

AN ANALYSIS OF ERRORS MADE ON STRAIGHT-COPY TESTS  
BY FIRST-YEAR TYPEWRITING STUDENTS IN SELECTED OKLAHOMA HIGH SCHOOLS  
DURING THE YEAR 1940-1941

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## CHAPTER I

### INTRODUCTION

The modern typewriter has come to occupy a vital and necessary place in the office of every industrial and business concern. Not only does this machine serve the needs of business and industry, but it has also come to have an important social and personal significance. The training of efficient typists is increasingly the function of the secondary school. The rapidly increasing enrollment and the number of schools offering instruction in typewriting constitute evidence that the secondary schools and colleges have accepted this training responsibility. In order to improve the techniques and methods of teaching typewriting it is necessary for teachers to carry on continuous research projects. Much of this needed research is too comprehensive and expensive for individuals to undertake. The members of the Beta Chapter of Delta Pi Epsilon, a national fraternity for graduate students in Business Education, at the Oklahoma Agricultural and Mechanical College, recognized the need for cooperative research in the field of typewriting. On June 26, 1940, this fraternity agreed to sponsor a comprehensive research project designed to ascertain the attainments of the students in first-year typewriting in Oklahoma schools.<sup>1</sup> The members agreed to give the Competent Typist Test to their first-year typewriting classes at five-week intervals during the school year 1940-1941.

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<sup>1</sup> Margaret Robertson Neece, A Study of the Attainments of First-Year Typewriting Students in the State of Oklahoma at Five-Week Intervals during the Year 1940-1941. Master's Thesis, Oklahoma Agricultural and Mechanical College, 1941.

The giving of this test to 7,115 students in twenty-two Oklahoma white high schools made available test papers and results for other types of needed research. For example, the availability of such a large sample of test papers suggested the possibility of making an error analysis study. This study, therefore, is concerned with the classification as to types and frequencies of typewriting errors made on a random sampling of the larger sample of test papers collected in connection with the original research project of the Beta Chapter of the Delta Pi Epsilon. Such material will be helpful to prospective teachers in teacher-training institutions. It will also aid the teachers on the secondary school level to know about the types of errors made by representative students of the larger high schools of Oklahoma.

#### Purpose

The purpose of this study was to analyze errors made by first-year high school typewriting students in the State of Oklahoma on straight-copy tests at five-week intervals during the school year of 1940-1941. Specifically stated, the purpose was as follows:

1. To classify and tabulate the errors on the straight-copy tests according to the International Typewriting Rules for 1939<sup>2</sup> for the group as a whole and by sex.
2. To compare the frequency of the types of errors by sex.
3. To compare the frequency of the various types of typewriting errors on each of the five different tests given at five-week intervals.

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<sup>2</sup> D. D. Lessenberry and E. A. Jevon, 20th Century Typewriting, Third Edition (Cincinnati: South-Western Publishing Company, 1939), Inside back cover.

### Scope and Definitions

One thousand straight-copy test papers, taken as a sampling from 7,115 test papers, written by the first-year high school typewriting students in twenty-two Oklahoma high schools, formed the basis for this study. These students had had no instruction in typewriting prior to the school year of 1940-1941.

The enrollment in the participating high schools ranged from 45 to 3,400.<sup>3</sup> The commercial departments of these high schools had enrollments ranging from 20 to 2,100 students. The students were in class only one period a day for typewriting. All of the schools participating had instructional periods of fifty-five minutes with the exception of four. One of these schools had a forty-minute period; two had forty-five minute periods; and the fourth school had a sixty-five minute period.

The tests used were the Competent Typist Tests.<sup>4</sup> The first test was given during the thirteenth week of school and was five minutes in length. The remaining four tests were ten minutes in length and were given during the eighteenth, twenty-third, twenty-eighth, and thirty-third weeks, respectively.

In this analysis of student errors, errors were all those mistakes or irregularities in typewriting which were penalized according to the International Typewriting Contest Rules for 1939 (See Appendix, page 65).

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<sup>3</sup> Neece, op. cit., pp.2-3.

<sup>4</sup> The Gregg Writer, (Credentials Department, 270 Madison Avenue, New York, New York).

The term, analysis of errors, as used, included the classification and the tabulation of errors made on straight-copy tests given to students in twenty-two high schools of Oklahoma at five-week intervals during the school year of 1940-1941.

No attempt was made in this study to evaluate the results of the methods of instruction and the teaching techniques as used by various teachers. Neither did this study seek to determine the causes of errors made, nor to suggest remedial exercises.

#### Procedure for Selecting and Checking the Sample

The first step taken in the selection and checking of the sample was to determine the proportion of test papers to be drawn from each sex group by test periods. The specific number of test papers, namely one thousand, was drawn. The one thousand test papers were grouped by sex and by test periods without regard to gross words per minute or per cent of accuracy.

In other words, the papers were in random order except for the groupings by sex and test periods. Of the 1,956 test papers for Test I, every tenth paper was drawn from the first 1,900 test papers. This made a total of 190 test papers. From the remaining 56 test papers in Test I, 10 papers were drawn as follows: every fifth paper until the required ten test papers were obtained. Two hundred test papers were chosen in a similar manner from the total test papers available for each of Tests II, III, IV, and V. Thus a total of 1,000 test papers was drawn from the total 7,115 available test papers.

Since the number of test papers varied for each sex group and test period, it was necessary for the sample to include papers by sex groups and test periods in proportion to the number of members of each sex submitting test papers by test periods. For example: Of the 1,956 test papers available for Test I, 731 were boys' papers; therefore, since a total of 200 papers was required, the proportion became  $200 : 1,956 :: X : 731$ . On this basis it was determined that from the 1,956 Test I papers, the sample of 200 should include 75 boys' papers and 125 girls' papers. By this same procedure the number of test papers by sexes and test periods was determined to be as follows: from Test II, 70 boys' papers and 130 girls' papers; from Test III, 70 boys' papers and 130 girls' papers; from Test IV, 64 boys' papers and 136 girls' papers; and from Test V, 69 boys' papers and 131 girls' papers. Table I, on page 6, indicates the proportions by sex and test period of the 1,000 test papers to the 7,115 original test papers.

TABLE I

PROPORTION BY SEX AND TEST PERIOD OF THE SAMPLE OF 1,000 PAPERS  
SELECTED FROM THE TOTAL OF 7,115 PAPERS

Test	7,115 Papers			1,000 Papers		
	Boys	Girls	Total	Boys	Girls	Total
I	731	1225	1956	75	125	200
II	550	1017	1567	70	130	200
III	316	589	905	70	130	200
IV	465	990	1455	64	136	200
V	425	807	1232	69	131	200
TOTAL	2487	4628	7115	348	652	1000

The next step was to determine the reliability of the sample of one thousand test papers and to compare the measures of central tendency and variabilities with similar measures obtained for the entire sample of 7,115 test papers. The test papers were arranged into distributions according to test periods and sex groups. In order to check the reliability of the sample, the means and standard deviations of the means were calculated for all of the test papers included in each sample of two hundred chosen from the total test papers available for each test period. These measures were calculated in terms of gross words a minute and per cents of accuracy on each of the five tests.

Comparisons were made by finding the differences between the standard deviations and the comparable sets of means for each of the distributions. Then the reliability of this difference was determined by applying the formula for calculating the standard error of the

difference. The differences between the standard errors of comparable means were then divided by the standard error of this difference to determine the critical ratios as a basis for determining the significance of the obtained differences. A difference is considered to be significant when it is three times as great or greater than its standard error. A critical ratio which is materially less than three is interpreted to mean that the sample drawn from the larger sample is reliable and is selected at random.<sup>5\*</sup> The statistical formulae used in proving the sample may be found on page 61.

Table II on the following page shows the average gross words a minute on each of the five tests of the original sample of 7,115 papers and the average gross words a minute on each of the five tests of the sampling composed of 1,000 papers. On Table III on the following page, the average per cent of accuracy on each of the five tests of the original sample is compared with the average per cent of accuracy on each of the five tests of the sample drawn. Hence, from Tables II and III, it may be concluded that the sampling drawn for this study was a reliable sample of all the tests given.

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<sup>5</sup> H. E. Garrett, Statistics in Psychology and Education, (Longmans, Green and Company, New York, New York, 1940), pp. 33-59.

\* The computation of the statistical data, which prove the sample, is on file in the office of the Head of the Department of Business Education, Oklahoma Agricultural and Mechanical College.

## COMPARISONS FOR RELIABILITY OF SAMPLE

TABLE II

AVERAGE GROSS WORDS A MINUTE ON EACH  
OF THE FIVE TESTS COMPARED WITH AVERAGE GROSS  
WORDS A MINUTE ON EACH TEST FOR THE SAMPLING DRAWN

Test	7,115 Papers <sup>6</sup>		1,000 Papers		Critical Ratio
	Mean	Standard Deviation	Mean	Standard Deviation	
I	25.81	7.30	25.72	7.05	.024
II	30.46	7.30	29.70	7.05	.035
III	33.19	8.17	32.18	7.40	.070
IV	37.18	7.41	36.23	6.43	.100
V	40.69	8.15	39.81	8.00	.013

TABLE III

AVERAGE PER CENT OF ACCURACY ON EACH  
OF THE FIVE TESTS COMPARED WITH THE AVERAGE  
PER CENT OF ACCURACY ON EACH TEST FOR THE SAMPLING DRAWN

Test	7,115 Papers <sup>7</sup>		1,000 Papers		Critical Ratio
	Mean	Standard Deviation	Mean	Standard Deviation	
I	51.53	22.28	54.39	28.47	.17
II	58.64	26.86	57.80	26.84	.001
III	64.34	25.25	61.38	25.74	.013
IV	66.57	24.02	65.89	23.54	.014
V	73.43	21.24	74.30	20.40	.028

<sup>6</sup> Neece, op. cit., p. 27.

<sup>7</sup> Neece, op. cit., p. 27.

### Procedure for Classification of Errors

Since it was the purpose of this study to consider only the typewriting errors which actually occurred on the test material, a trial analysis and tabulation were first made. Approximately twenty papers were drawn at random from each of the five groups of papers making a total of one hundred papers which were used for this purpose.

From the examination of errors appearing on the one hundred papers, a classification chart was set up following the order of errors as listed in the International Typewriting Contest Rules for 1939 (See Appendix, page 65). There were some types of errors that appeared often enough to warrant a separate classification, such as "Anticipation of Character." For example: maal was typed for meal; and will for well. The pupil, anticipating the following character, struck an a for e and a l for an e. In each case the character incorrectly struck was the following character, and thus the anticipated letter replaced the correct one.

The tabulation of more than one error in a word made the errors per paper slightly higher. If one word had two errors of the same kind, only one error was tabulated. If the word had two distinct errors, such as an error in syllabication and a wrong character, both of the errors were tabulated.

In Rule 5 of the International Typewriting Contest Rules, (See Appendix, page 65), spaces and punctuation points are treated as part of the preceding word. Hence, an error in punctuation would not be

charged if the preceding word had already been penalized. In this study, however, such errors were charged.

In order to study separate errors, word errors were divided into "Insertion of Words," "Omission of Words," "Wrong Word," and "Transposition of Words." The character errors were separated in the same manner; e.g., "Wrong Character," "Insertion of Character," "Omission of Character," and "Transposition of Characters."

In the sample studied there were twenty-two errors in capitalization when not necessary; therefore, another classification, "Unnecessary Capitalization," was set up.

In this manner a preliminary Trial Classification Chart of errors was prepared which included thirty-seven different errors (See Trial Classification Chart, Appendix, page 62).

The items on the Trial Classification Chart were analyzed, and several overlappings and duplications were found. Another chart was made which contained only thirty types of errors. "Failure to Capitalize" was included under "Faulty Shifting." "Omission of Paragraphs" was included in the classification, "Omitting Words." This Revised Classification Chart was submitted to a group of Oklahoma Agricultural and Mechanical College graduate students and faculty members who had also classified errors from a sample of the original 7,115 test papers. These competent persons found the Revised Classification Chart to be usable with the addition of one type of error which was "Wrong Word" (See Appendix, page 63). This last form was called The Classification Chart and was used in classifying the errors on the sample of 1,000 test papers taken from the original sample of 7,115 (See Appendix, page 64.)

In Chapter II, the tabulation and analysis of first-year type-writing errors made by students taking the Competent Typists Tests are presented. The recorded data on Tables D to M in the Appendix are set forth on Tables IV to XVIII which show the distribution of errors as to frequency, per cent, and rank for boys and for girls and for each test. Also, Tables XIX to XXI were constructed showing the total distributions of the frequencies, per cents, and ranks of errors for all tests and for all papers of the sample of one thousand papers. The average number of errors on each test papers by gross word groupings is displayed by line graphs in Figures 1 to 5, inclusive.

### Related Studies

Miss Elsa Pille's research study<sup>8</sup> examined the typewriting errors contained in straight-copy test papers of eighth- and ninth-grade pupils in the California schools. This writer used only papers of pupils who averaged less than ten net words per minute. The test papers were checked according to International Typewriting Contest Rules.

In this study the errors were grouped under four major headings, namely, letter errors, word errors, punctuation errors, and machine manipulation errors. In the eighth grade the number of errors were divided as follows: 67 per cent letter errors, 22 per cent machine manipulation errors, 6 per cent word errors, and 5 per cent punctuation errors. In the ninth grade the errors were 69 per cent letter errors, 18 per cent machine manipulation errors, 8 per cent word errors, and 5 per cent punctuation errors.

The general findings were summarized as follows:

1. An average of 7.16 errors was found in first-semester test papers scoring less than ten net words a minute. Test papers scoring less than one net word a minute averaged 11.55 errors per paper. Test papers scoring from one to four net words a minute averaged 6.20 errors, and test papers scoring from five to nine net words a minute averaged 4.70 errors.

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<sup>8</sup> Elsa Pille, An Analysis of First Semester Typewriting Errors. Master's Thesis, University of Southern California, 1933.

2. Sixty-seven per cent of the typewriting errors were letter errors. Twenty per cent were machine manipulation errors. Seven per cent were word errors. And five per cent were errors in punctuation.
3. As the net rate of typewriting increased, the percentage of word, punctuation, and machine manipulation errors decreased. The percentage of letter errors alone increased.
4. The comparison of eighth- and ninth-grade first semester typewriting errors did not disclose any striking dissimilarities as to number, variety, or distribution of errors.

Another worth-while study was made by Helen I. Hawkins.<sup>9</sup> This study is an analysis of errors made in a first, and a second, and a third semester class in typewriting at Schenley High School, Pittsburgh, Pennsylvania. The persistency and kinds of errors common to the work and the classes were studied.

Errors made by 117 pupils during the time of this study, except errors on class drill, were recorded on individual charts. The errors were tabulated under four major classifications: "Imperfect Location of Keys," "Manipulation," "Mental," and "Miscellaneous."

More than fifty per cent of the errors found were made in the "Imperfect Location of Keys." The percentage of the "Manipulation" errors indicated a decrease from semester to semester, but the

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<sup>9</sup> Helen I. Hawkins, An Analysis of Errors Made in First, Second, and Third Semester Typewriting Classes in a High School. Master's Thesis, University of Pittsburgh, 1932.

"Miscellaneous" errors increased from semester to semester. The average number of daily errors per pupil made by different groups within each class varied from 2 to 10 errors.

Certain types of errors persisted in the work of all three semesters. These were imperfect location of the letters E, I, and S, and the omissions and the addition of letters. Certain types of errors were peculiar to the work of each semester. For the first semester these were imperfect location of the letters O, R, and T, spacing between words and letters; for the second semester, imperfect location of the letters M, O, R, and T, spacing between letters, and placement; and for the third semester, imperfect location of the letters A and M, spacing between words, omission of words, placement, business procedure, omissions, and wrong word.

There was no consistent reduction of errors made from week to week; however, the general tendency was toward the general reduction of total number and per cent of errors made. It was concluded that, as typing power increased, errors decreased.

## CHAPTER II

## ERRORS IN FIRST-YEAR TYPEWRITING

The main purpose of this study was to reveal the types and frequencies of the errors made by boys and girls on a random selection of one thousand straight-copy typewriting test papers, two hundred of which were drawn from each of the five tests given. These papers were part of the larger sample of 7,115 test papers collected by the members of the Beta Chapter of Delta Pi Epsilon during the school year of 1940-1941. The Competent Typist Tests had been given to first-year typewriting students in twenty-two Oklahoma high schools every fifth week beginning with the thirteenth week. The first test was a five minute one, and the other four were ten minutes each.

In checking and rechecking their papers the pupils followed definite uniform instructions laid down by the International Typewriting Rules. The test papers were rechecked by graduate students and faculty members in the School of Business Education on the campus of the Oklahoma Agricultural and Mechanical College.

Since the sample used in this study consisted of only 1,000 papers of the available 7,115 papers, the reliability of the sample was first proved statistically. Then the classification chart showing the types of errors as found on a sample of 100 papers was set up, utilizing the International Typewriting Rules. This classification chart of errors as to type was then checked and rechecked, as were the original test papers, by the graduate students and faculty

members in the School of Business Education at the Oklahoma Agricultural and Mechanical College. These people agreed that the classification chart set up was usable. After the establishment of errors into 31 kinds, the errors on the sample of one thousand test papers were tabulated and classified by gross words per paper and by kinds of errors.

The findings, resulting from the tabulation and classification of errors and gross words per paper, will be discussed in this chapter. In as far as possible, the types and distribution of errors will be displayed by tables and figures, and some discussion will be used to point out the more significant findings. However, no attempt will be made to consider the implications of the findings.

#### Types and Distribution of Errors

On Tables IV to XVIII, inclusive, which follow on pages 17 to 31 are displayed the distributions of the types of errors found on the sample of one thousand papers utilized by this study. Table IV reveals the distribution of errors by frequency, per cent, and rank as made by 75 boys on Test I. Table V shows the same information for 125 girls on Test I. Table VI shows the comparison of the errors made by boys and by girls as to the per cent and rank of each type of error on Test I. In a like manner tables are presented for Tests II, III, IV, and V.

