

A STUDY OF THE PROGRESS OF PUPILS
AND OF THEIR ABILITY IN ENGLISH COMPOSITION AND HANDWRITING
IN THE PUBLIC SCHOOLS OF LEXINGTON, VIRGINIA

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Thesis submitted in partial fulfillment of the
requirements for the degree of Master of Arts in the
Department of Education, Washington and Lee University.

Lexington, Virginia

May, 1924

The Lexington School Survey

1. General Introduction.

1. Importance Attached to School Surveys.
2. The Aims of Educational Surveys.
3. The Aims of the Lexington Survey.
4. Scope of the Lexington Survey.
5. Administration.

Part One

A Study of the Progress of Pupils and of their Ability
in English Composition and Handwriting in the Public
Schools of Lexington, Virginia.

11. Introduction.

111. Progress of Pupils.

A. Enrollment.

1. How far Pupils Progress in the School Course.

B. Progress of the Pupils Through the Grades.

1. How Pupils Are Grouped in the School Course.
2. How Regularly Pupils Progress.

C. Summary and Conclusions.

D. Recommendations.

IV. English Composition.

A. Administration of Test and Training of Scorers.

B. Examination of Results.

1. The School as a Whole.

2. The First Year High School.

C. Summary and Conclusions.

D. Recommendations.

V. Handwriting.

A. Administration and Scoring of the Test.

B. Measures of Quality of Handwriting.

C. Measures of Rate of Handwriting.

D. Recommendations.

THE LEXINGTON SCHOOL SURVEY

1 General Introduction

1. Importance Attached to School Surveys

The idea of the school survey has outlived the day when a volume needs to be written in its defense or extended propaganda conducted to persuade unwilling school officials to participate in a survey. The idea itself has been tried and accepted by progressive thought, the only discussion being centered around what shall be the special objectives of particular surveys. The rationalistic movement and scientific attitude are subjecting all institutions to the test of reason. They are being tried in the balance and must justify the continued faith of mankind in them, if they are not to be found wanting. Among the institutions that appear to be bearing the brunt of the attack stands the school system, which in ever changing form dates back with man into the dim past. Yet antiquity far from rendering the school immune from attack is itself regarded as one of its most patent weaknesses and worst handicaps. Among school men, therefore, has originated a movement to meet these criticisms and at the same time to remove their cause. As sympathetic and understanding friends of the schools they are examining them to ascertain how far criticism is merited, how far the school lives up to its mission and how far it falls short. It is a period of stock taking, and the only result can be, first, a higher valuation of the good in the schools and second, a clearer vision of their short comings and their cure.

The school survey is the most efficient agency within our reach for taking stock of a school or of a system of schools. Official recognition of the survey movement was made in the reports (1) of the Commissioner of Education for the years of 1914 and 1915, in which appeared the first two reports of school surveys in the United States. Since the early beginnings the survey movement has had a wide growth, and not a little literature has been published on the subject. In an extensively used text on educational administration appears this statement: "The numerous surveys of city school systems which have been made within the past five years, the frequent discussions of the question of standards in educational meetings, and the labors of many workers in attempting to evolve tentative standards for measurement and units of accomplishment, are all manifestations of this new movement". (2) With all activities turned into the channels of fighting during the war years, there was a lull in pushing forward new surveys, but with the cessation of hostilities, the schools faced the added problems of reconstruction, and the survey came to the fore as the means of meeting these problems. The survey has justified the belief reposed in it. Dr. Edward F. Buchner writing on the subject of Educational Surveys says: "The continuance of the belief in the survey as an agency of educational progress and the full recovery of the movement after its war-time interruption are equally manifested by the increase in the number of reports appearing during the biennium of 1920-1922, and by the increase in the number of surveying agencies participating in this type of work." (3)

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- (1) Report of Com. of Education for year ending June 30, 1914, Ch. XXIV, vol. 1 pp. 513-562, and also June 30, 1915, Ch. XVII, Vol. 1, pp. 443-492
(2) E. P. Cubberley, "School Administration", 1922, Ch. XLX, p. 325.
(3) U.S. Bu. of Educ. Bul., 1923, No. 17, p. 2.

In a report of the Bureau of Education for these years are listed not less than ten state surveys and Hawaii, county surveys in six states, and twenty-three city surveys. A further discussion is not necessary to show the importance attached at the present to surveys.

2. The Aims of Educational Surveys

How much is undertaken in a survey depends largely upon the money available, the particular problems which it is desired to investigate, the time at the disposal of the investigators, and similar conditions. Among the commonest aims might be mentioned the following: (1) a study of the school plant, (2) a study of the organization of the system, (3) problems of enrollment, attendance and progress of pupils, (4) a study of the composition of the teaching force, (5) the needs and efficiency of special types of education, (6) the measurement of the results of instruction by standard tests, (7) the establishment of standards of accomplishment for subordinate units, etc. A survey then may mean as thorough an over hauling of the entire school as is locally desired. All these points may be summarized as having two ends in view: (1) a diagnosis of the strong and weak points of the school, and (2) suggestions of the lines along which conditions may be improved.

3. The Aims of the Lexington Survey

The projects undertaken by the local survey are by no means ambitious, but an attempt has been made to do thoroughly what was undertaken.

The survey was carried out with a view to: (1) studying the schoolroom organization and classification of pupils in the system, and (2) measuring the results of instruction in certain subjects of the curriculum by standard tests.

The studies under the first of these were from two standpoints, age distributions and intelligence. The results of the first are found in Part 1 of the survey. The relation between the organization and grading upon the pupils and upon the teachers' problems are presented in some detail in a series of tables with their interpretation. Suggestions for needed improvement in the light of these age complications are made. The distribution of the enrollment is seen also to affect and be affected by the organization. In Part 2 the same problems are taken up from the point of intelligence or native ability of the pupils. How wide is the range of mental ability in a single grade? To what extent are children with a high I.Q. in grades below the one for which their native mental equipment and ability fit them? What per cent of our pupils are not putting forth their best efforts because of being graded with a retarded class? These and other such questions are the ones which will be considered.

The second aim was pursued by testing the children of the school by using standardized educational tests. In this way we have secured objective results showing the efficiency of instruction and the educational progress of the children, without the fear that our marks have been matters of judgment. These tests were carefully selected so that they would conform with those used in the Virginia Survey in 1919 and therefore would afford a basis by which Lexington could be compared with other schools in the state.

In addition, of course, comparison and contrast is made with national standards.

4. Scope of the Lexington Survey

(a) The Schools

The Lexington Public Schools have an enrollment of three hundred and ninety four pupils, of whom two hundred and eighty one are in the elementary school and one hundred and thirteen in the high school. The elementary grades are housed in a separate building from the high school, having their own building principal. Both schools are under the principalship of Prof. Harrington Waddell, who teaches ~~Special~~ advanced Mathematics in the high school. The system was originally organized on the Virginia plan of seven elementary grades. About four years ago a situation arose which caused the Board to provide an eighth grade. Many out-of-town children of the Central District were attempting to enter the Lexington High School without being properly trained to do the work. Principally on their account an eighth grade was started to which they were sent for a year before being allowed to enter the high school. Having the grade, the authorities also put into it the graduates of the seventh grade whose low marks indicated that they would find high school work too difficult. Just how many of the seventh grade were retained for the eighth, and what the distinguishing mark was, varied from year to year until now almost the entire number is passed to this grade instead of to the high school.

Thus there evolved a twelve grade organization , in which very bright pupils are allowed to skip the eighth grade. Age retardation in the high school is probably the result of the forming of this grade within the period of the school-life of these children. There are seven teachers in the elementary school, one teacher instructing the pupils of both the first and second grades. There are four regular teachers in the high school exclusive of the principal.

