]
Wadleigh	[illegible]	[illegible]	61.6	9.1	68.3	10.8	87.7	8.6	[illegible]
Grade VIII	[illegible]	9.6	72.8	11.0	85.7	9.1	75.4	8.7	80.7
Wadleigh	34	9.5	73.7	10.9	85.4	8.3	71.0	8.5	[illegible]
Wadleigh	36	9.0	72.2	10.7	89.0	9.1	72.0	8.0	87.5
Wadleigh	[illegible]	10.1	68.8	10.8	82.7	9.7	81.1	8.8	[illegible]
Wadleigh	36	10.5	74.5	11.5	87.0	9.4	78.7	9.0	[illegible]

COURTIS TESTS.

Comparative data.

Grades.	Winchester, 1920		Courtis, norms.		Boston, May, 1915.		Brookline, 1915		Small cities, June, 1915.	
	Rate.	Accuracy.	Rate.	Accuracy.	Rate.	Accuracy.	Rate.	Accuracy.	Rate.	Accuracy.
IN ADDITION.										
4	6.5	[illegible]	7.1	61	8.0	67			6.7	60
5	7.6	[illegible]	8.6	70	9.1	71	8	62	7.8	68
6	8.4	63.3	9.8	73	11.1	77	8	67	8.9	71
7	9.1	67.8	10.9	75	12.3	75			9.8	73
8	9.6	72.8	11.6	78	13.7	78			10.2	74
IN SUBTRACTION.										
4	8.1	77.1	7.1	80	7.6	82			7.3	76
5	[illegible]	[illegible]	9.6	83	9.3	85	8	75	8.6	82
6	10.2	81.3	10.3	85	11.1	87	9	80	9.7	84
7	11.5	85.1	11.6	86	12.2	87			11.2	85
8	11.0	85.7	12.9	87	13.6	89			12.1	85
IN MULTIPLICATION.										
4	7.6	63.5	6.2	67	6.2	67			6.3	68
5	7.3	69.2	7.7	75	7.7	76	6	67	7.5	75
6	8.6	69.7	9.1	78	9.1	79	7	75	8.8	79
7	10.5	[illegible]	10.2	80	10.5	81			10.0	80
8	[illegible]	71.1	11.5	81	11.6	83			11.0	81
IN DIVISION.										
4	5.5	71.5	4.6	57	4.8	65			4.5	59
5	5.7	[illegible]	6.1	77	6.5	81	6	80	5.7	77
6	6.5	86.9	8.2	87	8.7	87	8	88	[illegible]	87
7	10.1	90.0	9.6	90	10.2	90			9.6	91
8	8.7	89.7	10.7	91	12.2	92			10.4	93

THE AYRES SPELLING TEST.

In testing the spelling ability of the children of the Winchester schools the Ayres Spelling Scale was used. The scale is made up of 1,000 words most commonly used in correspondence, business, and books. The words are arranged in groups in order of difficulty as determined by tests given in 84 cities. Ten words were given each grade, each test being selected from the group of words upon which the grade average for 84 cities was 73 per cent. In other words, each grade in Winchester was given a spelling test upon which thousands of children in the United States in corresponding grades had averaged 73 per cent. The tests used are as follows:

Fourth grade.	Fifth grade.	Sixth grade.	Seventh grade.	Eighth grade.
1. Eight.	1. Sometimes.	1. Often.	1. Meant.	1. Organization.
2. Aboard.	2. Period.	2. Total.	2. Distinguish.	2. Emergency.
3. Restrain.	3. Firm.	3. Examination.	3. Assure.	3. Appreciate.
4. Population.	4. Crowd.	4. Marriage.	4. Probably.	4. Sincerity.
5. Figure.	5. Relative.	5. Opinion.	5. Responsible.	5. Athletic.
6. Everything.	6. Serve.	6. Witness.	6. Difficulty.	6. Extreme.
7. Farther.	7. Due.	7. Theater.	7. Develop.	7. Practical.
8. Knew.	8. Ledge.	8. Steady.	8. Material.	8. Proceed.
9. Fact.	9. Informatic	9. Course.	9. Senate.	9. Cordially.
10. Public.	10. Present.	10. Doubt.	10. Agreement.	10. Character.

Results of spelling test.

Schools.	Grade IV.			Grade V.			Grade VI.			Grade VII.			Grade VIII.		
	Pupils.	Number correct.	Per cent correct.	Pupils.	Number correct.	Per cent correct.	Pupils.	Number correct.	Per cent correct.	Pupils.	Number correct.	Per cent correct.	Pupils.	Number correct.	Per cent correct.
Chapin	17	91	35.3	38	241	63.4	30	209	69.6						
Gifford	14	109	77.0	50	345	69.0									
Highland	42	8	73.3												
Mystic	12	83	69.4												
Prince							35	248	70.9	65	379	58.3			
Rumford	21	178	85.0												
Washington	13	99	76.1	23	160	69.7									
Wadleigh							72	505	71.7	72	451	62.7	146	1,097	75.2
Wyman	31	181	58.7	92	174	57.8									
Combined	123	842	68.4	112	919	64.7	137	962	71.0	137	830	60.3	146	1,097	75.2
Standard			73.0			73.0			73.0			73.0			73.0

Results of spelling tests.

Schools and grades.	Boys.			Girls.			All pupils.		
	Number.	Words correct.	Per cent correct.	Number.	Words correct.	Per cent correct.	Number.	Totals, words correct.	Per cent correct.
Chapin:									
IV	7	34	47.1	10	61	61.0	17	91	53.5
V	6	31	50.2	4	25	62.5	10	56	56.0
V	13	87	66.8	15	85	56.6	28	172	61.4
VI	17	113	66.5	13	96	73.8	30	209	69.6
Gifford:									
IV	6	42	70.0	8	67	83.8	14	109	78.0
V	9	61	67.7	3	27	90.0	12	88	73.3
V	21	138	65.6	17	119	70.0	38	257	67.6
Highland:									
IV	6	42	70.0	6	46	76.7	12	88	73.3
Mystic:									
IV	7	48	68.6	5	35	70.0	12	83	69.4
Prince:									
VI	13	81	62.2	22	167	75.9	35	248	70.9
VIIa	21	139	61.8	19	149	62.6	40	288	63.8
VIIb	11	73	52.1	11	51	15.4	25	124	49.6
Rumford:									
IV	9	70	77.7	12	108	90.0	21	178	85.0
Washington:									
IV	7	48	68.6	6	51	85.0	13	99	76.1
V	13	85	65.4	10	75	75.0	23	160	69.7
Wadleigh:									
VI	20	160	80.0	20	172	86.0	40	332	83.0
VII-8	12	65	54.2	20	116	58.0	32	181	57.9
VII-5	15	76	50.7	22	137	62.3	37	213	57.6
VII-6	16	107	67.0	19	134	70.5	35	241	69.0
VIII-1	16	110	68.8	17	129	75.9	33	239	72.4
VIII-2	21	151	72.0	18	151	83.9	39	302	78.0
VIII-3	23	122	56.1	15	119	79.3	38	248	65.3
VIII-4	20	175	89.0	16	130	81.2	36	308	85.0
Wyman:									
IV	18	96	51.3	16	93	58.4	31	191	56.2
V	15	80	53.5	16	93	58.4	31	173	55.8

OBSERVATIONS ON THE SPELLING TEST.