TABLE IV

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST I BY BOYS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	292	55.3	1
Insertion of Character	33	6.3	2
Omission of Character	27	5.1	3
Space - Omitted between Words	26	4.9	4
Short Line	22	4.2	5
Strike-Over	21	4.0	6
Omission of Words	19	3.6	7
Line Spacing	17	3.2	8
Transposition of Characters	17	3.2	8
Wrong Home Keys	8	1.5	9
Faulty Shifting	7	1.3	10
Space - Inserted within a Word	6	1.1	11
Spaces and Punctuation (Rule 5)	6	1.1	11
Rewriting Words, Phrases or Lines	6	1.1	11
Space - Inserted between Words	5	.9	12
Spaces and Punctuation (Rule 6)	4	.8	13
Syllabication	4	.8	13
Wrong Word	3	.6	14
Unnecessary Capitalization	2	.4	15
Short Indention	1	.2	16
Uneven Left-Hand Margin	1	.2	16
Long Line	1	.2	16
Character Anticipation	0	.0	-
Piling	0	.0	-
Crowding	0	.0	-
Insertion of Words	0	.0	-
Transposition of Words	0	.0	-
Characters not on Keyboard	0	.0	-
Cut Characters	0	.0	-
Long Indention	0	.0	1
Short Page	0	.0	-
TOTAL	528	100.0	
Number of papers	75		
Average errors per paper	7.04		

This table should be read as follows: Of the 528 errors on boys' Test I papers, 292 are errors of Wrong Character. Wrong Character errors then comprise 55.3 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE V

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST I BY GIRLS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	463	56.4	1
Omission of Character	72	8.8	2
Strike-Over	56	6.8	3
Insertion of Character	30	3.6	4
Transposition of Characters	28	3.4	5
Space - Omitted between Words	22	2.7	6
Space - Inserted within a Word	22	2.7	6
Short Line	19	2.3	7
Spaces and Punctuation (Rule 5)	16	2.0	8
Omission of Words	14	1.7	9
Spaces and Punctuation (Rule 6)	11	1.4	10
Wrong Home Keys	10	1.2	11
Syllabication	9	1.1	12
Space - Inserted between Words	9	1.1	12
Uneven Left-Hand Margin	6	.7	13
Long Line	6	.7	13
Rewriting Words, Phrases, or Lines	5	.6	14
Character Anticipation	4	.5	15
Faulty Shifting	4	.5	15
Short Indention	3	.4	16
Insertion of Words	3	.4	16
Wrong Words	3	.4	16
Piling	2	.2	17
Characters not on Keyboard	2	.2	17
Long Indention	1	.1	18
Unnecessary Capitalization	1	.1	18
Short Page	-	.0	-
Transposition of Words	0	.0	-
Crowding	0	.0	-
Cut Characters	0	.0	-
Line spacing	0	.0	-
TOTAL	821	100.0	
Number of papers	125		
Average errors per paper	6.56		

This table should be read as follows: Of the 821 errors on girls' Test I papers, 463 are errors of Wrong Character which comprise 56.4 per cent of the total errors. This type of error ranks first in the classification on the basis of frequency.

TABLE VI

THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST I  
BY BOYS AND GIRLS

Classification of Errors	BOYS		GIRLS	
	Per Cent	Rank	Per Cent	Rank
Wrong Character	55.3	1	56.4	1
Insertion of Character	6.3	2	3.6	4
Omission of Character	5.1	3	8.8	2
Space - Omitted between Words	4.9	4	2.7	6
Short Line	4.2	5	2.3	7
Strike-Over	4.0	6	6.8	3
Omission of Words	3.6	7	1.7	9
Line Spacing	3.2	8	.0	-
Transposition of Characters	3.2	8	3.4	5
Wrong Home Keys	1.5	9	1.2	11
Faulty Shifting	1.3	10	.5	15
Space - Inserted within a Word	1.1	11	2.7	6
Spaces and Punctuation (Rule 5)	1.1	11	2.0	8
Rewriting Words, Phrases, or Lines	1.1	11	.6	14
Space - Inserted between Words	.9	12	1.1	12
Spaces and Punctuation (Rule 6)	.8	13	1.4	10
Syllabication	.8	13	1.1	12
Wrong Word	.6	14	.4	16
Unnecessary Capitalization	.4	15	.1	18
Short Indention	.2	16	.4	16
Uneven Left-Hand Margin	.2	16	.7	13
Long Line	.2	16	.7	13
Character Anticipation	.0	-	.5	15
Piling	.0	-	.2	17
Crowding	.0	-	.0	-
Insertion of Words	.0	-	.4	16
Transposition of Words	.0	-	.0	-
Characters not on Keyboard	.0	-	.2	17
Cut Characters	.0	-	.0	-
Long Indention	.0	-	.1	18
Short Page	.0	-	.0	-
TOTAL	100.0		100.0	

This table reads across as follows: Wrong Character comprises 55.3 per cent of the boys' Test I errors and ranks first in frequency. This error comprises 56.4 per cent of the girls' errors and ranks first in frequency.

TABLE VII

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST II BY BOYS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	401	46.2	1
Strike-Over	91	10.5	2
Omission of Character	58	6.7	3
Spaces and Punctuation (Rule 6)	39	4.5	4
Transposition of Characters	32	3.7	5
Character Anticipation	27	3.2	6
Short Line	27	3.2	6
Insertion of Character	25	2.8	7
Faulty Shifting	24	2.8	7
Space - Omitted between Words	20	2.3	8
Syllabication	18	2.0	9
Line Spacing	17	2.0	9
Space - Inserted within a Word	16	1.8	10
Wrong Home Keys	15	1.7	11
Uneven Left-Hand Margin	12	1.4	12
Space - Inserted between Words	12	1.4	12
Omission of Words	7	.8	13
Unnecessary Capitalization	7	.8	13
Rewriting Words, Phrases, or Lines	5	.6	14
Crowding	5	.6	14
Short Indention	2	.2	15
Long Line	2	.2	15
Wrong Word	2	.2	15
Spaces and Punctuation (Rule 5)	2	.2	15
Insertion of Words	1	.1	16
Transposition of Words	1	.1	16
Piling	0	.0	-
Cut Characters	0	.0	-
Characters not on Keyboard	0	.0	-
Long Indention	0	.0	-
Short Page	0	.0	-
TOTAL	868	100.0	
Number of papers	70		
Average errors per paper	12.37		

This table should be read as follows: Of the 868 errors on boys' Test II papers, 401 errors are Wrong Character. Wrong Character errors then comprise 46.2 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE VIII

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST II BY GIRLS

Classification of Errors	Frequency	Per cent	Rank
Wrong Character	753	46.3	1
Strike-Over	150	9.2	2
Omission of Character	140	8.6	3
Transposition of Characters	79	4.9	4
Character Anticipation	65	3.9	5
Faulty Shifting	60	3.6	6
Space - Omitted between Words	54	3.4	7
Insertion of Character	47	2.9	8
Omission of Words	46	2.8	9
Uneven Left-Hand Margin	33	2.0	10
Syllabication	31	1.9	11
Space - Inserted within a Word	29	1.8	12
Line Spacing	23	1.4	13
Wrong Home Keys	21	1.3	14
Unnecessary Capitalization	18	1.1	15
Spaces and Punctuation (Rule 6)	16	1.0	16
Spaces and Punctuation (Rule 5)	14	.9	17
Wrong Word	13	.8	18
Rewriting Words, Phrases, or Lines	12	.7	19
Space - Inserted between Words	6	.4	20
Long Line	5	.3	21
Crowding	4	.2	22
Transposition of Words	3	.2	22
Short Indention	2	.1	23
Short Line	1	.1	23
Cut Characters	1	.1	23
Piling	1	.1	23
Insertion of Words	0	.0	-
Characters not on Keyboard	0	.0	-
Long Indention	0	.0	-
Short Page	0	.0	-
TOTAL	1627	100.0	
Number of papers	130		
Average errors per paper	12.52		

This table should be read as follows: Of the 1627 errors on girls' Test II papers, 753 are errors of Wrong Character. Wrong Character errors then comprise 46.3 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE IX

THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST II  
BY BOYS AND GIRLS

Classification of Errors	BOYS		GIRLS	
	Per Cent	Rank	Per Cent	Rank
Wrong Character	46.2	1	46.3	1
Strike-Over	10.5	2	9.2	2
Omission of Character	6.7	3	8.6	3
Spaces and Punctuation (Rule 6)	4.5	4	1.0	16
Transposition of Characters	3.7	5	4.9	4
Character Anticipation	3.2	6	3.9	5
Short Line	3.2	6	.1	23
Insertion of Character	2.8	7	2.9	8
Faulty Shifting	2.8	7	3.6	6
Space - Omitted between Words	2.3	8	3.4	7
Syllabication	2.0	9	1.9	11
Line Spacing	2.0	9	1.4	13
Space - Inserted within a Word	1.8	10	1.8	12
Wrong Home Keys	1.7	11	1.3	14
Uneven Left-Hand Margin	1.4	12	2.0	10
Space - Inserted between Words	1.4	12	.4	20
Omission of Words	.8	13	2.8	9
Unnecessary Capitalization	.8	13	1.1	15
Rewriting Words, Phrases, or Lines	.6	14	.7	19
Crowding	.6	14	.2	22
Short Indention	.2	15	.1	23
Long Line	.2	15	.3	21
Wrong Word	.2	15	.8	18
Spaces and Punctuation (Rule 5)	.2	15	.9	17
Insertion of Words	.1	16	.0	-
Transposition of Words	.1	16	.2	22
Piling	.0	-	.1	23
Cut Characters	.0	-	.1	23
Characters not on Keyboard	.0	-	.0	-
Long Indention	.0	-	.0	-
Short Page	.0	-	.0	-
TOTAL	100.0		100.0	

This table reads across as follows: Wrong Character comprises 46.2 per cent of the boys' Test II errors and ranks first in frequency. This error comprises 46.3 per cent of girls' Test II errors and ranks first in frequency.

TABLE X

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST III BY BOYS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	356	35.2	1
Omission of Character	145	14.4	2
Strike-Over	88	8.7	3
Transposition of Characters	50	4.9	4
Insertion of Character	46	4.5	5
Faulty Shifting	44	4.3	6
Character Anticipation	39	3.9	7
Space - Omitted between Words	38	3.8	8
Omission of Words	38	3.8	8
Short Line	30	3.0	9
Spaces and Punctuation (Rule 6)	23	2.3	10
Syllabication	14	1.4	11
Spaces and Punctuation (Rule 5)	12	1.2	12
Space - Inserted between Words	12	1.2	12
Wrong Word	10	1.0	13
Space - Inserted within a Word	10	1.0	13
Uneven Left-Hand Margin	9	.9	14
Crowding	8	.8	15
Piling	7	.7	16
Wrong Home Keys	7	.7	16
Rewriting Words, Phrases, or Lines	7	.7	16
Insertion of Words	4	.4	17
Unnecessary Capitalization	4	.4	17
Line Spacing	3	.3	18
Long Line	3	.3	18
Characters not on Keyboard	2	.2	19
Cut Characters	0	.0	-
Transposition of Words	0	.0	-
Short Page	0	.0	-
Short Indention	0	.0	-
Long Indention	0	.0	-
TOTAL	1009	100.0	
Number of papers	70		
Average errors per paper	14.41		

This table should be read as follows: Of the 1,009 errors on boys' Test III papers, 356 errors are of Wrong Character. Wrong Character errors then comprise 35.2 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE XI

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST III BY GIRLS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	632	38.8	1
Omission of Character	210	12.9	2
Strike-Over	111	6.8	3
Character Anticipation	92	5.7	4
Transposition of Characters	92	5.7	4
Insertion of Character	67	4.1	5
Faulty Shifting	57	3.5	6
Syllabication	52	3.2	7
Omission of Words	51	3.1	8
Space - Omitted between Words	43	2.6	9
Spaces and Punctuation (Rule 6)	42	2.6	9
Short Line	37	2.3	10
Space - Inserted within a Word	23	1.4	11
Uneven Left-Hand Margin	22	1.3	12
Space - Inserted between Words	17	1.0	13
Wrong Word	16	1.0	13
Rewriting Words, Phrases, or Lines	13	.8	14
Characters not on Keyboard	12	.7	15
Piling	8	.5	16
Wrong Home Keys	7	.4	17
Spaces and Punctuation (Rule 5)	7	.4	17
Unnecessary Capitalization	4	.2	18
Insertion of Words	4	.2	18
Crowding	3	.2	18
Cut Characters	3	.2	18
Short Indention	2	.1	19
Long Line	1	.1	19
Line Spacing	1	.1	19
Long Indention	1	.1	19
Short Page	0	.0	-
Transposition of Words	0	.0	-
TOTAL	1630	100.0	
Number of papers	130		
Average errors per paper	12.54		

This table should be read as follows: Of the 1,630 errors on girls' Test III papers, 632 are errors of Wrong Character. Wrong Character errors then comprise 38.8 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE XII

THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST III  
BY BOYS AND GIRLS

Classification of Errors	BOYS		GIRLS	
	Per Cent	Rank	Per Cent	Rank
Wrong Character	35.2	1	38.8	1
Omission of Character	14.4	2	12.9	2
Strike-Over	8.7	3	6.8	3
Transposition of Characters	4.9	4	5.7	4
Insertion of Character	4.5	5	4.1	5
Faulty Shifting	4.3	6	3.5	6
Character Anticipation	3.9	7	5.7	4
Space - Omitted between Words	3.8	8	2.6	9
Omission of Words	3.8	8	3.1	8
Short Line	3.0	9	2.3	10
Spaces and Punctuation (Rule 6)	2.3	10	2.6	9
Syllabication	1.4	11	3.2	7
Spaces and Punctuation (Rule 5)	1.2	12	.4	17
Space - Inserted between Words	1.2	12	1.0	13
Wrong Word	1.0	13	1.0	13
Space - Inserted within a Word	1.0	13	1.4	11
Uneven Left-Hand Margin	.9	14	1.3	12
Crowding	.8	15	.2	18
Piling	.7	16	.5	16
Wrong Home Keys	.7	16	.4	17
Rewriting Words, Phrases, or Lines	.7	16	.8	14
Insertion of Words	.4	17	.2	18
Unnecessary Capitalization	.4	17	.2	18
Line Spacing	.3	18	.1	19
Long Line	.3	18	.1	19
Characters not on Keyboard	.2	19	.7	15
Cut Characters	.0	-	.2	18
Transposition of Words	.0	-	.0	-
Short Page	.0	-	.0	-
Short Indention	.0	-	.1	19
Long Indention	.0	-	.1	19
TOTAL	100.0		100.0	

This table reads across as follows: Wrong Character comprises 35.2 per cent of the boys' Test III errors and ranks first in frequency. This error comprises 38.8 per cent of the girls' Test III errors and ranks first in frequency.

TABLE XIII

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST IV BY BOYS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	308	41.0	1
Omission of Character	115	15.3	2
Strike-Over	86	11.5	3
Transposition of Characters	50	6.7	4
Insertion of Characters	28	3.7	5
Faulty Shifting	27	3.6	6
Space - Omitted between Words	27	3.6	6
Omission of Words	24	3.2	7
Character Anticipation	22	2.9	8
Syllabication	13	1.7	9
Wrong Word	11	1.5	10
Space - Inserted within a Word	9	1.2	11
Rewriting Words, Phrases, or Lines	6	.8	12
Piling	4	.5	13
Wrong Home Keys	4	.5	13
Spaces and Punctuation (Rule 5)	3	.4	14
Spaces and Punctuation (Rule 6)	3	.4	14
Crowding	3	.4	14
Uneven Left-Hand Margin	3	.4	14
Short Indention	2	.3	15
Unnecessary Capitalization	2	.3	15
Space - Inserted between Words	1	.1	16
Insertion of Words	0	.0	-
Transposition of Words	0	.0	-
Cut Characters	0	.0	-
Characters not on Keyboard	0	.0	-
Long Indention	0	.0	-
Short Page	0	.0	-
Long Line	0	.0	-
Short Line	0	.0	-
Line Spacing	0	.0	-
TOTAL	751	100.0	
Number of Papers	64		
Average errors per paper	11.73		

This table should be read as follows: Of the 750 errors on boys' Test IV papers, 308 are errors of Wrong Character. Wrong Character errors then comprise 41.0 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE XIV

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST IV BY GIRLS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	672	40.8	1
Strike-Over	177	10.7	2
Omission of Character	169	10.2	3
Transposition of Characters	101	6.1	4
Insertion of Character	77	4.7	5
Short Line	76	4.6	6
Omission of Words	57	3.5	7
Space - Omitted between Words	44	2.7	8
Faulty Shifting	41	2.4	9
Character Anticipation	37	2.2	10
Line Spacing	31	1.9	11
Syllabication	28	1.7	12
Wrong Word	25	1.5	13
Wrong Home Keys	22	1.3	14
Uneven Left-Hand Margin	22	1.3	14
Crowding	13	.8	15
Space - Inserted within a Word	13	.8	15
Spaces and Punctuation (Rule 6)	11	.7	16
Spaces - Inserted between Words	9	.5	17
Rewriting Words, Phrases, or Lines	8	.5	17
Piling	6	.4	18
Unnecessary Capitalization	3	.2	19
Spaces and Punctuation (Rule 5)	2	.1	20
Transposition of Words	1	.1	20
Long Line	1	.1	20
Short Page	1	.1	20
Short Indention	1	.1	20
Long Indention	0	.0	-
Characters not on Keyboard	0	.0	-
Cut Characters	0	.0	-
Insertion of Words	0	.0	-
TOTAL	1648	100.0	

Number of papers

136

Average errors per paper

12.12

This table should be read as follows: Of the 1,648 errors on girls' Test IV papers, 672 errors are Wrong Character. Wrong Character errors then comprise 40.8 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE XV

THE FREQUENCY DISTRIBUTION OF ERRORS MADE IN TEST IV  
BY BOYS AND GIRLS

Classification of Errors	Boys		Girls	
	Per Cent	Rank	Per Cent	Rank
Wrong Character	41.0	1	40.8	1
Omission of Character	15.3	2	10.2	3
Strike-Over	11.5	3	10.7	2
Transposition of Characters	6.7	4	6.1	4
Insertion of Character	3.7	5	4.7	5
Faulty Shifting	3.6	6	2.4	9
Space - Omitted between Words	3.6	6	2.7	8
Omission of Words	3.2	7	3.5	7
Character Anticipation	2.9	8	2.2	10
Syllabication	1.7	9	1.7	12
Wrong Word	1.5	10	1.5	13
Space - Inserted within a Word	1.2	11	.8	15
Rewriting Words, Phrases, or Lines	.8	12	.5	17
Piling	.5	13	.4	18
Wrong Home Keys	.5	13	1.3	14
Spaces and Punctuation (Rule 5)	.4	14	.1	20
Spaces and Punctuation (Rule 6)	.4	14	.7	16
Crowding	.4	14	.8	15
Uneven Left-Hand Margin	.4	14	1.3	14
Short Indention	.3	15	.1	20
Unnecessary Capitalization	.3	15	.2	19
Space - Inserted between Words	.1	16	.5	17
Insertion of Words	.0	-	.0	-
Transposition of Words	.0	-	.1	20
Cut Characters	.0	-	.0	-
Characters not on Keyboard	.0	-	.0	-
Long Indention	.0	-	.0	-
Short Page	.0	-	.1	20
Long Line	.0	-	.1	20
Short Line	.0	-	4.6	6
Line Spacing	.0	-	1.9	11
TOTAL	100.0		100.0	

This table reads across as follows: Wrong Character comprises 41.0 per cent of the boys' Test IV errors and ranks first in frequency. This error comprises 40.8 per cent of the girls' Test IV errors and ranks first in frequency.