(b) Character of the Tests

Standardized tests were used throughout, and the examinations conducted as strictly in accord with the written instructions for them as possible. As was indicated, most of these tests were those used in the state survey. The local authorities have felt that the most emphasis should be placed on written English, with a large amount of time in the elementary school also placed upon arithmetic. Hence these tests featured. The following is a complete list of the intelligence and achievement tests used in the survey:

Subject	Name of Test or Scale Used	In Grades
Intelligence	Terman Group Test of Mental Ability, Grades 7-12 Form A	7-12
	Otis Group Intelligence Scale, Advanced Exam. Form A	4-12
Handwriting	Starch Scale for Measuring Handwriting	3-12
Composition	Hudelson English Composition Scale, First Revision	6-12
Arithmetic	Woody Arithmetic Scales, Scale A	3- 8
	Buckingham Scale for Problems in Arithmetic, Form 1, First, second and third divisions	3- 8
Algebra	Hotz First Year Algebra Scales, Series A	10
Character	Pressey X-0 Test, Form B	6-12

(c) Time of the Survey

The giving of all tests was completed between February 25th and March 31st, 1924. With all the longer tests only one was given in a grade during the same day. However, several parts of some of the scales, like those in arithmetic, were given to the same pupils in a day, care being taken to see that they were not fatigued.

5. Administration

The tests were administered under the direction of Dr. William M. Brown, head of the Education Department of Washington and Lee University. The actual field work and interpretation of results was in charge of Walter A. Flick and Robert M. Bear, graduate students in Education at the University. The examiners met with the heartiest cooperation and interest upon the part of the teachers, which promises well for a real application of the findings in solving school problems. It is to be hoped that all those connected with the school may be acquainted with these results. In connection with the survey, two of the teachers were trained for testing in a series of five seminars. The Arithmetic tests and part of the composition and handwriting tests were given by teachers themselves to their respective grades. All tests were given strictly in accord with detailed written instructions, so that conditions would be alike in all cases and the results comparable.

PART ONE

11 Introduction

Progress of Pupils Composition Handwriting

Both aims of the Survey will be contributed to by Part One. The study of the schoolroom organization and pupil classification will be approached from the enrollment and age standpoints under the heading, Progress of Pupils. Results will be treated so as to furnish answers to definite questions regarding how far pupils pass in the school course, how they are grouped and with what regularity they pass from grade to grade. The importance of knowledge on these points cannot be stressed too much. We must have in mind the age-grade distribution of achievement tests. We need to know whether our school system is so organized as to hold the pupils in school long enough for them to get the education we pay taxes to provide, or whether they drop out early in the grades. We need to know to what extent the efficiency of our teachers is being reduced by having to teach classes varying greatly in age and ability. We need to know to what extent our passing standards in the different grades are operating to allow the normal progress of pupils. Much light should be obtained on these problems from the following pages.

The second aim, measurement of the results of instruction, produced the results found in Part One for Composition and Handwriting. The results of the tests in other subjects are treated in the next part.

Our public schools universally stress the necessity of teaching our children to write their language with reasonable proficiency, though placing varying degrees of emphasis on this. The Lexington School has long made this a pillar in its curriculum. Hence, the English composition tests were regarded among the most important in the battery of tests used. Our investigation was carried on in the sixth grade to the last year of the high school, with the purpose of obtaining a general view of the efficiency of English instruction in Lexington and of providing a basis on which comparison could be made with other schools. The results of this investigation are found in section IV., entitled, English Composition. It is hoped that if these findings lead to nothing else, they will at least stimulate further testing.

It was also our purpose to determine how effectively the children in the Lexington Public School are taught to write. The ability to write a legible hand which is not too grotesque in its individualism has long been recognized as one of the accomplishments acquired at school, though the ornate hand is not prized as formerly. Modern business requires a good style of handwriting and fair speed. With the formulation of standard tests we can measure objectively what is good writing and gain help towards improvement. Measures were made of the pupils in Lexington for both quality and rate as determined by the Starch Scale. These results were examined in the light of achievement in other Virginia schools and of the norms established by national testing. Upon the determination of the weaknesses revealed, certain suggested lines of improvement are advocated.

111. PROGRESS OF PUPILS

Aside from the value to be derived from improvement in teaching methods as a result of a thorough going program of testing, a Survey has proved to be very materially beneficial to many systems by indicating a needed reorganization in the light of the age-grade and per cent grade distribution studies made. No matter how efficient our teaching force or how fine their methods, if children early drop out of school or if there is not a fair degree of homogeneity in age and ability in the several grades, the children of the community suffer. Again the efforts of the teacher may be handicapped through a faulty promotion system which throws a disproportionately large number of retarded children in her grade. A study of the progress of pupils in the schools of Lexington was made to find to what extent these or other undesirable conditions were in existence and how they might be remedied. We will consider enrollment to find (1) How far pupils progress in the school course; and Progress of the pupils thru the grades, considering the problems: (1) How are pupils grouped in the school course? And (2) How regularly do they progress? In the light of our findings certain suggestions for improvement will be made.

A. Enrollment

1. How far Pupils Progress in the School Course.

The number of grades passed by the pupils may be taken as a gauge of the actual amount of education received by them. Knowledge is useful only to the person acquiring it, and if pupils are dropping out of school in the lower grades they are failing to get what the school provides, no matter how abundant and valuable the resources furnished by the school.

In Table 1 are presented figures showing the number of pupils and the per cents of the total registry enrolled in each grade of the Lexington school and of 80 cities of the United States.

A study of this table reveals several facts:

(1). The distribution of pupils among the grades is better balanced in the case of Lexington than that of the 80 cities, tho there is decided skewing in the third, fourth and fifth grades.

(2). In the first and second grades are only 17.7 per cent of the pupils as compared with 28.7 per cent for those grades in the 80 cities. This may be accounted for by the custom of many parents of sending their children to private teachers or of training them at home for a year or two and then of entering them in a higher grade in the public school.

(3). Lexington shows about the same per cents in the sixth, seventh and eighth grades as do the cities.

(4). There are 28.6 per cent of all the pupils found in the high school at Lexington as against 11.2 per cent for the high schools of the 80 cities. This would seem to indicate that more of the pupils who enter remain in the system, even through high school, than is the case in the schools of the cities.

What position the local system occupies in relation to the State of Virginia may be seen from an examination of Table 2, which shows the per cent enrolled in each grade in Lexington and in the schools of eighteen counties and all cities of Virginia in 1918-19.

(1). The 17.7 per cent enrolled in the first two grades of Lexington is less than half of the figure for the county schools and slightly more than half of that of the cities for these grades,

and is probably due to the advanced entrance mentioned above.

(2). In grades fifth and below are found one half of all the pupils, whereas these same grades contain three-quarters of the pupils of Virginia county schools and two-thirds of the pupils of City schools. According to a theoretical regular progress thru the grades, about 45 per cent of the pupils should be found in the grades.

(3). In Lexington a little over two-thirds of the pupils are found in the elementary school or 71.4 per cent. In Virginia non-city schools about nine-tenths of the pupils are here, and in the city schools about 85 per cent. A hypothetical uninterrupted progress for each pupil would mean about 64 per cent should be found here.

(4). Lexington's seventh grade is the only one standing at about the same per cent as that of the other schools of the State. Few schools in the State include the eighth grade as an integral part of the system, hence the low state figures for this grade compared with Lexington.

(5). In the high school 28.6 per cent shows the large number continuing to attend when compared with the rapid falling off of county high schools to less than 8 per cent of all white pupils and less than 15 per cent for the cities. A theoretical normal progress would be 36 per cent of all pupils in the high school.

A general idea of the distribution of pupils may be obtained from these figures, and the suggestion that not near as many of those who enter, finish either the elementary or the high school, as should. One might be inclined to reduce this figure by seeing the size of the first grade and comparing that with the seventh.

The present seventh is made up of many who entered the system above the first year or who failed a grade, while the number entering the first year at present may not be compared with the number entering that grade seven years ago. Such comparison is thus not legitimate. However, the comparison with Virginia schools and those of the country at large reflects in the favor of Lexington in the longer period children continue to attend in this place. Several factors are favorable for this. Lexington being the center of great educational activity, many of the towns people and nearby citizens have come to place a high value on education, and, therefore, see to it that their children go as far as they are able. Also many of the children are from better class homes and from those engaged in educational work and are brought up to expect to finish high school and then to go to college.