The words selected from the spelling tests were so chosen that the standard average score is 73 per cent. In every grade but the eighth the Winchester schools fall below this standard. In grades 4 and 6 it amounts to only about one-half a word. The fifth grade falls 10 per cent below the standard, which means that out of 10 words the

pupils misspelled one more than the average group. The seventh grade falls nearly 13 per cent below the standard.

There are variations of considerable magnitude between the scores of various schools, and some of these scores surpass the standard to considerable degree.

Reference to the table in which the results are tabulated separately for the boys and the girls showed that the girls' averages are consistently higher.

THE SILENT READING TEST.

To test the reading ability of the children in the elementary schools of Winchester, the Standardized Silent Reading Tests, Form 2, devised by Walter S. Monroe, were given. This test, samples of which are given here to indicate its character, is a test of both speed and comprehension in reading.

GRADES 3, 4, AND 5.

City ..... State..... Date.....
Pupil's name..... Age..... Grade.....
School..... Teacher.....

DIRECTIONS FOR GIVING THE TEST.

After telling the children not to open the papers, ask the children on the front seats to distribute the papers, placing one upon the desk of each pupil in the class. Have each child fill in the blank space at the top of this page. Then make clear the following:

INSTRUCTIONS TO BE READ BY TEACHER AND PUPILS TOGETHER.

This brief test is given to see how quickly and accurately pupils can read silently. To show what sort of test it is, let us read this:

I am a little dark-skinned girl. I wear a slip of brown buckskin and a pair of soft moccasins. I live in a wigwam. What kind of girl do you think I am?

Chinese French Indian African Eskimo

The answer to this exercise is "Indian," and it is to be indicated by drawing a line around the word. The test consists of a number of exercises like this one. In some of the exercises you are told to draw a line around the word which is the right answer, or to mark it in some other way, and in some you are to write out your answer. If an exercise is wrong it will not count, so it is wise to study each one carefully until you know exactly what you are asked to do. The number of exercises which you can finish thus in five minutes will make your score; so do them as fast as you can, being sure to do them right. Stop at once when time is called. Do not open the papers until told, so that all may begin at the same time.

The teacher should then be sure that each pupil has a good pencil or pen. Note the minute and second by the watch and say, "Begin."

ALLOW EXACTLY FIVE MINUTES.

Answer no questions of the pupils which arise from not understanding what to do with any given exercise.

When time is up, say "Stop" and then collect the papers at once.

No. 1 (Rate value 9; comprehension value 1.1).

The little red hen was in the farmyard with her chickens, when she found a grain of wheat. "Who will plant this wheat?" she said.

Draw a line under the word which tells where the little red hen was.

barn chicken house feed bin farmyard

No. 2 (Rate value 9; comprehension value 1.1).

Nowhere in the world do the children have so many good times as in Japan. They are allowed to play anywhere, and there are all sorts of toys and games for their amusement.

Are the children of Japan happy? Answer with "Yes" or "No."

No. 3 (Rate value 6; comprehension value 1.3).

I have red, yellow, and blue flowers in my hand. If I place the red and yellow flowers on the chair, which color do I still have in my hand?

No. 4 (Rate value 7; comprehension value 1.4).

A donkey, a cat, and a dog went for a walk. After a long time they came to a farmyard. A rooster stood on the gate, crowing and screaming.

Where was the rooster?

GRADES 6, 7, AND 8.

The directions for giving the test were the same as for the 3, 4, and 5 grades. Some of the questions follow:

No. 1 (Rate value 9; comprehension value 2.01).

Mrs. Bird was a timid, blushing little woman about 4 feet in height, and with mild blue eyes, and a peachblow complexion, and the gentlest, sweetest voice in the world.

How tall was Mrs. Bird?

No. 2 (Rate value 7; comprehension value 2.1).

Carbon dioxide is injurious to people. Plants give off carbon dioxide at night and take it up in the daytime.

Is it a good plan to have plants in the room where you sleep?

No. 3 (Rate value 13; comprehension value 2.7).

Everyone hates a tattler. The tattler is the object of disgrace on any playground. But everyone respects a truthteller when wrong has been done. A little girl of 9 was brought into court as a witness to tell all she knew of a crime that had been committed.

Will she be disgraced if she tells what she knows? Answer "Yes" or "No."

Results of reading tests tabulated (median scores—rate and comprehension).

Monroe reading test grade medians.

Schools.	Grade IV.			Grade V.			Grade VI.			Grade VII.			Grade VIII.		
	Pupils.	Rate.	Comprehension.	Pupils.	Rate.	Comprehension.	Pupils.	Rate.	Comprehension.	Pupils.	Rate.	Comprehension.	Pupils.	Rate.	Comprehension.
Chapin	19	101	11	10 28	101 108	11.5 18	53	108	19						
[illegible]	14	108	15	11 10	108 111	20 21									
[illegible]	12	108	19.5												
[illegible]	11	[illegible]	18												
[illegible]							[illegible]	103	21 35	36 37	108 108	21 24			
[illegible]	[illegible]	101	18												
[illegible]	[illegible]	[illegible]	21	22	108	22									
[illegible]							38 35	132 121	38 21	37 37	121 110	[illegible] 35	31 40 38 36	[illegible] 113 118 [illegible]	37 32.5 29 43
[illegible]	35	108	[illegible]	[illegible]	108	21									
Grade totals	127	106.6	19	112	108.7	20.5	136	117.7	26.4	115	[illegible]	28.5	115	126.[illegible]	31
Monroe standards		80	11.5		93	20		[illegible]	21		102	[illegible]		108	27.5

OBSERVATIONS ON THE READING TEST.

In this test the grade medians for Winchester, both for speed and comprehension, exceed the standard median to a considerable degree. Frequently this excess amounts to a full grade. For instance, the Winchester sixth grade median is 117.7 for speed and 26.4 for comprehension, which exceeds the standard both for rate and comprehension of the seventh grade. In fact, the sixth grade rate in Winchester exceeds the standard eighth-grade rate. Only a few rooms in the whole system fail to equal or exceed the standards.

There are some variations among the schools. For example, the rate in the fourth grade varies from 105 to 114 and comprehension from 11 to 21. The rate and comprehension in the Chapin Schools are uniformly lower than in the other schools. This is no doubt due to the fact that most of the children in that school come of foreign parentage. Yet the Chapin School compares favorably with the Monroe standards.

The following tables show the scores made in Winchester in 1918 and in 1920. It is interesting to note that the score in 1920 is much higher, both in rate and in comprehension, than in 1918.

