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STANDARD MANUSCRIPT SCALES

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STANDARD MANUSCRIPT SCALES
FOR GRADES I, II AND III

APPROVED BY

Hen T. Kunkel
Glen R. Snyder
Claude Kelley
A. Heilman
M. B. Pagan
Lail Shannon

DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION

Purpose and Background

Since the early part of the century much research has been done on handwriting, according to titles of articles listed in the Review of Educational Research, the Encyclopedia of Educational Research, and the separate bibliographies on handwriting of Freeman¹ and Gray². Freeman³ and West⁴ have described and reported the implications of this research for

¹Frank N. Freeman's annotated bibliographies on handwriting appeared yearly from 1933 to 1940 inclusive in the October issues of the Elementary School Journal.

²William H. Gray's annotated bibliographies on handwriting appeared yearly from 1941 to 1955 inclusive in the October issues of the Elementary School Journal.

³Frank N. Freeman, "Teaching Handwriting," What Research Says to the Teacher, No. 4 (Washington: Department of Classroom Teachers, American Educational Research Association, National Education Association, 1954), pp. 1-33.

⁴Paul V. West, "Handwriting," Encyclopedia of Educational Research, rev. ed., ed. by Walter S. Monroe (1950), pp. 524-529.

classroom teachers. Classification of the researches could be placed in these categories: (1) the general nature of handwriting programs, (2) handwriting and its effects on other school subjects, (3) handwriting systems and materials, (4) teaching techniques, and (5) measurement of handwriting. The problem of this dissertation is the measurement of handwriting--specifically, the measurement of manuscript writing.

As a matter of general interest, the historical background of manuscript writing can best be summarized by the following paragraph:

Manuscript writing is a simplified form of writing taken from that used by the monks before the invention of printing. It has been called by many different names in different localities, such as print script, joined script, script manuscript, script, Italian cursive, Fifteenth Century Italic, English Early Script, and Secretary. It was adopted in England about 1912, though it has been used in some schools as early as 1900. English schools teach the writing in the unjoined stage through the elementary grades, and by the end of the sixth year the children are generally encouraged to join their letter forms. Therefore, they have a formal as well as informal type of handwriting. This writing was brought to the United States between 1920 and 1922 by a number of people and was experimented with in a number of private schools in New York, Boston, and Philadelphia. After a few experiments were conducted by authorities in Teachers College, Columbia University, teachers in public schools as well as in private schools began to see the value of this type of handwriting, and it is now used extensively in all public schools and private schools where progressive education is considered.⁵

To make the preceding paragraph more complete, according to

⁵Edith U. Conard, Trends in Manuscript Writing (New York: Bureau of Publications, Teachers College, Columbia University, 1936), p. 3 (quoted by permission).

Hill⁶, the name of Marjorie Wise should be included as the person who brought manuscript writing to the United States. Miss Wise, a student from England, came to Teachers College to continue her education and to get some insight into American education. It was soon discovered that Miss Wise was a specialist in the teaching of manuscript writing. Upon exhibition of Miss Wise's beautiful art of writing, the staff at Teachers College decided to have her teach several members of the staff this new art of writing. Among those chosen was Miss Edith U. Conard. Miss Conard worked with Miss Wise for several years so that she might be thoroughly prepared to assume full responsibility for carrying on the work after Miss Wise's return to England. Miss Conard continued in this work; she wrote articles and published scales for the measurement of manuscript writing, thereby becoming a pioneer of the manuscript writing system in the United States.

When the merits of manuscript writing were realized, there was a rapid movement in the public and private schools in this country to adopt this legible style of writing. By 1929, there were over 700 schools that had adopted this method of writing. Recent surveys have shown that manuscript writing is used rather extensively in the schools of this country.

⁶Patty S. Hill, "Introduction," Trends in Manuscript Writing, by Edith U. Conard (New York: Bureau of Publications, Teachers College, Columbia University, 1936), p. 1.