If it should be desired to find further figures showing the proportions of children remaining in school through the various grades, the following method may be employed, using the age-grade figures in the right hand column of Table 3. (1) "Most pupils are in school at ages eight, nine, ten and eleven, and of children in school the largest age groups are for those ages. An average of the number of pupils of these ages will give us a reasonable estimate of the average number of pupils entering school each year, and the per cent that pupils in each grade are of that figure will generally give us a fairly reasonable estimate of the proportion reaching that grade of children entering school in any one year."

(1) Virginia Education Commission and Survey Staff, "Virginia Public Schools, Part One." p. 84

Two suggestions are made here which will be again borne out by later data: (1) That children be allowed to enter the first grade, preferably at six, by all means not later than six and one half. This will necessitate probably another teacher for half time. Since some of the grades above, like the third, need to be divided into two sections a shift could be made which would most profitably employ a full time teacher. (2). That the eighth grade be made a regular required step in the course.

B Progress of the Pupils Through the Grades

1. How are Pupils Grouped in the School Course?

Any great difference in the ages or the training of the pupils making up a class tends greatly to reduce the effectiveness of instruction as every one connected with teaching knows. The teacher cannot frame the lesson for that non-existent being, the pupil of average age and training in her class, and at the same time keep the laggards in motion and incite her better pupils to what should be their usual efforts. This is too great a handicap to put on the teacher, yet with our limited resources, we ask it of her every day. Improvement lies in the direction of more homogeneous grouping. We shall examine the situation at Lexington.

Table 3 taken in connection with Table 4, presents a fair view of the age-grade grouping. Table 3 shows the distribution of the pupils of each grade by age, the diagonals enclosing those which are at the standard age for that grade according to a "one year span" with entrance age at seven years. These facts are evident:

(1). Pupils of thirteen years of age are scattered all the way from the fourth grade thru the second year high school; those of fourteen years from the fourth thru the third high school year; and those of fifteen from the sixth grade thru the fourth year high school.

(2). The range in the ages of pupils within a grade varies from eight years to four. One grade has a range of eight; five, a range of seven; two, a range of six; one, of five; and one of four, omitting from consideration the first two grades. In city schools in Virginia each grade of the elementary school has a range of from ten to eleven years. In the county schools the range was at least twelve years. In both cases, great difference in age was the rule not the exception.

(3). Age disparity showed most in the first year of high school, there were pupils ranging from twelve to nineteen. In the second year and in the eighth grade there were pupils from thirteen to nineteen, the seventh grade has a range of twelve to eighteen, the sixth grade shows pupils from ten to sixteen, and the fourth provides the same instruction for a child of eight and one of fourteen.

(4). Table 4 showing the median age for each grade, and Table 5 showing the per cent of children at the normal age for the grade, should be compared with the age ranges given above. This will help put the problem in proper perspective.

The conditions brought out above are not highly discreditable to Lexington, but appear fairly good in the light of the wretched situation of the state as a whole. Certain remedies, for the age differences which do exist and which need correction, have been found advisable in other systems.

(1) In the first and second year high school it might be advisable to begin promoting by subjects, thus pupils would be allowed to make progress, make up back work and yet not needlessly take the teachers attention from pupils going over a subject for the first time.

(2) In the graded school pupils who fail and remain a second year in a grade without passing, should be allowed to take the work of the next grade, unless some form of enriched course of study was offered more in line with their interest and abilities. Of course they would not be able to graduate.

(3) Semi-yearly promotion would appear to be very desirable.

(4) In connection with (3) should be adopted some plan of forming two sections of grades four and six, and in others as there is means.

(5) Suggestions made under Enrollment bear repeating here also.

2. How Regularly do Pupils Progress in the School?

Up to this point we have considered how far children progress through the school before dropping out, and just how they are grouped among the grades according to age. We have yet to find whether these same children as a whole have been passing from year to year to the next higher grade in a normal manner; whether they are reaching the different successive grades at the normal age for that grade as measured by the standards on which the course is built as part of the state system. We shall desire to find what proportions of the pupils are reaching the various grades at the normal age, or above and below it.

In conformity with the state standards, children are supposed to enter the first grade at the age of seven, and each successive year of age should find them in the corresponding grade above the first. As we have seen, some children receive the first years work or the equivalent under private teachers and then enter a grade in the public school at a younger age than if they had entered in the first grade and been regularly passed. Again children may enter school when they are six, if the seventh birthday comes before Christmas. These and other causes have operated to place a great many children in grades who are over or under the normal age for the grade. How this variation compares with that existing in other schools of the State and nation will be seen from an examination of Tables 4 to 7.

Table 4 presents a comparison of the median age of the pupils in the various grades in Lexington, with the Virginia and National standard medians for those grades. These facts are to be observed:

(1). The median age for each grade is very close to the Virginia standard, and for the high school to the national standard. In the elementary school Lexington medians are about a year above the national standard.

(2). This is a closer adherence to the standard on which the school is organized than was found in state city white schools, where the medians for the fourth to the seventh grades occupied a position midway between the Virginia and national standards. In the first grade of these schools two-thirds of the children are six or under and here the median is about that of the national standard.

(3). The median age for first year high school is half a year higher than that of Virginia and national standards. In the State as a whole pupils reach high school at about the same age in the seven grade system as in the eight grade system. Those making the state survey believed that this being the fact, it would be to the profit of all schools to adopt the eight grade organization, relieving the congestion in the lower grades. Experience in Lexington has proved this a wise recommendation.

(4). Special attention is called to the second year high school which has a median age almost a year higher than standard, the fourth year with a median almost half a year below standard and to the fifth, sixth, and eighth grades where slight divergencies appear.

A more detailed presentation of the situation is found in Figure 1 and in Tables 5, 6, and 7. Figure 1 shows the age span for each grade and to what extent the ages are overlapping in the different grades. It is quite obvious that the only grade approaching anything like a desirable homogeneity is the fifth. The position of the median in the first year high school as compared with the eighth grade reveals a decided deficiency there.

We shall now look at the proportion of normal age, over-age and under-age children for the grades in which they are located. As has been previously noted, seven is the standard entrance age for Virginia and six for the Nation, and that conditions here and throughout the state showed an entrance actually somewhere between the two. In the discussion below, the term "normal age" for any grade applies to pupils at the standard age for that grade, having entered school

at the standard entrance age and having progressed regularly from grade to grade since then. "Over-age" or retarded pupils are those above the normal age for their grade, while "under-age" or accelerated pupils are those below the normal age.

Table 5 indicates grade for grade what per cent of pupils are at the normal age for Lexington and what should be, according to Virginia and national standards. These facts stand out:

(1). With the exception of the second and third years of high school, Lexington has a much higher per cent of normal pupils per grade than postulated by either the national or Virginia standards.

(2). The elementary school is particularly marked by the high per cent of normal pupils. From the third to the eighth grade, the average is almost twice that of the county schools of Virginia and one third better than that of the city schools.

(3). The per cent in the first and fourth years of high school is slightly better than standard. The second year is ten points below, and the third year nine points below the standards for these respective years.

Table 6 presents the per cent of over-age pupils for Lexington, Alexandria, Va., and for Eighty cities at large in the United States. We are again aware that the high school shows up as the place of greatest lack of balance.

(1). From the third thru the seventh grade Lexington has considerably less over-age than Alexandria, tho better than the 80 cities only in the fifth and seventh.

(2). The eighth grade shows a much higher retardation than can be found elsewhere in cities.

(3). Retardation is pronounced in the first three years of high school, being greatest in the first and almost as bad in the third year. The second and fourth stand next in order.

(4). Slightly over a third of the pupils at Lexington are retarded.

Table 7 gives a comparison of retardation for the school system as a whole with the exception of the first two grades, with Virginia and national conditions. The summary shows:

(1). Retardation is less than for Virginia county schools but greater than for city schools, Table 6 showing this to be due principally to the high degree of over-ageness in the high school.

(2). The per cent of normal age pupils is slightly better than the highest state per cent which is for cities.