Comparison of speed of silent reading.

Grades.	IV	V	VI	VII	VIII
December, 1918	83.6	84.3	113.0	112.0	98.0
May, 1920	106.6	108.7	117.7	119.0	126.4

Comparison of comprehension in silent reading.

Grades.	IV	V	VI	VII	VIII
December, 1918	12.7	14.7	20.6	21.4	22.8
May, 1920	19.0	20.5	26.4	28.5	34.0

THE STONE REASONING TEST IN ARITHMETIC.

Although no very scientific standards for reasoning ability in arithmetic have been developed, the Stone Reasoning Test is used more than any other test of this nature. The test is printed here.

(Solve as many of the following problems as you have time for; work them in order as numbered.)

1. If you buy 2 tablets at 7 cents each and a book for 65 cents, how much change should you receive from a two-dollar bill? (1.0.)

2. John sold 4 Saturday Evening Posts at 5 cents each. He kept one-half the money and with the other half he bought Sunday papers at 2 cents each. How many did he buy? (1.0.)

3. If James had 4 times as much money as George, he would have $16. How much money has George? (1.0.)

4. How many pencils can you buy for 50 cents at the rate of 2 for 5 cents? (1.0.)

5. The uniforms for a baseball nine cost $2.50 each. The shoes cost $2 a pair. What was the total cost of uniforms and shoes for the nine? (1.0.)

6. In the schools of a certain city there are 2,200 pupils; one-half are in the primary grade, one-fourth in the grammar grades, one-eighth in the high school, and the rest in the night school. How many pupils are there in the night school? (1.4.)

7. If 3½ tons of coal cost $21, what will 5½ tons cost? (1.2.)

8. A news dealer bought some magazines for $1. He sold them for $1.20, gaining 5 cents on each magazine. How many magazines were there? (1.6.)

9. A girl spent one-eighth of her money for car fare, and three times as much for clothes. Half of what she had left was 80 cents. How much money did she have at first? (2.0.)

10. Two girls receive $2.10 for making buttonholes. One makes 42, the other 28. How shall they divide the money? (2.0.)

11. Mr. Brown paid one-third of the cost of a building; Mr. Johnson paid one-half the cost. Mr. Johnson received $500 more annual rent than Mr. Brown. How much did he receive? (2.0.)

12. A freight train left Albany for New York at 6 o'clock. An express train left on the same track at 8 o'clock. It went at the rate of 40 miles an hour. At what time of day will it overtake the freight train if the freight train stops after it has gone 50 miles? (2.0.)

The time allowance is exactly 15 minutes. The problems are graded in difficulty, each problem having a score value commensurate with its difficulty. No credit was allowed for partially correct or partially complete answers.

Results of the reasoning test.

School and grades.	Pupils.	Total examples attempted.	Total examples correct.	Per cent of accuracy.	Total credits.	Average credits per pupil.	Average attempts per pupil.	Average examples right per pupil.
Clarin:								
IV	17	179	20	11.1	23.6	1.4	10.5	1.2
V	10	107	16	15.0	16.0	1.6	10.7	1.6
VI	28	283	89	31.4	90.1	3.3	10.1	3.2
VI	30	289	174	60.5	211.6	7.1	9.6	5.8
Garfield:								
IV	14	116	41	35.3	42.4	3.0	8.3	3.0
V	12	109	42	38.5	41.6	3.7	9.0	3.5
V	38	341	130	39.3	130.1	3.7	8.7	3.4
Hig[illegible]:								
I	12	113	20	17.7	19.0	1.6	9.4	1.7
M[illegible]:								
IV	12	130	40	30.7	36.8	3.1	10.8	3.3
Prescott:								
I	35	328	171	52.1	190.4	5.4	9.0	5.0
VIII-A	40	412	208	50.5	270.8	6.8	10.3	5.2
VIII-B	25	255	126	50.9	136.6	5.5	10.2	5.0
Rangeley:								
I	21	181	90	48.8	93.8	4.5	8.8	4.3
Washington:								
IV	14	97	32	33.0	31.2	2.6	7.4	2.4
V	22	151	47	31.1	49.0	2.2	6.8	2.1
Winchester:								
VI-7	40	415	258	62.1	301.6	7.6	10.4	6.5
VI-8	32	311	156	50.1	185.1	5.8	9.4	4.9
VII-5	37	395	246	62.3	283.6	7.6	10.7	6.7
VII-6	35	364	258	72.9	313.6	9.0	10.4	7.4
VIII-1	33	368	251	72.1	320.8	9.7	10.8	7.6
VIII-2	39	400	278	69.6	342.0	8.8	10.3	7.1
VIII-3	28	288	232	69.0	268.2	7.1	10.2	6.1
VIII-4	56	592	306	78.0	412.6	11.5	10.9	8.5
Wyman:								
IV	24	292	40	13.7	40.6	1.2	8.6	1.2
V	31	278	124	44.6	130.2	4.2	9.0	4.0

Grade averages in the reasoning test.

Grade.	Pupils.	Total examples attempted.	Total examples correct.	Per cent of accuracy.	Total credits.	Average credits per pupil.	Average attempts per pupil.	Average examples right per pupil.
Grade IV	123	1,111	283	25.5	290.4	2.4	9.0	2.3
Grade V	141	1,259	448	34.8	470.3	3.3	8.9	3.2
Grade VI	137	1,344	759	56.4	892	6.5	9.8	5.5
Grade VII	137	1,426	838	58.8	1,001.2	7.3	10.4	6.1
Grade VIII	146	1,528	1,067	69.4	1,344.6	9.2	10.5	7.3

Winchester compared with other communities in average credits per pupil.

Cities.	Grades.				
	IV	V	VI	VII	VIII
Winchester	2.4	3.3	6.5	7.3	9.2
Brookline, 1916	.....	4.0	6.2	.....	.....
Butte, Mont	.....	2.2	3.9	5.8	7.1
Salt Lake City	.....	3.7	6.4	8.6	10.5
Boston, 1916	.....	.....	4.4	5.6	7.6
Starch standards	1.0	1.6	3.0	4.0	6.4
Fall River, 1916	.....	.....	5.0	7.6	.....

OBSERVATIONS ON THE REASONING TEST.

Such a test as this throws light on two important phases of the arithmetic work of the schools—the rate of speed with which children solve reasoning problems and the accuracy of their work. Given the number of pupils in the classes and the number of examples attempted, and the average rate per pupil can easily be found. Given, in addition, the number of examples solved correctly, and the average of accuracy for classes, for grades, for schools, and for the entire system can be determined. The preceding tables show these facts for Winchester.

The Winchester medians are for the most part higher than any of the other scores, with the exception of the Salt Lake City scores. The Brookline and Winchester scores are practically the same.

