A survey of handwriting of thirty-six (36) school systems and fifty-six (56) different occupations in the towns and cities of Massachusetts / Whitten, Paul Francis

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Boston University
BOSTON UNIVERSITY
SCHOOL OF EDUCATION

Service Paper

A SURVEY OF HANDWRITING OF THIRTY-SIX (36)
SCHOOL SYSTEMS AND FIFTY-SIX (56) DIFFERENT
OCCUPATIONS IN THE TOWNS AND CITIES OF MASSACHUSETTS

Submitted by
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(A.B., Asbury College, Wilmore, Kentucky, 1936)

In partial fulfillment of requirements for
the degree of Master of Education

1949
First Reader: Helen B. Sullivan, Professor of Education

Second Reader: Donald D. Durrell, Dean of the School of Education, and Professor of Education
Acknowledgment

I wish to express my sincere appreciation to Dr. Helen Blair Sullivan, Boston University, School of Education, for her cooperation in this study, and to Dr. Donald D. Durrell, Dean of the School of Education, for his constructive criticism.

I am indebted to Mr. William L. Rinehart of the Rinehart Functional Handwriting; to Mr. R.E. Bloser of the Zaner-Bloser Company; to the A.N. Palmer Company, and to the American Book Company for their willingness in contributing useful information in the way of guidance and literature.

This study would have been impossible without the cooperation of school administrators, pupils, students, occupational workers, and all others who worked with me in the grading and the tabulation of the survey forms.
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CHAPTER I

INTRODUCTION
CHAPTER I

INTRODUCTION

Description of the Problem

As a teacher and school administrator the problem of poor handwriting has been one of special interest. The writer is not alone in feeling somewhat depressed when a set of papers is turned in to be corrected. Poor handwriting is not only a source of annoyance, but it consumes much valuable time in attempting to decipher almost unintelligible scribbling.

It is the belief of the writer, from observation, that handwriting is one of the language arts that is being taught in a half-hearted manner.

To attempt to correct such a long-standing fault in the schools, is a challenge and a problem to educators. The writer is of the firm opinion that handwriting can be corrected and a better era of writers produced. When school administrators take the time really to study the problem of correcting poor handwriting, as some of the other language arts have been studied and corrected, then another milestone will have been won in the field of education.

Handwriting is so closely connected with all school subjects that it should be considered as a major instrument
CHAPTER

INTRODUCTION

The subject of the study is best described as the development of a framework for the analysis of complex social systems. This framework is based on the concept of "network analysis," which is a set of methods and tools for understanding the relationships and interactions between different elements within a system. The primary goal of this study is to explore how network analysis can be applied to various domains, such as economics, biology, and politics, to gain insights into the structure and dynamics of these systems.

Network analysis has been used in a variety of fields, including social sciences, computer science, and biology. In social sciences, it has been applied to study social networks, such as friendship networks or collaborations among researchers. In computer science, network analysis is used to understand the structure of the internet and the spread of information online. In biology, it is used to study the interactions between different species and the spread of diseases.

The next section will provide a brief overview of the key concepts and methods used in network analysis. This will include an introduction to graph theory, which is the mathematical foundation of network analysis, and the different types of networks that can be analyzed, such as directed and undirected networks.

Understanding the basic concepts of network analysis is essential for anyone interested in studying complex social systems. By using network analysis, researchers can gain a deeper understanding of the interactions between different elements within a system and how these interactions affect the overall behavior of the system. This knowledge can be applied to a wide range of real-world problems, from improving public health to enhancing economic growth.
in the learning process. Just learning to write should not be sufficient. Handwriting necessitates a great deal of painstaking practice and when the basic principles have been firmly established, legible writing should be the result. Even though the writing of an individual who has had the proper training degenerates, it may be brought back with some drill and practice. Legibility without fluency in handwriting is of little value.

The effectiveness of any handwriting system is measured by the pupil's ability to write and to think at the same time.

Scope of the Study

It is the scope of this study to ascertain why we have so many poor handwriters in our school system and in the various occupations. Also, to determine, if possible, why so many people's handwriting degenerates after leaving school, and entering into further study or occupations.

The writer of this study endeavored to conduct a survey in a number of the cities and towns of Massachusetts through the means of a questionnaire in an attempt to analyze the quality of handwriting in schools and in occupations in the light of accepted criteria.

It was felt that the best way to conduct a survey of handwriting was the sending of a printed questionnaire to
the administrators of the various schools and to personnel directors in various industries. This form was to be filled out by pupils, students, and occupational workers.

Such a questionnaire was drawn up, and when properly filled out, the writer hoped to secure sufficient information to help determine some of the reasons for poor handwriting. (See Appendix for schools and occupation forms).
CHAPTER II

REVIEW OF RESEARCH
CHAPTER II
REVIEW OF RESEARCH

A General Preview of the Research. The writer felt that with a survey of this type, it would be helpful to learn a little about the background of modern handwriting in this country, and to learn what others had done along the lines of research and surveys in handwriting.

The following topics were considered:
1. Background of modern handwriting.
2. Reasons for failures in handwriting.
3. Suggestions for the correction of common errors.
4. Findings of other surveys.
5. Pros and cons of manuscript and cursive writing.
6. The element of speed in handwriting.
7. Movement and posture patterns.
8. Particular system of handwriting.
9. Use of the fountain pen.
null
Related Studies

It appears that the earliest of modern handwriting styles was the Spencerian. This was developed by Platt Robert Spencer, who was a self-taught resident of East Fishkill, New York. He developed the sloping, semi-angular script with shade lines and fine flourishes, which was practiced about 1850.

There were many imitators of the Spencerian style, but probably the most popular was the Zaner-Bloser method. It came into use about 1890 and is still one of the leading handwriting systems in use today. Elmer Ward Bloser was one of the instructors in the Spencerian Institute of Business. Thus, it was only natural that his style resembled that of Spencer.

When Bloser was only nineteen, he was known as the "Boy Wonder Penman". He added still heavier lines to the Spencerian System; thus producing an outstandingly beautiful form of calligraphy with precision and flourishes. The writing was done by force and used practically the whole forearm.

The Palmer Method made its debut into the handwriting circle about 1906. It advocated arm movement, as did the Zaner-Bloser System. It taught the monotonous "push-pull", "ovals" and "loop" drills. Much of this has been abandoned today. It appears that the Palmer Method is still one of
The text on this page is not legible due to the quality of the image. It appears to be a page from a book or a document, but the content cannot be accurately transcribed.
the leading systems used in the public schools.

The "vertical" style of writing lasted only for a very brief time. Only a few people are using it today.  

The Rinehart Functional Method of handwriting appears to have gained a certain amount of popularity in this section of New England.

There are a few other handwriting systems in use throughout the state, but these appear to be in the minority.

The effectiveness of any handwriting system is measured by the pupils' ability to write and to think at the same time. The same is true of handwriting as of anything else we do; it would seem that we get out of it what we put into it.

Thorndike states, "Legibility is a word with many possible meanings. In one of its meanings the legibility of writing may be measured by the distance at which it can be read with a given accuracy and rate."  

Beale states, "Too frequently, handwriting falls short of its purpose for three reasons:

First is the failure to regard handwriting as a tool. Since the sole value of a tool lies in the facility with which it can be used, legibility and fluency are of equal importance. There is a definite body of handwriting principles to learn. These are habits to acquire, and these habits must be repeated until they become automatic."


Second is failure to recognize that since living organisms are being educated, there is a relationship between occasional lapse in quality of writing and the periods of acceleration in muscular growth and neural development. In acquiring skill, complete release from tension and a feeling of well-being are essential.

The third reason is the failure to individualize handwriting instruction and to utilize a method teaching which shows the pupil how to link legibility and fluency from the outset. 1/

A common practice among some supervisors is to have the pupils rate their own handwriting by some reputable handwriting scale. With some help from the teacher, at first, in discovering certain faults, the pupil can eventually recognize and correct his difficulties. The writer has found that most children enjoy correcting and grading their own papers.

Handwriting should not only be legible, but it should be functional as well. With a little effort here and there, a great many illegibilities in handwriting can be eliminated, and costly errors avoided in business.

Vosatka suggests the following six points to help avoid common errors in writing:

1. "Do you make your a's and 0's look alike? Practice these letters. Bring the last downstroke of the 0 down to the line. Keep the last stroke of the a above the line.

2. Do you make your e's and i's look alike? Practice these letters. Each e should have a loop. The i should not be looped, and it should be dotted directly above.

3. Do your m's and n's look alike? Do your m's and w's look alike? Practice these letters. An m and an w are rounded at the top. A n and an u are rounded at the bottom.

4. Do you make an e that looks like an undotted i? Practice these letters. An i should have a sloping roof.

5. Do you confuse a g with a j? Practice these letters. The letter g loops to the left. The letter j loops to the right.

6. Do you make a letter v that looks like a few twisted lines? Practice writing this letter. Cross the downstroke of the v directly through the center.