(3). Seven per cent less under-age pupils are found in Lexington than in Virginia cities, while there are over ten per cent more than are found in the county schools, as was to be expected. Virginia standards are better balanced than are those of the nation, and the distribution in this high school tends to follow approximately a normal curve.

C Summary and Conclusions

Our general conclusion is that, while the per cent of normal pupils is higher than the average for the state, the per cent of retarded ones not so startlingly below that for cities and the

under-aged not predominant, nevertheless there is considerable room for improvement. The standards with which we have compared local conditions are themselves very far from what they should be. They represent things as they are and not as they should be. Moreover there is a very definite need of remedial measures for the retardation in the high school. Retardation may be due to two causes; entrance into the school later than the standard age or failure to promote pupils regularly from grade to grade. The situation could be relieved by (1) passing pupils in the high school by subjects, at least temporarily until the congested condition disappears. (2) Lowering the entrance age to six, if for no other reason than for providing for the extra year consumed by the added eighth grade. Evidently the addition of this grade had a large part in causing over-ageness among the pupils at present in high school.

D. Recommendations

Our findings from this study of the Progress of Pupils suggest the following recommendations which summarize those made at the ends of the several sections where the reasons supporting them were given:

1. That provision be made for the entrance of children at the age of six.
2. That provision be made in elementary school for a better classification and progress of pupils by:
 - (a) Semi-yearly promotions, or
 - (b) Division of several grades into two sections.
 - (c) Permitting children who have failed two years in a grade to enter the next higher grade, or
 - (d) Special classes be provided for backward pupils.

3. That the eighth grade be made a required step in the course for all pupils.

4. That provision be made in the high school for promotion by subjects in the first and second years at least, or for semi-annual promotion.

TABLE 1

Per cent enrolled in each grade in Lexington
and in 80 other cities of the United States.

Grade	Lexington		80 cities
	No. Enrolled	%	
1	32	8.1	16.3
2	38	9.6	12.4
3	43	10.9	12.4
4	41	10.5	12.1
5	40	10.2	11.2
6	30	7.6	9.8
7	32	8.1	8.0
8	25	6.4	6.4
1	36	9.1	4.9
11	32	8.1	3.0
111	22	5.6	(3.3)*
1V	25	5.8	
	394	100.0	100.0

*Eleventh and twelfth grades

TABLE 2

Per cent enrolled in each grade in Lexington and in the
schools of eighteen counties and all cities of Virginia in 1918-19

Grade	Lexington	White Counties	White Cities
1	8.1	23.3	16.1
2	9.6	12.5	11.8
3	10.9	13.0	12.2
4	10.5	13.2	12.3
5	10.2	10.9	12.2
6	7.6	8.8	9.3
7	8.1	7.1	7.4
8	6.4	.3	1.3
1	9.1	3.2	5.9
11	8.1	2.2	3.9
111	5.6	1.4	2.5
1V	5.8	.9	2.1
	100.0	100.0	100.0

TABLE 3

Age-Grade Distribution in Lexington Public School

Age	Elementary Grades						High School				Total	
	3	4	5	6	7	8	I	II	III	IV		
8	15	1										16
9	15	11										26
10	5	15	14	1								35
11	6	8	17	6								37
12	2	2	5	13	8	1	4					35
13		3	4	3	15	8	4	4				41
14		1		3	4	5	10	5	3			31
15				3	3	4	7	5	5	3		30
16				1	1	6	4	7	5	8		32
17							5	8	4	7		24
18					1	1	1	1	3	3		10
19							1	2	2	1		6
20										1		1
Total	43	41	40	30	32	25	36	32	22	23		324
Median Age	9.44	10.56	11.36	12.62	13.54	14.7	15.0	16.2	16.6	17.07		
No.												
Accelerated	15	12	14	7	8	9	8	9	8	11		
At Age	15	15	17	13	15	5	10	5	5	7		
Retarded	13	14	9	10	9	11	18	18	9	5		
Per cent												
Accelerated	34.9	29.3	35.0	23.3	25.0	36.0	22.3	28.1	36.4	47.8		
At Age	34.9	36.6	42.5	43.4	46.9	20.0	27.8	15.6	22.7	30.4		
Retarded	30.2	34.1	22.5	33.3	28.1	44.0	50.0	56.3	40.9	21.8		

Calculated on basis of a "one-year span" with the Virginia standard entrance age of seven. Diagonals enclose the pupils at normal age for their particular grades.

TABLE 4

Median Ages of pupils in various grades at Lexington compared with the National and Virginia standard medians for these grades.

Grade	Lexington	Virginia	National
1	.....	7.5	6.5
2	.....	8.5	7.5
3	9.44	9.5	8.5
4	10.56	10.5	9.5
5	11.36	11.5	10.5
6	12.62	12.5	11.5
7	13.54	13.5	12.5
8	14.70	14.5	13.5
1	15.00	14.5	14.5
11	16.28	15.5	15.5
111	16.60	16.5	16.5
1V	17.07	17.5	17.5

FIGURE 1

Diagram showing overlapping of the grades in age (Medians approximately located)

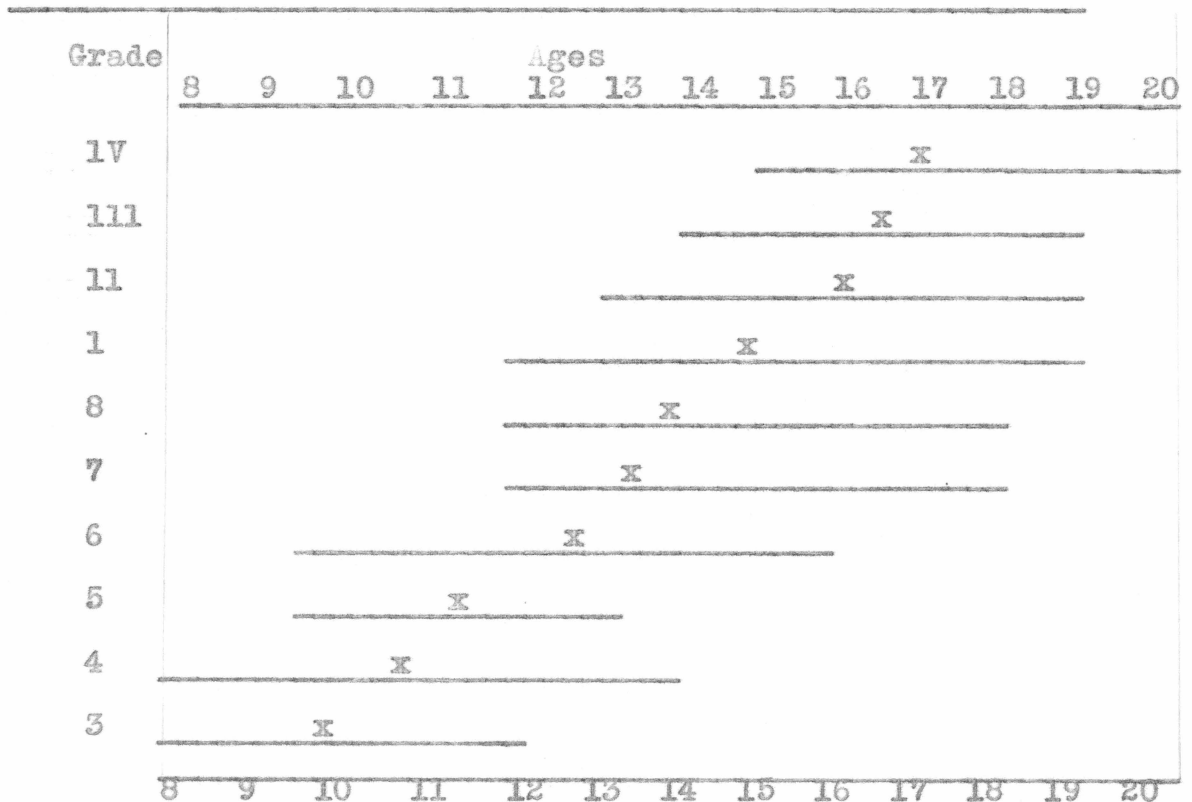


TABLE 5

Per cent of Pupils at Normal Age for their Grade
in the Lexington Public School compared with
Virginia and National Standards

	Grades									
	3	4	5	6	7	8	1	11	111	1V
Lexington	34.9	36.6	42.5	43.4	46.9	20.0	27.8	15.6	22.7	30.4
Virginia Standard:										
Counties	21.3	20.4	20.5	20.5	18.7	.....	24.5	25.8	31.5	28.0
Cities	28.6	28.5	28.4	30.6	31.1	.....	30.7	33.1	34.9	36.8
National Standard:										
Counties	15.5	12.7	11.0	9.9	10.0	.....	24.5	25.8	31.5	28.0
Cities	29.4	27.2	26.6	22.8	25.1	.....	30.7	33.1	34.9	36.8

TABLE 6

Per cent of Average Children in the Lexington Public
School, Alexandria, and Eighty Cities of U. S.