It is noticeable that Winchester, although falling below the other communities in scores made in the fundamental operations, does relatively better than the same communities in the problem test, which requires mastery of the fundamental processes and reasoning power as well. It should also be noted that grade 8, instead of falling below grade 7, as in the Courtis tests, is now substantially above. These facts suggest that Winchester may have struck a proper balance in the amount of drill in arithmetic.

2. IN THE HIGH SCHOOL.

An attempt has been made by the survey commission to measure the results of the teaching in the Winchester High School by means of some of the tests that have lately been devised for the achievement of pupils in high-school subjects. Relatively few of these high-school tests have as yet been thoroughly standardized; and therefore the results are relatively far less significant than the results in elementary work, wherein the tests used afford norms for comparison based on the achievements of large numbers of pupils in many typical localities. Nevertheless, it was thought desirable to use as many such tests as were available and could be given without too much disturbance of the school program. In making choice among available tests the aim was, as far as possible, to select those which seemed to have the most merit for testing purposes for the type of school under investigation, giving preference, where there was opportunity for choice, to such as have been most thoroughly standardized or have been used in other surveys. Thus the results of the tests, to some extent at least, afford a means of comparing the results of teaching in Winchester High School with that in other schools.

Such comparison is useful as an end in itself; but perhaps the greatest value in the tests consists in giving the teachers experience

in their use. By such means only can teachers be thoroughly convinced of the utility of objective measurement of the results of their work. Moreover, it is only by much experience with the tests that the enthusiasm and initiative of teachers can be enlisted in the work of improving, standardizing, and extending them, so that they can be used as measuring rods for evaluating the absolute achievements of pupils, the rates of their progress in learning, and the relative merits of the different methods of instruction that may be used.

The tests were given by the teachers with the assistance and under the general direction of a member of the survey commission.

ALGEBRA TESTS.

Monroe's Standard Research Tests[1] in Algebra were given on May 4 to all pupils in the ninth grade and to the 16 pupils of the twelfth grade in the class in review algebra, those reviewing the subject in preparation for college entrance examinations.

The contents of the tests are as follows:

I. Multiplication of a binomial by a numerical factor. 30 examples typical of the 7 possible forms. 15 minutes.

II. Reduction of fractional expressions to a common denominator. 3 minutes.

III. Finding the value of x in equations of the form $\pm ax \pm b = \pm h$, leaving the result in fractional form. 27 examples. 1 minute.

IV. Transposition. 14 examples. 2 minutes.

V. Collection of terms. 14 examples. 3 minutes.

VI. Complete solution of simple equations. 11 examples. 12 minutes.

The first four tests were given on one day, and the last two on the following day. The tests were scored by the teachers, and the report blanks filled according to the printed directions accompanying the score sheets. The collective results are presented in the tables which follow.

[1] For more detailed information about these tests, see Monroe, De Voss, and Kelly, Educational Measurements, Houghton, Mifflin Co., 1917, pp 224–33. Also School Review, 23: 159–71.

Monroe's Standard Research Tests in Algebra. (Speed.) Grade IX.

Number attempted.	Tests. I	II	III	IV	V	VI
0		2	0	0	0	2
1		23	0	0	0	2
2		4	2	1	1	2
3		12	5	1	0	4
4	5	9	5	1	3	2
5	1	21	10	1	1	7
6	0	9	6	2	4	10
7	1	2	4	10	5	7
8	2	2	5	3	7	10
9	7	0	5	9	8	8
10	5	0	8	9	7	9
11	2	0	4	2	11	0
12	4	0	3	0	7	0
13	11	0	3	1	1	0
14	6	0	2	2	3	0
15	2	0	4	0	0	6
16	4	0	0	0	0	0
17	3	0	0	0	0	0
18	1	0	1	0	0	0
19	1	0	0	0	0	0
20	1	0	0	0	0	0
21-27	0	0	0	0	0	0
Total	63	63	63	63	62	61
Median W. H. S.	12.7	5.1	7.0	8.1	9.7	7.4
Standard	12.5	4.6	9.0	8.8	10.7	7.7
Difference	+0.2	+0.5	−1.1	−0.7	−1.0	−0.3

Monroe Standard Research Tests in Algebra. (Accuracy, per cent correct.) Grade IX.

Per cent correct.	Tests. I.	II.	III.	IV.	V.	VI.
100	30	1	35	33	8	0
90-99	11	0	2	2	12	0
80-89	3	2	5	12	13	0
70-79	7	1	2	6	8	0
60-69	0	6	4	2	5	2
50-59	1	5	2	1	8	8
40-49	0	2	0	0	2	8
30-39	2	6	3	0	0	4
20-29	5	9	1	1	1	6
10-19	0	1	1	1	0	10
0-9	2	30	8	3	5	30
Total	63	63	63	63	62	63
Median W. H. S.	98.6	20.6	100	100	81.5	11.5
Standard	96.0	39.0	100	96	77.0	32.0
Difference	+2.6	−18.4	0	+4	+4.5	−20.5

Monroe's Standard Research Tests in Algebra. (Speed, number attempted.) Grade XII.

Number correct.	Tests. I	II	III	IV	V	VI
2		2				
3		1				
4		5				
5		0				1
6		2	1	2		2
7		2	1	1		3
8		1	0	4	1	4
9			2	3	1	3
10	1		2	1	1	2
11	1		1	2	2	0
12	0		0	2	3	1
13	1		2	0	3	
14	0		3	2	5	
15	2		1			
16	4		0			
17	1		0			
18	2		2			
19	1		0			
20	1		1			
21	0					
22	0					
23	1					
24	1					
Total	16	16	16	16	16	16
Median W. H. S.	16.7	5.0	13.5	9.7	13.0	8.5
Standard G. IX	14.5	5.4	11.5	10.2	11.2	8.3
Difference	+2.2	−0.4	+2.0	−0.5	+1.8	+0.2

Monroe's Standard Research Tests in Algebra. (Accuracy, per cent correct.) Grade XII.

Per cent correct.	Tests. I	II	III	IV	V	VI
100	9	0	11	10	3	0
90-99	4	0	2	3	6	1
80-89	2	2	1	2	7	0
70-79	1	5	0	0	0	2
60-69	0	2	0	1	0	2
50-59	0	2	0	0	0	3
40-49	0	0	1	0	0	2
30-39	0	0	1	0	0	3
20-29	0	2	0	0	0	1
10-19	0	0	0	0	0	0
0-9	0	3	0	0	0	2
Total	16	16	16	16	16	16
Median W. H. S.	100	65	100	100	91.7	50
Standard G. IX	96	39	100	96	77	32
Differences	+4.0	+26.0	0	+4.0	+14.7	+18.0

By comparing the medium speeds of the 63 ninth-grade algebra pupils in Winchester High School with Monroe's standard median it will be seen that the median Winchester speed is nearly the same as the median speed of the 2,000 pupils in 24 cities from whose scores

the standard medians are derived. The tendency of Winchester pupils is to work one less example in Test III, finding the value of x, and to work one less in Test V, collecting terms. In the other tests, the differences are fractional, two being lower and two higher than the norm.