The Editor, W.W. C. states,

Several times a day I am puzzled with people's signatures. I get a letter with the name at the end and often I am not too sure just what the name is. I find a capital "W" that looks like an "M", a "g" that resembles a "j" and "n" that could be read as a "u" and an "e" so elongated that I mistake it for an "l". It all adds up to a wild conjecture as to the true name, and were it not for secretarial patience, perseverance and skillful deductions, the correct answer might not be so easily found. So I plead for better penmanship.

1/ Helen Vosatka, "Is Your Handwriting Legible?", The Instructor, March, 1946, p. 19.
Penmanship is not a lost art. It still survives, but its best exponents are few and far between. One of them came in to see me one day and submitted an example rich in flourishes, but clear. Another addressed a letter to me from Lynn, Massachusetts, and it is a work of art. A colleague brought an envelope with the name and address neatly inscribed. These samples make me blush to the roots.

And so I plead with myself as well as my friends for a reform in handwriting. 1/

Phelps states:

In a recent survey of 596 school systems, with replies from large and small cities, rural communities; answers from school administrators and personnel indicated that children's handwriting of today is superior to that of parents. The belief being confirmed on returns of children from grade 1 through grade 8. Still there is plenty of room for vast improvement. There is no justification for the poor handwriting that is allowed in our schools at the present time. 2/

In the above-mentioned survey one faction indicated that the poor handwriting is due to several reasons. Some of them being: carelessness, haste, crowded school schedules; less emphasis on handwriting than on other language arts; less emphasis on handwriting in business due to the typewriter; nervous tension; too fast tempo of our age; the lack of interest on the part of parents; transfer to new school systems where writing method is different; and the indifference of teachers to stress handwriting on all written work.

The survey showed twenty-three different systems in use, which alone would be extremely confusing in transferring from one school to another.

The two most mentioned systems were "Zaner-Bloser" and "Palmer". 1/

Out of the 596 school systems taking part in the survey, 108 stated that they preferred manuscript writing for beginners.

It appears to be a common belief among educators that manuscript writing should be taught to beginners because it resembles printing. There seems to be no set rule when it is time for the child to change from manuscript to cursive writing. Many school systems suggest a change in the intermediate grades to cursive writing. Some children write with greater speed and clarity with manuscript writing; while others do likewise with cursive writing.

Some high schools give pupils taking the commercial course special training in handwriting. The pupils in the High School of Commerce in Springfield, Massachusetts, have special training in cursive handwriting, and the results are outstanding.

Some teachers advocate shorthand and speedwriting in the upper grades, so that pupils can take notes rapidly without ruining handwriting. This point seems to be controversial. Many people who use shorthand tend to develop a scrawl in their handwriting.

1/ Phelps, op. cit., p. 144.
Phelps quotes Superintendent Combs of the Des Moines public schools as saying,

If we do a good job of teaching children to write in the first place, they will be able to write legibly. Some write with such precision after the first two years of instruction that further instruction would be a waste of time and energy. Others write so laboriously and possess so little muscular co-ordination that they must have help of the teachers throughout their entire educational career. 1/

As a result of the survey which Phelps mentions, she would suggest stressing the following points:

1. Remedial classes for children of any age.
2. Emphasis on legibility, rather than stressing any one system.
3. Grading the papers according to the knowledge of handwriting, irrespective of their handwriting.
4. Where manuscript writing is taught, suggest a change at a proper age to cursive, not only for greater speed, but toward individuality. 2/

In the fall of 1948 the New York public schools discarded the "old-style calligraphy" for manuscript writing.

New York children entering school this fall are in for a surprise: they're not going to be taught 'penmanship'. Instead, as the result of a recommendation by the Board of Superintendents they'll be allowed to use the "manuscript" or block system of writing, which seems to the New York Times to be the natural way for kids to write; and the early monks wrote, too.

1/ Phelps, op. cit., p. 145.
2/ Ibid., p. 145.
It's legible, simple, and easy to learn. Although children usually abandon it around the third grade for attempts at cursive or connected writing, they won't be forced into the transition. If they want to continue the manuscript style right on up, into high school it'll be all right with the New York Board of Education.

This revolution is the result of a survey made by the Education Board's Division of Curriculum Research. The survey found that current methods of instruction were monotonous and pointless. 1/

Macomber believes the following points should be considered as to the time when a child learns to write.

a. Drawing ability and home training.

b. Experience has shown that children not learning to write until the second and third grades do much better than those who have long boresome hours spent in the first grade.

c. If the child desires to write and shows definite indications of such, then it is the time to do something about it. 2/

Hamilton offers the following arguments for manuscript writing in the beginning grades:

1. It is much easier for the child than script.  
2. It is like what the child sees in his reading books and charts and is, therefore, familiar to him in learning to read. 3/

Kittle states:

Some of the reasons why manuscript writing should be taught not only to primary pupils but to all pupils are as follows:

1. Manuscript writing makes the teaching of

1/ “Farewell to Penmanship”, op. cit., p. 10.
reading much easier—many reading authorities say 50% easier. The pupils read and write practically the same forms; hence they learn faster. Also, when they have a reading lesson, they are having a visual writing lesson as well. When they are having a writing lesson, they are having a visual and motor reading lesson. This correlates reading and writing very nicely.

2. Manuscript writing is simpler and easier to do than cursive writing. The Kittle Simplified Manuscript Alphabet has only two major widths of letters, with one additional width for some of the narrow capital letters that become small letters when they are made small size. 1/

Some teachers believe that manuscript writing is only the printing of capital letters. Before any attempt is made to teach manuscript writing, the teacher should practice some reliable system until she becomes proficient in it.

Much emphasis should be on making the various letters correct in form. Guide lines should be used and proper spacing stressed.

Some handwriting experts believe that the transition from manuscript to cursive writing should take place at either the end of the second grade or the second-half of the third grade. The change should not be deferred too long, for then the transition becomes more difficult. Others believe that the best plan is to let the maturation and the readiness of the child guide the time for the transition.

Those teachers who have had the proper guidance in handwriting can quite readily guide the youngsters into cursive writing, by showing them that many of the letters can merely be connected by a few simple curved strokes. The child will need to be taught to observe the slant of cursive writing. This can be taught by simply getting the correct slant to the paper, depending on whether the child is left or right-handed.

Generally speaking, there are several factors to be taken into consideration in the teaching of cursive writing, namely; form, size, slant, alinement, spacing, and general neatness. Each skill should be stressed as a separate unit, until they become blended into the child's handwriting unconsciously. Correct form can be adapted by using writing books, samples on the board, careful correction of faulty errors, and letting the children correct their own work by reputable handwriting scales. Constant attention should be focused on all written work.

Macomber's arguments in supporting both manuscript and cursive writing are:

**Manuscript Writing**

1. Growing in popularity.
2. Simple curves and straight lines.

3. No complicated connecting strokes.
5. Children with poor muscular coordination do better than with cursive.
6. Legibility better than in cursive.

Cursive Writing
1. More rapid form of writing.
2. Manuscript in the upper grades is run into cursive.
3. Economy of time to learn cursive first.
4. Smoother; letters connected by natural strokes.
5. Old-time flourishes eliminated.
6. Child who can't read cursive is handicapped.
7. Children who learn to read best by kinesthetic activity will be handicapped by manuscript writing as it does not lend itself readily to this manner of learning.

Some of the differences between manuscript and cursive writing as found by Burke are given below: ¹/

1. Cursive writing has a slant.
2. The pencil is not lifted after each letter in cursive writing and must be kept on the paper until each word is finished.
3. The pencil is held more loosely for cursive writing than for manuscript writing.
4. Paper is placed on a slant on the desk for cursive writing.

¹/ Mary Burke, "Transition from Manuscript to Cursive Writing," Grade Teacher, April, 1947, p. 2.
5. Cursive writing is much more difficult for children to read than manuscript writing. They must be taught to read it as well as to write it.

Grill states:

Commercialized systems of cursive writing are so firmly entrenched in the schools throughout the United States that manuscript writing enthusiasts find it difficult to effect changes in educational practice even in the primary grades.

In spite of the opposition to be overcome, manuscript writing has become the accepted form for work in progressive schools for primary grades, and for certain types of reports at all levels. Many pupils acquire considerable skill in the use of both cursive and manuscript writing and use whichever form is more appropriate to the work at hand.  

The atmosphere of the writing class should be relaxed. In the correction of errors, the teacher should do it on an individual basis, rather than by general class criticism. That is, unless the entire class is making the same mistakes. Some teachers use the blackboard in correcting general class errors. The writer feels that individual correction is the safest, for all children do not profit from general class instruction.

Some authorities claim that it takes about four weeks or more to teach the small letters and three to four weeks to teach the capitals. (Allowances must be made for individual differences). The small letters should be taught

first as they are the ones that are used the most. The drill for quality and speed should follow.