TABLE XVI

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST V BY BOYS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	233	33.2	1
Strike-Over	110	15.4	2
Omission of Character	83	11.6	3
Character Anticipation	43	6.2	4
Insertion of Character	36	5.5	5
Faulty Shifting	31	4.4	6
Transposition of Characters	29	4.3	7
Space - Omitted between Words	28	3.9	8
Short Line	24	3.4	9
Space - Inserted within a Word	17	2.4	10
Wrong Word	13	1.8	11
Wrong Home Keys	11	1.6	12
Uneven Left-Hand Margin	11	1.6	12
Rewriting Words, Phrases, or Lines	8	1.1	13
Syllabication	8	1.1	13
Piling	6	.8	14
Line Spacing	6	.8	14
Spaces and Punctuation (Rule 5)	2	.2	15
Omission of Words	2	.2	15
Short Page	1	.1	16
Long Indention	1	.1	16
Space - Inserted between Words	1	.1	16
Spaces and Punctuation (Rule 6)	1	.1	16
Insertion of Words	1	.1	16
Long Line	0	.0	-
Short Indention	0	.0	-
Characters not on Keyboard	0	.0	-
Cut Characters	0	.0	-
Unnecessary Capitalization	0	.0	-
Transposition of Words	0	.0	-
Crowding	0	.0	-
TOTAL	706	100.0	
Number of papers	69		
Average errors per paper	10.09		

This table should be read as follows: Of the 706 errors on boys' Test V papers, 233 are errors of Wrong Character. Wrong Character errors then comprise 33.2 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE XVII

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST V BY GIRLS

Classification of Errors	Frequency	Per Cent	Rank
Wrong Character	390	32.3	1
Omission of Character	181	15.0	2
Strike-Over	162	13.3	3
Transposition of Characters	96	7.9	4
Insertion of Character	73	6.1	5
Character Anticipation	65	5.4	6
Space - Omitted between Words	43	3.7	7
Short Line	40	3.4	8
Omission of Words	37	3.1	9
Space - Inserted within a Word	33	2.7	10
Wrong Word	31	2.6	11
Wrong Home Keys	10	.8	12
Uneven Left-Hand Margin	9	.7	13
Faulty Shifting	8	.6	14
Syllabication	6	.5	15
Piling	6	.5	15
Spaces and Punctuation (Rule 5)	4	.3	16
Space - Inserted between Words	4	.3	16
Rewriting Words, Phrases, or Lines	3	.2	17
Short Page	2	.2	17
Line Spacing	2	.2	17
Short Indention	1	.1	18
Insertion of Words	1	.1	18
Long Line	0	.0	-
Long Indention	0	.0	-
Spaces and Punctuation (Rule 6)	0	.0	-
Characters not on Keyboard	0	.0	-
Cut Characters	0	.0	-
Unnecessary Capitalization	0	.0	-
Transposition of Words	0	.0	-
Crowding	0	.0	-
TOTAL	1207	100.0	
Number of Papers	131		
Average errors per paper	9.21		

This table should be read as follows: Of the 1,207 errors on girls' Test V papers, 390 are errors of Wrong Character. Wrong Character errors then comprise 32.3 per cent of the total errors, and this type of error ranks first in the classification on the basis of frequency.

TABLE XVIII

THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST V  
BY BOYS AND GIRLS

Classification of Errors	BOYS		GIRLS	
	Per Cent	Rank	Per Cent	Rank
Wrong Character	33.2	1	32.3	1
Strike-Over	15.4	2	13.3	3
Omission of Character	11.6	3	15.0	2
Character Anticipation	6.2	4	5.4	6
Insertion of Character	5.5	5	6.1	5
Faulty Shifting	4.4	6	.6	14
Transposition of Characters	4.3	7	7.9	4
Space - Omitted between Words	3.9	8	3.7	7
Short Line	3.4	9	3.4	8
Space - Inserted with a Word	2.4	10	2.7	10
Wrong Word	1.8	11	2.6	11
Wrong Home Keys	1.6	12	.8	12
Uneven Left-Hand Margin	1.6	12	.7	13
Rewriting Words, Phrases, or Lines	1.1	13	.2	17
Syllabication	1.1	13	.5	15
Piling	.8	14	.5	15
Line Spacing	.8	14	.2	17
Spaces and Punctuation (Rule 5)	.2	15	.3	16
Omission of Words	.2	15	3.1	9
Short Page	.1	16	.2	17
Long Indention	.1	16	.0	-
Space - Inserted between Words	.1	16	.3	16
Spaces and Punctuation (Rule 6)	.1	16	.0	-
Insertion of Words	.1	16	.1	18
Long Line	.0	-	.0	-
Short Indention	.0	-	.1	18
Characters not on Keyboard	.0	-	.0	-
Cut Characters	.0	-	.0	-
Unnecessary Capitalization	.0	-	.0	-
Transposition of Words	.0	-	.0	-
Crowding	.0	-	.0	-
TOTAL	100.0		100.0	

This table reads across as follows: Wrong Character comprises 33.2 per cent of the boys' Test V errors and ranks first in frequency. This error comprises 32.3 per cent of the girls' Test V errors and ranks first in frequency.

Tables XIX, XX, and XXI, follow and give tabulated summaries.

Table XIX, page 33, displays the totals of the frequencies by rank and by per cent of the kinds of errors made by boys and by girls on all five tests. Table XX, page 34, reveals the total frequencies for each type of error for each test and the grand total frequencies for all tests. Table XXI, page 35, gives the total per cent of each type of error for each test, the rank of each type of error for each test, and the grand total per cent and rank for each kind of error for all the tests.

Table XIX

THE SUMMARY OF THE TOTALS OF THE FREQUENCIES BY RANK AND BY PER CENT  
OF ERRORS MADE BY BOYS AND GIRLS ON ALL FIVE TESTS

INQUIRY 33  
JANUARY 1911  
T R A N S I T  
S A F E T Y S V O M

Classification of Errors	BOYS			GIRLS			TOTAL		
	Frequency	Per Cent	Rank	Frequency	Per Cent	Rank	Frequency	Per Cent	Rank
Wrong Character	1590	41.43	1	2910	41.97	1	4500	41.68	1
Omission of Character	428	11.08	2	772	11.14	2	1200	11.11	2
Strike-Over	396	10.22	3	656	9.46	3	1052	9.74	3
Transposition of Characters	178	4.65	4	396	5.71	4	574	5.32	4
Insertion of Character	168	4.37	5	294	4.24	5	462	4.28	5
Character Anticipation	131	3.38	8	263	3.79	6	394	3.66	6
Space - Omitted between Words	139	3.59	6	206	2.97	7	345	3.20	7
Faulty Shifting	133	3.44	7	170	2.45	10	303	2.81	8
Omission of Words	90	2.33	10	205	2.96	8	295	2.73	9
Short Line	103	2.67	9	173	2.50	9	276	2.56	10
Syllabication	57	1.48	13	126	1.82	11	183	1.69	11
Space - Inserted within a Word	58	1.50	12	120	1.73	12	178	1.63	12
Spaces and Punctuation (Rule 6)	70	1.81	11	80	1.16	15	150	1.39	13
Uneven Left Margin	36	.93	17	92	1.33	13	128	1.19	14
Wrong Word	39	1.01	16	86	1.27	14	127	1.18	15
Wrong Home Keys	45	1.17	14	70	1.01	16	115	1.07	16
Line Spacing	43	1.11	15	57	.82	17	100	.93	17
Space - Inserted between Words	31	.81	19	45	.65	18	76	.71	18
Rewriting Words, Phrases, or Lines	32	.83	18	41	.59	20	73	.68	19
Spaces and Punctuation (Rule 5)	25	.65	20	43	.62	19	68	.63	20
Unnecessary Capitalization	15	.39	23	26	.38	21	41	.38	21
Piling	17	.44	21	23	.33	22	40	.37	22
Crowding	16	.42	22	20	.29	23	36	.33	23
Long Line	6	.16	24	13	.19	25	19	.18	24
Characters not on Keyboard	2	.05	26	14	.20	24	16	.15	25
Short Indention	5	.13	25	9	.12	26	14	.13	26
Insertion of Words	6	.16	24	3	.11	27	14	.13	26
Short Page	1	.03	27	3	.04	29	4	.04	28
Transposition of Words	1	.03	27	4	.06	28	5	.05	27
Cut Characters	0	.00	-	4	.06	28	4	.03	29
Long Indention	1	.03	27	2	.03	30	3	.02	30
	3862	100.00		6933	100.00		10795	100.00	

Of the 3,862 errors on all the boys' test papers, 1,590 are errors of Wrong Character. This error comprises 41.43 per cent of the boys' errors and ranks first in frequency. Of the 6,933 errors on all the girls' test papers, 2,910 are errors of Wrong Characters, and they comprise 41.97 per cent of all the girls' errors and rank first in frequency. The total number of Wrong Character errors is 4,500. This error comprises 41.68 per cent of all errors and ranks first in frequency.

Table XX

## THE SUMMARY OF THE FREQUENCIES OF THE ERRORS MADE ON FIVE TESTS

	Test I Frequency	Test II Frequency	Test III Frequency	Test IV Frequency	Test V Frequency	TOTAL Frequency
Wrong Character	755	1154	988	980	623	4500
Omission of Character	99	198	355	284	264	1200
Strike-Over	77	241	199	263	272	1052
Transposition of Characters	45	111	142	151	125	574
Insertion of Character	63	72	113	105	109	462
Character Anticipation	4	92	131	59	108	394
Space - Omitted between Words	48	74	81	71	71	345
Faulty Shifting	11	84	101	68	39	303
Omission of Words	33	53	89	81	39	295
Short Line	41	28	67	76	64	276
Syllabication	13	49	66	41	14	183
Space - Inserted within a Word	28	45	33	22	50	178
Spaces and Punctuation (Rule 6)	15	55	65	14	1	150
Uneven Left-Hand Margin	7	45	31	25	20	128
Wrong Word	6	15	26	36	34	127
Wrong Home Keys	18	36	14	26	21	115
Line Spacing	17	40	4	31	8	100
Space - Inserted between Words	14	18	29	10	5	76
Rewriting Words, Phrases, or Lines	11	17	20	14	11	73
Spaces and Punctuation (Rule 5)	22	16	19	5	6	68
Unnecessary Capitalization	3	25	8	5	0	41
Piling	2	1	15	10	12	40
Crowding	0	9	11	16	0	36
Long Line	7	7	4	1	0	19
Characters not on Keyboard	2	0	14	0	0	16
Short Indention	4	4	2	3	1	14
Insertion of Words	3	1	8	0	2	14
Short Page	0	0	0	1	3	4
Transposition of Words	0	4	0	1	0	5
Cut Characters	0	1	3	0	0	4
Long Indention	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>3</u>
	1349	2495	2639	2399	1915	10795

This table should be read as follows: Of the 4,500 Wrong Character errors, 655 were made on Test I, 1,154 on Test II, 988 on Test III, 980 on Test IV, and 623 on Test V.

Table XXI

THE SUMMARY BY RANK AND BY PER CENT OF ERRORS MADE ON ALL FIVE TESTS

	Test I		Test II		Test III		Test IV		Test V		TOTAL	
	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Wrong Character	55.96	1	46.25	1	37.44	1	40.85	1	32.57	1	41.68	1
Omission of Character	7.34	2	7.94	3	13.45	2	11.84	2	13.80	3	11.11	2
Strike-Over	5.71	3	9.66	2	7.54	3	10.96	3	14.22	2	9.74	3
Transposition of Characters	3.34	6	4.45	4	5.38	4	6.29	4	6.53	4	5.32	4
Insertion of Character	4.67	4	2.89	8	4.27	6	4.38	5	5.70	5	4.28	5
Character Anticipation	.29	19	3.69	5	4.97	5	2.46	10	5.65	6	3.66	6
Space - Omitted between Words	3.56	5	2.97	7	3.07	9	2.96	8	3.71	7	3.20	7
Faulty Shifting	.82	16	3.37	6	3.83	7	2.83	9	2.04	11	2.81	8
Omission of Words	2.45	8	2.13	10	3.37	8	3.38	6	2.04	11	2.73	9
Short Line	3.04	7	1.13	16	2.54	10	3.17	7	3.35	8	2.56	10
Syllabication	.96	15	1.97	11	2.50	11	1.71	11	.73	14	1.69	11
Space - Inserted within a Word	2.08	9	1.81	12	1.25	13	.92	16	2.61	9	1.63	12
Spaces and Punctuation (Rule 6)	1.11	13	2.22	9	2.46	12	.58	18	.05	22	1.39	13
Uneven Left-Hand Margin	.52	17	1.80	13	1.13	14	1.04	15	1.05	13	1.19	14
Wrong Word	.45	18	.60	21	.99	16	1.50	12	2.30	10	1.18	15
Wrong Home Keys	1.33	11	1.44	15	.53	20	1.08	14	1.10	12	1.07	16
Line Spacing	1.26	12	1.60	14	.15	23	1.29	13	.42	17	.93	17
Space - Inserted between Words	1.04	14	.72	18	1.10	15	.42	19	.26	19	.71	18
Rewriting Words, Phrases, or Lines	.82	16	.68	19	.76	17	.58	18	.57	16	.68	19
Spaces and Punctuation (Rule 5)	1.63	10	.64	20	.72	18	.21	20	.31	18	.63	20
Unnecessary Capitalization	.22	20	1.00	17	.30	22	.21	20	.00	-	.38	21
Piling	.15	21	.04	25	.57	19	.42	19	.63	15	.37	22
Crowding	.00	-	.36	22	.42	21	.67	17	.00	-	.33	23
Long Line	.52	17	.28	23	.15	23	.04	22	.00	-	.18	24
Characters not on Keyboard	.15	21	.00	-	.53	20	.00	-	.00	-	.15	25
Short Indention	.29	19	.14	24	.08	25	.13	21	.05	22	.13	26
Insertion of Words	.22	20	.04	25	.30	22	-	-	.10	21	.13	26
Short Page	.00	-	.00	-	.00	-	.04	22	.16	20	.04	28
Transposition of Words	.00	-	.14	24	.00	-	.04	22	.00	-	.05	27
Cut Characters	.00	-	.04	25	.11	24	.00	-	.00	-	.03	29
Long Indention	.07	22	.00	-	.04	26	.00	-	.05	22	.02	30
	100.00		100.00		100.00		100.00		100.00		100.00	

This table should be read as follows: On Test I, Wrong Character comprises 55.96 per cent of the errors and ranks first in frequency. On Test II this error comprises 56.25 per cent of the errors and ranks first. On Test III it comprises 36.44 per cent of the errors and ranks first. On Test IV it comprises 40.85 per cent of the errors and ranks first. On Test V it comprises 32.57 per cent of the errors and ranks first. And 41.68 per cent of all the errors are Wrong Character errors. This ranks this error as first in total frequency.

The total number of errors found on the sample of one thousand test papers was 10,795, divided among the five tests as follows: 1,349 errors were found on the papers of the first test which was a five-minute straight-copy test; 2,495 errors were found on the papers of the second test which was a ten-minute straight-copy test as were the remainder of the tests; 2,639 errors were found on the third test papers; 2,399 errors on the fourth test papers; and 1,913 on the fifth test papers.

There is significance in the total number of errors made by the pupils on each test as shown by the per cent these errors are of the total errors. The errors on Test I were 13 per cent of the total errors. This low per cent of errors on the first test may be explained by the fact that the test was only one-half as long as each of the other four. The errors on Test II were 23 per cent of the total; on Test III, 24 per cent of the total; on Test IV, 22 per cent of the total; and on Test V, 18 per cent of the total. Thus, it is apparent that the per cent of errors made on the tests varied little until Test V which showed a 4 per cent decrease in errors made on Test IV.

Among the thirty-one types of errors the striking of the wrong character ranked first in all five tests for both boys and girls. There were 4,500 wrong character errors among the 10,795 total errors. Boys made 1,590 of these errors and girls 2,910. On Test I boys struck wrong characters 292 times or 55.3 per cent of all the errors on boys' tests. Girls struck wrong characters 463 or 56.4 per cent of all the errors made by girls on Test I. The boys decreased 9.1 per cent in the number of wrong characters struck on Test II. The girls decreased 10.1 per cent on the same test.

On Test III the boys lessened the wrong characters 11 per cent, and the girls struck 7.5 per cent less wrong characters. On Test IV boys increased 5.8 per cent in the wrong character errors; girls increased 2 per cent. On Test V, the boys again decreased the per cent of wrong character errors. They made 7.8 per cent less errors, and the girls decreased their errors 8.5 per cent. Thus, the data tend to indicate that wrong character errors were the highest in rank, but they decreased from a high of 55.96 per cent on Test I to the low of 32.57 per cent on Test V. The total per cents of wrong character errors by boys and by girls show slight difference. The total wrong character errors by girls was 41.97 per cent and by boys 41.43 per cent, or girls made .54 per cent more wrong character errors than boys.

Omission of character error ranked second in the frequency of its appearance on test papers. This error appeared 1,200 times or 11.11 per cent of the total errors made. Although second in rank, the omission of character error was very much less than the wrong character error which ranked first. Wrong character occurred 30.57 per cent more than omission of character.

Girls omitted characters .06 per cent more than boys. Boys omitted 428 characters or 11.08 per cent of the total errors, and girls omitted 772 characters or 11.14 per cent. This .06 per cent indicates how small was the difference in the omission of character errors by boys and by girls.

The third ranking error in frequency was the strike-over. This was found 1,052 times which was 9.74 per cent of the total of 10,795

errors of which 396 were made by boys and 656 by girls. The strike-over varied in frequency between second and third place on each of the five tests for boys and girls with one exception. On the first test boys ranked sixth in the frequency of strike-overs, and the girls ranked third. In other words, girls made 2.8 per cent more strike-overs on Test I than boys, but girls made .76 per cent less strike-overs on the total for all tests than boys did. This .76 per cent difference seems slight.