Freeman's⁷ survey in 1946 indicated that practices and opinions of educators strongly favor the use of manuscript in the first two primary grades and that 84.3 per cent of the school systems surveyed practice this form of writing. The survey conducted by Polkinghorne⁸ in 1946 of 235 schools with 77.4 per cent returns, reported: 93.1 per cent of the schools start writing in Grade I, and 89.3 per cent of these use manuscript when beginning to write. The Foley⁹ survey of 1949 reports the results of a survey of handwriting practices in Grade I of 210 California schools and also gives reasons why 87 per cent of these schools prefer manuscript. In 1954 Freeman¹⁰ reported that the controversy over the use of manuscript versus cursive writing still continues, but approximately 85 per cent of the school systems in larger towns advocate the use of manuscript writing and then a change to the cursive style.

The contemporary acceptance of manuscript writing necessitates a summary of the alleged advantages. These

⁷Frank N. Freeman, "Survey of Manuscript Writing in the Public Schools," Elementary School Journal, XLVI (March, 1946), pp. 375-380.

⁸Ada R. Polkinghorne, "Current Practices in Teaching Handwriting," Elementary School Journal, XLVII (December, 1946), pp. 218-224.

⁹Doris E. Foley, "Do You Teach Handwriting?" Sierra Educational News, XLV (December, 1949), p. 18.

¹⁰Frank N. Freeman, "Teaching Handwriting," NEA Journal, XLIII (November, 1954), pp. 482-483.

advantages according to Bell¹¹, Duffy¹², and Ragan¹³ are:

- (1) Manuscript writing is more legible than cursive writing.
- (2) Manuscript writing can be written as rapidly as cursive writing.
- (3) Manuscript writing can be written with less physical tension and nervous strain than cursive writing.
- (4) Manuscript writing facilitates the learning of reading and spelling.
- (5) Manuscript writing satisfies the child's keen desire to write.
- (6) Manuscript writing is easy for children to learn because of simple strokes.
- (7) Manuscript writing is as individualistic as cursive writing.
- (8) Manuscript writing involves the learning of only one alphabet.
- (9) Manuscript writing is more rhythmical to write.
- (10) Manuscript letters form a basis for cursive writing.
- (11) Manuscript writing is more pleasant to read.

Relationship of Measurements to Handwriting and
a Chronological Listing and Summary
of Handwriting Scales

Guided by the literature of McCall¹⁴, Rinsland¹⁵, and

¹¹Juanita Bell, "What is Manuscript Writing?" Grade Teacher, LXII (October, 1944), pp. 32, 76.

¹²Nona K. Duffy, "Manuscript Writing," Sierra Educational News, XXXVI (October, 1940), pp. 18-21.

¹³William B. Ragan, Modern Elementary Curriculum (New York: Dryden Press, 1953), pp. 265-266.

¹⁴William A. McCall, Measurement (New York: Macmillan Co., 1939), pp. 3-26.

¹⁵Henry D. Rinsland, Construction of Tests and Grading (New York: Prentice Hall, Inc., 1938), pp. 1-17.

Ross¹⁶ in the field of measurements, one sees that educational measurements set a part of the foundation of our educational philosophy. Without measurements, which give qualitative and quantitative accuracy, one cannot ascertain the progress of a student's learning. Among the measurable learnings of children is the ability to make written symbols, which, when put together comprise one form of communication. Students of handwriting early realized that the most valid and reliable criteria for measuring and evaluating children's handwriting were handwriting scales. Johnson says, "A scale gives the basis for a common understanding and accuracy in judgement."¹⁷ Thus, a scale can be a pedagogical aid and a stimulus which is of great value to the pupil, the teacher, and the administrator.

During the past half-century numerous handwriting scales were developed. Each of these scales are listed and summarized:

A Scale for Handwriting of Children in Grades V to VIII.¹⁸ According to the literature on the measurement of

¹⁶Clay C. Ross, Measurement in Today's Schools (New York: Prentice Hall, Inc., 1947), pp. 3-64.

¹⁷George L. Johnson, "Measuring the Quality of Handwriting," Elementary School Journal, XVI (February, 1916), p. 302.