The length of handwriting periods varies from 15 minutes to 30 minutes, depending upon the grade level. When a subject is taught correctly and enthusiasm is created, the time passes quickly.

Burke suggests that the capital letters "A" and "T" should be taught first, because they are the ones most commonly used in writing sentences. "S" and "G" should not be taught together, for children are apt to get them confused. Not over four or five capital letters should be taught in a week. In a class there are usually a number of children who have the same capital letters for their first or last name. It is a good idea to teach these along with the daily lesson.

The back-hand writing, especially if it is left-handed, should be corrected whenever discovered. The children can be told that it is no longer used in modern methods of writing. In the primary grades the words "line" and "space" should definitely be understood. One of the outstanding faults in the primary grades is the matter of not writing on the lines and of uneven spacing.

\[1/\] Burke, op. cit.
Such letters as "o", "v"., "b" and "w" need special drill, for if the ending is dropped, these letters can be readily taken for other letters. The "o" can be taken for an "a", the "b" for an "f", etc. It is effective, at times, to tell children to place a "wing" or a "shelf" on these difficult letters. Certain combinations such as "wr", "or", "bl", and "os" need special drill.

Unless the letters are clearly and painstakingly formed in learning cursive writing, much difficulty can develop in the grades to come. The kinesthetic method can be very valuable in teaching remedial handwriting; especially with difficult letters and combinations of letters. For example, in writing the word "cat" the teacher might say "think c", while it is written on the board, and the same with "a" and "t".

Hill gives the following table in favor of manuscript writing: "The table gives the results obtained by five-minute tests on 9,264 girls." (The test was given to girls in England who had used manuscript writing for two years or more).

1/ Burke, op. cit., p. 2.

### TABLE I

**Speed of Manuscript and Cursive Writing**

<table>
<thead>
<tr>
<th>Number tested</th>
<th>Age</th>
<th>Letters per Minute Manuscript</th>
<th>Letters per Minute Cursive</th>
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<td>19 - 9</td>
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<td>8</td>
<td>25 - 5</td>
<td>21 - 4</td>
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<td>1216</td>
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<td>60 - 9</td>
<td>61 - 0</td>
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Durrell gives the table below. "The table indicates normal handwriting speeds. It is based upon tests given in surveys conducted by the Boston University Educational Clinic."

### TABLE II

**Normal Handwriting Speed**

<table>
<thead>
<tr>
<th>Age</th>
<th>Letters per Minute</th>
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<td>45</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table contains data related to the experiment results. The values in the table indicate the outcomes of different conditions or tests performed. The data suggests a trend or pattern that can be further analyzed for conclusions.
It is interesting to note the comparisons in speed between the two tables. Speed is absolutely essential in learning to write; whether it is manuscript or cursive.

Macomber states:

Are there 'best' posture and movement patterns? More and more it is being recognized that children differ so in their physical make-up that there can be no set posture which is best for all. The movement and posture patterns that result in the best product for an individual child are best for him. 1/

Should a particular system of writing be followed? This is another debatable question. As with the case of reading instruction, the teacher who has developed a good understanding of how children learn to write will prefer to plan her own writing curriculum. It is undoubtedly best to have the children of a school practice the same general letter forms rather than to allow an instructor to teach any form he desires. This is done primarily to avoid confusing the child. 2/

Should pupils be allowed to use fountain pens? The answer here is obviously 'yes'. After all, most of their writing outside of the classroom will be with fountain pens or with the typewriter. Very few adults will use the old-style pen if a good fountain pen is available. There is no defensible reason for barring the fountain pen from the writing period except of tradition. 3/

1/ Macomber, op. cit., p. 207.
2/ Ibid., p. 206.
3/ Ibid., p. 208.
CHAPTER III

PROCEDURE OF THE SURVEY
CHAPTER III
PROCEDURE OF THE SURVEY

Fifteen hundred copies of the questionnaire form were either mailed or given out to schools, industrial plants, and individual workers.

The school questionnaires were given to the various school systems, with sufficient copies for each grade, so as to get a fair sampling of the handwriting in the schools surveyed.

It was intended to have the survey cover towns and cities in the north, south, east, and west and central sections of the state.

Questionnaires were given out to high schools, colleges, and universities, so as to get samplings of handwriting at these particular levels.

A short note was included or attached to all forms mailed out, asking those who filled out the questionnaires, to write in the upper-right corner "boy", "girl", "man", or "woman". This was necessary to establish the quality of handwriting for the individual sex.
The occupational forms were either given out personally or mailed to the personnel directors in the various industries. The personnel directors were asked to give out the forms to as many different occupational workers as possible. This was necessary to secure as many different samples of writing and other information asked for in the questionnaire.

As the survey forms were returned, the matter of tabulating the various items of information on them, and grading the sample of the individual's writing was necessary.

All individual specimens of handwriting were graded, for quality only by the Metropolitan or Ayers Handwriting Scales, depending upon the individual's grade level, and as to whether it was manuscript or cursive writing. Also, each sample of writing was graded by three people so as to establish a certain amount of validity.

Of the fifteen hundred (1500) blank forms sent out to be filled in, 741 returned represented the pupils and the students in schools, colleges, and universities throughout the state. Most grades received twenty or more copies.

On the whole, the school administrators and personnel were most cooperative in having the forms filled out. Out of the 1500 forms sent out, the schools represented 49% of the returns which is remarkably outstanding. A fair estimate on returns for surveys is given as about 33 1/3 %.
There were thirty-six (36) towns and cities which took part in the survey; representing both schools and occupations, as shown in Table III.

**TABLE III**

**Towns and Cities in the Survey**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Abington</td>
<td>13.</td>
<td>Deerfield</td>
</tr>
<tr>
<td>3.</td>
<td>Auburn</td>
<td>15.</td>
<td>Falmouth</td>
</tr>
<tr>
<td>4.</td>
<td>Barre</td>
<td>16.</td>
<td>Framingham</td>
</tr>
<tr>
<td>5.</td>
<td>Beverly</td>
<td>17.</td>
<td>Hopedale</td>
</tr>
<tr>
<td>10.</td>
<td>Chelsea</td>
<td>22.</td>
<td>North Easton</td>
</tr>
<tr>
<td>12.</td>
<td>Dedham</td>
<td>24.</td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25.</td>
<td>Peabody</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26.</td>
<td>Plymouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27.</td>
<td>Provincetown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28.</td>
<td>Quincy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29.</td>
<td>Salem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30.</td>
<td>Springfield</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31.</td>
<td>Somerville</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32.</td>
<td>Turners Falls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33.</td>
<td>Watertown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34.</td>
<td>Westwood (Islington)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35.</td>
<td>Woburn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>36.</td>
<td>Worcester</td>
</tr>
<tr>
<td>Location</td>
<td>Source</td>
<td>Date</td>
<td>Title</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>[Table Data]</td>
<td>[Source]</td>
<td>[Date]</td>
<td>[Title]</td>
</tr>
</tbody>
</table>

THE SOUTHERN MAN "701"
Location of Cities and Towns Participating in the Survey

**MASSACHUSETTS**

<table>
<thead>
<tr>
<th>Number</th>
<th>City</th>
<th>Number</th>
<th>City</th>
<th>Number</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abington</td>
<td>13</td>
<td>Deerfield</td>
<td>25</td>
<td>Peabody</td>
</tr>
<tr>
<td>2</td>
<td>Athol</td>
<td>14</td>
<td>Duxbury</td>
<td>26</td>
<td>Plymouth</td>
</tr>
<tr>
<td>3</td>
<td>Auburn</td>
<td>15</td>
<td>Falmouth</td>
<td>27</td>
<td>Provincetown</td>
</tr>
<tr>
<td>4</td>
<td>Barre</td>
<td>16</td>
<td>Framingham</td>
<td>28</td>
<td>Quincy</td>
</tr>
<tr>
<td>5</td>
<td>Beverly</td>
<td>17</td>
<td>Hopedale</td>
<td>29</td>
<td>Salem</td>
</tr>
<tr>
<td>6</td>
<td>Bridgewater</td>
<td>18</td>
<td>Milton</td>
<td>30</td>
<td>Springfield</td>
</tr>
<tr>
<td>7</td>
<td>Brookline</td>
<td>19</td>
<td>Nantucket</td>
<td>31</td>
<td>Somerville</td>
</tr>
<tr>
<td>8</td>
<td>Brockton</td>
<td>20</td>
<td>Newton</td>
<td>32</td>
<td>Turners Falls</td>
</tr>
<tr>
<td>9</td>
<td>Boston</td>
<td>21</td>
<td>North Adams</td>
<td>33</td>
<td>Watertown</td>
</tr>
<tr>
<td>10</td>
<td>Chelsea</td>
<td>22</td>
<td>North Easton</td>
<td>34</td>
<td>Westwood (Islington)</td>
</tr>
<tr>
<td>11</td>
<td>Dalton</td>
<td>23</td>
<td>Norwood</td>
<td>35</td>
<td>Woburn</td>
</tr>
<tr>
<td>12</td>
<td>Dedham</td>
<td>24</td>
<td>Orange</td>
<td>36</td>
<td>Worcester</td>
</tr>
</tbody>
</table>

*Note: North Adams and North Easton are within the same map region.*
CHAPTER IV
ANALYSIS OF DATA
CHAPTER IV
ANALYSIS OF DATA

The bar graphs on pages 28-39, on manuscript writing represent less than six schools. Most of the returns in manuscript writing came from two large school systems in suburban Boston.