The transposition of character error ranked fourth in frequency. It showed up 574 times or 5.32 percent of the total errors. Of these errors 178 were boys' and 396 were girls'. The error remained rather constant and consistent in appearance on girls' papers as it held fifth place in frequency for Test I and fourth place in frequency on the other four tests. On boys' papers this error varied in its rank. Boys made only seventeen such errors on Test I. This placed transposition of character eighth in rank for boys. Then the rank of this error for boys rose to fourth place and remained there during the other three tests. Hence, transposing characters is one of the important errors.

Insertion of character error, fifth in rank, was found 462 times on the sample of one thousand papers. Boys inserted 168 characters and girls 294. As this error formed only 4.28 per cent of the total of 10,795 errors, it is much less significant than the 41.68 per cent of wrong character errors. In Test I more characters were inserted by both boys and girls than in any other test. Such errors probably could be attributed to lack of skill in the use of the margin release key as there were so many broken words at the ends of lines. Broken

words apply to incomplete words at the ends of lines. These words were generally completely retyped at the beginning of the following line. For example: The letter n was typed at the end of a line and then the complete word not on the next line, or wh would appear at the end of a line and the wh repeated with the ich to form which at the beginning of a new line. Since these repeated letter errors were charged to insertion of character, the rank of this kind of error was somewhat high for the first test but lowered to fifth place thereafter.

Anticipation of character error appeared 394 times and ranked sixth as to frequency on the students' test papers. Boys anticipated characters 131 times and girls 263 times. These errors made up 3.66 per cent of the total number of errors. The percentage does not indicate that it is the most important error, but certain facts prove it one of the more interesting ones. In errors of anticipation, the character struck was in each case the letter that would properly follow next. For example: In typing the word take the letter k was anticipated, and the word was written tkke; door became dorr; and in writing the word incident the e was anticipated; the letter d was typed e, and the word became incieent.

On Test I anticipation of character errors were almost negligible as boys made no errors of this kind and girls made only four which placed this error fifteenth in rank for girls. However, this error jumped to fifth place for girls and sixth for boys on the next test. The errors made on the third test placed anticipation of character seventh for boys and fourth for girls. Test IV errors showed

a marked decrease, but Test V showed a marked increase of character anticipation errors. They rose to fourth rank for both boys and girls.

Spaces were omitted between words 345 times, 139 times by boys and 206 by girls. This error ranked seventh in frequency on the test papers. It comprised only 3.2 per cent of the total errors. The total frequency of this error made by boys was .62 per cent more than by girls as 3.59 per cent of boys' errors were of this type and 2.97 per cent of girls' errors. This error decreased somewhat on the successive tests as it appeared in fifth rank on Test I, and on Test V it had dropped to seventh place.

Seventy-seven per cent or 8.527 of the 10,795 errors found on the one thousand test papers were of just seven kinds--striking wrong characters, omitting characters, striking over, transposing characters, inserting characters, anticipating characters, and omitting spaces between words. The other twenty-four kinds of errors comprised 2,468 of the total 10,795, or twenty-four kinds of errors made up only 23 per cent of all the errors. Of these twenty-four kinds of errors each was less than 3 per cent of the total. Three kinds of errors--faulty shifting, omission of words, and the short line--were each between 2 and 3 per cent of all the errors. Syllabication, space inserted within a word, spaces and punctuation (Rule 6), uneven left-hand margin, wrong word, and wrong home keys errors, each made up less than 2 per cent of the total errors.

The other fifteen types of errors--line spacing, space inserted between words, rewriting words, phrases or lines, spaces and punctua-

tion (Rule 5), unnecessary capitalization, piling, crowding, long line, characters not on keyboard, short indention, insertion of words, short page, transposition of words, cut characters, and long indention--each occurred less than one per cent on all of the one thousand papers. Therefore, it may well be said that the twenty-four kinds of errors which made up 23 per cent of the total are of much less significance than the first seven named as the first seven made up 77 per cent of the 10,795 errors. However, wrong character error is by far the most important error since it materially exceeded all others; i.e., it ranked 30.47 per cent higher than omission of character which was second in rank.

### Comparison of Errors

The comparison of the errors made by boys with those made by girls on the one thousand straight-copy test papers included the average number of errors made on each test paper, the number of papers written by boys and by girls, and the gross word groupings of the papers. The test papers had been arranged into gross word groupings according to the length of each test; i.e., gross words for five minutes on Test I as this test was only half as long as the other four. For the other four tests the gross word groupings were for ten minutes as the second to fifth tests, inclusive, were ten minutes each.

Figures or line graphs are used in this study to represent errors. The boys' errors are shown by the continuous lines and the girls' errors by dotted lines. The average number of errors made by boys and by girls on each paper were plotted according to gross word groupings. The gross words on each paper on Test I were grouped by using a step interval of 15 because this was only a five minute test. For example: On Test I, two girls' papers fell within the gross word grouping of 45 to 59 with an average of 10 errors on each of the two papers. The gross word groupings for Test II, III, and IV were calculated using a 25 step interval. Grouping the gross words for Test V necessitated using a step interval of 35 because the gross words per paper were high.

Figure 1, which follows on page 44, gives a diagrammatic comparison of boys' and girls' errors on Test I. In a like manner,

Figure 2, page 45, Figure 3, page 46, Figure 4, page 47, Figure 5, page 48, give meaningful comparisons of boys' and girls' errors on Tests II, III, IV, and V, respectively.

In Figure 1 on page 44, the number of errors and the gross words per paper on Test I are compared for boys and girls. The vertical scale on the left-hand side of the figure shows that the spread of the average number of errors on this test is from the low of 2 to the high of 11. The first horizontal scale below the line graph indicates the number of papers typed by boys, and the second scale the number of papers by girls. The third horizontal scale gives the gross word grouping for five minutes, ranging from 45 to 230, using a step interval of fifteen. The solid line for boys and the dotted lines for girls clearly reveal that the average number of errors varies from low to high for the various gross word grouping.

Figures 2, 3, 4, and 5 reveal the same information for Tests II, III, IV, and V.

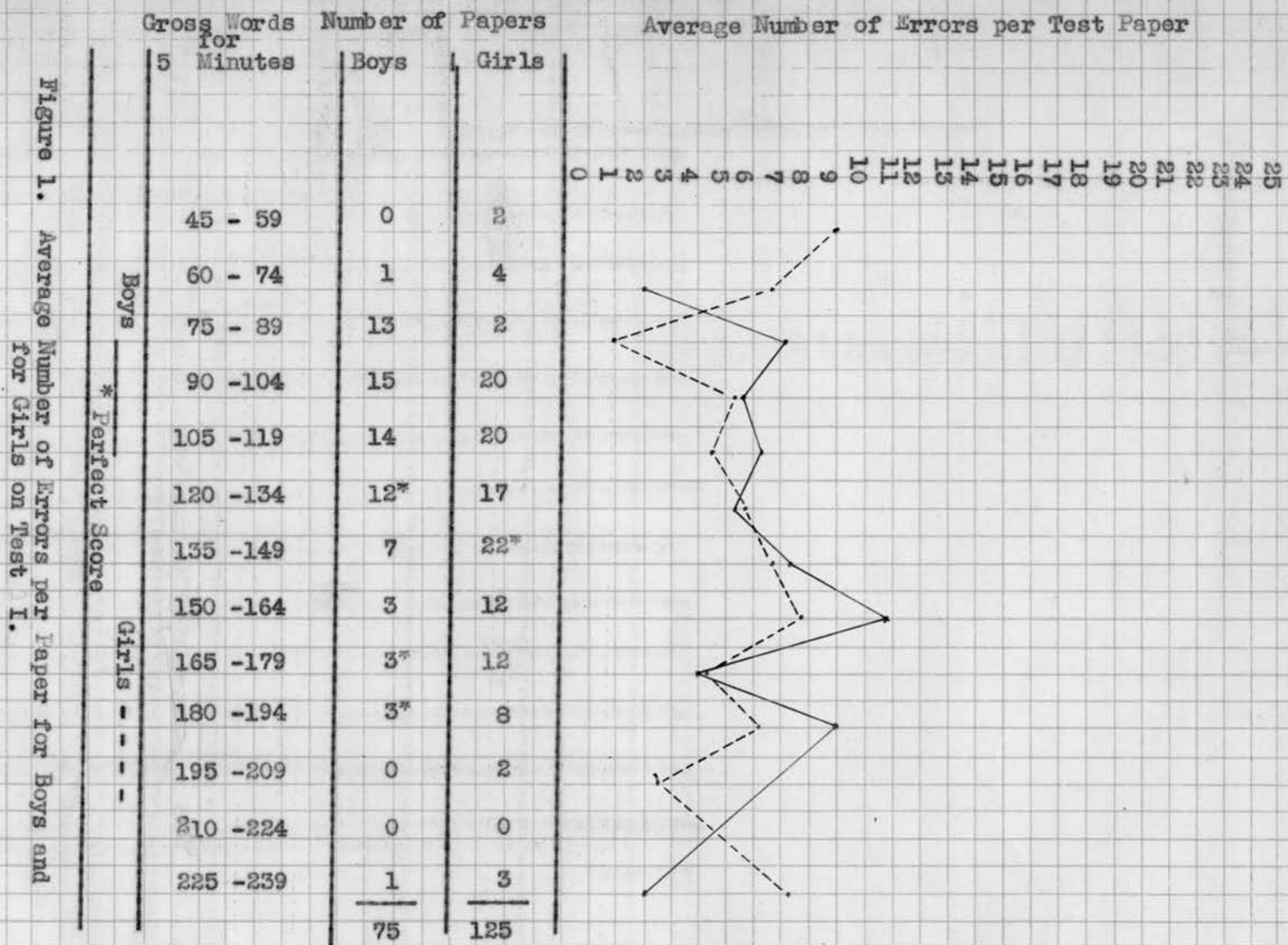
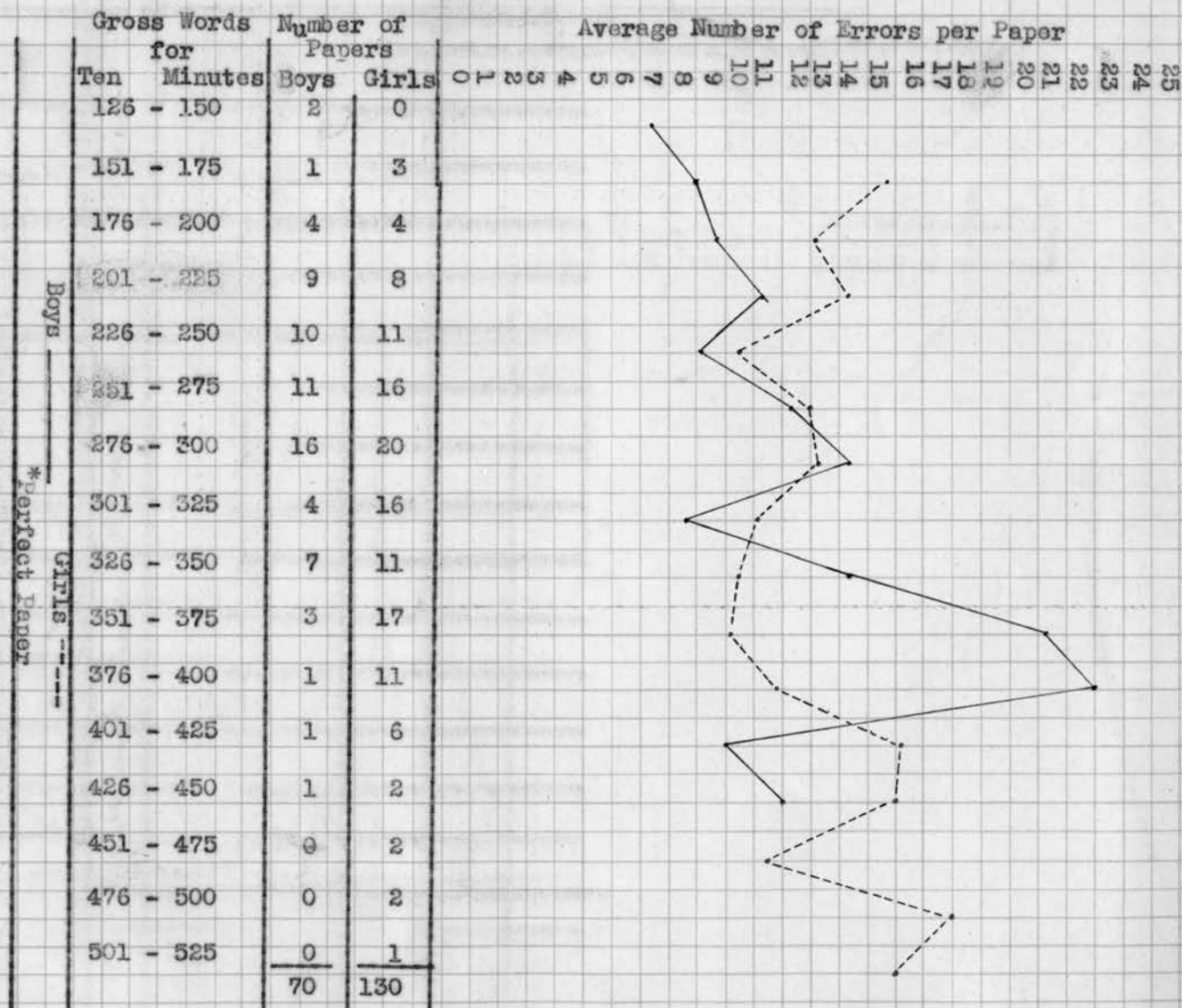


Figure 2. Average Number of Errors per Paper for Boys and for Girls on Test II



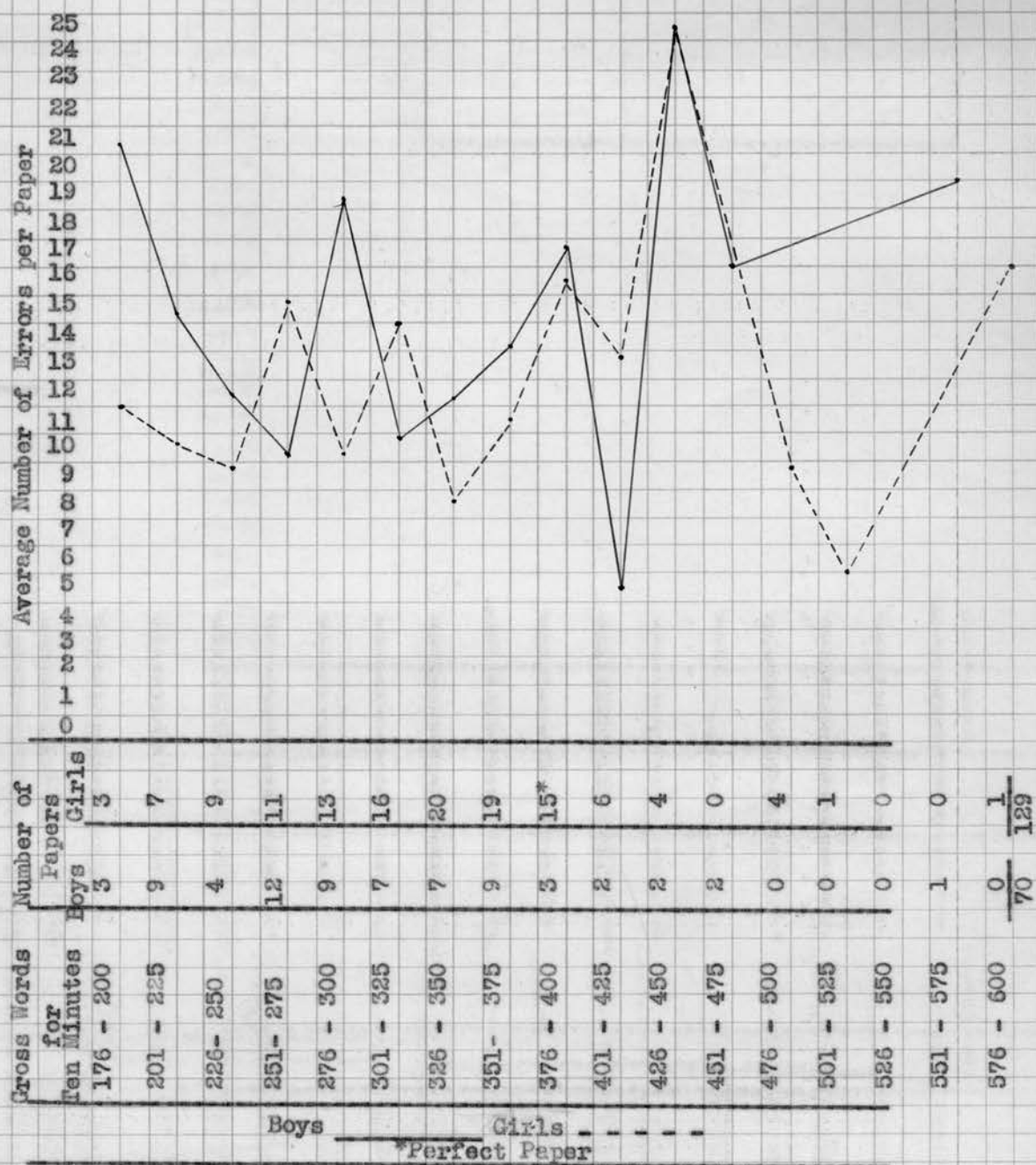


Figure 3. Average Number of Errors per Paper for Boys and for Girls on Test III

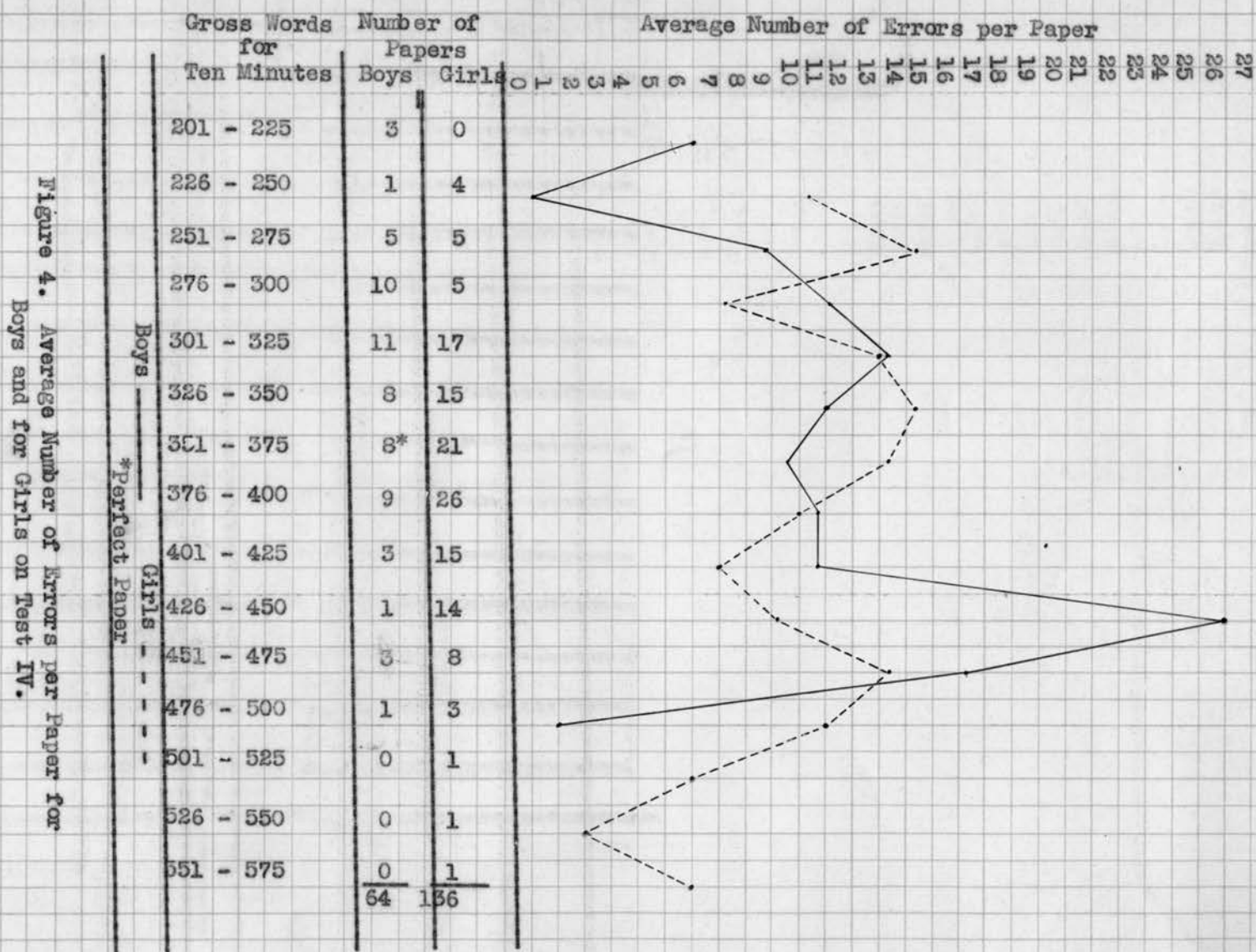


Figure 4. Average Number of Errors per Paper for Boys and for Girls on Test IV.