¹⁸Edward L. Thorndike, Handwriting (New York: Teachers College, Columbia University, 1912), pp. 1-41. (Reprinted from Teachers College Record, II, March, 1910).

handwriting this instrument represents the first attempt to use a scale to define the qualities of writing. When Thorndike structured this scale, he was a pioneer in the field of measurement of handwriting. The fifteen levels of quality of this scale are based on the principle that steps of difference are equal in the sense of being called equal by competent judges. Freeman's¹⁹ criticism, that this scale is useful only when a rough general survey of handwriting excellence is desired, prompted him to develop scales of his own.

A Scale for Measuring the Quality of Handwriting of School Children.²⁰ This scale was designed as a measure to determine the general quality and speed of school children's cursive writing. The statistical technique used is based on the assumption that there is a correlation between rank of specimen as determined by the speed at which the sample can be read and the rank based upon judgement of quality. This correlation was very low and a new scale was developed.

Chart for Diagnosing Faults in Handwriting.²¹ A scale stressing five separate characteristics of cursive writing: uniformity of slant, uniformity of alignment, quality of line, letter formation and spacing. Under each

¹⁹Frank N. Freeman, "An Analytical Scale for Judging Handwriting," Elementary School Journal, XV (April, 1915), p. 432.

²⁰Leonard P. Ayres, A Scale for Measuring the Quality of Handwriting of School Children (New York: Russel Sage Foundation, Bulletin No. 113, 1912).

²¹Frank N. Freeman, Charts for Diagnosing Faults in Handwriting (Cambridge: Riverside Press, 1914).

general characteristic there are several specimens depicting this characteristic. To use this scale, one must compare a handwriting sample with each characteristic, assign it a value, and then total the points, to arrive at a total score. The specimens of writing in this scale are samples of children's writing, which have been improved upon in printing.

An Analytical Scale for Judging Handwriting.²² This scale, which is a component part of the preceding measuring device, was constructed because other handwriting scales could be used only as a rough general survey of one's cursive handwriting. As stated previously, five general characteristics of handwriting were considered. When a sample is evaluated, one gets a score which is a composite of five separate scores.

A Score Card for the Measurement of Handwriting.²³ A score card is to be used monthly by a teacher to check the progress of cursive writing made by each pupil. There are nine general characteristics that must be recognized. These are as follows: heaviness, slant, size, alignment, spacing of lines, spacing of words, spacing of letters, neatness and formation of letters. In using this score card, the teacher allocates to each handwriting sample a numerical value based

²²Freeman, "An Analytical Scale for Judging Handwriting."

²³Truman C. Gray, "A Score Card for the Measurement of Handwriting," Bulletin of the University of Texas, No. 37 (Austin:—University of Texas,—1915),—pp.—1—50.

upon her judgment in reference to the general characteristics. As a guide for the teacher the number which constitutes a perfect score is stated.

A Tentative Scale for the Measurement of Handwriting.²⁴ A group of eight school principals from St. Louis decided to construct a usable cursive handwriting scale based on factors other than legibility. The scale of nine levels of quality and a model specimen was compiled after twenty-five judges analyzed 240 samples of children's handwriting with these criteria in mind: letter formation, uniformity of alignment, uniformity of slant, degree of slant, quality of line, and size and spacing of letters. This scale proved to be of practical value to the teachers of the St. Louis public schools.

Measuring Scale for Handwriting: "Gettysburg Edition."²⁵ This scale used in the measurement of the rate and quality of pupils' cursive writing replaced the original scale by the same author, and was designed to reduce variability in the results. This scale of eight levels of quality can be used in Grades V through VIII inclusive. Accompanying the scale are graphs which represent the per cent of pupils

²⁴George L. Johnson, "Measuring the Quality of Handwriting," Elementary School Journal, XVI (February, 1916), pp. 302-315.

²⁵Leonard P. Ayres, Measuring Scale for Handwriting (New York: Russel Sage Foundation, 1917).

in each of the four upper grades commonly found to have comparable rate and quality of handwriting. According to Freeman²⁶ this scale is the most widely used instrument for the measurement of handwriting.

Locker Scale.²⁷ This standard of measurement can be used by pupils, teachers and administrators to measure the quality of pupils' cursive writing. There are eleven samples of cursive writing and one model sample. Each sample represents a standard which should be expected of children in a given grade. This scale was once considered a writing standard by the Virginia State Department of Education.