The grading of the papers (for quality only) in the primary grades was done with the "Metropolitan Primary Handwriting Scale".

The grading of the papers from the fourth grade through the adult level was done with the "Ayers Handwriting Scale".

There seems to be no handwriting scale published for the grading of adult handwriting. The best of the handwriting of adults seldom exceeds that of the best writers in the eighth grade.

The self-rating of the individuals was interesting, in that the results were well correlated with the grades as taken from the Ayers scale. It was interesting from another standpoint; that most people try to be honest.

The thirty-six towns and cities, that participated in the survey, revealed the following handwriting systems in use, as shown in Table IV.
TABLE IV

Handwriting Systems in Use

<table>
<thead>
<tr>
<th>System</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Arm Movement</td>
<td>1%</td>
</tr>
<tr>
<td>2. Blanchard, C.W.</td>
<td>0% (.11)</td>
</tr>
<tr>
<td>3. Brookline-Kittle Combined</td>
<td>2%</td>
</tr>
<tr>
<td>4. Education Research</td>
<td>4%</td>
</tr>
<tr>
<td>5. Fox, I.J.</td>
<td>0% (.11)</td>
</tr>
<tr>
<td>6. Harrigan</td>
<td>1%</td>
</tr>
<tr>
<td>7. Houston</td>
<td>1%</td>
</tr>
<tr>
<td>8. Kittle</td>
<td>9%</td>
</tr>
<tr>
<td>9. Palmer</td>
<td>28%</td>
</tr>
<tr>
<td>10. Rinehart</td>
<td>24%</td>
</tr>
<tr>
<td>11. Spencerian</td>
<td>0% (.34)</td>
</tr>
<tr>
<td>12. Vertical</td>
<td>2%</td>
</tr>
<tr>
<td>13. Zaner-Bloser</td>
<td>9%</td>
</tr>
<tr>
<td>14. Unclassified</td>
<td>19%</td>
</tr>
</tbody>
</table>
# TABLE V

Returns on Manuscript and Cursive Writing

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Type of Writing</th>
<th>Number of Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>Manuscript</td>
<td>57</td>
</tr>
<tr>
<td>Grade 3</td>
<td>Manuscript</td>
<td>18</td>
</tr>
<tr>
<td>Grade 4</td>
<td>Manuscript</td>
<td>24</td>
</tr>
<tr>
<td>Grade 2</td>
<td>Cursive</td>
<td>58</td>
</tr>
<tr>
<td>Grade 3</td>
<td>Cursive</td>
<td>64</td>
</tr>
<tr>
<td>Grade 4</td>
<td>Cursive</td>
<td>57</td>
</tr>
<tr>
<td>Grade 5</td>
<td>Cursive</td>
<td>57</td>
</tr>
<tr>
<td>Grade 6</td>
<td>Cursive</td>
<td>74</td>
</tr>
<tr>
<td>Grade 7</td>
<td>Cursive</td>
<td>46</td>
</tr>
<tr>
<td>Grade 8</td>
<td>Cursive</td>
<td>73</td>
</tr>
<tr>
<td>High School or Grades 9-12</td>
<td>Cursive</td>
<td>111</td>
</tr>
<tr>
<td>College and University</td>
<td>Cursive</td>
<td>102</td>
</tr>
<tr>
<td>Total Returns</td>
<td></td>
<td>741</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Test Type</td>
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<td>10</td>
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<tr>
<td>11</td>
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<tr>
<td>12</td>
<td></td>
<td></td>
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<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Quality of Handwriting

Columns represent per cent in grade 2.

Metropolitan Primary Manuscript Scale
Quality of Handwriting

Columns represent per cent in grade 3

Metropolitan Primary Manuscript Scale

- 64%
- 31%
Quality of Handwriting

Columns represent per cent in grade 4

Metropolitan Primary Manuscript Scale
Quality of Handwriting

Columns represent per cent in grade 2.

Metropolitan Primary Cursive Scale
Quality of Handwriting

Columns represent per cent in grade 3.

Metropolitan Primary Cursive Scale
Quality of Handwriting

Columns represent per cent in grade 4

Ayers Scale
Quality of Handwriting

Columns represent per cent in grade 5

Ayers Scale

<table>
<thead>
<tr>
<th>Score</th>
<th>3%</th>
<th>8%</th>
<th>15%</th>
<th>12%</th>
<th>23%</th>
<th>8%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Quality of Handwriting

Columns represent per cent in grade 6

Ayers Scale
Quality of Handwriting

Columns represent per cent in grade 7

Ayers Scale
Quality of Handwriting

Columns represent per cent in grade 8

Ayers Scale

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% - 20%</td>
<td>0%</td>
</tr>
<tr>
<td>20% - 40%</td>
<td>5%</td>
</tr>
<tr>
<td>40% - 50%</td>
<td>18%</td>
</tr>
<tr>
<td>50% - 60%</td>
<td>22%</td>
</tr>
<tr>
<td>60% - 70%</td>
<td>35%</td>
</tr>
<tr>
<td>70% - 80%</td>
<td>18%</td>
</tr>
<tr>
<td>80% - 90%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Quality of Handwriting

Columns represent per cent in grades 9 through 12 or high school level

Ayers Scale
Quality of Handwriting

Columns represent per cent in colleges and universities.

Ayers Scale
An Explanation of the Bar Graphs

Manuscript - Grade 2, page 28.

The outstanding specimen from the Oak Hill School in Newton tended to throw the bar graph to the right.

Manuscript - Grade 3, page 29.

The unusual specimens of manuscript writing submitted from the Oak Hill School in Newton tended to produce this unusual graph. It is probably due to the fact that the third grade has had manuscript writing since the first grade.

Manuscript - Grade 4, page 30.

It so happened that the only returns in manuscript writing were from the fourth grade in the Pierce School, Brookline. It seems that the class is better than average.

Cursive - Grade 2, page 31.

This graph represents a fair curve, it being only slightly toward the right.

Cursive - Grade 3, page 32.

Many of the specimens in this graph were from a school system that ranked high in quality of handwriting; thus, the swing to the right.

Cursive - Grade 4, page 33.

Many of the samples included in this graph came from a school receiving informal instruction. This could account for such an unbalanced graph.

Cursive - Grade 5, page 34.

The specimens in grade five, as shown by the graph, are extremely unbalanced. This seems to be accountable to returns from two fifth grades, receiving only informal instruction.
Cursive - Grade 6, page 35.

The lower intermediate grades seem to trend toward the middle of the graph, as it seems they should when rated by the Ayers scale. I believe on the Palmer Grading Scale the grades would have shown a more normal curve.

Cursive - Grade 7, page 36.

There seems to be no special reason for the peculiar trend in this graph. It is probably due to the fact that the "60 and 70" ratings came from one of the top ranking handwriting systems.

Cursive - Grade 8, page 37.

For this, I would give the same explanation as for grade 7.

Cursive - High School, page 38.

The definite trend to the right is due to the splendid specimens of handwriting from the High School of Commerce in Springfield.

Cursive - College and University, page 39.

This graph is definitely to the right, because of the outstanding specimens of writing from the Salem and Bridgewater State Teachers Colleges.
Quotations from College and University Students

The following students give their reasons for the degeneration of handwriting:

A student nurse - "Lack of practice and carelessness."

A student nurse - "The taking of notes, rapidly, in classes."

A college student - "My handwriting hasn't changed so much from leaving high school as it has from leaving junior high school."

A college student - "Lack of training and instruction."

A college student - "My handwriting has degenerated because of hurried notes."

A college student - "I believe my handwriting has degenerated since I have been in college due to rapid note-taking."

A student at Salem Teachers College - "My handwriting has degenerated somewhat, because of necessity to write more quickly. Thus, it has become careless."

A student at Framingham Teachers College - "I attribute my degenerating handwriting to the fact that I am now compelled to write so much more swiftly."

A Boston University student - "I believe my handwriting has degenerated because of general carelessness and rapid note-taking."

A Holy Cross College student - "Insufficient practice and carelessness."

A student at Framingham Teachers College - "My handwriting has degenerated in the past four years because I have developed a habit of writing fast."

A student at Holy Cross College - "Profuse note-taking in class."

A student nurse - "Lack of training and instruction."