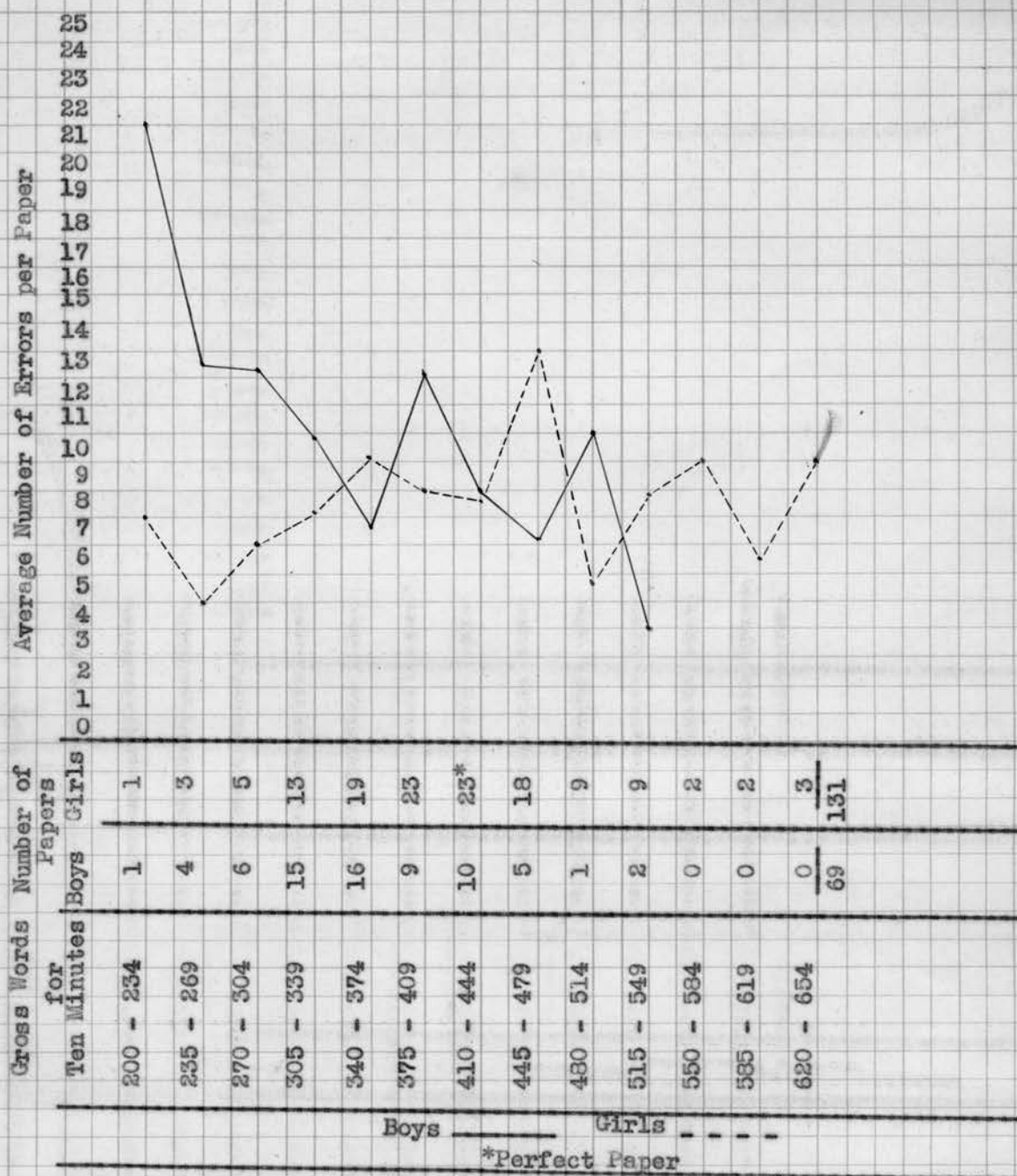


Figure 5. Average Number of Errors per Paper for Boys and for Girls on Test V.

An interesting and significant fact shows up on all 5 of the graphic figures. The number of errors on both boys' and girls' test papers is both high and low for the papers having approximately the same gross word count. For example: On the 1 boy's paper that fell within the gross word grouping of 60 to 74 words for five minutes, three errors occurred. On four girls' papers in this same gross word grouping of 60 to 74 words on a five-minute test, the average number of errors on each paper was 7.8. On thirteen boys' papers in the gross word grouping of 75 to 89, the average number of errors was 8.2; while in the same gross word grouping, two girls' papers averaged only two errors per paper. In the highest gross word grouping of 225 to 239 words for 5 minutes on Test I, one boy's paper showed 3 errors; but the average number of errors on 3 girls' papers was 8.3. Similar data appear on all 5 of the figures. Hence, it seems that there is no apparent relationship between the average number of errors made on each test paper and the speed with which the student wrote in terms of gross words for a paper on any one test.

It can be noted on Figures 1 to 5, pages 44 to 48, that the spread of errors for boys is wider than for girls. On Test I boys' errors spread from 3 to 11.7; the girls from 2 to 10. On Test II the spread of errors was 7.5 to 23 for boys and 10.2 to 18 for girls; on Test III, 5.5 to 25.5 for boys and 6 to 17 for girls; on Test IV, 1 to 27 for boys and 3 to 15.4 for girls; and on Test V, 4 to 22 for boys and 5 to 14 for girls.

From Figures 1 to 5 on pages 44 to 48, the points of greatest concentration of the student papers may be noticed. On Test I, 15

boys' papers concentrated at the point of 6.7 errors per paper and 22 girls' papers at 7.8 errors per paper. On Test II, 16 boys' papers at 14.4 errors and 20 girls' at 13.3; on Test III, 12 boys' at 10.3 and 20 girls' at 8.6; Test IV, 11 boys' at 14.3 and 26 girls' at 11; on Test V, 16 boys' papers concentrated at 7.7 errors per paper; but the girls' papers had two major concentration points: 23 girls' papers at 8.6 errors per paper and 23 girls' at the 9 errors per paper. These error concentration points indicate that boys' papers gathered at higher error points on Tests II, III, IV; but the girls' papers concentrated at higher error points on Tests I and V.

Figures 1 to 5, inclusive, on the preceding pages tend to indicate that there is some slight difference in the average number of errors made by boys and by girls. Of the 10,795 errors found on the sample of one thousand typewriting test papers, 3,862 were made by 243 boys and 6,933 by 652 girls. Hence, boys averaged 11.1 errors on each paper and girls averaged 10.6 errors on each paper. These averages indicate that boys typed .5 of an error per paper more than girls did, or girls are slightly more accurate than boys. However, one-half error on a ten-minute test paper does not seem to be too significant in the evaluation of girls' and boys' typewriting errors.

#### The Findings in Brief

The finding of this study may be briefly stated as follows:

Girls and boys made thirty-one kinds of errors on five tests which included one thousand straight-copy test papers. The total number of errors was 10,795. Seven kinds of errors ranked highest in frequency; 4,500 wrong characters, first; 1,800 omission of

characters, second; 1,052 strike-overs, third; 574 transposition of characters, fourth; 462 insertions of character, fifth; 394 character anticipations, sixth; and 345 spaces omitted between words, seventh. These seven types account for 77 per cent of all errors. The other twenty-four kinds of errors comprised 23 per cent of the total errors. Faulty shifting, omission of words, and short line errors each had only between 2 and 3 per cent of errors. Six kinds of errors--syllabication, space inserted within a word, spaces and punctuation (Rule 6), uneven left-hand margin, wrong word, wrong home keys--were each between 1 and 2 per cent of the total. The other fifteen of the 31 classes of errors were each less than one per cent of the total number of errors.

The spread of errors was slightly wider and higher for boys than girls. The concentration of errors was at a higher error point for girls on Tests I and V and less for girls on Tests II, III, and IV. Boys' papers concentrated at higher error points on Tests II, III, IV and decreased on Tests I and V.

The apparent differences between the kinds of errors made by boys and by girls seemed as insignificant as did the difference in the average number of errors made by boys and by girls on each paper.

## CHAPTER III

## SUMMARY AND CONCLUSIONS

As typewriting plays an important and vital part in modern life, constant research and improvement are necessary to provide proficient typists. Realizing this, the Beta Chapter of the Delta Pi Epsilon made available typewriting papers from first-year classes in twenty-two Oklahoma high schools. This study, utilizing a statistically-proved sample of one thousand papers drawn at random from those made available, analyzed the types and distribution of errors made by boys and by girls on the five straight-copy tests given at five week intervals during the school year of 1940-1941.

In Chapter I of this study the purpose, the scope, a few necessary definitions, the procedure for selecting and checking the sample, the procedure for classifying the errors, and some related studies are given and discussed.

The findings of this study are presented in Chapter II. Tables and figures show the data diagrammatically. Discussion attempts to clarify and emphasize the more important data concerning the types and distributions of errors and the comparison of errors by sex, and the findings are set forth in a brief form.

The last chapter presents the summaries and conclusions based on the research explained and presented in Chapters I and II. The summary and conclusions concerning the types and distribution of errors will be given first; second, the comparison of errors; and third, the general conclusions briefly stated.

### Types and Distributions of Errors

An analysis of the data in this study leads to the following summary and conclusions concerning types and distribution of errors:

First-year high school typewriting students made 10,795 errors on five straight-copy tests on a sample of 1,000 papers drawn from 7,115 available papers. Students made 1,249 errors on Test I, 2,495 on Test II, 2,639 on Test III, 2,399 on Test IV, and 1,913 on Test V.

The errors made by the students on the sample of one thousand papers fell into thirty-one definite kinds when they were classified.

Seven kinds--wrong character, omission of character, strike-over, transposition of character, insertion of character, character anticipation, and space omitted between words--comprised 8,527 or 77 per cent of all the errors. These seven types persisted in frequency on all five tests.

Wrong character error ranked highest in frequency on all five tests for both boys and girls. It occurred 4,580 times and comprised 41.68 per cent of all the errors. It exceeded the next most frequent error by 30.57 per cent. Hence, striking wrong character was the most significant error in the student typewriting.

Omission of character error ranked second in frequency. It occurred 1,200 times and made up 11.11 per cent of the total errors. The 1,052 strike-over errors ranked third and were 9.74 per cent of all the errors. Characters were transposed 574 times or 5.32 per cent. Insertion of character errors were 462 or 4.28 per cent of all. Character anticipation errors were 394 or 3.66 per cent of all. And 345 spaces were omitted between words or 3.20 per cent of the errors.

Of the thirty-one kinds of errors made by students, those ranking from eighth to thirty-first in frequency were 2,268 in number but comprised only twenty-three per cent of the total errors. These errors, therefore, have less significance than the first seven. These less important errors that appeared less frequently were as follows: Between 2 to 3 per cent each in frequency were faulty shifting, omission of words, and short line; between 1 and 2 per cent each in frequency were syllabication, space inserted within a word, spaces and punctuation (Rule 6), uneven left-hand margin, wrong word, wrong home keys; and less than 1 per cent in frequency were line spacing, space inserted between words, rewriting words, phrases, or lines, spaces and punctuation (Rule 5), unnecessary capitalization, piling, crowding, long line, characters not on keyboard, short indention, insertion of words, short page, transposition of words, cut character, and long indention.

Although the highest ranking error, wrong character decreased in frequency during the year, it remained highest. Omission of character, strike-over, transposition of character, insertion of character, character anticipation, spaces omitted between words, wrong words, uneven left-hand margin, and faulty shifting increased noticeably by the end of the school year. Several errors--spaces and punctuation (Rule 6), wrong home key, line spacing, spaces inserted between words, rewriting words, phrases, or lines, spaces and punctuation (Rule 5), unnecessary capitalization, long line, characters not on the keyboard, wrong indention, and insertion of words--decreased materially in frequency by the end of the year.

The seven most frequent kinds of errors were distributed as follows: Girls made .54 more wrong character errors than boys, .06 more omission of characters, .06 more transpositions of characters, .41 more anticipations of characters, but they made .76 fewer strikeovers, .62 fewer spaces between words, and .13 fewer insertions of characters than boys. Hence, .44 fewer errors per paper were found on girls' papers on the seven most frequently written errors than on boys'.

The distribution of errors for all five tests proved that girls averaged slightly fewer errors per paper than boys. On Test I boys averaged 7.04 errors per paper; girls, 6.56 per paper; or girls made .48 fewer errors per paper than boys. On Test II boys typed 12.37 errors per paper; girls, 12.52 per paper; or boys made .15 fewer errors than girls. On Test III boys typed 14.41 errors; girls, 12.54; or girls made 1.87 fewer errors per paper than boys. On Test IV boys made 11.73 errors; and girls, 12.12; or girls made .39 more errors than boys. On Test V boys made 10.09 errors; girls, 9.21; or girls made .88 fewer than boys. Hence, girls totaled 2.69 errors per paper less on all five of the tests than the boys, and made a little more than one-half error more per paper than did girls. ?

#### Comparison of Errors

The analysis of the data found in this study indicates the following summary and conclusions concerning the comparison of errors made by boys and by girls on one thousand papers:

Of the total 10,795 errors, 348 boys made 3,862 errors; and 652 girls, 6,933 errors. The boys averaged 11.1 errors per paper; and the girls, 10.6 per paper. These averages indicate that boys typed .5 more errors per paper than girls. However the one-half an error less made by girls does not indicate that the girls were significantly better typist than boys.

Five types of errors--wrong character, omission of character, strike-over, transposition of character and insertion of character--ranked first, second, third, fourth, and fifth in frequency in the order named for both boys and girls. This leads to the assertion that these five kinds of errors were equally important to boys and to girls.

There seems to be little or no apparent relationship between the average number of errors made by boys and by girls on each test paper and the speed with which the student wrote in terms of gross words per paper on any one test. Among the students there were both boys and girls with approximately the same number of gross words per paper who made very few errors on a low gross word count and also those who made many errors on papers with a low gross word count. Conversely both boys and girls papers with high gross word counts had both few and many errors. Hence, the speed with which boys and girls wrote had little relationship with the accuracy with which they wrote.

#### Conclusions in Brief

In brief the general conclusions of this study are as follows:

1. Typewriting students made thirty-one different kinds of errors.

2. Seven kinds of errors were most important and persisted significantly in frequency throughout all five tests. These were wrong character, omission of character, strike-over, transposition of character, inserting of character, anticipation of character, and space omitted between words.
3. Wrong character was the most important error because of its persistency and frequency.
4. The difference in the number and kinds of errors made by boys and by girls was so slight as to be of little significance.
5. There was little or no relationship between speed and accuracy either by boys or by girls.

## BIBLIOGRAPHY

- Blackstone, E. G. and Smith, S. L., Improvement of Instruction in Typewriting. New York: Prentice-Hall, Inc., 1937. pp. xii-522.
- Book, William F., Learning to Typewrite. New York: Gregg Publishing Company, 1925. 463 pages.
- Clem, Jane E., The Technique of Teaching Typewriting. New York: The Gregg Publishing Company, 1929. 363 pages.
- Garrett, Henry E., Statistics in Psychology and Education. New York: Longmans, Green and Company, 1940. pp. xiii-493.
- Hawkins, Helen I., An Analysis of Errors Made in First, Second, and Third Semester Typewriting Classes in a High School. Master's Thesis, University of Pittsburgh, 1932.
- Lessenberry, D. D., "Modern Methods of Teaching Typewriting," Modern Methods of Teaching Business Subjects. Eastern Commercial Teachers' Association, Fourth Yearbook, 1931, pp. 138-152.
- Lessenberry, D. D. and Jevon, E. A., 20th Century Typewriting, Third Edition. Cincinnati: Southwestern Publishing Company, 1938.
- ✓ Neece, Margaret Robertson, A Study of the Attainments of First-Year Typewriting Students in the State of Oklahoma at Five-Week Intervals During the Year 1940-1941. Master's Thesis, Oklahoma Agricultural and Mechanical College, 1941.
- Pille, Elsa, An Analysis of First Semester Typewriting Errors. Master's Thesis, University of Southern California, 1933.
- ✓ Pille, Elsa, "First Semester Typewriting Errors." Journal of Business Education, 1933-1934, Vol. 9, p. 8.
- ✓ Schoenleber, Lilly, A Procedure for Error Analysis in Secondary School Typewriting. Master's Thesis, University of Iowa, 1932.
- Smith, Harold H., "Methods of Diagnosing Typing Errors." American Shorthand Teacher, Vol. XIII, No. 2 (Oct. 1932), p. 44.
- Smith, Harold H., Teachers' Handbook for Gregg Typewriting. New York: The Gregg Publishing Company, 1938, 283 pages.
- Williams, J. Harold., Graphic Methods in Education. New York: Houghton Mifflin Company, 1924. pp. 129-145.