In accuracy Winchester makes a good showing on the four easier tests and a very poor showing on the two most difficult ones—II, reduction of fractions, and VI, complete solution of simple equations. In each of these two tests 30 pupils out of 65, or nearly half, were unable to solve correctly more than 1 example out of every 10 that they attempted. Considering the easy character of these examples and notwithstanding the fine limits, which, of course, were applied to all the 9,000 pupils with whom they are compared, these pupils have shown themselves to be very inaccurate in doing the relatively more difficult work.

It is, of course, too late for any suggestions from the committee for applying remedies in the case of this class; but precautions may be indicated which may prevent a repetition of these deficiencies next year.

1. Use similar tests at frequent intervals, study individual papers, diagnose weaknesses, and prescribe and enforce an adequate amount of corrective practice and rapid drill with many easy examples involving the processes in which the students prove themselves to be weak. By using Monroe's examples as models, the teacher can make up examples that are like them, but with different letters and numerical factors. These will have approximately the same degree of difficulty and the same formsas the examples of the original tests.

2. Make three recitation sections in algebra in place of the two oversized ones; and as far as the limitation of the school-time schedule will admit, group the "fast" pupils in one, the "medium" pupils in another, and the "slow" pupils in the third. Adapt the subject matter, the methods and the speed in each group to the median ability of the group, and shift pupils from one group to another when it is found that they will do better work in consequence of such a shift. This plan might be more easily feasible if the division were made at the beginning of the year on the basis of the results of a group test of general intelligence, such as the Army Test or the Otis Test or the Haggerty Test, and the three-group principle applied in all studies in which the members enrolled are large enough.

Besides being useful in measuring the results of teaching and testing methods and devices, these objective tests, like the Courtis arithmetic test, should find perhaps their greatest usefulness as a means of diagnosing the deficiencies of individual pupils, so both teacher and pupil may know in just what processes the pupil's weaknesses lie. When this is known additional practice on the processes wherein he is deficient may be provided for him. He will then have

a strong incentive to correct by intensive application the lack of specific skills which cause his general weakness.

Comparison of the median speeds of the Winchester senior review pupils with Monroe's ninth-grade standards shows that the median speeds for the various tests are very close to the ninth-grade standards. They slightly exceed the standard median speed in I, multiplication of binomials by single numerical factors; in III, finding the value of x in equation of the form $x = a - b$; in V, collection of terms; and in VI, the complete solution of simple equations. They fall slightly below in speed in II, reduction of fractions to a common denominator, and in IV, transposition. With all these operations there are wide and not at all irregular variations among them in speed.

With regard to accuracy these seniors attain median grades of 100 per cent in the three easiest tests, I, III, and IV; but more than half of them are 100 per cent accurate on the examples attempted in these processes.

In V, the next hardest, the median accuracy is 91.7 per cent. In II and VI, the most difficult, their median accuracy as expressed in per cent correct of those attempted exceeds median ninth-grade accuracy by 26 and 18, respectively.

It is not surprising that seniors do better than ninth graders. They should be expected to. Three years of high-school training should do much for them. So should three years of growth and general experience. Besides that, there are only 16 in the class; so they should get the benefit of approximately 50 per cent more individual attention than can be given to an ordinary sized ninth-grade class, while yet these numbers are sufficient to insure group enthusiasm. Finally, all this being allowed, there is a presumably still greater factor to be considered. Probably most of the bunglers and incompetents have been eliminated. Not all these have dropped out, however. The distribution table shows that 3 out of the 16 attained less than 10 per cent accuracy in reducing fractions. That is, if these 3 attempted 10, they got 1 right.

With regard to the senior review class, then, the test has informed us that the seniors who have taken the review work are much more accurate than the ninth graders, but only a very little better in speed.

It would be interesting and instructive next year for the teacher of this class to give the test to *all* the seniors and to learn by a comparison of median grades for the practiced and unpracticed groups just how much of the improvement of the senior-algebra students is due to the instruction of the review class and how much to the other factors mentioned.

The defective point of the Monroe tests from the standpoint of testing ability in algebra is that it tests only the abilities in processes

that should be reduced to automatism. There are in it no problems that require the application of algebraic principles to the solution of problems. They do not measure thinking power except in so far as automatic expertness in manipulating algebraic symbols correlates with thinking power.

HENMON'S LATIN TESTS.[a]

Vocabulary Test A and Sentence Test I were selected. Test A is one of four equally difficult tests any one of which may be chosen. It contains 50 Latin words the English equivalents of which are to be given by the pupil. These are selected from 239 words that are common to 13 beginner's Latin books and also to Caesar, Cicero, and Virgil. Each word is assigned a scale value according to its difficulty, as determined by the percentage of a large number of pupils who translated it correctly, taking into account the distribution of the pupils in ability according to the normal probability curve. The words are arranged in the order of their increasing difficulties or scale values from *bellum* (0.04) to *quisque* (4.7). Perfect score 107. Sentence Test I consists of 10 easy Latin sentences to be translated into English. They contain no word not included in the list of 239 words above mentioned. Each sentence is assigned a scale value according to its difficulty ranging from "*Ubi sunt copiae hostium*"? (1.0) to *Velim fratrem tuum moneas, ne nos relinquat* (4.6). They increase in difficulty or scale value by steps of 0.4. Perfect score 28.0.

These two Latin tests were given to the pupils of all Latin classes in the four high-school grades on Tuesday, May 5. The time to be allowed has not been standardized, but following Prof. Henmon's suggestion 10 minutes were allowed for the vocabulary test and 15 minutes for the sentence test. These allotments proved to be sufficient. The results are given in the table below.

Henmon's Latin tests.

	Grade IX.	Grade X.	Grade XI.	Grade XII.
VOCABULARY TEST A.				
Median number correct:				
Winchester High School	36.0	44.0	47.0	48.3
Henmon's Standards	33.0	39.0	44.0	45.0
Median per cent correct:				
Winchester High School	72.0	88.0	94.0	96.6
Henmon's Standards	66.0	78.0	88.0	90.0
Median sum of scale values:				
Winchester High School	70.3	87.2	98.7	101.8
Henmon's Standards	71.0	84.0	95.0	97.0
SENTENCE TEST I.				
Median sum of scale values:				
Winchester High School	14.6	20.0	26.2	26.5
Henmon's Standards	10.5	13.8	18.2	21.0
Median percentages:				
Winchester High School	48.6	71.4	93.6	94.6
Henmon's Standards	23.6	49.3	65.1	[illegible]

[a] These tests and their derivation and uses are fully described in the Journal of Educational Psychology, 8: 515–38, 580–89, Nov.–Dec., 1913. They are on sale by Dr. V. A. C. Henmon, University of Wisconsin, Madison, Wis.

From a glance at the results two facts are apparent:

1. There is a consistent increase in median ability in both tests from the ninth graders to the seniors, as there should be, indicating steadily growing power in the classes from grade to grade in both vocabulary and translation.