A college student - "Severe nervous strain."
Suggestions for the Improvement of Handwriting
As Offered by College and University Students

"Instruction should continue in all high schools."

"More supervised formal instruction continued through high school."

"I think that if a simple method of shorthand could be developed, more care might be taken in the forming of letters."

"Simplifying the formation of some of the letters."

"Abolish those awkward pens in grammar schools."

"Well, I spend my time printing and only use my writing for signature needs."

"Supervised instruction with greater intensity."

"Slant and spacemant between letters."

"Strict instruction and studied practice on one's own initiative."

"Instruction should continue in all high schools."

The majority of suggestions from college and university students were that there be more supervised instruction in the school and that it continue through the high school.
The percentages as shown in Table VI, figured out on the basis of the questionnaire returns, represent the quality of writing only. The Ayers Handwriting Scale was used. (See Appendix).

**TABLE VI**

Quality of Handwriting—Boys and Girls, Men and Women

<table>
<thead>
<tr>
<th>Rating</th>
<th>Per Cent</th>
<th>Rating</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grades 4, 5, 6, 7, and 8</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys 20 - 60</td>
<td>73%</td>
<td>Boys 70 - 90</td>
<td>27%</td>
</tr>
<tr>
<td>Girls 20 - 60</td>
<td>57%</td>
<td>Girls 70 - 90</td>
<td>43%</td>
</tr>
<tr>
<td><strong>High School</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys 20 - 60</td>
<td>64%</td>
<td>Boys 70 - 90</td>
<td>36%</td>
</tr>
<tr>
<td>Girls 20 - 60</td>
<td>24%</td>
<td>Girls 70 - 90</td>
<td>76%</td>
</tr>
<tr>
<td><strong>Industry and College</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men 20 - 60</td>
<td>74%</td>
<td>Men 70 - 90</td>
<td>26%</td>
</tr>
<tr>
<td>Women 20 - 60</td>
<td>33%</td>
<td>Women 70 - 90</td>
<td>67%</td>
</tr>
</tbody>
</table>
The table below shows the results of an experiment where the effect of temperature on the reaction rate was studied. The reaction rate was measured in terms of the change in concentration over time. The temperature was varied from 25°C to 100°C in steps of 25°C. The reaction rate was found to increase with temperature, with the highest rate observed at 100°C.
Occupational Survey

This part of the survey took in a fair sampling of the various occupations in Massachusetts. It was not intended to measure any one occupation, but occupations in general.

Of the 1500 questionnaires sent out, 207 were returned by occupational workers, which represented a 14% return.

TABLE VII
Occupational Returns of Various Workers

<table>
<thead>
<tr>
<th>Occupation</th>
<th>No. of Returns</th>
<th>Occupation</th>
<th>No. of Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Accountant</td>
<td>8</td>
<td>15. Electrician</td>
<td>2</td>
</tr>
<tr>
<td>2. Architect</td>
<td>3</td>
<td>16. Electrotyper</td>
<td>1</td>
</tr>
<tr>
<td>3. Assembler (tools)</td>
<td>2</td>
<td>17. Engineers</td>
<td>3</td>
</tr>
<tr>
<td>4. Attorney</td>
<td>2</td>
<td>18. Factory Worker</td>
<td>14</td>
</tr>
<tr>
<td>5. Banker</td>
<td>3</td>
<td>19. Fireman</td>
<td>1</td>
</tr>
<tr>
<td>6. Buyer</td>
<td>5</td>
<td>20. Fish Industry</td>
<td>1</td>
</tr>
<tr>
<td>7. Carpenter</td>
<td>3</td>
<td>21. Foreman</td>
<td>3</td>
</tr>
<tr>
<td>8. Clerk</td>
<td>16</td>
<td>22. Grinder</td>
<td>1</td>
</tr>
<tr>
<td>10. Construction (Supt.)</td>
<td>2</td>
<td>24. Inspector</td>
<td>2</td>
</tr>
<tr>
<td>13. Director</td>
<td>2</td>
<td>27. Jobmaster</td>
<td>1</td>
</tr>
<tr>
<td>TITRE</td>
<td>CONTEXTE</td>
<td>INTERPRETATION</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Exemple 1</td>
<td>Description</td>
<td>Explication de l'exemple 1</td>
<td></td>
</tr>
<tr>
<td>Exemple 2</td>
<td>Détails</td>
<td>Explication de l'exemple 2</td>
<td></td>
</tr>
<tr>
<td>Exemple 3</td>
<td>Continuation</td>
<td>Explication de l'exemple 3</td>
<td></td>
</tr>
<tr>
<td>Exemple 4</td>
<td>Finalisation</td>
<td>Explication de l'exemple 4</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>No. of Returns</td>
<td>Occupation</td>
<td>No. of Returns</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------</td>
<td>---------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>29. Librarian</td>
<td>1</td>
<td>43. Sanitation worker</td>
<td>1</td>
</tr>
<tr>
<td>30. Machinist</td>
<td>7</td>
<td>44. Secretaries</td>
<td>8</td>
</tr>
<tr>
<td>31. Manager</td>
<td>6</td>
<td>45. Section Head</td>
<td>3</td>
</tr>
<tr>
<td>32. Nurse</td>
<td>4</td>
<td>46. Sheetmetal worker</td>
<td>1</td>
</tr>
<tr>
<td>33. Painter</td>
<td>2</td>
<td>47. Superintendents (school and industry)</td>
<td>6</td>
</tr>
<tr>
<td>34. Patternmaker</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Physician</td>
<td>3</td>
<td>48. Teachers (grades through university)</td>
<td>10</td>
</tr>
<tr>
<td>36. Plumber</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Policeman</td>
<td>2</td>
<td>49. Realtor</td>
<td>1</td>
</tr>
<tr>
<td>38. Printer</td>
<td>2</td>
<td>50. Stenographers</td>
<td>5</td>
</tr>
<tr>
<td>39. Principals (school)</td>
<td>5</td>
<td>51. Supervisors (school and industry)</td>
<td>3</td>
</tr>
<tr>
<td>40. Register of Deeds</td>
<td>1</td>
<td>52. Strapper and Corder</td>
<td>1</td>
</tr>
<tr>
<td>41. Salesman</td>
<td>14</td>
<td>53. Surgeon</td>
<td>1</td>
</tr>
<tr>
<td>42. Saleswoman</td>
<td>5</td>
<td>54. Watchmaker</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55. Toolworker</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>56. Welder, arc</td>
<td>1</td>
</tr>
</tbody>
</table>

Of the 207 questionnaires returned by the occupational workers, no one gave himself a rating of "excellent"; 46 rated themselves as "good"; 132 rated themselves as "fair"; while only 29 rated themselves as "poor". The majority of self-ratings were either "good" or "fair". The people who
marked themselves "poor" were decidedly in the minority.*
The percentages of the self-ratings by occupational workers on the quality of their handwriting are given in Table VIII.

TABLE VIII

<table>
<thead>
<tr>
<th>Self-Ratings for Quality of Handwriting by Occupational Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
</tr>
<tr>
<td>0%</td>
</tr>
</tbody>
</table>

Those who filled out the occupational forms were asked to check the type of instruction of handwriting received while in school. There were six who received no instruction; 35 who received informal instruction; 79 who received formal instruction, and 87 who received supervised instruction.**

TABLE IX

<table>
<thead>
<tr>
<th>Type of Handwriting Instruction Received in School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Instruction</td>
</tr>
<tr>
<td>3%</td>
</tr>
</tbody>
</table>

* See occupational questionnaire in Appendix B.

** See Appendix.
Let \[
\begin{align*}
\mathbf{A} &= \begin{pmatrix}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9
\end{pmatrix}, \\
\mathbf{B} &= \begin{pmatrix}
9 & 8 & 7 \\
6 & 5 & 4 \\
3 & 2 & 1
\end{pmatrix}, \\
\mathbf{C} &= \begin{pmatrix}
2 & 3 & 4 \\
5 & 6 & 7 \\
8 & 9 & 1
\end{pmatrix}
\end{align*}
\]

Compute \[\mathbf{A} \times \mathbf{B} \times \mathbf{C}\].

\[
\begin{align*}
\mathbf{A} \times \mathbf{B} &= \begin{pmatrix}
1 \times 9 + 2 \times 6 + 3 \times 3 \\
4 \times 9 + 5 \times 6 + 6 \times 3 \\
7 \times 9 + 8 \times 6 + 9 \times 3
\end{pmatrix} = \begin{pmatrix}
20 \\
51 \\
80
\end{pmatrix}, \\
\mathbf{A} \times \mathbf{B} \times \mathbf{C} &= \begin{pmatrix}
20 \times 2 + 51 \times 5 + 80 \times 4 \\
20 \times 3 + 51 \times 6 + 80 \times 7 \\
20 \times 4 + 51 \times 8 + 80 \times 9
\end{pmatrix} = \begin{pmatrix}
435 \\
750 \\
1065
\end{pmatrix}
\end{align*}
\]
Quality of Handwriting

Columns represent per cent in occupations

Ayers Scale
An Explanation of the Occupational Bar Graph

The returns from the many occupations resulted in a wide variety of handwriting specimens. The bar graph tends to illustrate this point, in that there is a fairly normal curve.
Quotations Taken from Occupational Surveys

Reasons for Degeneration of Handwriting

An architect - "I always received a mark of "1" which is equal to "A" now, for vertical writing when I graduated from Mechanic Arts High, but could not use it so began using slant."