PARCHMENT

AG U.S.A.

APPENDIX

STRATHMORE PARCHMENT

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Table A

## GENERAL INFORMATION CONCERNING SCHOOLS PARTICIPATING

School	Total High School Enrollment	Commerce Department Enrollment	Typewriting Instructors
Tulsa: Central High	3400	2100	4
Oklahoma City: Central Classen	2300 1997	(No Count) 1500	3 2
Enid	1200	702	4
Ponca City	1000	498	4
Stillwater	968	252	2
Lawton	800	300	1
Sapulpa	732	288	2
Bristow	566	219	1
Idabel	559	166	1
Stilwell	386	117	1
Hugo	370	122	2
Heavener	350	115	1
Bixby	350	150	2
Oklahoma City: Northeast	320	175	2
Cleveland	300	128	1
Pryor	380	120	1
Yukon	235	45	1
Sayre	190	107	3
Dale	135	65	1
Pleasant Hill Consolidated District 65 Southeast of Drumright	50	20	1
Foraker	45	20	1

Table B<sup>2</sup>

AVERAGE GROSS WORDS A MINUTE AND PER CENT OF ACCURACY FOR ALL STUDENTS ON EACH OF THE FIVE TESTS

Test	Total Students	Week of School	Gross Words		Per Cent	
			Mean	Standard Deviation	Mean	Standard Deviation
I	1956	13	25.81	7.30	51.53	22.28
II	1567	18	30.46	7.30	58.64	26.86
III	905	23	33.19	8.17	64.34	25.25
IV	1455	28	37.18	7.41	66.57	24.02
V	1232	33	40.69	8.15	73.43	21.24

Table C

AVERAGE GROSS WORDS A MINUTE AND PER CENT OF ACCURACY FOR TWO HUNDRED STUDENTS ON EACH OF THE FIVE TESTS

Test	Total Students	Week of School	Gross Words		Per Cent	
			Mean	Standard Deviation	Mean	Standard Deviation
I	200	13	25.72	7.05	54.39	28.47
II	200	18	29.70	7.05	57.80	26.84
III	200	23	32.18	7.40	61.38	25.74
IV	200	28	36.23	6.43	65.89	23.54
V	200	33	39.81	8.00	74.30	20.40

2 Neece, op. cit., p. 27.

## STATISTICAL FORMULAE USED IN THIS STUDY

Mean

$$M = \frac{\sum f X}{N}$$

Standard Deviation

$$\sigma = \sqrt{\frac{\sum f x^2}{N} - C^2 \times i}$$

Standard Error of the Mean

$$\sigma_M = \frac{\sigma}{\sqrt{N}}$$

Standard Error of the Difference

$$\sigma_{diff} = \sqrt{\sigma_{M_1}^2 + \sigma_{M_2}^2}$$

Critical Ratio

$$= \frac{D}{\sigma_{diff}}$$

## TRIAL CLASSIFICATION CHART

62

FOR

SAMPLE OF ONE HUNDRED PAPERS

Classification of Errors	Number of Errors
1. Line spacing - too few spaces	16
2. Line spacing - too many spaces	25
3. Length of line - short - fewer than 61	50
4. Length of line - long - more than 76	14
5. Length of page - short - less than 29 lines	7
6. Paragraphing - indented less than 5 spaces	12
7. Paragraphing - indented more than 5 spaces	0
8. Spaces - inserted between words	3
9. Spaces - inserted within a word	18
10. Spaces - omitted between words	34
11. Spaces - inserted preceding a punctuation point	3
12. Spaces - too few following a punctuation point	22
13. Spaces - too many following a punctuation point	1
14. Errors in making characters not on keyboard (dash - exclamation point - equal sign)	1
15. Syllabication - words incorrectly divided	17
16. Cut character	13
17. Faulty shifting	33
18. Failure to capitalize	10
19. Capitalizing when unnecessary	22
20. Transposition of letters	56
21. Transposition of words	1
22. Rewriting words or phrases	7
23. Rewriting - sentences - paragraphs	0
24. Omitting words	20
25. Inserting words	2
26. Omitting sentences or phrases	1
27. Omitting paragraphs	0
28. Crowding	3
29. Piling	4
30. Uneven left-hand margin	14
31. Strike-overs	154
32. Wrong character	535
33. Omission of character	95
34. Inserting character	52
35. Repeating preceding characters	33
36. Anticipating following character	78
37. Wrong home keys	22
TOTAL ERRORS	1378

## REVISED CLASSIFICATION CHART

## INTERNATIONAL TYPEWRITING CONTEST RULES

(Number of Errors)

1.	Line Spacing. (work must be double-spaced)
2.	Length of line - short - fewer than 61
3.	Length of line - long - more than 76
4.	Length of page - short - less than 29 lines
5.	Paragraphing - indented less than 5 spaces
6.	Paragraphing - indented more than 5 spaces
7.	Spaces - inserted between words
8.	Spaces - omitted between words
9.	Spaces - inserted within a word
10.	Spaces and punctuation points (Number 5)
11.	Spaces - too few following a punctuation point (Number 6)
12.	Errors in making characters not on keyboard (dash - exclamation point - equal sign)
13.	Syllabication - words incorrectly divided
14.	Cut Characters (any word written so close to the top, bottom, or side of a sheet, that a portion of any letter is cut off, must be penalized)
15.	Faulty Shifting (failure to capitalize or if only parts of the proper character appear)
16.	Capitalizing when unnecessary
17.	Transposition of characters
18.	Transposition of words
19.	Rewriting words, phrases, or lines
20.	Omitting words
21.	Inserting words
22.	Crowding (no word shall occupy fewer than its proper number of spaces)
23.	Piling (portion of the body of one character overlapping any portion of the body of another character)
24.	Uneven left-hand margin
25.	Strike-overs
26.	Wrong character
27.	Omission of character
28.	Inserting character
29.	Anticipating following character (Example -- maal for meal, strrrting for starting)
30.	Wrong Home Keys (every character a wrong character)

## THE CLASSIFICATION CHART

## INTERNATIONAL TYPEWRITING CONTEST RULES

(Number of Errors)

1. Line Spacing.  
(work must be double-spaced)
2. Length of line - short - fewer than 61
3. Length of line - long - more than 76
4. Length of page - short - less than 29 lines
5. Paragraphing - indented less than 5 spaces
6. Paragraphing - indented more than 5 spaces
7. Spaces - inserted between words
8. Spaces - omitted between words
9. Spaces - inserted within a word
10. Spaces and punctuation points (Number 5)
11. Spaces - too few following a punctuation point  
(Number 6)
12. Errors in making characters not on keyboard  
(dash - exclamation point - equal sign)
13. Syllabication - words incorrectly divided
14. Cut Characters  
(any word written so close to the top,  
bottom, or side of a sheet, that a  
portion of any letter is cut off, must  
be penalized)
15. Faulty Shifting  
(failure to capitalize or if only parts  
of the proper character appear)
16. Capitalizing when unnecessary
17. Transposition of characters
18. Transposition of words
19. Rewriting words, phrases, or lines
20. Omitting words
21. Inserting words
22. Crowding  
(no word shall occupy fewer than its proper  
number of spaces)
23. Piling  
(portion of the body of one character  
overlapping any portion of the body of  
another character)
24. Uneven left-hand margin
25. Strike-overs
26. Wrong Character
27. Omission of character
28. Inserting character
29. Anticipating following character  
(Example -- maal for meal, strirting for  
starting)
30. Wrong Home Keys  
(every character a wrong character)
31. Wrong Word

INTERNATIONAL TYPEWRITING CONTEST RULES<sup>1</sup>

1. Line Spacing. Single space all paragraphs and short timed practice unless otherwise directed. Double space all timed tests of 5 minutes or longer.
2. Length of Line. A line averaging 70 spaces in length (not less than 64 nor more than 76 spaces) is preferred; but a line averaging 60 spaces (not less than 54 nor more than 66 spaces) is allowable if you prefer it. The longer line will enable you to type more words in timed tests because the number of carriage returns is reduced.
3. Length of Page. Except for the last sheet of a timed test, at least 29 double-spaced lines must appear on a page 8½ x 11 inches. This rule applies only to timed tests of 5 minutes or longer. On other work, including short timed test practice, fill the page with single-spaced copy to within approximately an inch of the bottom edge.
4. Paragraphing. Indent paragraphs 5 spaces, starting on the sixth space.
5. Spaces and Punctuation Marks. An error in spacing or in punctuation is considered an error in the preceding word unless that word has already been penalized.
6. Spacing after Punctuation. Except as noted below, space once after all punctuation marks within sentences or within word groups not forming sentences, and space twice after all punctuation marks that close sentences or groups of words not forming sentences.

There is good authority for following the above rule when spacing after the colon, but there is equally good authority for (a) always spacing twice after a colon, or (b) spacing twice when the colon is followed by a complete sentence beginning with a capital letter and once in all other cases. Charge an error for every failure to space consistently according to one of these three rules.

It is better form to omit the space in small-letter abbreviations, such as a.m., i.e., f.o.b., etc. Many authorities prefer no space in capital-letter abbreviations (except initials of personal names), such as O.K., M.D., P.M., Ph.D., etc., but a space after the period following each letter in all abbreviations is quite acceptable in all school work. Failure to be consistent in a given test is an error.

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<sup>1</sup> I.T.C.R.

7. The Dash. Two hyphens with no spaces before or after are commonly used, but either one or two hyphens with a space before and after may be used. Be consistent.
8. Cut Characters. Any word written so close to the top, bottom, or side of the sheet that any portion of a letter is cut off is an error. If the paper feed on your machine does not hold the paper securely at the top and bottom of the sheet, or if the line-space mechanism is out of adjustment, so that the level of the line shifts during typing, do not charge an error.
9. Incorrectly Divided Words. A word divided incorrectly at the end of any line constitutes an error. Follow any standard dictionary for correct division.
10. Faulty Shifting. A shifted character (capital) is acceptable only when the entire capital letter can be discerned and when no part of the lower-case character on that type bar is visible. If most of the shifted characters are raised or lowered, that is, out of line with the lower-case letters, an error should be charged for every failure to place a shifted character squarely on the writing line, until you form the habit of shifting correctly.
11. Lightly Struck Letters. If a character can be seen, even though it is very light, it is correct. If you habitually strike the keys too lightly, however, you should charge an error for every lightly struck character until you form the habit of striking all keys more forcefully.
12. Transposition. One error is charged for each transposition, either of letters or of words. Mistakes within transposed words must be marked as additional errors.
13. Rewritten Matter. Charge one error for the rewriting and an additional error for each mistake in both the first and the second writing.
14. Omitted Words. (See Rule No. 24).
15. Inserted Words. (See Rule No. 24).
16. Crowding. Any word occupying less than its proper number of spaces is an error. However, if your typewriter is poorly adjusted or the table on which it stands is subject to any vibration, "crowding" and "piling" of letters may not be your fault. If possible, have your typewriter adjusted and placed on a solid table.

17. Piling. When two characters or a space and a character are so crowded that they are printed on top of one another, or if any portion of their bodies overlap or would overlap were a letter typed in the adjoining space, the machine is said to have "piled." If piling occurs at the end of a line, make sure that your right margin stop is properly set and test the machine to see whether the keys lock when the carriage reaches the margin stop. If they do not, piled letters at the ends of lines should not be penalized until your machine is properly adjusted. (See Rule No. 16).
18. Left-Hand Margin. All characters at the beginning of lines, except at paragraph indentations, must be struck at the same point on the scale. Poorly adjusted machines will cause the margin to "jump over" to the left or to "bounce in" to the right. Do not charge these errors until your machine is properly adjusted.
19. X'ing. Work in which material is x'd will not be accepted.
20. Erasing. Erasing is not allowed.
21. Errors in Printed Copy. Errors in the printed copy may either be corrected or written as in the copy.
22. Last Word. Stop when time is up. An uncompleted last word, otherwise correct, is not an error.
23. One Error Per Word. Only one error may be charged in any one word.
24. General Rule. Every word omitted, inserted, misspelled, or in any manner changed from the printed copy (except in transposed and rewritten matter) must be penalized.
25. Penalty. If your instructor wishes you to calculate your "net words" or "net words a minute," use the following method:

Deduct ten words for each error from the gross number of words typed. The result will be your total "net words". Divide your total net words by the number of minutes (length of test) to find your "net words a minute" (net rate).

#### How to Calculate Net Rate

Example: Suppose you type 103 gross words in 5 minutes, making 6 errors.

$6 \text{ (total errors)} \times 10 \text{ (penalty)} = 60 \text{ (total penalty)}$   
 $103 \text{ (gross words)} - 60 \text{ (penalty)} = 43 \text{ (total net words)}$   
 $43 \text{ (net words)} \div 5 \text{ (the number of minutes typed)} = 8.6 \text{ your final net words a minute (net rate)}$

Note: The only accurate measure of a typist's speed on straight matter is his "gross words a minute" (total gross words divided by the number of minutes); and the only accurate measure of his accuracy is his "error rate" (total errors divided by the number of minutes).

26. Gross Words. Determine the gross number of strokes by referring to the printed copy. The stroke count is given at the end of each line. Divide the total gross strokes by 5 to find the number of gross words you type. (A "standard word" is defined as 5 strokes.) Strokes in rewritten matter are not to be counted in the gross. Take credit for every stroke typed.

Strokes or spaces are counted as though the entire test were written in one continuous line, with no paragraphs, but with proper spacing after words and punctuation marks. This means that the gross strokes equal the number of spaces occupied by the typing at any given point. Shifted characters count as one stroke. No allowance is made for carriage returns and other similar operations. Hyphens inserted at the ends of lines to divide words, except when required for compound words, are not counted, because they would be unnecessary if the matter were typed in a continuous line.

STRATHMORE PARCHMENT

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Table D

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST I BY THE BOYS

	225	210	195	180	165	150	135	120	105	90	75	60	45	
Gross Words per Paper	239	224	209	194	179	164	149	134	119	104	89	74	59	TOTAL
Number of Papers	1	0	0	3	3	3	7	12	14	15	13	1	0	75
				1*	1*			1*						
Classification of Errors	Frequency													TOTAL
1. Line Spacing						10				7				17
2. Short Line						7		2	1	12				22
3. Long Line									1					1
4. Short Page														0
5. Short Indentation									1					1
6. Long Indentation														0
7. Space - Inserted between Words							1			1	3			5
8. Space - Omitted between Words				2			1	2	9	5	7			26
9. Space - Inserted within a Word					1			2	2		1			6
10. Spaces and Punctuation (Rule 5)						2	1			1	1	1		6
11. Spaces and Punctuation (Rule 6)										2	2			4
12. Characters not on Keyboard														0
13. Syllabication					1		1	1			1			4
14. Cut Characters														0
15. Faulty Shifting				3				2	2					7
16. Unnecessary Capitalization				1					1					2
17. Transposition of Characters				1	3	1	2	1	1	3	5			17
18. Transposition of Words														0
19. Rewriting Words, Phrases, or Lines									3	2	1			6
20. Omission of Words							10				9			19
21. Insertion of Words														0
22. Crowding														0
23. Piling														0
24. Uneven Left-Hand Margin											1			1
25. Strike-over				2				1	5	4	8	1		21
26. Wrong Character	2			13	10	11	35	55	63	47	51			292
27. Omission of Character				1		2	3	6	5	4	5	1		27
28. Insertion of Character	1			1		2	4	3	6	8	8			33
29. Character Anticipation														0
30. Wrong Home Keys								1	2	3	2			8
31. Wrong Word				1						1	1			3
TOTAL	3	0	0	30	15	35	58	76	102	100	106	3	0	528

\* Perfect Paper

This table should be read as follows: On Test I for boys' one paper fell in the gross word, grouping of 225 to 239. Three errors were made on this paper: 2 wrong characters and 1 insertion of character.

Table E

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST I BY THE GIRLS

Gross Words per Paper	225	210	195	180	165	150	135	120	105	90	75	60	45	TOTAL
	239	224	209	194	179	164	149	134	119	104	89	74	59	
Number of Papers	3	0	2	8	12	12	22	17	20	20	2	4	2	125
Classification of Errors	Frequency													TOTAL
1. Line Spacing														0
2. Short Line					16	1		2						19
3. Long Line				2	1	2	1							6
4. Short Page														0
5. Short Indention							1			1		1		3
6. Long Indention										1				1
7. Space - Inserted between Words			1			1	2		1	1			3	9
8. Space - Omitted between Words	1				1	3	4	1	5	5		2		22
9. Space - Inserted within a Word				3	1	2	4		1	9		2		22
10. Spaces and Punctuation (Rule 5)						2	6	1	1	1		1	4	16
11. Spaces and Punctuation (Rule 6)							1		3	6		1		11
12. Characters not on Keyboard	1							1						2
13. Syllabication			1			1	1	1		5				9
14. Cut Characters														0
15. Faulty Shifting				1			1			1	1			4
16. Unnecessary Capitalization							1							1
17. Transposition of Characters	2			2	2	5	8	3	3	3				28
18. Transposition of Words														0
19. Rewriting Words, Phrases, or Lines			1	1			1			1			1	5
20. Omission of Words				9		1	1	2		1				14
21. Insertion of Words									1			2		3
22. Crowding														0
23. Piling						1	1							2
24. Uneven Left-Hand Margin	1				2		1	2						6
25. Strike-over					4	2	24	8	10	6		1	1	56
26. Wrong Character	13		4	30	40	52	86	70	73	71	2	14	8	463
27. Omission of Character	5			6	7	11	14	16	4	3		4	2	72
28. Insertion of Character	2			2	2	4	1	4	5	8		2		30
29. Character Anticipation				1	1	1	1							4
30. Wrong Home Keys						1	1	3	1	2		1	1	10
31. Wrong Word							1			2				3
TOTAL	25	0	7	57	61	105	163	112	110	127	3	31	20	821

## \* Perfect Paper

This table should be read as follows: On Test II for girls's three papers fell in the gross word grouping of 225 to 239. There were 25 errors on these papers: 1 space inserted between words, 1 character not on keyboard, 2 transpositions of characters, 1 uneven left-hand margin, 13 wrong characters, 5 omissions of characters, and 2 insertions of characters.