Grade	Lexington	Alexandria	Eighty Cities
3	30.2	37.3	19.4
4	34.1	48.2	25.5
5	22.5	58.1	29.0
6	33.3	65.2	27.8
7	28.1	35.3	23.7
8	44.0	36.1	16.5
1	59.9	28.2	15.2
11	56.3	21.2	15.8
111	40.9	13.0	13.8
1V	21.8	.....	10.8

TABLE 7

Per cent of Pupils of Normal age, Under age, and Over age totaled for the Lexington School and for Schools of eighteen counties and all Cities of Virginia (one year span) according to the Virginia standard (entrance age seven) and the National Standard (entrance age six)

	Over Age	Normal Age	Under Age	Total
Lexington	36.12	32.08	31.80	100.0
Virginia Standard				
Counties	57.3	23.6	19.1	100.0
Cities	30.6	30.6	38.8	100.0
National Standard				
Counties	78.8	16.9	4.3	100.0
Cities	56.7	29.8	13.5	100.0

IV. ENGLISH COMPOSITION

As in most of our public schools, the study of English occupies an important place in the curriculum. It will be of interest to find if the returns are commensurate with this special effort. So often the results are those found in the Cleveland schools: "The schools devote about the usual amount of time to training for the correct use of the mother tongue. Most of the time in intermediate and in grammar grades is devoted to English grammar. Composition receives only minor attention. In teaching of grammar too much stress is placed on forms and relations. Of course it is expected that this knowledge will be of service to the pupils in every day expression. But such practical application of the knowledge is not the thing toward which the work actually looks. The need really achieved is rather the ability to recite well on text-book grammar, and to pass good examinations on the subject." (1) The object of this test has been to ascertain to what extent Lexington pupils use the correct and necessary forms in writing on a simple subject.

A. Administration of Test and Training of Scorers

One hundred and ninety-one pupils of the sixth to the twelfth grades inclusive were given thirty minutes to write a composition on the subject: "The most exciting ride I ever had." This was the same subject used in testing in the Virginia Survey and in the Hudelson English Composition Scale. The conditions obtained were standard in all the grades due to the strict adherence to typed directions as found in the Hudelson Scale.

(1) Ayers, Leonard P., "The Cleveland School Survey," Philadelphia, 1917, p, 123.

All the tests were given in regular school hours and as part of their work. In the high school the English teacher administered the tests, while in the elementary grades the examiners and a specially trained teacher conducted them. All tests were given between February 25th and the 28th.

The compositions were scored on the Hudelson English Composition Scale, revised edition. Every effort was made to make the rating as accurate as possible. The sample series for practice were rated as many as three times before work was begun on the tests. In the case of the two scorers on the samples, neither had more than a negligible error. During process of actual scoring, constant re-evaluation of the samples was made to test the accuracy of the scorers' judgment. The scores as recorded are the mean of the two scorers' judgments. In spite of the care used there appears to be a systematic difference in the two sets of ratings. In the judgment of the writer, the higher set is the more accurate and would probably be nearer to the actual ability of the grades than the mean score indicates.

B. Examination of Results

1. The School as a Whole

A view of the situation as a whole is presented in Tables 8, 9 and 14. In the first, one fact stands out, that every grade tested except the sixth is below the established norm for that grade. As indicated above the scores may be a little lower than they ought to be, but granting this possibly, the scores could not possibly be as much above the norm as we might have expected from the emphasis placed upon English.

It seems probable that the sixth should be lowered to about the norm for that grade. Lexington is just about normal for English composition then. As is generally found to be the the case, the scores of girls are higher than that of the boys.

Table 9 gives the median scores in intelligence (Otis-Advanced) and composition, the median chronological ages and the median number of years spent in school for boys and girls separately and combined. In the light of the intelligence score for the sixth grade, their composition score is again seen to be too high, while that of the seventh grade shows them not to be doing the best they are capable of. The eighth grade and the first year high school in organization occupy overlapping positions, but the higher intelligence of the latter makes it clear that they should have done better on composition. Both sets of pupils have attended school about the same length of time but the first year pupils are almost four tenths of a year older. In the high school the second year, besides showing over-ageness, is worst in comparison with the norms. This might be anticipated, however, from their intelligence. In general, in a grade, the older pupils and those having been in school longest are most deficient in composition.

Table 14 presents the distribution of composition scores within each grade. The three elementary grades show too much variation in ability within a single grade and require corrective measures. The pupils ability in composition rises in a fairly normal manner from grade to grade.

A few words of comment on the seventh grades will follow:

In the sixth grade the pupils seem to have already learned fairly well to recognize and use the sentence as the unit of structure.

Seven of the themes contained dialogue, a higher proportion than in other elementary grades. Spelling and punctuation need special attention. There is urgent need of special help for several over-age pupils which destroy the homogeneity of the class and who will themselves become discouraged.

The seventh grade shows much improvement over the sixth in general appearance and neatness, also in spelling. Most of the papers are inclined to be recitals of a string of events, which is perhaps natural for this age. The sentence is almost always recognized, but more are using overly short ones rather than too complex ones.

In the seventh and eighth a few pupils attempt dialogue but show little familiarity with its use. Only about one fourth of the class are markedly deficient in spelling, while there is a decided increase in length of papers. Quite a few have trouble in using the number of the verb which accords with the subject. Instruction and practice in paragraphing is a felt need. This grade needs much practice.

In the first year high school we come to the first grade with homogeneity in ability. There is a definite attempt to have pupils leave a right hand margin. Unless this is adopted in the other grades it will probably be time lost. The length of papers here makes paragraphing very desirable, tho pupils often do not at the logical points. There is a tendency with some to over-paragraph. Only two pupils use dialogue. Punctuation as well as more clearly developed stories are needed for clearness.

The outstanding feature of the second year is the attempt on the part of several to write stories, and with that an increased use of dialogue adds interest. Contrary to the appearance of uniformity in scores and their distribution, there is a wide range of composition ability. Faulty use of pronouns, verbs and adverbs, poor sentence structure and the like are present in all degrees. Many would add to clearness by breaking up their papers into paragraphs, to offset the length. The use of concluding sentences is being followed to profit.

Pupils of the third year average very good work. Some old difficulties persist, such as sentence structure and punctuation. Vocabularies are very good and there is greatly improved expression and imaginativeness of ideas. Shortening of the preliminary details before reaching the climax would be desirable for many.

The fourth year compositions in most cases have imaginary plots, which in several instances are beyond the range of the pupils' knowledge. There is an effort to be striking in expression which is very effective, when the pupil does not fall into the error of over-doing it. As a class their ability seems above the average and should probably be several tenths higher in the score recorded.

2. The First Year High School

Special treatment of the results has been made for the first year high school for two reasons. This was the grade tested in the State Survey and these data are available for comparison. Then, since this is the central grade tested in Lexington, results in it may be taken as indicative of the general proficiency in English instruction.

Table 10 gives the comparative median scores of the grade in Lexington and in ten other Virginia high schools, showing Lexington better than six and not so good as four. The size element is seen not to be of great bearing.