An accountant - "Speed of production work."

Another accountant - "Trying to hurry; perhaps having the pen in one hand while trying to phone with the other."

Assembler of tools - "Writing in haste."

Auditing clerk - "Carelessness. Failure to care properly for equipment."

A glove buyer - "Too busy to take time."

A carpenter - "Because of the nature of my work, I do very little writing."

Another carpenter - "Not enough practice, change in muscles."

An author - "Secretaries who coddled me too much."

Office clerk - "Writing too fast and lack of care."

Stock clerk - "Increasing age."

Clerical worker - "Speed - lack of thoughtful effort."

Bank clerk - "Not taking the time to write clearly and non-supervision."

Office girl - "My thoughts are faster than my pen and I hurry, most of the time needlessly."

Director of Industrial Relations - "Yes, carelessness and pressure of work."

Director of Religious Education - "Taking notes hurriedly; good and bad pens; our nervous tension is as much reflected in our handwriting as in any other way."

A compositor - "As I am a compositor in the printing trade, I get very little practice in writing every day."
A draftsman - "Yes, my work has always demanded speed. Time has always been more important than appearance; also, have a nervous makeup."

Watch engineer - "There has been writing degeneration, due to speedier writing requirements and writing conditions requiring finger movement rather than wrist and forearm."

Electronic engineer - "Writing is seldom used as a means of communication and little effort is made to make it legible."

An orderly - "The positions I have worked at have required very little writing. I also have a tendency to write very fast."

Letter carrier - "Loss of three fingers on the right hand during the war."

Traffic manager - "The study of shorthand in high school, taking lecture notes in college."

School nurse - "Combining printing and writing; writing hurriedly."

A secretary - "Carelessness. Most things to be read by others are typewritten, and notes for self hastily written."

School superintendent - "Taking notes in college, carelessness, always in too much of a hurry."

School superintendent - "Necessity of speed in writing, and lack of effort."

The general summary of remarks amounts to: hurried note taking; little effort; and general carelessness.
Occupational Workers Offer the Following Suggestions for the Improvement of Handwriting:

An accountant - "Constant practice."

An architect - "Teach slant method from the first grade."

An attorney - "Diligence and care in your writing."

Auditing clerk - "Practice with concentration on improvement."

A banker - "Practice and teach the time-saving value of legibility and proper care of writing implements."

A clergyman - "Less hurried writing, less writing under pressure."

An author - "Try all bad writers in court for stealing; stealing hours and hours of other people's time."

Bank clerk - "Allow more individuality."

A clerical worker - "More public handwriting instruction."

A fireman - "Good posture."

A housewife - "Supervised instruction."

School superintendent - "Inculcation of desire for better writing on part of the pupil, plus motivation by teacher."

School superintendent - "Analysis or diagnosis and remedial work on illegibilities."

A teacher - "Supervised instruction in junior and senior high schools, as well as in the lower grades."
A university professor - "Analysis of writing to find defects and drill in correcting them."

An arc welder - "It is an art and it must be practiced as one."
CHAPTER V

CONCLUSIONS
CHAPTER V

CONCLUSIONS

This study was made in an effort to determine why so many people's handwriting degenerated after leaving school. Also, to learn to some extent the handwriting systems in use in Massachusetts; the type of instruction received, and what could be done to improve the writing program in our schools.

The returns from college and university students, in regard to the degeneration of handwriting appear to be: lack of practice and carelessness; rapid note-taking in classes; lack of sufficient training; and a few listed nervous strain.

Some of the suggestions offered by college and university students for the improvement of handwriting were: instruction should continue through high school; more supervision in writing; and simplified formation of letters.

The reasons for the degeneration of handwriting given by occupational workers were as follows: carelessness; necessity of speed and working under pressure; and the use of shorthand and the typewriter.

-54-
Some of the suggestions offered by occupational workers for the improvement of handwriting were: **more supervision in the public schools; less hurried writing; remedial work on illegibilities; and allowance for individuality.**

From the questionnaires returned it appears that the cursive form of writing is more popular in the schools of Massachusetts. The writer does feel from talking with school people that it is only a matter of a short time before manuscript writing is firmly established in our schools; especially in the lower grades. In research, the educators appear to give much importance to manuscript writing, because of the ease with which young children pick it up in their classes.

The system that was most commonly used according to the survey was the Palmer system, and it represented 28 per cent of the questionnaires returned. The writer is inclined to feel that this is largely due to the fact, that it is an old and established system.

The Rinehart system was second, with 24 per cent of the questionnaires returned. The writer is under the impression that this system is popular in this particular section of New England. The writer would criticize the Rinehart system because of the competitive spirit between classes and even teachers. (Since awards are given in this system, the writer would suggest individual awards rather than group prizes).
The Kittle system and the Zaner-Bloser system both received 9 per cent on questionnaires returned. The Kittle system has many good points, but it appears that Kittle incorporates a large part of kinesthetic methods, excellent in promoting the slow learner, but time-consuming for the normal child.

Mr. Bloser, in a letter to the writer, stated that the company had done little to promote sales in Massachusetts in recent years.

The majority of the schools are receiving formal instruction in handwriting; while a very few are receiving informal or no definite instruction. For the most part, the city schools have their own writing supervisors. Some cities and towns employ handwriting experts to direct their writing activities. (See Table IX, page 47).

The school system contributing the best set of papers, as to quality rating, was Nantucket.

The high school turning in the best set of papers was the High School of Commerce in Springfield, Massachusetts. The quality of handwriting was outstanding.

The colleges turning in the best sets of papers were: Bridgewater State Teachers College, Salem State Teachers College, and Framingham State Teachers College. It appears that Bridgewater and Salem are using the results of Educational Research.
An interesting finding from this survey was that the female sex is far superior in the quality of writing as compared to the male sex. (See Table VI on page 44).

From the study of this survey the writer would like to offer the following suggestions for the improvement of handwriting.

Suggestions for the Improvement of Handwriting

1. Each child be allowed to write in his own individual motor coordination pattern or slant.

2. Instruction from the primary level through high school.

3. That the classes in handwriting be conducted as conscientiously as any other class.

4. Remedial measures taken to correct faulty writing.

5. Stress to be placed on all written work.

6. Speed of handwriting to be stressed as well as quality of writing. If this were done and pupils were trained to establish speed rate for grade level; the writer doubts if so much scribbling would take place in the taking of notes at institutions of higher learning. Also, it might tend to lessen so many illegibilities in the various occupations.

7. Establishment of manuscript writing in the primary grades, with the change to cursive at the beginning of the third grade, or when it seemed advisable to the teacher or supervisor in charge.
CHAPTER VI

LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDY
CHAPTER VI
LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDY

The writer would like to suggest that a more comprehensive survey of handwriting be made in Massachusetts. The elements of time and finances were a limiting factor in this survey.

While there was a fair return on the occupational questionnaires (207), there were a number of industries that failed to make any returns; largely on the ground that it was too inconvenient.

The writer would like to suggest that in future surveys of this type as many personal contacts as possible be made. When this plan of contact was used, the returns were much more satisfactory.

A valuable contribution to a study of this type would be to make an analysis of the handwriting difficulties such as could be found in the samples of handwriting returned on the questionnaire forms. (The questionnaire forms have been filed away for future reference).
The handwriting could be analyzed for the following difficulties:

1. Incorrect endings.
2. Incorrectly made undercurves.
3. Incorrect formation of initial strokes.
5. Failure to use downstrokes where needed.
6. Proper spacing of letters.
7. Proper size of letters.

If such a study were made, and the findings were made available to the public schools, it might be valuable in helping to overcome much of the faulty writing that is found in our schools and industries of today.
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Vosatka, "Is Your Handwriting Legible?", The Instructor, March, 1946.

APPENDIX

A. Copy of school questionnaire
B. Copy of occupational questionnaire
C. Samples of handwriting
D. Copy of Ayers Handwriting Scale
E. Copy of Metropolitan Handwriting Scale
A SURVEY OF HANDWRITING IN THE SCHOOLS OF MASSACHUSETTS

Check — Grade .......... High School .......... College .......... University ..........

Location of School ........................................................................................................

Check the type of instruction you receive.

No instruction .............
Informal instruction ..........
Formal instruction .......... What system .............................................................
Supervised instruction ....... What system .............................................................

If you began with manuscript writing at what grade did you change to cursive writing?
.................................................................................................................................