Table F

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST II BY THE BOYS

Gross Words per Paper	501	476	451	426	401	376	351	326	301	276	251	226	201	176	151	126	
	525	500	475	450	425	400	375	350	305	300	275	250	225	200	175	150	TOTAL
Number of Papers	0	0	0	1	1	1	3	7	4	16	11	10	9	4	1	2	70
Classification of Errors	Frequency																TOTAL
1. Line Spacing											17						17
2. Short Line								1		26							27
3. Long Line											1		1				2
4. Short Page																	0
5. Short Indention											1		1				2
6. Long Indention																	0
7. Space - Inserted between Words								3		8		1					12
8. Space - Omitted between Words							4	3	2	3	3	2	3				20
9. Space - Inserted within a Word				1				4		7	3					1	16
10. Spaces and Punctuation (Rule 5)							1				1						2
11. Spaces and Punctuation (Rule 6)							1	13				17	8				39
12. Characters not on Keyboard																	0
13. Syllabication										5	2	9				2	18
14. Cut Characters																	0
15. Faulty Shifting				1		1	5	4		5	3	1	4				24
16. Unnecessary Capitalization										2	1		1	1	1	1	7
17. Transposition of Characters					1			7	2	7	9	2	3		1		32
18. Transposition of Words													1				1
19. Rewriting Words, Phrases, or Lines									1		2	1				1	5
20. Omission of Words										1	1	1		4			7
21. Insertion of Words												1					1
22. Crowding						1	2		1			1					5
23. Piling																	0
24. Uneven Left-Hand Margin										7	4		1				12
25. Strike-Over							16	8		17	7	1	19	17	3	3	91
26. Wrong Character				9	5	19	20	42	20	108	59	48	51	12	2	6	401
27. Omission of Character				1	3		6	5	6	17	5	6	8		1		58
28. Insertion of Character							6	5		4	7			2		1	25
29. Character Anticipation					1	2		5	3	10	3	1		1	1		27
30. Wrong Home Keys							2	1		3	6		2	1			15
31. Wrong Word							1							1			2
TOTAL	0	0	0	12	10	23	64	101	35	230	135	92	103	39	9	15	868

This table should be read as follows: On Test II for boys' one paper fell within the gross word grouping of 426 to 450 words per paper. There were 12 errors made on this paper: 1 space inserted within a word, 1 faulty shifting, 9 wrong characters, and 1 omission of character.

Table G

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST IV BY THE BOYS

	551	526	501	476	451	426	401	376	351	326	301	276	251	226	201	
Gross Words per Paper	575	550	525	500	475	450	425	400	375	350	325	300	275	250	225	TOTAL
									1*							
Number of Papers	0	0	0	1	3	1	3	9	8	8	11	10	5	1	3	64
Classification of Errors	Frequency															TOTAL
1. Line Spacing																0
2. Short Line																0
3. Long Line																0
4. Short Page																0
5. Short Indention								1							1	2
6. Long Indention																0
7. Space - Inserted between Words												1				1
8. Space - Omitted between Words					1	1		2	5	3	10	4	1			27
9. Space - Inserted within a Word					3			1	1		3				1	9
10. Spaces and Punctuation (Rule 5)										1	2					3
11. Spaces and Punctuation (Rule 6)									1			1	1			3
12. Characters not on Keyboard																0
13. Syllabication									3	2	5	2	1			13
14. Cut Characters																0
15. Faulty Shifting					10	1		1	5	3	2	3	2			27
16. Unnecessary Capitalization								1				1				2
17. Transposition of Characters						1	2	13	9	2	12	9	1		1	50
18. Transposition of Words																0
19. Rewriting Words, Phrases, or Lines										2	4					6
20. Omission of Words				1					2	2	3	16				24
21. Insertion of Words																0
22. Crowding				2			1									3
23. Piling								1			3					4
24. Uneven Left-Hand Margin							1			2						3
25. Strike-Over					6	1	3	11	9	16	16	15	5		4	86
26. Wrong Character					12	13	18	50	27	43	69	39	24	1	12	308
27. Omission of Character				1	11	10	4	17	15	15	18	13	10		1	115
28. Insertion of Character				1	3		3	3	3	5	3	5	2			28
29. Character Anticipation					3		3	4	2		1	8	1			22
30. Wrong Home Keys											2	1	1			4
31. Wrong Word									3		4	3			1	11
TOTAL	0	0	0	2	52	27	35	105	85	96	157	121	49	1	21	751

This table should be read as follows: On Test IV for boys' one paper fell within the gross word grouping of 476 to 500. There were two errors on this paper: 1 omission of character and 1 insertion of character.

Table E

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST IV BY THE GIRLS

	551	526	501	476	451	426	401	376	351	326	301	276	251	226	201	
Gross Words per Paper	575	550	525	500	475	450	425	400	375	350	325	300	275	250	225	TOTAL
Number of Papers	1	1	1	3	8	14	15	26	21	15	17	5	5	4	0	136
Classification of Errors	Frequency															TOTAL
1. Line Spacing												29	1	1		31
2. Short Line				37				7	29		3					76
3. Long Line							1									1
4. Short Page								1								1
5. Short Indention													1			1
6. Long Indention																0
7. Space - Inserted between Words						2		3	1	2	1					9
8. Space - Omitted between Words				2	3	8	2	9	5	8	1	2	3	1		44
9. Space - Inserted within a Word				1				2	2	3	5					13
10. Spaces and Punctuation (Rule 5)									1		1					2
11. Spaces and Punctuation (Rule 6)				1				2	4		1		3			11
12. Characters not on Keyboard																0
13. Syllabication				1	1	8	2	3	7				6			28
14. Cut Characters																0
15. Faulty Shifting				1	2	9	1	4	16		7		1			41
16. Unnecessary Capitalization		1							1			1				3
17. Transposition of Characters	1			1	5	4	7	22	17	27	9	3	3	2		101
18. Transposition of Words												1				1
19. Rewriting Words, Phrases, or Lines								1	2	3	1		1			8
20. Omission of Words						1	1	13	5	1	36					57
21. Insertion of Words																0
22. Crowding						5	1	2			1		3	1		13
23. Piling						1	1	3	1							6
24. Uneven Left-Hand Margin				1		5	1	7		2				6		22
25. Strike-Over	1		3	4	13	22	13	25	10	60	17	2	4	3		177
26. Wrong Character	2	1	3	16	32	63	62	116	134	87	80	23	31	22		672
27. Omission of Character	2	1	1	6	9	9	15	36	37	14	19	4	13	3		169
28. Insertion of Character	1				4	4	7	16	14	12	8	3	3	5		77
29. Character Anticipation				3	5	1	1	9	1	1	12		2	2		37
30. Wrong Home Keys							2	4	7	4	4	1				22
31. Wrong Word					3	1	3	2	5	6	3		2			25
TOTAL	7	3	7	36	115	143	120	286	300	230	238	41	77	45		1648

This table should be read as follows: On Test IV for girls' one paper fell within the gross word grouping of 551 to 575. Seven errors appear on this paper: 1 transposition of characters, 1 strike-over, 2 wrong characters, 2 omissions of characters, and 1 insertion of character.

Table I

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST II BY THE GIRLS

	501	476	451	426	401	376	351	326	301	276	251	226	201	176	151	126	
Gross Words per Paper	525	500	475	450	425	400	375	350	325	300	275	250	225	200	175	150	TOTAL
Number of Papers	1	2	2	2	6	11	17	11	16	20	16	11	8	4	3	0	130
Classification of Errors	Frequency																TOTAL
1. Line Spacing										21			2				23
2. Short Line											1						1
3. Long Line							1	1	1	2							5
4. Short Page																	0
5. Short Indentation						1							1				2
6. Long Indentation																	0
7. Space - Inserted between Words								1	2	1	1			1			6
8. Space - Omitted between Words	2		1	2	3	3	4	3	13	9	7		3		4		54
9. Space - Inserted within a Word			1		1		5	1	6	6	3	1	2	1	2		29
10. Spaces and Punctuation (Rule 5)									1				10	3			14
11. Spaces and Punctuation (Rule 6)								1	1			1	11		2		16
12. Characters not on Keyboard																	0
13. Syllabication				2	3	2	2	4	6	3	2	3	3	1			31
14. Cut Characters								1									1
15. Faulty Shifting				2	12	2	1	3	11	13	8	4	2	1	1		60
16. Unnecessary Capitalization						2	6	1	1	2	1	2	1		2		18
17. Transposition of Characters		2	1			5	12	11	10	6	14	2	4	11	1		79
18. Transposition of Words					1						1	1					3
19. Rewriting Words, Phrases, or Lines						6		2		1	1	1	1				12
20. Omission of Words	8				1	15	1	12	1	4	2	1	1				46
21. Insertion of Words																	0
22. Crowding				1		1				1		1					4
23. Piling														1			1
24. Uneven Left-Hand Margin				1	1	12	3	1	8	6				1			33
25. Strike-Over		2		6	13	13	10	7	20	34	11	13	14	4	3		150
26. Wrong Character	3	15	13	16	45	57	83	65	68	111	121	71	46	16	23		753
27. Omission of Character		12	4	5	10	12	14	13	16	20	13	5	4	5	7		140
28. Insertion of Character		3	3		1	4	5	5	8	8	3	3	1	3			47
29. Character Anticipation	3	2			4	4	9	3	8	11	7	6	4	3	1		65
30. Wrong Home Keys					2		4	3	2	2	2	3	3				21
31. Wrong Word				1		3	3	3	2		1						13
TOTAL	16	36	23	32	97	131	173	140	177	265	207	116	114	53	47	0	1627

This table should be read as follows: On Test II for girls' one paper fell within the gross word grouping of 501 to 526. There were 16 errors made on this paper: 2 spaces omitted between words, 8 omissions of words, 3 wrong characters, and 3 anticipations of characters.

Table J

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST III BY THE GIRLS

Gross Words per Paper	576	551	526	501	476	451	426	401	376	351	326	301	276	251	226	201	176	
	600	575	550	525	500	475	450	425	400	375	350	325	300	275	250	225	200	TOTAL
Number of Papers	1	0	0	1	4	0	4	6	15	19	20	16	13	11	9	7	3	130
	1*																	
Classification of Errors	Frequency																	TOTAL
1. Line Spacing											1							1
2. Short Line												1		21			15	37
3. Long Line									1									1
4. Short Page																		0
5. Short Indention									1					1				2
6. Long Indention																1		1
7. Space - Inserted between Words							1		4	1	2	2		3	1	2	1	17
8. Space - Omitted between Words					3		2	6	7	6		5	6	5	2	1		43
9. Space - Inserted within a Word							3	2	3	1	6	1	1	5			1	23
10. Spaces and Punctuation (Rule 5)							1		1				1	2	1	1		7
11. Spaces and Punctuation (Rule 6)							13	1	1	1		14		3		9		42
12. Characters not on Keyboard							1			1		3		1	2	4		12
13. Syllabication									1	22	3	10	5	6	4	2		52
14. Cut Characters							1			2								3
15. Faulty Shifting					1		4	6	9	4	17	8	2	4	2			57
16. Unnecessary Capitalization												2		2				4
17. Transposition of Characters	1						6	4	18	19	13	10	6	3	6	6		92
18. Transposition of Words																		0
19. Rewriting Words, Phrases, or Lines							1	1	2	1	3	2			2		1	13
20. Omission of Words									40		3	1	2	2	3			51
21. Insertion of Words									1		1	2						4
22. Crowding									1			1		1				3
23. Piling									2	1		2	1		1	1		8
24. Uneven Left-Hand Margin							6		1	2	5		1	7				22
25. Strike-Over	1			1	1	0	10	12	18	7	11	7	17	7	6	12	1	111
26. Wrong Character	8			4	17		33	26	77	95	48	115	65	75	38	18	13	632
27. Omission of Character	4			1	8		11	19	34	33	27	25	13	14	10	10	1	210
28. Insertion of Character	1				2		3	3	11	6	11	14	3	4	4	3	2	67
29. Character Anticipation	1				7		5	3	14	13	18	10	10	4	3	4		92
30. Wrong Home Keys										1		1		3	1		1	7
31. Wrong Word	1								3		3	4	1	2	2			16
TOTAL	17	0	0	6	39		101	83	248	218	172	240	134	174	88	74	36	1630

This table should be read as follows: On Test III for girls' one paper fell within the gross word grouping of 576 to 600. There were 17 errors made on this paper: 1 transposition of characters, 1 strike-over, 8 wrong characters, 4 omissions of characters, 1 insertion of character, and 1 character anticipation.

\* Perfect Paper

Table K

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST III BY THE BOYS

	576	551	526	501	476	451	426	401	376	351	326	301	276	251	226	201	176	
Gross Words per Paper	600	575	550	525	500	475	450	425	400	375	350	325	300	275	250	225	200	TOTAL
Number of Papers	0	1	0	0	0	2	2	2	3	9	7	7	9	12	4	9	3	70
Classification of Errors	Frequency																	TOTAL
1. Line Spacing									1					1		1		3
2. Short Line													21				9	30
3. Long Line														3				3
4. Short Page																		0
5. Short Indention																		0
6. Long Indention																		0
7. Space - Inserted between Words	1						1	1			3	1	1			2	2	12
8. Space - Omitted between Words	1								1	10	1	9	4	4	2	3	2	38
9. Space - Inserted within a Word									3		1	3	2		1			10
10. Spaces and Punctuation (Rule 5)	1					2			2	1	1	1	3	1				12
11. Spaces and Punctuation (Rule 6)												1	10	1	1	10		23
12. Characters not on Keyboard										1				1				2
13. Syllabication						1		1	1	1	1		2	3		4		14
14. Cut Characters																		0
15. Faulty Shifting	1					1	2		2	2	3	1	10	5	2	5	10	44
16. Unnecessary Capitalization						1			2				1					4
17. Transposition of Characters	2					2	3	1		15	5	1	8	8	3	2		50
18. Transposition of Words																		0
19. Rewriting Words, Phrases, or Lines						1					2		1	1		2		7
20. Omission of Words							1						3	7	6	11	10	38
21. Insertion of Words											1		2			1		4
22. Crowding									2	1	1	4						8
23. Piling							2			3				1				7
24. Uneven Left-Hand Margin										1		1	3	3		1		9
25. Strike-over	1					3	1		3	18	7	2	2	14	4	11	22	88
26. Wrong Character	3					19	23	2	21	40	42	26	50	48	21	53	8	356
27. Omission of Character	4					4	13	3	7	15	10	17	39	12	5	16		145
28. Insertion of Character	4						3	2		9	2	4	6	5	3	7	1	46
29. Character Anticipation	2						2			8	8	3	1	3	4	1	7	39
30. Wrong Home Keys									1			2	2	1	1			7
31. Wrong Word										2	1	1	3		1	2		10
TOTAL	0	20	0	0	0	34	51	11	53	128	86	76	175	123	50	138	64	1009

This table should be read as follows: On Test III for boys, one paper fell within the gross word grouping of 551 to 575. There were 20 errors on this paper: 1 space inserted between word, 1 space omitted between words, 1 spaces and punctuation (Rule 5), 1 faulty shifting, 2 transpositions of characters, 1 strike-over, 3 wrong characters, 4 omissions of characters, 4 insertions of character anticipations.

Table L

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST V BY THE GIRLS

	620	585	550	515	480	445	410	375	340	305	270	235	200	
Gross Words per Paper	654	619	584	549	514	479	444	409	374	339	304	269	234	TOTAL
Number of Papers	3	2	2	9	9	18	23	23	19	13	5	3	1	131
	1*													
Classification of Errors	Frequency													TOTAL
1. Line Spacing							1		1					2
2. Short Line							40							40
3. Long Line														0
4. Short Page					1			1						2
5. Short Indention							1							1
6. Long Indention														0
7. Space - Inserted between Words							2	1	1					4
8. Space - Omitted between Words	1			3	2	7	8	8	9	5				43
9. Space - Inserted within a Word	1			1	1	2	11	7	4	4	1		1	33
10. Spaces and Punctuation (Rule 5)						1	2				1			4
11. Spaces and Punctuation (Rule 6)														0
12. Characters not on Keyboard														0
13. Syllabication			1		1	4								6
14. Cut Characters														0
15. Faulty Shifting				1		1	1	1	1	2			1	8
16. Unnecessary Capitalization														0
17. Transposition of Characters	3	3	7	7	5	18	16	15	12	5	3	2		96
18. Transposition of Words														0
19. Rewriting Words, Phrases, or Lines							1		2					3
20. Omission of Words					2	9	23	1		2				37
21. Insertion of Words	1													1
22. Crowding														0
23. Piling			1				1	2	2					6
24. Uneven Left-Hand Margin						6	2	1						9
25. Strike-Over	2	2		3	11	34	16	36	38	14	2	4		162
26. Wrong Character	17	1	5	33	13	57	63	63	66	36	22	7	3	390
27. Omission of Character	2	5	3	18	8	30	30	36	32	16	3			181
28. Insertion of Character		2	1	5	4	21	11	9	9	9	2			73
29. Character Anticipation	3	1	1	4	2	14	8	15	10	3		1	3	65
30. Wrong Home Keys				2		3		3	2					10
31. Wrong Word		1	2	3	1	5	2	3	3	9	1	1		31
TOTAL	30	13	20	80	51	253	198	207	192	105	35	15	8	1207

This table should be read as follows: On Test V for girls, three papers fell within the gross word grouping of 620 to 654. There were thirty errors on these papers: 1 space omitted between words, 1 space inserted within a word, 3 transpositions of characters, 1 insertion of words, 2 strike-overs, 17 wrong characters, 2 omissions of characters, and 3 character anticipations.