2. In each of the four grades the median ability of the Winchester pupils, as measured by the tests, is distinctly higher than the median ability of the corresponding grade in about a score of high schools on the achievements of whose pupils the standards are based. There is a slight exception in the case of the median sum of scale values in vocabulary in the ninth grade; but the discrepancy is small and may be accidental or might be reversed in another test or with a larger number of pupils. Another interesting feature is that the superiority of the Winchester pupils with respect to the standards is noticeably greater in the case of the sentence test than in that of the vocabulary test. In other words, they are superior in the higher and more significant kind of ability. As is usual there were wide variations among the scores of the individual pupils, some making scores far above the median and others far below it. Incidentally, an interesting fact with reference to the influence of textbooks turned up in connection with the tests. The first-grade girls are segregated from the boys and use a text which stresses vocabulary work, while the boys use another text which stresses sentence work. Both groups ran true to form, the girls doing better than the boys with the vocabulary test and the boys better than the girls with the sentence test. This might be interpreted as a sex difference, if the books used in the two classes had been the same; but even in that case it could not be accepted as a conclusion without further testing.

To the extent then that these tests are valid in measuring efficiency in the teaching of Latin the results are quite positively creditable to the present conduct of that department of the school work. This should be gratifying to the administration and the community, because in the recent past complaints have been made about the teaching of this subject; and these complaints seem to have been founded on some really existing defects in the teaching. Of these, the relatively high percentage of eliminations and failures in that subject shown in a foregoing table give a noteworthy indication. The test indicates that the changes made to remedy this condition have been effective.

HANDSCHIN'S FRENCH AND SPANISH TESTS.[1]

Previous to the survey, the teachers of French and Spanish had ordered and received the silent reading tests in these languages,

[1] These tests may be purchased from the World Book Co., Yonkers, N. Y.

designed by Prof. Handschin, of Miami University, Oxford, Ohio. One of these tests had been given previous to the survey, and the other was given during the progress of the field work. These tests are modeled after the Kansas Silent Reading Test, and consist of problematic questions—42 in French in the one case, and 44 in Spanish in the other. Each question is to be answered by a single word in French or Spanish, according to the language of the test, and therefor each answer is marked either right or wrong. They are not yet standardized by the evaluations of the questions, so the teacher is directed to assign 3 points to each correct answer. Perfect score for French, 36; for Spanish, 42.

The following table gives the median scores:

Handschin's French and Spanish Tests, Winchester High School.

Subject.	Grade.	Pupils.	Median.	Points made by correct answers.
French A	Tenth	11	4	
French A	Tenth	16	5	
French B	Tenth	13	6	
French B	Eleventh	18	3	
Spanish A	Tenth	6	1	
Spanish B	Tenth	3	3	
Spanish B	Eleventh	9	0	
Standard[1]				
Standard[2]				

[1] Handschin's tentative standard for first-year French, 9th grade.
[2] Handschin's tentative standard for first-year Spanish, 9th grade.

It should be noted that the Handschin tentative standards are for the ninth-grade pupils in first-year French or Spanish, while these pupils who are in their first year's study of these languages are in the tenth grade, and therefore approximately a year older than those on whose achievements the standards are based. Also second-year pupils in both languages are included, and these are in the eleventh grade. The standards are not very significant, being based on the achievement of only a few pupils.

It will be seen that, of the three sections in first-year French, the median of one equals the tentative standard for the ninth grade, while one is higher and the third is lower. That in the second-year or eleventh-grade French is *double* the ninth-grade standard.

In Spanish one tenth-grade first-year section makes a median score above the tentative standard, and the other first-year section and the second-year section are two points below the standard. These results do not seem to point to any significant interpretations as to the

general quality of the teaching, but they suggest several pertinent queries for which the teachers should endeavor to find answers:

1. Why did French 1C section do nearly 25 per cent better than French 1B (whose performance was equal to the tentative standard), while French 1A did 16⅔ per cent worse than 1B?

2. Why does Spanish 1A section do 20 per cent better than Spanish 1B? It is one point above the Handschin's tentative median, while 1B is two points below.

3. The median performance of French 1A, with its extra year of study, is just about double the median performance of the three first year sections taken collectively; a superiority of 100 per sent from one year to the next is rather unusual with most tests. What are the causes of it? How, if possible, may the teacher take advantage of the underlying causes of this success in planning to improve next year's work?

4. Why have the second-year Spanish pupils done no better than the first-year Spanish pupils?

These questions suggests the value of such tests in diagnosis.

SACKETT'S SCALE IN UNITED STATES HISTORY.

This test was given to the 15 pupils of the senior class in American history and civics.

Test I calls for the reason for the historic importance of each of 10 dates. Time, 4 minutes.

Test II gives the names of 10 men, and the pupil is required to indicate for what each was celebrated. Time, 5 minutes.

Test III names 10 historic events of importance, and the pupil is asked to give the name of the man prominently connected with each. Time, 3 minutes.

Test IV lists 10 important historical terms, such as second Continental Congress, Dred Scott Decision, etc.; and the pupil is asked to define each in a short sentence. Time, 7 minutes.

Test V asks the pupil to make a list of all the political parties that have arisen in the United States since the Revolution, and to state the principle advocated by each. Time, 5 minutes.

Test VI asks the student to indicate the great decisions or epochs of United States history. Time, 5 minutes.

Test VII presents an outline map of the United States on which the pupil is to draw the land boundaries at the close of the Revolution, and indicate, by drawing boundaries and naming, what have been the various acquisitions of territory since that date. Time, 5 minutes.

Sackett's Scale in United States History, Grade XII.

Score	Number of pupils making score indicated.						
	Test I.	Test II.	Test III.	Test IV.	Test V.	Test VI.	Test VII.
350 and above			1				
340–349				2			
330–339				1			
320–329			1	1		1	
310–319				3		1	
300–309			2	1			
290–299	1		1			1	
280–289	1	1		1			
270–279		1	3				
260–269	1	1	2				
250–259		2		2	2		
240–249	1		2			2	
230–239	1	1	1	2	1		
220–229	1	1	2	1			
210–219	3	1	1	1	10		
200–209	1	3	0	1		9	
190–199	3	1	1	2	2		
180–189	2		1	3			
170–179	3	1		1	3		
160–169	1	3	2	3		3	
150–159	2	1	1	2			
140–149	1	1		3			
130–139		2	1	1			
120–129	2		2		1		
110–119	0	2	2	1			
100–109	2	2			5		
90–99	2	2	2	1		1	
80–89	1	3	2	1	3		
70–79	2	1	3	3			
60–69	1	1	1		3		
50–59		2					
40–49	1	1	2	2	1		
30–39	1	3	3	1			
20–29		2		1		1	
10–19							
0–9		1				4	
Total	45	45	45	45	45	45	4
Median	113.7	65	145	168.3	136.9	200.9	1
University median	151	179	126	171	142	367	1
Normal school	140	176	151	152	134	203	
High school	90	121	109	97	109	141	

Directions for conducting and scoring the test are given on the front and back pages of the pamphlet.[1]

The results of this test, given in the accompanying tables, show the usual wide variations in the scores. They show also that the performance of this class is far above the median high-school senior's performance, as expressed by Sackett's standards.