Table 11 gives the median scores in intelligence (Otis-Advanced) and composition, the median chronological ages and the median number of years spent in school for the sexes in the first year in Lexington and in other Virginia school groups. The composition score for Lexington is lower than that for the groups. It most nearly approaches the grade for Virginia 7-4 plan schools, all being below the Hudelson norm. The conclusion, that the older the age or the longer the number the years spent in school for a given grade the lower will be their composition scores, is borne out here. It would seem that the 8-4 plan is more suited to the needs as a requirement for all pupils.

Table 12 shows the distribution of Lexington first year high school pupils according to age and achievement in composition. Table 13 gives the distribution of the same pupils according to achievement and years in school. Sixty two and nine tenths per cent of the pupils made scores below the norm. The twelve, fourteen and fifteen year old groups made scores nearest the norm. With the exception of one pupil who had attended school for eleven years, those in the six and seven year groups were the one who made scores higher than the norm.

C. Summary and Conclusions

1. So far as can be judged by one test, the pupils tested of the Lexington school are practically at their norm grade for grade. The sixth grade shows higher ability than is average, while the eighth grade and the second year high school are rather deficient.
2. There is too wide a variation in scores in the elementary school to make for most efficient instruction or progress of the poor pupils.
3. Pupils appear to be taught throughout the system the function of the sentence as the unit of structure. But in poor papers from the grades through the high school there is abuse of the sentence. Complex and involved or short and disjointed sentences are frequent, especially in the lower grades.
4. Better organization of ideas is to be desired in the elementary grades, with the omission of surplus details before the climax. Introductions and conclusions are rare.
5. Poor spelling and lax punctuation mark many of the papers, especially in the grades.
6. The first year high school compares favorably with other first year classes in the state, tho being below the norm and below some of the city school classes. Its median score was 5.34 as compared with 5.42 for the state as a whole or with 5.53, the white first year students of the state.

D. Recommendations

1. A continued stress on English is obviously necessary, particularly in oral and written expression. An effort should

be made to select those subjects which appeal to the interests of the children and are within the range of their knowledge. They should be encouraged to handle these subjects in a simple natural way which will aid their expression in daily life.

2. Teachers of English would doubtless benefit by the holding of several conferences for the discussion of the essential fundamentals of expression so that a unified plan would be followed. Once such principles have been adopted, effort should be concentrated upon them even at the expense of text-book grammar.

3. At subsequent intervals other tests should be given in compositions to ascertain whether pupils are making improvement and what errors require correction. Each teacher should study the ability of her grade to determine just what work they need most and then see that they get it.

4. As previously seen in the study of the age-grade situation, a re-classification of pupils is desirable, both for the help of the teacher and of the pupil. When retarded pupils are eliminated from an exaggerated over preponderance in a grade, the achievement of the grade in studies will be more nearly uniform.

ENGLISH COMPOSITION

TABLE 8

English Composition. Median Scores for Grades 6 to 1V for Lexington and Hudelson Standards. (Arranged by sexes).

Grade	Number of Boys	Number of Girls	Total	Median Scores			Hudelson Standard
				Boys	Girls	Total	
6	14	16	30	4.60	4.58	4.59	4.2
7	11	19	30	4.32	4.75	4.59	4.7
8	10	15	25	4.00	4.88	4.65	5.3
1	18	17	35	5.29	5.50	5.34	5.5
11	9	20	29	5.05	5.67	5.58	5.9
111	11	9	20	6.04	6.25	6.16	6.3
1V	10	12	22	6.60	6.63	6.62	6.7
Total	86	116	191	5.25	5.37	5.31	

TABLE 9

Median Scores for Composition, Intelligence, Age in Years and Years Spent in School for Grades 6 to 1V by Sexes

Grade	Intelligence			Composition			Age in Years			Years Spent in School		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
6	76.2	85.0	78.7	4.60	4.58	4.59	13.5	12.5	12.62	6.5	6.5	6.50
7	115.9	99.0	105.0	4.32	4.75	4.59	13.5	13.5	13.54	7.5	7.4	7.47
8	110.0	111.6	111.6	4.00	4.88	4.65	15.0	14.5	14.70	8.7	8.3	8.5
1	135.0	122.5	132.2	5.29	5.50	5.34	14.6	15.4	15.07	8.4	8.9	8.60
11	135.0	135.0	135.0	5.05	5.67	5.58	15.5	16.5	16.20	8.6	9.4	9.17
111	155.0	152.5	154.0	6.04	6.25	6.16	15.8	16.8	16.50	10.1	10.7	10.50
1V	158.3	166.2	165.0	6.60	6.63	6.62	17.3	16.8	17.00	11.8	11.2	11.50

Intelligence Scores --Otis Group Intel. Exam. Advanced, Form A.

TABLE 10

English Composition. Median Scores for the First Year
Class of Lexington and Ten Virginia High Schools.
(Arranged by Sexes).

School	Number of Boys	Number of Girls	Total	Median Scores			Hudelson Norm
				Boys	Girls	Total	
Lexington	18	17	35	5.29	5.50	5.34	5.5
Bainbridge	31	47	78	4.17	5.22	4.60	5.5
Boydton	1	8	9	5.00	5.45	5.30	5.5
Boykins	1	11	12	4.60	4.60	4.60	5.5
Courtland	10	7	17	4.40	4.89	4.63	5.5
Floyd	4	8	12	3.35	4.60	4.20	5.5
Fredericksburg	21	22	43	4.70	4.97	4.91	5.5
Hamilton	5	6	11	6.00	6.20	6.10	5.5
Jefferson	25	31	56	5.54	5.73	5.68	5.5
John Marshall	22	21	43	6.10	6.48	6.31	5.5
Varina	7	7	14	5.53	5.74	5.66	5.5

TABLE 11

English Composition, Intelligence. Age in Years and Years
Spent in School. Medians for First Year High School
for Lexington and other Virginia School groups.

School	Intelligence			Composition			Age in Years			Years Spent in School		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Lexington	135.0	122.5	132.2	5.29	5.50	5.34	14.6	15.4	15.07	8.4	8.9	8.60
Virginia	116.3	110.6	112.8	5.35	5.47	5.42	14.7	14.8	14.79	7.9	7.9	7.91
Virginia Whites	120.0	115.5	117.2	5.44	5.58	5.53	14.7	14.7	14.70	7.9	7.8	7.89
Virginia 7-4Plan	113.5	111.6	112.4	5.28	5.48	5.40	14.7	14.8	14.78	7.9	7.8	7.87
Virginia 8-4Plan	123.5	108.2	114.2	5.54	5.44	5.50	14.7	14.8	14.83	7.9	8.0	8.02
Virginia City H.S. Whites	122.8	118.4	120.2	5.69	5.83	5.77	14.5	14.5	14.54	7.8	7.7	7.80

Lexington Intelligence Scores -- Otis Group Intel. Exam. Advanced, Form A
Virginia Intelligence Scores -- Haggerty Intel. Exam. Delta 2

TABLE 12

English Composition. Distribution and Median Scores According to Age-Achievement for Lexington First-Year High School.

Age	Scores					Total	Per Cent	Median Score
	4.5	5.0	5.5	6.0	6.5			
	4.9	5.4	5.9	6.4	6.9			
12		1	2		1	4	11.4	5.75
13	1	2		1		4	11.4	5.25
14	2	3	3	1		9	25.7	5.41
15	1	2	4			7	20.0	5.56
16	1	3				4	11.4	5.16
17	2	2	1			5	14.3	5.13
18	1					1	2.9	4.65
19		1				1	2.9	5.25
Total	8	14	10	2	1	35		5.34
Per cent	22.9	40.0	28.5	5.7	2.9		100.0	
Median Age	16.0	15.5	15.0	13.5	12.0	15.0		

TABLE 13

English Composition. Distribution and Median Scores according to Years in School-Achievement for Lexington First-Year High School Pupils.