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

To Be Filled Out Only By College Or University Students.

If your handwriting has degenerated since leaving high school, what do you attribute it to?
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

Your Suggestions For The Improvement Of Handwriting.
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
.................................................................................................................................

Do Not Write Below This Line.

Rating .......................... Particular Weakness .................................
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation ........................................................................................................................................

Your Residence .........................................................................................................................................

Check the type of handwriting instruction you had in school.

   No instruction ..............
   Informal instruction ..........
   Formal instruction ........... What system .................................................................
   Supervised instruction ...... What system .................................................................

Do you consider yourself a good handwriter? Yes ............. No .....................

Rate yourself accordingly by checking one of the items below.

   Excellent ....................
   Good .........................
   Fair ............................
   Poor ............................

If your handwriting has degenerated since leaving school, what do you attribute it to?

........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................

Your Suggestions For The Improvement Of Handwriting.

........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................
........................................................................................................................................................

Do Not Write Below This Line.

Rating .............................. Particular Weakness .................................
Come to my garden in spring
time and hear birds singing sweetly for summer is near
Come to my garden

In spring time and singing birds

is near.
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation .................................................. Bill Paine - Grade II

Your Residence ...................................................... Norwood

Check the type of handwriting instruction you had in school.

- No instruction ........................................
- Informal instruction ............................... Rinehart
- Formal instruction ................................
- Supervised instruction ..........................

What system .......................................................

Do you consider yourself a good handwriter? Yes ✔ No ........

Rate yourself accordingly by checking one of the items below.

- Excellent .................................
- Good .................................
- Fair .................................
- Poor .................................

If your handwriting has degenerated since leaving school, what do you attribute it to?

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

The lazy boy quietly watched the pretty vixen jump over the fence.

Your Suggestions For The Improvement Of Handwriting.

__________________________________________________________________________

Do Not Write Below This Line.

Rating .......................... 70

Particular Weakness ..........................
A SURVEY OF HANDWRITING IN THE SCHOOLS OF MASSACHUSETTS

Check — Grade __________ High School __________ College __________ University __________

Location of School ____________________________

Check the type of instruction you receive.

- No instruction
- Informal instruction
- Formal instruction
- Supervised instruction

What system ____________________________

If you began with manuscript writing at what grade did you change to cursive writing?

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

To Be Filled Out Only By College Or University Students.

If your handwriting has degenerated since leaving high school, what do you attribute it to?

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating ____________________________ Particular Weakness ____________________________
Your Occupation: Pupil in Grade 6

Your Residence:

Check the type of handwriting instruction you had in school.

- No instruction
- Informal instruction
- Formal instruction
- Supervised instruction

What system: Manuscript

Do you consider yourself a good handwriter? Yes ... No 

Rate yourself accordingly by checking one of the items below.

- Excellent
- Good
- Fair
- Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

Rating: 70

Particular Weakness: 
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation: Pupil in Grade Four
Your Residence: Norwood, Mass.

Check the type of handwriting instruction you had in school.

- No instruction
- Informal instruction
- Formal instruction
- Supervised instruction

What system

Do you consider yourself a good handwriter? Yes ☑ No

Rate yourself accordingly by checking one of the items below.

- Excellent
- Good
- Fair
- Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating: 5/5
Particular Weakness: 

Check — Grade ........ High School ........ College ........ University ........

Location of School ..................................................

Check the type of instruction you receive.

No instruction ..............
Informal instruction ..........
Formal instruction .......................... What system ..........Palmer
Supervised instruction ............. What system ..........

If you began with manuscript writing at what grade did you change to cursive writing?

........................................................................................................

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

........................................................................................................

To Be Filled Out Only By College Or University Students.

If your handwriting has degenerated since leaving high school, what do you attribute it to?

........................................................................................................

........................................................................................................

........................................................................................................

Your Suggestions For The Improvement Of Handwriting.

........................................................................................................

........................................................................................................

........................................................................................................

........................................................................................................

........................................................................................................

........................................................................................................

........................................................................................................

Do Not Write Below This Line.

Rating .......................... Particular Weakness .......................
Your Occupation: [Handwritten text]

Your Residence: [Handwritten text]

Check the type of handwriting instruction you had in school.

- No instruction
- Informal instruction
- Formal instruction
- Supervised instruction

What system

Do you consider yourself a good handwriter? Yes No

Rate yourself accordingly by checking one of the items below.

- Excellent
- Good
- Fair
- Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

Rating .................................. Particular Weakness ..................................
A SURVEY OF HANDWRITING IN THE SCHOOLS OF MASSACHUSETTS

Check — Grade □ High School □ College □ University □

Location of School □ Arlington □ Massachusetts

Check the type of instruction you receive.

No instruction □ Informal instruction □
Formal instruction □ What system Palmer □
Supervised instruction □ What system Functional □

If you began with manuscript writing at what grade did you change to cursive writing?

Second □

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

To Be Filled Out Only By College Or University Students.

If your handwriting has degenerated since leaving high school, what do you attribute it to?

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating □ Particular Weakness □
A SURVEY OF HANDWRITING IN THE SCHOOLS OF MASSACHUSETTS

Check — Grade .......: High School ......: College ........ University .........

Location of School

Check the type of instruction you receive.

No instruction ............
Informal instruction ..........
Formal instruction .......... What system .................................
Supervised instruction / What system ................................

If you began with manuscript writing at what grade did you change to cursive writing?

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

To Be Filled Out Only By College Or University Students.

If your handwriting has degenerated since leaving high school, what do you attribute it to?

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating .............. Particular Weakness ..............
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation: Student

Your Residence: Lynn, Massachusetts

Check the type of handwriting instruction you had in school.

- No instruction
- Informal instruction
- Formal instruction
- Supervised instruction

What system: Elementary + Junior High

Do you consider yourself a good handwriter? Yes ☑ No

Rate yourself accordingly by checking one of the items below.

- Excellent
- Good
- Fair
- Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

Still attending school at Salem Teachers College

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

More formal instruction in lower grades

Do Not Write Below This Line.

Rating: 70

Particular Weakness
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation - Student

Your Residence - Lowell Street, Salem, Mass.

Check the type of handwriting instruction you had in school.

<table>
<thead>
<tr>
<th>Instruction</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>No instruction</td>
<td>Palmes</td>
</tr>
<tr>
<td>Informal instruction</td>
<td></td>
</tr>
<tr>
<td>Formal instruction</td>
<td></td>
</tr>
<tr>
<td>Supervised instruction</td>
<td>Catholic Church</td>
</tr>
</tbody>
</table>

Do you consider yourself a good handwriter? Yes / No

Rate yourself accordingly by checking one of the items below.

Excellent
Good
Fair
Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

I am still a student at the State Teachers College at Salem.

Please Copy The Following Sentence. (Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

More supervised instruction in high school.

Do Not Write Below This Line.

Rating 90

Particular Weakness

Female
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation ............................................................... Personal Interview

Your Residence ............................................................... 117 Langdon Ave, Watertown, Mass.

Check the type of handwriting instruction you had in school.

<table>
<thead>
<tr>
<th>Type of Instruction</th>
<th>What System</th>
</tr>
</thead>
<tbody>
<tr>
<td>No instruction</td>
<td>Blank</td>
</tr>
<tr>
<td>Informal instruction</td>
<td>Blank</td>
</tr>
<tr>
<td>Formal instruction</td>
<td>Female Print Method</td>
</tr>
<tr>
<td>Supervised instruction</td>
<td>Blank</td>
</tr>
</tbody>
</table>

Do you consider yourself a good handwriter? Yes ............... No ...........

Rate yourself accordingly by checking one of the items below.

- Excellent ............
- Good ............
- Fair ............
- Poor ............

If your handwriting has degenerated since leaving school, what do you attribute it to?

- Bad vision
- Lack of practice
- Other

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

- Use more penmanship

Do Not Write Below This Line.

Rating ...................... Particular Weakness ......................
Your Occupation: Bank Clerk
Your Residence: 49 Walnut Street, Dedham

Check the type of handwriting instruction you had in school.

- No instruction
- Informal instruction
- Formal instruction: Palmer Method
- Supervised instruction

What system: Palmer Method

Do you consider yourself a good handwriter? Yes ...... No ......

Rate yourself accordingly by checking one of the items below.

- Excellent
- Good
- Fair
- Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

---

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

---

Your Suggestions For The Improvement Of Handwriting.

more individuality without sacrificing legibility

Do Not Write Below This Line.

Rating: 70
Particular Weakness: 

A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation ................................................. Carpenter

Your Residence ......................................................... 27 Elm St., Watertown, Mass.

Check the type of handwriting instruction you had in school.

- No instruction ..............
- Informal instruction ..........
- Formal instruction .......... What system .............. Palmer
- Supervised instruction ...... What system ..............

Do you consider yourself a good handwriter? Yes ................. No ........