In Test V on political parties the median score of Winchester exceeds (by 149 points out of a possible 431) the median score of the 757 university students on which the university standards are based.

In Test III the Winchester median exceeds that of the university students, but is less than that of the 207 normal school students, who in this test stand highest.

In Test IV, VI, and VII the Winchester medians are higher than those of the normal school students but lower than those of the university students.

[1] For full accounts of this test see Jour. Educ. Psych., 10: 345–15, Sept.–Oct., 1919; 8: 267–74, May, 1917. They are on sale by Bu. Educ. Research, Univ. of Ill., Urbana, Ill.

In Tests I and II the medians for Winchester lie between those for the normal schools and those for the high schools, and are nearer the former than the latter. The high-school medians are based on the performance of 668 pupils.

These results are very creditable to the school and indicate live teaching of history.

THURSTONE'S PHYSICS TEST I.[1]

This is one of a series of tests designed by a committee of the Society for the Promotion of Engineering Education to replace the ordinary college entrance examination and to serve as a part basis for educational and vocational guidance after the student has matriculated.

It consists of 25 problems, each of which requires knowledge of an important principle of physics and the ability to think straight. The problems are simple and at the same time very interesting. They constitute an excellent test of general mental proficiency in this subject.

The time allowed is 30 minutes, and there are more problems than any but a very exceptional student might be expected to solve in that time.

Every answer is marked either right or wrong, and each problem correctly solved counts one point.

The problems have not yet been evaluated and standardized as to difficulty, and no speed norms have yet been determined.

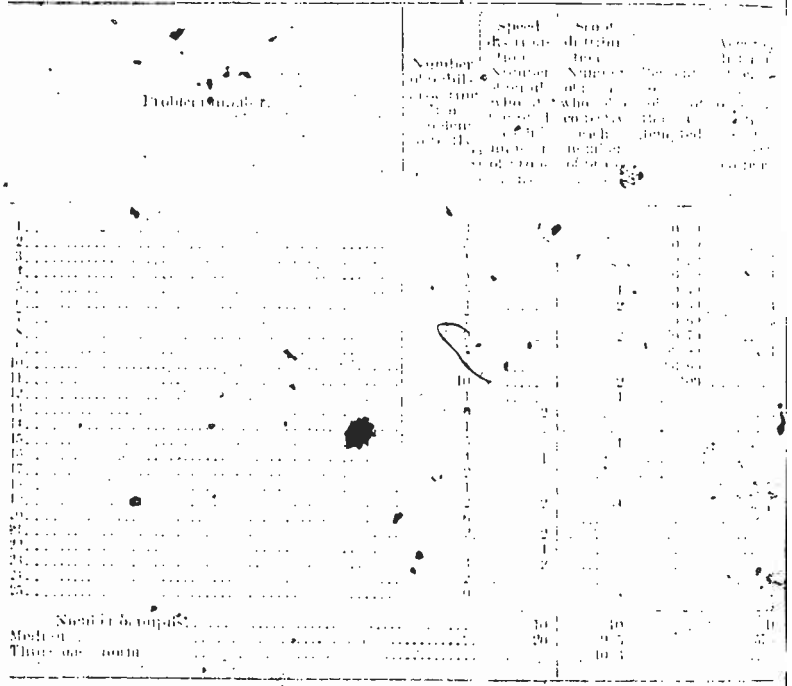
The table which follows shows the performance of the senior class of 10 boys on this test.

It tells for each problem the number out of the 10 boys who solved it correctly. It also gives the speed and accuracy distributions for the 10 boys.

The median score for the Winchester class is 9.5 problems solved correctly in 30 minutes. Thurstone's norm, taken from his curve for 472 college freshmen and candidates for college entrance, is 10.3. As a matter of fact, half the boys did 11 or better, i.e., 1½ more than the theoretical median. We may say, therefore, that this group of boys, as a group, did nearly or quite as well as the 472 on whose performance the norm is based, half of them ranking in the better half of the distribution of the 472 and half of them in the poorer half of this distribution.

[1] These tests can be bought from Prof. L. L. Thurstone, Carnegie Institute of Technology, Pittsburgh, Pa.
The problems are republished in School Science and Mathematics for February, 1920.

THURSTONE'S PHYSICS TEST V. GRADE XII.



This means that they make a satisfactory showing among the candidates for admission to engineering colleges from other schools. This achievement is on the basis of a much fairer and more efficient test than those usually given for college entrance. That it is a superior test was evidenced by the reaction to it of the boys themselves. They entered into it with zest, and expressed themselves as greatly pleased with it and interested by it. That they were sincere can not be questioned, for after time was called they remained in the room with the member of the commission and the teacher, enthusiastically discussing the different problems until the latter was obliged to send them away to their other work. They agreed quite positively and wholly spontaneously that this was a much fairer type of test of ability than the eastern college examinations; and they have a good basis for judgment, for the college entrance questions are used frequently as a basis for practice and testing during and near the close of the year.

THE ENGLISH COMPOSITION TEST.

A topic of general interest to the pupils was assigned without warning when they appeared in their English classrooms on May 7.

The time given was 40 minutes. The teachers who had previous experience in the use of Thorndike's extension of the well-known Hillegas "Scale for the Measurement of Quality in English Compositions by Young People," scored the papers. The Nassau County extension of the Hillegas Scale, by Trabue, was used. This scale was elected because it has been used in several other surveys, and therefore gave a wider basis for comparison.

The annexed table gives the results. The steps of the scale are printed in the left-hand column, and the number of pupils whose compositions were assigned each of the scale values is given in the successive columns of the right of it. These are distributed by grades, the totals for each grade and for the school being given in the last five columns. In the columns 2 to 9, each of the four-grade distributions is segregated into two groups—those in the commercial and the general curriculum, and those in the college and the technical preparatory curriculum. This enables a comparison to be made between the college preparatory and the noncollege preparatory groups as to their ability in composition as measured by the scale.[1]

Ladder of composition—Numbers of pupils who wrote compositions of the qualities indicated at left.