Table M

## THE FREQUENCY DISTRIBUTION OF ERRORS MADE ON TEST V BY THE BOYS

	620	585	550	515	480	445	410	375	340	305	270	235	200	
Gross Words per Paper	654	619	584	548	514	479	444	409	374	339	304	269	234	TOTAL
Number of Papers	0	0	0	2	1	5	10	9	16	15	6	4	1	69
Classification of Errors	Frequency													TOTAL
1. Line Spacing								3			3			6
2. Short Line											24			24
3. Long Line														0
4. Short Page										1				1
5. Short Indention														0
6. Long Indention										1				1
7. Space - Inserted between Words							1							1
8. Space - Omitted between Words				1		1	3	3	7	8	2	1	2	28
9. Space - Inserted within a Word							1	4	2	7	2		1	17
10. Spaces and Punctuation (Rule 5)							1					1		2
11. Spaces and Punctuation (Rule 6)							1							1
12. Characters not on Keyboard														0
13. Syllabication								3		4		1		8
14. Cut Characters														0
15. Faulty Shifting								8	12	10		1		31
16. Unnecessary Capitalization														0
17. Transposition of Characters						1	6	9	7	6				29
18. Transposition of Words														0
19. Rewriting Words, Phrases, or Lines						1	1		2	3			1	8
20. Omission of Words								1		1				2
21. Insertion of Words										1				1
22. Crowding														0
23. Piling							3		1			2		6
24. Uneven Left-Hand Margin								4	1	2	4			11
25. Strike-Over	1	5	1	6	8	31	32	4	21	1	110			
26. Wrong Character	2	2	18	32	40	33	45	32	21	8	233			
27. Omission of Character	2	2	7	17	15	8	24	4	2	2	83			
28. Insertion of Character		1		4	9	5	9	2	3	3	36			
29. Character Anticipation	2	1	5	7	10	11	3	3			43			
30. Wrong Home Keys				1	1	3	2	3			11			
31. Wrong Word				1	3	1	1	4		1	2			13
TOTAL				8	11	36	90	118	123	164	80	54	22	706

This table should be read as follows: On Test V for boys, two papers fell within the gross word grouping of 515 to 549. There were eight errors on these papers: 1 space omitted between words, 1 strike-over, 2 wrong characters, 2 omissions of characters, and 2 anticipations of characters.

## September Competent Typist Test

*Use double spacing in typing this test*

*(To find the gross number of words you write, divide gross number of strokes by 5; then deduct 10 words for each error to get net words written. The number of strokes is indicated at the end of each line in order to facilitate counting the gross number of strokes written.)*

	<i>Strokes</i>
Look upon the work you have to do as an object of	50
interest, and, if you can rise to it, an object of affection.	113
This simple act solves many of the problems encountered	169
on the job. What is more natural than that the things which	230
you esteem should linger in your mind after the day's work	289
is done, and, as you mull over them, ideas for better ways	348
of doing the work and for getting results form themselves.	408
Our interest is necessary in any subject if we are to con-	465
centrate on it. A student who fails in his examination	521
usually laments his bad memory, when what really happens	578
is that lack of thoroughness and interest in the preparation	639
of his studies caused temporary failure to recall. He forgot	701
because he never really knew. Not having given the matter	760
sufficient attention, the impressions were not made deeply	819
enough in his mind.	840
Suppose you read a review of a book dealing with	889
ghosts and seances. You come across the word "ectoplasm,"	948
used to describe the whitish substance said to emanate	1003
from the body of the medium in a state of trance. After-	1059
ward you wish to recall this word in speaking to a friend,	1118
but you fail to do so—not because your memory is poor,	1174
but because you did not give yourself time to master the	1231
word. You were too much interested in the narrative of	1287
what happened in the room. If you had spent enough time	1344
on that word you would have had no difficulty in recalling it.	1408
So it is with many things that we have to do. The pace	1464
of modern life is fast, and our knowledge of men and things	1524
more superficial than it ought to be. We attempt too much	1583
sometimes; and sometimes we do not attempt enough.	1635
Even in education the spirit of hustle is everywhere. Our	1694

learning becomes a smattering of ideas, and the speed  
with which we gather up those ideas is too swift to allow  
of a permanent impression. We give ourselves no time  
to understand.

When you enter the business office, or upon a new  
course of study, try to place the new facts, ideas, subjects,  
or propositions in proper relation to other knowledge and  
experiences that you may have. Focus your attention on  
the grouping of related thoughts. Let the mind see the  
new things in comparison and contrast with the old, and  
in this way the impressions are made deeper and more  
lasting. You will have less difficulty in seeing what you  
must do and comprehending what you are doing. Your  
mind will move straight from one fact or skill directly  
to another. You will not fear failure, because you are too  
interested in learning everything that you can about the  
new situation and arranging it in relation to other facts  
that you have already acquired. Time is needed for this  
work, but not necessarily a vast amount of time. You must  
have a purpose and sufficient confidence to carry on with  
interest and with a love of the work you are doing.

The efficient application of your mind results from  
orderly thinking. You are busy arranging the appoint-  
ments of the day for the boss. You note that one is to  
take place at ten o'clock—and that somebody is cooking  
onions. You remind yourself that certain data must be  
brought from the files for the interview, and that you  
must get a new bag to go with the party dress. As you  
refill the fountain pen you notice that a truck is back-  
firing in the street. As the morning wears on, your work  
is consciously or unconsciously interrupted. You wonder  
how long it is until lunch time. Put into print these devia-  
tions in thinking and you promptly see how they interfere  
with your efficiency.—*Selected*

## October Competent Typist Test

*Use double spacing in typing this test*

*(To find the gross number of words you write, divide gross number of strokes by 5; then deduct 10 words for each error to get net words written. The number of strokes is indicated at the end of each line in order to facilitate counting the gross number of strokes written.)*

	<i>Strokes</i>
With that, the things of the world shrank to nothing.	55
In the southern sky, opposite the waning sun, the night,	112
already settled over the pole, was pushing forth a bulging	171
shadow, blue-black and threatening as a storm sky. Could	229
one see in it the first nervous movements of the aurora	285
australis? One could not be sure. A frozen nose and cheeks	346
sent me below before I had time to find out. But while	402
sliding down the ladder, I was sure of something else,	457
which gave me a bad turn; and that was that in helping	512
the tractor men stow the sledges I had fallen and	562
wrenched my shoulder.	585
In the shack I stood for a long minute, rubbing the	637
shoulder. Bad business, I reproached myself. Here you	693
are starting the biggest job of your life, and yet you have	753
blundered and crippled yourself. For things were in an	809
awful mess. The tunnels were a jumble of boxes and fuel	866
drums, and it would probably take weeks to put them	918
straight. Well, I could not live that way even at an	972
advance base. Only one pair of shoulders was available	1028
for all the lifting and moving and shoveling; and they	1083
were fifty per cent out of commission.	1123
But there was no time just to sit and mope. Using one	1178
arm as best I could, the job of cleaning up my own Augean	1236
Stable began. Absorbed in the task, the ache in my	1288
shoulder was completely forgotten. The hours melted	1341
away; it was past midnight before I thought of stopping.	1399
I paused only long enough to brew a pot of tea and to	1453
munch a few crackers. Although there was little to show	1510
for the day's work, one could at last move around in the	1567
tunnels without tripping over duffel bags, food tins, and	1625

bundles of bamboo marker poles. Tomorrow I would  
commence unpacking the books and racking the medical  
stores in a handy place. Later on, there would be food  
and fuel to put in order in the tunnels. The main responsi-  
bility, after all, was the meteorological instruments, which  
were running smoothly so far. I took time out every hour  
to inspect them, a practice that I wanted to become a  
habit. Already they were being regarded with the warm,  
covert look reserved for good companions.

With the work of the day done, it was permissible to  
indulge in the luxury of meditative inventory. It was  
good. The means of a secure and profound existence were  
all handy, in a world that could be spanned in four strides  
going one way and in three strides going the other. It was  
not a bright world. The storm lantern hanging from a nail  
over my bunk burned dimly; and the gasoline pressure  
lamp, suspended from the ceiling, seemed to concentrate  
its brilliance all in one patch, making the shadows seem  
the darker. But the dimness was rather to my liking. It  
gave depth to the room, and somehow made my posses-  
sions seem the larger.

My bunk, which was fastened to the north wall, was  
about three feet off the floor, with the head flush against  
the eastern wall. At the foot of the bunk, on a small table,  
was the register, a glass-enclosed mechanism of revolving  
drum and pens which automatically recorded wind direc-  
tion and velocity as reported by the wind vane and anemom-  
eter cups to which it was electrically connected. The dry  
cells that empowered the pens and drove the drum were  
racked underneath. Across the room, in the southeast  
corner, was a triangular shelf holding the main combina-  
tion radio transmitter and receiver with a key fastened  
near the edge. These were stand-by equipment. And above  
this shelf was a still smaller shelf holding spare parts for  
the radio.—*Excerpt from "Alone," by Richard E. Byrd*

## November Competent Typist Test

*Use double spacing in typing this test*

*(To find the gross number of words you write, divide gross number of strokes by 5; then deduct 10 words for each error to get net words written. The number of strokes is indicated at the end of each line in order to facilitate counting the gross number of strokes written.)*

*Strokes*

Breakfast did not count. I rarely took more than tea 54  
and a whole-wheat biscuit. Luncheon was habitually an 109  
out-of-the-can affair, consisting usually of tomato juice, 168  
Eskimo biscuits, and frequently a cold meat or fish—either 228  
corned beef, tongue, or sardines. These were prepared in 286  
masterly fashion. But supper, by rights the high spot in 344  
the day of an explorer and the one hot meal toward which 401  
a cold and hungry man looks with mounting anticipation, 457  
was a daily fiasco for a while. 490

I have only to close my eyes to witness again the suc- 543  
cession of culinary disasters. Consider what my diary has 602  
to say about the incident of my making corn meal for the 659  
first time. I dumped what seemed a moderate quantity of 716  
meal into a boiler, added a little water, and stood it on 774  
the stove to boil. That simple formula gave birth to a 830  
hydra-headed monster. The stuff began to swell and dry 886  
up, swell and dry up, with fearful blowing and sucking 941  
noises. All innocently I added water, more water, and still 1002  
more water. Whereupon the boiler erupted like Vesuvius. 1060  
All the pots and pans within reach could not begin to 1114  
contain the corn meal that overflowed. It oozed over the 1172  
stove. It spattered the ceiling. It covered me from head 1231  
to foot. If I had not acted resolutely, I might have been 1290  
drowned in corn meal. Seizing the container in my mit- 1344  
tened hands, I rushed it to the door and hurled it far into 1404  
the food tunnel. There it continued to give off deadly 1460  
golden lava until the cold finally stilled the crater. 1516

There were other disasters of the same order. My diary 1572  
reports soberly on the day I tried to cook dried lima beans. 1634  
How much water lima beans can absorb, and how long it 1688

takes them to cook! I had enough half-cooked lima beans	1746
at supper time to feed a ship's company. My first jelly	1803
dessert bounced like a rubber ball under my knife, and	1858
the flapjacks had to be scraped from the pan with a chisel.	1919
"And you are the man who sat at a thousand banquets,"	1973
goes the accusing entry of that day. I dreaded banquets	2030
before, and I have come to dread them since, but in those	2088
dark hours I ransacked my memory, trying to remember	2141
what they were like. All that I could recall was filet	2197
mignon spiced and darkened to the color of an old cavalry	2255
boot, or lobster thermidor, or squabs perched on triangles	2314
of toast, or chicken salad heaped on billowing lettuce. All	2375
these were far beyond the simple foods in my larder.	2429
When I did experiment, the results filled the shack with	2486
pungent burning smells and coated the skillets with awful	2544
gummy residues. But in spite of the missing cook book,	2600
the record was not one of unmitigated failure. Resolved to	2660
make a last stand, I took the surviving chicken, hung it for	2721
two days from a nail over the stove to thaw, boiled it all	2780
one day, seasoned it with salt and pepper, and served. The	2840
soup, which was an unexpected by-product, was delicious.	2898
That night I broached a bottle of cider and drank a toast.	2958
Thus April moved along. Each night, as the last formal	3014
act of the day, I crossed off another date on the big calendar	3077
on the wall, and each morning consulted the calendar the	3134
first thing, to make sure that I had not forgotten. Above	3193
me the day was dying; the night was rising in its place.	3251
Ever since late in February, when the sun had rolled down	3309
from its lofty twenty-four-hour circuit around the sky, it	3368
had been setting a little earlier at night, rising a little later	3434
in the morning. Now, with less than a fortnight of daylight	3495
left in this latitude, it was just a monstrous ball which	3553
could barely hoist itself free from the horizon. I found	3611
myself watching it as one might watch a departing	3661
lover.— <i>Excerpt from "Alone," by Richard E. Byrd</i>	3667

## December Competent Typist Test

*Use double spacing in typing this test*

*(To find the gross number of words you write, divide gross number of strokes by 5; then deduct 10 words for each error to get net words written. The number of strokes is indicated at the end of each line in order to facilitate counting the gross number of strokes written.)*

	<i>Strokes</i>
Time sloughed off the last implication of urgency, and	55
the days moved imperceptibly one into the other. The few	113
world news items which were read to me from time to time	170
seemed almost as meaningless and blurred as they might	225
to a Martian. My world was insulated against the shocks	282
running through distant economies. My advance base was	338
geared to different laws. On getting up in the morning, it	398
was enough for me to say to myself: Today is the day to	455
change the barograph sheet or to fill the stove tank. The	514
night was settling down in earnest. Days when the wind	570
brooded in the north or east, the barrier became a vast	626
stagnant shadow surmounted by swollen masses of clouds,	682
one layer of darkness piled on top of the other.	732
Out of the deepening darkness came the cold. For the	786
first time the canvas boots failed to protect my feet. One	846
heel was nipped, and I was forced to return to the hut and	905
change to reindeer mukluks. That day I felt miserable;	961
my body was racked by shooting pains exactly as if I had	1018
been gassed. All day long I kept two primus stoves burning	1078
in the tunnel. My fingers agonized over the thermograph,	1136
and I was hours putting it to rights.	1175
Out of the cold and out of the east came the wind. It	1230
came on gradually, as if the sheer weight of the cold were	1289
almost too much to be moved. The night was as black as	1345
a thunderhead when I made my first trip topside, and a	1400
tension in the wind, a bulking of shadows in the night	1455
indicated that a new storm center was forming. Next morn-	1512
ing, glad of an excuse to stay underground, I worked a long	1572
time on the escape tunnel by the light of a red candle stand-	1632
ing in a snow recess. That day I pushed the emergency exit	1692

to a distance of twenty-two feet, the farthest it was ever  
 to go. My stint done, I sat down on a box thinking how  
 beautiful was the red of the candle and how white the snow.  
 Soon there was an increasing clatter of the anemometer  
 cups. Realizing that the wind was picking up, I went top-  
 side to make sure that everything was secured.

It is a queer experience to watch a blizzard rise. First  
 there is the wind rising out of nowhere. Then the barrier  
 unwrenches itself from quietude and the surface, which just  
 before had seemed as hard and polished as metal, begins to  
 run like a making sea. Sometimes if the wind strikes hard,  
 the drift comes across the barrier like a hurrying white  
 cloud, tossed hundreds of feet in the air. Other times the  
 growth is gradual. You become conscious of a generous  
 slithering movement on all sides. The air fills with tiny  
 scraping and sliding and rustling sounds as the first loose  
 crystals stir. In a little while they are moving as solidly as  
 an incoming tide, which creams over the ankles, then surges  
 to the waist, and finally is at the throat. I have walked in  
 drift so thick as not to be able to see a foot ahead of me;  
 yet, when I glanced up, I could see the stars shining  
 through the thin layer just overhead.

Smoking tendrils were creeping up the anemometer  
 pole when I finished my inspection. I hurriedly made the  
 trap door fast, as a sailor might batten down a hatch; and  
 knowing that my ship was well secured, I retired to the  
 cabin to ride out the storm. The gale sobbed in the venti-  
 lators, shook the stovepipe, pounded the roof with sledge-  
 hammer blows. A breeze flickered in the room and the  
 candles wavered and went out. The thrumming note of the  
 radio antenna and the anemometer wires reminded me of  
 the wind in a ship's rigging. Raising the stove lid, I was  
 surprised to find that the fire was out though the tank was  
 half full. The wind, then, must have killed the fire.—*Ex-*  
*cerpt from "Alone" by Richard E. Byrd*

## April Competent Typist Test

*Use double spacing in typing this ten-minute test*

*(To find the gross number of words you write, divide gross number of strokes by 5; then deduct ten words for each error to get net words written. The number of strokes is indicated at the end of each line in order to facilitate counting the gross number of strokes written.)*

	<i>Strokes</i>
An employer can have little patience with a secretary	54
who is dilatory about responding to his summons. This	109
means that the secretary herself must have extra patience	167
at this point. He is not impatient with the secretary per-	227
sonally. He has something at the very front of his mind	284
which he must give over to her before he can turn his	338
attention to the next pressing matter. He may need a cer-	397
tain memorandum from her files before he can make some	452
vital decision. He may need the name and address of a	507
company from her card index before he can dismiss a	559
caller with whom he is conferring. Because of information	618
that he has just received he may need to catch a certain	675
letter before it goes out into the mails. When the buzzer	734
rings, you are in mystery as to his necessity, but you know	794
that there is a reason for his calling.	835
From your first day in an office you must learn to	886
take this buzzing as a matter of course, without a sense	943
of annoyance. It is, after all, the only sensible method.	1003
Your employer cannot very well shout your name; he can-	1059
not keep a messenger at his side to run to fetch you. There	1120
are many practical necessities in an office about which	1176
the secretary need have no false pride, no hurt feelings.	1235
The girl who is overdignified, who is looking for extraor-	1294
inary respect, has usually failed to understand the rea-	1352
son for her employer's ways and thus to accept them	1404
quietly in the run of the day. If you can interrupt your	1462
work graciously at the ring of a bell, you need not be	1517
afraid of your dignity; you then have dignity indeed.	1572
When you go away for the week end, there are cer-	1622
tain things that you know you will need. Experience has	1679
shown you what these are. When you go in to take dic-	1734

tation, there are certain things that you always travel with. In fact, an alert secretary usually travels anywhere about the offices and departments belonging to her company with at least a pencil and a pad of paper in her hand. She can never know when she may need to make a note of some message for her employer or some bit of information for which she should not trust her memory. She cannot foresee whom she may meet or what instructions may be given when she goes away from her desk on some slight errand.

When the buzzer calls, you will pick up your notebook and pen as you rise from your chair. When your short-hand notebook is not in use at your typewriter, you will always have it in a definite place on your desk, in readiness for just this call, with your pen tucked under the elastic band, together with two well-sharpened emergency pencils. These pencils may be needed, if your pen runs dry over a long period of dictation (though it should always be kept well filled), or if you need to make a notation on the margin of a letter, where it must later be erased. Be sure to take an empty notebook to dictation if your current book is nearly full; the secretary must not be caught without tools.

The experienced secretary takes these tools with her as a matter of habit. She knows that they are required to meet the dictation of even the slightest memorandum or message or telegram or request. She keeps in readiness, like a boy with a jackknife in his pocket. She must never have to go back for her notebook because she did not think that he was going to give her dictation. No employer can pardon that. Whatever a man has on his mind must be transferred to paper. The notebook is the convenient clearinghouse not only for receiving continued dictation but also for gathering separated bits or brief notations.—*From "Secretarial Efficiency" by Faunce and Nichols.*

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Geneva Cochran, Typist