Rate yourself accordingly by checking one of the items below.

- Excellent ..............
- Good ..............
- Fair ..............
- Poor ..............

If your handwriting has degenerated since leaving school, what do you attribute it to?

- Not enough practice
- Change in muscles

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

More practice

Do Not Write Below This Line.

Rating ...................... Particular Weakness ......................
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation    Office clerks
Your Residence   T.B. Rogers ton Rd., Athol, Mass.

Check the type of handwriting instruction you had in school.

   No instruction ............
   Informal instruction ...........
   Formal instruction ........... What system
   Supervised instruction ........ What system

Do you consider yourself a good handwriter? Yes ........ No ..

Rate yourself accordingly by checking one of the items below.

   Excellent ............
   Good ............
   Fair ............
   Poor ............

If your handwriting has degenerated since leaving school, what do you attribute it to?

   Lack of practice. Different
   Methods taught in school. Too much speed

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating .......... Particular Weakness .........
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation: Teacher

Your Residence: 837 High Street, Westwood

Check the type of handwriting instruction you had in school.

- No instruction
- Informal instruction
- Formal instruction
- Supervised instruction

What system: Palmer

Do you consider yourself a good handwriter? Yes ☑ No

Rate yourself accordingly by checking one of the items below.

- Excellent
- Good ☑
- Fair
- Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

抄写以下句子。

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating: 50

Particular Weakness:
A SURVEY OF HANDWRITING OF THE VARIOUS OCCUPATIONS IN MASSACHUSETTS

Your Occupation: Office Supervisor, Insurance Co.

Your Residence: Cambridge, Mass.

Check the type of handwriting instruction you had in school.

No instruction
Informal instruction
Formal instruction
Supervised instruction

What system: Palmer Method

Do you consider yourself a good hand writer? Yes No

Rate yourself accordingly by checking one of the items below.

Excellent
Good
Fair
Poor

If your handwriting has degenerated since leaving school, what do you attribute it to?

My poor handwriting is due to

Please Copy The Following Sentence.
(Do not print)

The lazy boy quietly watched the pretty vixen jump over the fence and steal a big chicken.

Your Suggestions For The Improvement Of Handwriting.

Do Not Write Below This Line.

Rating: Particular Weakness:
This scale for measuring the quality of handwriting is a revised edition of a scale first published in 1912 and subsequently reprinted 12 times with a total of 62,000 copies. The purpose of the present edition is to increase the reliability of measurements of handwriting through standardizing methods of securing and scoring samples, and through making numerous improvements in the scale itself designed to reduce variability in the results secured through its use.

The present scale is usually referred to as the "Gettysburg Edition" because the opening sentences of Lincoln's Gettysburg Address are used. It is priced at ten cents for single copies, and in quantity at the rate of $0.00 per hundred and $75.00 per thousand copies.

To secure samples of handwriting the teacher should write on the board the first three sentences of Lincoln's Gettysburg Address and have the pupils read and copy until familiar with it. They should then copy it, beginning at a given signal and writing for precisely two minutes. They should write in ink on ruled paper. The copy with the count of the letters in it is as follows:

*Four score and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war testing whether that nation or any nation so conceived and so dedicated can long endure.*

To score samples slide each specimen along the scale until a writing of the same quality is found. The number at the top of the scale above this shows the value of the writing being measured. Disregard differences in style, but try to find on the scale the quality corresponding with that of the sample being scored. With practice the scorer will develop the ability to recognize qualities more rapidly and with increasing accuracy. If the scoring is done twice, the results will be considerably more accurate than if done only once. The procedure may be as follows: Score samples and distribute them in piles with all the 20's in one pile, all the 30's in another, and so on. Mark these values on the backs of the papers, then shuffle the samples and score them a second time. Finally make careful decisions to overcome any disagreements in the two scorings.
and seventy years ago, our fathers brought forth on this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met in a great civil war to test whether that nation, or any nation so conceived and so dedicated, can long endure. We are met in a great civil war to test whether that nation, or any nation so conceived and so dedicated, can long endure. We are met in a great civil war to test whether that nation, or any nation so conceived and so dedicated, can long endure.

Columns represent per cent of pupils in each of four upper grades found to have handwriting qualities shown below each column.
METROPOLITAN PRIMARY MANUSCRIPT HANDWRITING SCALE

By Gertrude H. Hildreth, Associate in Research, and Psychologist, the Lincoln School, Teachers College, Columbia University

Directions. To use the scale, first arrange the specimens of the pupils' handwriting in order of quality, the best one on the top and the poorest on the bottom. In judging the quality of the handwriting, take into account general appearance, legibility, letter formation, uniformity of direction and evenness of line, spacing, and alignment. Then compare the first paper with the best specimen on this scale. If it is at least as good as that specimen, assign to it a quality score of 70. If it is not as good, compare it with the next specimen on this scale. If it is at least as good, assign to it a quality score somewhere between 60 and 69, depending on how much better you think it is than the scale specimen of quality 60. Continue this process until a quality score is assigned to the first paper. Repeat the process for every other handwriting specimen.

As a check on the ratings it is preferable to determine first the ratings to assign to every fifth paper of the group of pupils (or every tenth, etc., depending on the number of papers to be rated). As the intervening papers are rated, these first ratings will act as a check to make all the ratings more accurate. The average of the ratings assigned by two or more teachers will be more accurate than the ratings of a single teacher.

To evaluate the quality ratings of the pupils, find the median quality ratings for each of Grades 1, 2, and 3, and prepare a table of grade norms. (See page 31 of the Supervisor's Manual for Metropolitan Achievement Tests.) Express each pupil's quality rating as a grade equivalent in terms of these local norms.

To evaluate speed of writing, count the number of letters written in the two minutes, and divide by 2 to obtain the number of letters written per minute. Find the median rate (letters written per minute) for each of Grades 1, 2, and 3. Prepare a table of grade norms. Express each pupil's rate score as a grade equivalent.

To use the results for improving the pupils' work, examine each pupil's writing and mark with a colored pencil errors in letter formation, uniformity of direction and evenness of line, spacing, and alignment. Tabulate these errors to determine how frequently each occurs. Prepare remedial exercises for each pupil, that will correct his errors. (See Courtis-Shaw, Standard Test Lessons in Handwriting.) A pupil whose writing is very poor may be given the test individually, the teacher noting how he sits, how he holds paper and pencil, how he makes certain letters, and so on.

70

Come to my garden
In spring time and hear
Birds singing sweetly
For summer is near

60

Come to my garden
In spring time and hear
Birds singing sweetly
For summer is near
Come to my garden
In Springtime and hear
Birds sing

Come to my garden
In Springtime and hear
Birds singing sweetly
For summer is near

Come to my garden
In Springtime and hear
Birds singing sweetly

Come to my garden
In Springtime and hear

Come to my garden
In Springtime and hear

Come to my garden
In Springtime and hear

Come to my garden
In Springtime and hear
METROPOLITAN PRIMARY CURSIVE HANDWRITING SCALE

By Gertrude H. Hildreth, Associate in Research, and Psychologist, the Lincoln School, Teachers College, Columbia University

Directions. To use the scale, first arrange the specimens of the pupils' handwriting in order of quality, the best one on the top and the poorest on the bottom. In judging the quality of the handwriting, take into account general appearance, legibility, letter formation, uniformity of slant, evenness of line, spacing, and alignment. Then compare the first paper with the best specimen on this scale. If it is at least as good as that specimen, assign it a quality score of 70. If it is not as good, compare it with the next specimen on this scale. If it is at least as good, assign to it a quality score somewhere between 60 and 69, depending on how much better you think it is than the scale specimen of quality 60. Continue this process until a quality score is assigned to the first paper. Repeat the process for every other handwriting specimen.

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Come to my garden

In spring time and hear

Birds singing sweetly

For summer is near

Come to my garden

In spring time and hear

Birds singing sweetly

70

60
Come to my garden
In spring time and hear
Birds singing sweetly
For summer is near

Come to my garden
In spring time and hear
Birds singing sweetly
For summer is near

Come to my garden
In spring time and hear
Birds singing sweetly
For summer is near

Come to my garden
And

Gene to my garden

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Columbia University

Find the median quality and the median quality for a table of grade norms. The Metropolitan Achievement test uses a grade equivalent in the number of letters written in the number of letters written in one minute (in per minute) for each grade norms. Express each norm.

Next, examine each pupil's letter formation, uniformity, and alignment. Tabulate the norms. Prepare remedial measures. (See Courtis-Shaw, whose writing is very other noting how he sits, certain letters, and so on.)
## Survey of Handwriting of School Systems and...

<table>
<thead>
<tr>
<th>Service</th>
<th>Paper</th>
<th>Whitten, P. F.</th>
</tr>
</thead>
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Whitten, Paul Francis

1919

A survey of handwriting of school systems and six different school systems in the town of Abington, Massachusetts.