Composition quality.	Grades.												
	IX.		X		XI		XII		IX	X	XI	XII	
	Commercial, general.	College, technical.	Commercial, general.	College, technical.	Commercial, general.	College, technical.	Commercial, general.	College, technical.	Total.	Total.	Total.		
8	1							1	1			1	
7	26	10	1	1	3				36	2	3		
6	26	28	30	14	21	7	10	3	54	44	28	13	139
5	3	10	10	12	6	14	15	13	13	22	22	28	85
4	2			1	3		4	6	2	1	3	9	15
Total	58	48	41	28	35	21	29	22	106	69	56	51	281
Winchester High School	5.58	6.05	6.22	6.39	6.41	6.85	6.90	6.94	5.93	6.31	6.48	6.89	
St. Paul, Minn.									5.83	5.66	6.27	6.61	
Mobile, Ala.									6.09	6.93	7.24	7.51	
Mobile Co., Ala.									5.56	6.38	6.05	6.77	
Nassau Co., N. Y.									5.00	5.25	5.68	5.91	
So. River, N. Y.									5.18	5.02	5.95	6.30	
Trabue's Standards									6.00	6.50	6.90	7.20	

[1] For a full account of this scale see "Supplementing the Hillegas Scale," published by Teachers' College, Columbia University, N. Y., Bureau of Publications. This scale, the Hillegas Scale, and the Thorndike Extension of the Hillegas Scale, may be purchased from the same bureau.

The table reveals the following facts:

1. Of the ninth and twelfth grade pupils, the range in quality is from 3.8 (about fifth grade ability) by 1 pupil to 8 by 2 pupils. The range in the tenth and eleventh grades is from 5 to 8. Out of 281 pupils, 180, or 64 per cent, wrote compositions of quality 5 or 6; of the seniors 37 out of 51, or 72.6 per cent, attained quality 7.2 or 8.

2. Quality 7.2 was attained by 12.3 per cent of the ninth grade, 31.9 per cent of the tenth grade, 39.3 per cent of the eleventh grade, and 55 per cent of the seniors.

3. Quality 8 was attained by 1.8 per cent of the ninth grade, 1.4 per cent of the tenth grade, 5.4 per cent of the eleventh grade, and 17.6 per cent of the seniors.

4. The median ability of the Winchester pupils as judged by their teachers is very close to that of the St. Paul high school pupils as judged by Dr. Trabue and his assistants. The median scores of the eleventh and twelfth grades in Winchester are a little higher than those of the corresponding grades in the St. Paul high school, and that of the tenth grade a little lower. No pupil in either Winchester or St. Paul reached quality 9. The scores of Mobile, Ala., are much higher than those of St. Paul or Winchester, both of which are below Trabue's "Reasonable Standards."

5. The college preparatory pupils in all four grades are distinctly better than the commercial and technical in composition ability. This is what high-school teachers generally would have expected to find. It probably is due to the fact that on the whole the college-bound group have more intellectual capacity and more ambition than the others.

6. On the whole, the test shows that the results of the teaching of English composition in Winchester are about as good as the average elsewhere, and no better. This accords with the judgment made by observing the class work. While the teaching was good all along the line, and was especially to be commended for the care taken in cultivating good English in oral speech, no outstanding feature of very superior quality of work was observed; nor was there any evidence of unusual enthusiasm for literary study in any of the classes. It was just good, conscientious work.

TESTS IN TYPEWRITING.

In the commercial department the standard commercial tests of the Remington and Underwood Companies are given at frequent intervals throughout the year, both for practice and for rating. Tests were witnessed during the survey by a member of the commission.

The teacher keeps a record of the scores made, and uses them not only for diagnoses, conference, and advice, but also for grading in connection with promotions. It is the practice to promote unconditionally only those who actually make such progress that they can meet commercial requirements. Pupils who do faithful work but are below these requirements are given credit for graduation, but are shifted to other subjects and are not allowed to go on in typewriting. The same rule is applied in bookkeeping. As these courses are frankly vocational, this policy is obviously a good one.

Too many schools turn out pupils with commercial diplomas who are not capable of doing the kind of work for which they apply. This discredits the school; and it also makes waste of time and money for both employee and employer.

The following tables showing the progress of the eleventh and twelfth grade pupils in typewriting have been compiled from the individual records furnished by the teacher:

Progress of the eleventh and twelfth grades in typewriting.

Juniors (15)—80 practice periods.						Seniors (15)—100 practice periods.					
November.		April.			Rank in gain.	September.		April.			Rank in gain.
Scores.	Rank.	Scores.	Rank.	Gains.		Scores.	Rank.	Scores.	Rank.	Gains.	
[illegible]	1	34	[illegible]	6	6	54	1	59	2	5	7
[illegible]	2½	45	1	19	1	46	2½	60	1	14	2½
[illegible]	2½	39	2	13	3½	46	2½	49	4½	3	9½
[illegible]	2½	30	5½	4	8	43	3	45	6	2	10
[illegible]	3	30	3½	5	7½	41	4½	49	4½	8	4
[illegible]	4	26	7	3	9	41	4½	44	6	3	9½
22	5	37	3	15	2	40	5½	54	3	14	2½
21	6	34	4½	13	3½	40	5½	40	4½	9	3
20	7½	28	6	8	4½	28	6	42	7	4	8½
20	7½	25	8½	5	7½	37	7½	40	8	3	9½
[illegible]	7½	25	8½	5	7½	37	7½	37	10	0	11
18	8½	25	8½	7	5½	35	8	39	9½	4	8½
18	8½	25	8½	7	5½	33	9	30	9½	6	6
17	9	15	10	2	10	32	10	39	9½	7	5
16	10	24	9	8	4½	22	11	39	9½	17	1
Medians, 21	......	28	......	7	......	40	......	44	......	5	......

The time given for each standard test is 10 minutes. The minimum commercial standard is a rate of 40 words per minute sustained for 10 minutes with a maximum of 10 mistakes. The rules of contest and the printed test materials are those adopted by the Remington and Underwood Companies for their well-known international contests.

The score is found by counting the number of words written, deducting 10 for every mistake, and dividing the result by 10. This gives the number of words per minute, with the penalty for mistakes applied. The minimum standard is a rate of 40 words per minute on new material sustained for 10 minutes, with a maximum

limit of 10 mistakes. The progress of the juniors was the result of 80 practice periods (40 minutes) and that of the seniors of 100 practice periods. It will be seen from the tables that the median junior score for the November test was 21 words per minute and the median gain made was 7 words per minute, while for the seniors the median September score was 40 words per minute and the median gain was 5 words per minute.

The final median scores were: Juniors 28 words per minute, and seniors 44 words per minute. Comparing the juniors with the standard it is seen that all of them started below the standard on the November test, but that after 80 practice periods one of them passed the standard and six advanced to between 30 and 40.

The seniors started in the September test with 8 scores of 40 or higher, the highest being 54, and after 100 practice periods 10 of them reached or surpassed the standard of 40 words per minute and of the remaining 5, 1 was 3 words below and 4 were only 1 word below.

This seems to indicate very satisfactory work, which in the judgment of the commission was to be expected from what they observed as to the methods of teaching.

While the results of these studies with the use of tests are far from ideal as means of judging the quality of the teaching, yet they seem to confirm the judgments of the commission, based on observation and on the other criteria used in this report.

Probably, however, they should be most useful in inciting the teachers of Winchester and neighboring schools of the same class to cooperate in thir use, and in comparing the efficiency of teaching methods by means of them and of others that are found to be applicable.

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