Years in School	Scores					Total	Per Cent	Median Score
	4.5	5.0	5.5	6.0	6.5			
	4.9	5.4	5.9	6.4	6.9			
6			1	1		2	5.7	5.95
7	1	2	2	1	1	7	20.0	5.63
8	4	7	3			14	40.0	5.21
9	2	3	3			8	22.9	5.33
10	1	2				3	8.5	5.12
11			1			1	2.9	5.75
Total	8	14	10	2	1	35		5.34
Per cent	22.9	40.0	28.5	5.7	2.9		100.0	
Median Yrs. in School	8.75	8.72	8.67	6.50	7.00	8.60		

TABLE 14

Distribution of English Composition Scores by Grades
for Lexington Public School, Grades 6 to IV

Score	Elementary Grades			High School				Total
	6	7	8	I	II	III	IV	
7.0 - 7.4							1	1
6.5 - 6.9			1	1		1	13	16
6.0 - 6.4			1	2	2	13	7	25
5.5 - 5.9	2	5	0	10	17	4	1	39
5.0 - 5.4	3	4	7	14	10	0		38
4.5 - 4.9	12	7	5	8		2		34
4.0 - 4.4	7	8	8					23
3.5 - 3.9	2	4	3					9
3.0 - 3.4	1	1						2
2.5 - 2.9	2	1						3
2.0 - 2.4	1							1
Total	30	30	25	35	29	20	22	191
Median Score	4.59	4.59	4.65	5.34	5.58	6.16	6.62	
Hudelson Norm	4.2	4.7	5.3	5.5	5.9	6.3	6.7	

V. HANDWRITING

The purpose of this section will be to show how well Lexington pupils test in handwriting. Quite extensive research has lead investigators to include the following among the elements of good handwriting; form, movement, slant, spacing, alignment, size and rhythm. In addition to these elements of quality , the factor of speed enters into the efficiency of a person's writing. Lexington pupils were tested on the basis of these two factors, and the results follow, comparisons being made with the measurements of handwriting in Virginia and with the standards of achievement set up by national testing.

A. Administering and Scoring the Test

The tests were given to the pupils of the grades three to twelve inclusive, on February 28th and March 4th. Two hundred and ninety-nine pupils were thus tested. The tests in the high school were in charge of the English teacher, while the two examiners, assisted by the primary teacher, gave the tests in the elementary grades. Every precaution was taken to render the conditions uniform under which the different grades were tested, and at the same time, comparable with the state testing. To this end, each test was administered according to typed directions which were essentially the same ones used in giving the handwriting tests in the state survey. The copy selected for writing was the same also: "The land of the free and the home of the brave." Pupils were allowed to write for a two minute period.

The same motive that prompted the selection of the "free-choice" method for the Virginia Survey accounts for its use in our testing.

Pupils were instructed to write as well as they could and as fast as they could, thus each pupil would strike his best balance between quality and rate. The Starch Handwriting Scale provides for measurement on this basis, and is also carefully worked out so as to provide a scale of graduated steps, each of which is as much better than the step below it, as it is worse than the step above.

All tests were scored by both examiners and the mean of these two scores assigned as the final score of a paper. Scoring was not attempted until there was thorough familiarity with the scale. The scoring of the two examiners harmonized to a great degree though the scoring was done independently, of course. It has been found that with competent individuals scoring, there will be an average deviation of one half step on the Starch Scale. Thus the score on any individual paper would have this size error, but for a grade as a whole the plus deviations balance the minus deviations, making the score for the grade practically exact. "For this reason, an investigation has shown, a class score based on the judgment of one scorer differs only slightly from a score for the same class based on the results of several scores. Singly, they provide an average close to the true average; together, not much closer." (1) The score for rate (number of words written per minute) was obtained by dividing the total number of words written by two.

An attempt has been made to present the data obtained by means of Tables 15, 16, 17 and 18, and by Figure 2. All scores are given in terms of the units of the Starch Scale, revised. Scoring of handwriting in the Virginia Survey was done by the original Starch Scale.

(1) Inglis, A.J., and others, "Virginia Public Schools--Virginia Education Commission and Survey Staff Report", Part two, Yonkers, 1921.

Since its revision, all steps above 9 on the original scale have been raised in value by the addition of 5. In order to compare our results with those of the Virginia Survey, it was therefore necessary to transmute Virginia scores into terms of the revised Starch Scale. This was done in accordance with the table of values given by Professor Starch, which are as follows in part:

Original Scale	Revised Scale
5	11
	12
	13
9	14
10	15
11	16
12	17
13	18
14	19
15	20
16	21 (1)

Thus the data found in Table 16 are comparable.

B. Measures of Quality of Handwriting

Table 15 presents the distribution of the scores made in the various grades along with grade medians compared with the Starch standard medians. Just here it may be stated that the tests were given in the high school although definite training in this ceases in the eighth grade. It must be borne in mind in our interpretation and due allowance made for failure to show improvement or even retrogression in the high school. It will be observed from this Table that there is steady improvement through out the elementary school. Furthermore, within the third, fifth and seventh there is considerable variation in ability. The eighth shows the greatest amount of like ability and is explained by the fact that its

(1) Starch, Daniel, "A Revision of the Starch Writing Scale", School and Society, 1919, X, 498-499.

teacher is admitted to make a specialty of handwriting. Lack of training is too obvious in the high school to require notice. One third of those in the first year fall below the Starch norm for the seventh grade, and the median for the grade is below the norm for the eighth. The second and third years reach the same median which is just below what normal progress would predict for the second, as each year represents an advance of about five-tenths of a step on the scale. The median for the fourth drops back, showing probably a tendency towards laxness.

Turning to Table 16, we are able to place Lexington at once as regards the schools of the State. As we have seen, every grade is below the Starch norm for it, while the best showings are made with the least deficiencies in the seventh and eighth. No norms are given for the high school.

The third grade appears to be lowest as compared with the other Virginia school groups. Its median is almost down to that of the four room schools and over, while being below that of the cities. In the other grades Lexington stands as well or better than the other school groups. The quality of handwriting done in the local school is several tenths better than that of the cities, and they are turned out of the seventh or eighth grade more nearly with the ability they should have. Strange to say, the non-city average for the state is a little better than that of the cities, and it is with this group that Lexington meets the closest competition. The progress from grade to grade in Lexington is fairly regular in its rise. These medians for Virginia represent white pupils' work.

They would be somewhat more unfavorable if that of colored pupils was averaged with them.

In Figure 2 will be found a graph showing the curve formed by a combination of quality and rate for Lexington, compared with a similar curve for the Starch standards. Lexington's lower relative positions for quality will be noted.

C. Measures of Rate of Handwriting

The results of measures of rate will be found in Table 17 and 18 and also in Fig. 2. We shall see that Lexington does not compare so favorably in the measurements as it did in quality with the norms.

Table 17 shows the distribution of the scores for rate within each grade, with the medians for the grade and the Starch norm medians. Speed in writing clearly increases as pupils pass thru the grades. In the fifth, sixth, and seventh grades are found the greatest variations in speed, and norms not differing to any great degree. In the seventh grade there is an outstanding decrease in speed. Now identical directions were followed in all grades, and hence, this decrease can only be accounted for as the natural speed of the children. The median of the first year high school also drops, being below that of the sixth grade. The eighth grade median is not much below that of the second year high school. The median pupil in the eighth grade does not write twice as fast as the median third grade pupil does, although he has had five years more practice.

The pupil in the fourth year high school only writes eight words more than twice as fast as the third grader, and only fourteen words more per minute than the first year pupil. There is thus apparent an enormous amount of retardation in speed of writing.

Now compare with the Starch norms for rate. This retardation is emphasized to the nth degree. Double the rate for each grade in Lexington and then subtract from the Starch norm for that grade and you still have Lexington grade falling short by the following number of words per minute: Third, 4; fourth, 7; fifth, 13; sixth, 17; seventh, 23; eighth, 21. Lexington pupils thus write far, far too slowly.

In Table 18 will be found the comparison in rate with other Virginia school groups and with St. Louis. It will be seen at once that the speed for Virginia children is much higher than it should be. In fact, it is almost as much higher above the scale norms as Lexington rate is lower than the norms. Apparently then Lexington is not suffering from any state influence which would affect rate, and its low rate is difficult to account for. In this day of increased written work, the school is certainly placing a handicap upon its pupils by allowing them to neglect the development of a reasonable speed which is so essential for efficient writing ability. St. Louis medians are slightly below the norms, but to no such degree as Lexington. Retardation both at Lexington and St. Louis appears at its worst in the seventh grade. The curve showing the combination of rate and quality for Lexington and the Starch standard is found in Fig. 2. The discrepancy in Lexington's rate accounts for its curve being so far to the left of the Starch curve.

D. Recommendations

Several recommendations may be made:

1. That special effort be made by those teachers whose grades are most deficient in quality of writing to study methods by which to bring their pupils up to standard. Comparison of methods with successful teachers will prove helpful.
2. That teachers set before pupils more definite standards of achievement by which they may judge their success. As an aid, the Curtis Standard Practice Tests in Handwriting are to be highly recommended, or the posting on the wall of the Starch Scale.
3. That by all means a better balance be secured between rate and quality of writing. Definite rates may be fixed for the different grades and be used as aims in teaching as well as for guides in measurement.

TABLE 15

Distribution of Scores for Quality of Handwriting
for Lexington Public School, Grades 3 to IV

Score	Elementary School						High School				Total
	3	4	5	6	7	8	1	11	111	1V	
20-20.9								3	1	1	5
19-19.9					1		2	7	3	5	18
18-18.9			1	1	4	4	6	8	10	7	41
17-17.9	1		3	1	9	10	15	7	5	7	58
16-16.9	2	2	4	9	9	7	9	2	1	1	46
15-15.9	7	10	16	11	4	2	2	1		1	54
14-14.9	16	15	14	6	3			1			55
13-13.9	10	8	1				1				20
12-12.9	1	1									2
Total	37	36	39	28	30	23	35	29	20	22	299
Median Score	14.4	14.6	15.2	15.7	16.8	17.2	17.3	18.4	18.4	18.2	
Starch Norm	14.7	15.3	15.9	16.4	17.0	.....	.....	.....	.....	.....

TABLE 16

Median Quality of Handwriting in Lexington and Various
Types of Virginia Schools, Compared with Starch Norms

Type of School White	Grade					
	3	4	5	6	7	8
Lexington	14.46	14.60	15.29	15.72	16.88	17.25
Four Room & Over	14.3	14.5	15.0	15.5	16.0	.....
Non-city Average	14.2	14.6	15.0	15.5	16.0	.....
City, First Half Yr.	14.8	14.5	14.9	15.4	15.6	.....
City, Second Half Yr.	14.5	14.4	15.2	15.4	16.5	.....
Starch Norms	14.7	15.3	15.9	16.4	17.0	17.5

TABLE 17

Distribution of Scores for Rate of Handwriting for
Lexington Public School, Grades 3 to 1V

Rate	Elementary School						High School				Total	
	3	4	5	6	7	8	1	11	111	1V		
50-55											1	1
45-49									1	5	7	13
40-44									6	5	7	18
35-39						1	5	5	9	3	4	27
30-34			2	13	9	10	9	12	5	3		63
25-29	2	4	7	8	8	6	14	1	2			52
20-24	7	17	18	3	9	2	5					61
15-19	19	13	8	2	2		2					46
10-14	9	1	3	1	1							15
5-9			1	1								2
0-4		1										1
Total	37	36	39	28	30	23	25	29	20	22		299
Median Score	17.5	20.8	22.8	29.3	26.8	31.7	28.7	35.8	40.0	42.8		
Starch Norm	38	47	57	65	75	83	..	..	..	..

TABLE 18

Median Rate of Handwriting in Lexington, St. Louis, and
Various Types of Virginia Schools, Compared with
Starch Norms

Type of School	Grade					
	3	4	5	6	7	8
White						
Lexington	17.5	20.8	22.8	29.3	26.8	31.7
Va. Four Room & Over	57	74	81	86	91	....
Non-City Average	54	69	78	84	89	....
City, first Half Yr.	54	74	86	88	95	....
Second Half Yr.	67	77	79	94	93	....
St. Louis Medians	32	37	52	57	63	74
Starch Norms	38	47	57	65	75	83

Quality ↓

Rate →

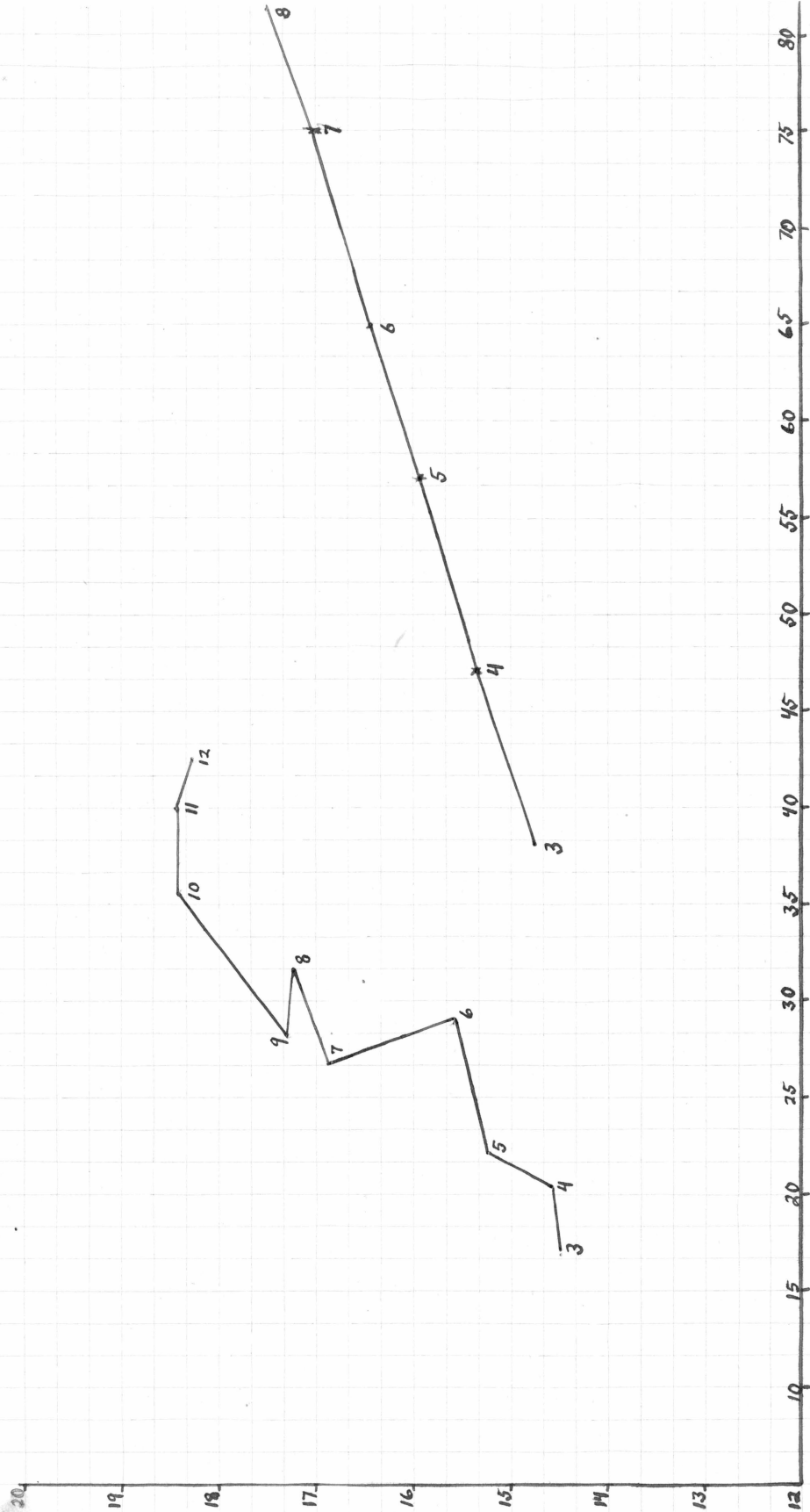


Figure 2

Average Rate and Quality of Handwriting, Grades 3-12 of
Lexington Public School with Starch Standard

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