Criteria for Judging Efficiency of Handwriting

Instruction: The Zaner Handwriting Scales and Standards for Grades I and II, Grades III and IV, and High Schools, Normal Schools and Rural Schools.²⁸ These scales are often referred to as the "Old Zaner Edition." They consist of eight levels of quality and should be used by people schooled in the Zaner-Bloser penmanship method of handwriting. When using this scale in the measurement of cursive writing, the teachers should, the publishers suggest, consider the subjects'

²⁶Freeman, "Teaching Handwriting."

²⁷W. C. Locker, Locker Scale (Richmond, Virginia: by the author, 1917).

²⁸Criteria for Judging Efficiency of Handwriting
Instruction: The Zaner Handwriting Scales and Standards for Grades I and II, Grades III and IV, and High Schools, Normal Schools and Rural Schools (Columbus, Ohio: Zaner-Bloser Co., 1917).

movement, position, speed and form.

A Handwriting Scale for the Pupil: Handwriting and Measuring Tablets.²⁹ Appearing on the cover of children's blank writing tablets, this scale's main purpose was to present each pupil a ready instrument, that he may use in measuring his own standard of cursive writing in terms of rate and quality.

Creamer's Penmanship Grade Standards.³⁰ This scale is used to measure the rate and quality of pupils' cursive writing in Grades I through VIII and also as a stimulus for children to improve their writing. The specimens of quality are accompanied by the mean number of letters to be written in a given time at specific grade levels.

Scale for Grade Standards in Quality for Practice Sentences in Handwriting.³¹ The sentences utilized in structuring this scale are composed of words from Ayres' Spelling List. The scale is to be used as a stimulus for the improvement of writing and also as a measure of speed and quality of children's cursive writing in Grades II through VIII.

²⁹Frank N. Freeman, "A Handwriting Scale for the Pupil," Elementary School Journal, XXI (June, 1921), pp. 744-761.

³⁰A. J. Creamer, Creamer's Penmanship Grade Standards (Oklahoma City: Creamer Correspondence School, 1922).

³¹Emery W. Leamer, Scale for Grade Standards in Quality for Practice Sentences in Handwriting (Bloomington, Illinois: Public School Publishing Co., 1925), pp. 1-8.

Minneapolis Handwriting Scale: With Self-Corrective Handwriting Charts.³² This set of four scales with eight degrees of quality on each grade level, III through VIII, is used to measure cursive writing. The derived scores of this scale are equivalent to the values of the Ayres scale.

Curtis Standard Practice Tests in Handwriting: Teacher's Manual and Student's Daily Lesson Book.³³ The Teacher's Manual contains instructions for the proper use of the standards and also contains sample graphs, records and suggestions for the diagnosis and remedy of the writing difficulties of individual children. The lesson book has exercises which students perform on diagnosed weaknesses, and graphs on which to mark their individual progress.

Handwriting Measuring Scales for Grades IV, V and VI.³⁴ The three scales, with three levels of quality and stated standard rate of 50, 60 and 65 letters written per minute in Grades IV, V and VI, respectively, are used in the evaluation of cursive writing. When using this scale, the lowest level of quality should be given a numerical grade of

³²Ellen C. Nystrom, Minneapolis Handwriting Scale, With Self Corrective Handwriting Charts (Minneapolis: Board of Education, Minneapolis Public Schools, 1927).

³³S. A. Curtis and Lena A. Shaw, Curtis Standard Practice Tests in Handwriting, Teacher's Manual and Student's Daily Lesson Book (New York: World Book Co., 1927).

³⁴Frank N. Freeman, Handwriting Measuring Scales for Grades IV, V and VI (Columbus, Ohio: Zaner-Bloser Co., 1928).

60-70, the next level of quality should be given a numerical grade of 75-84, and the best level of quality should be given a grade of 85-95. A rating of 75-84 on this scale is comparable to approximately 60 on the Ayres Scale.

Manuscript Writing Standards.³⁵ These standards represent the first attempt in this country in the construction of scales which can be used to show progress in development of form, spacing, size and arrangement in manuscript writing. A detailed description of this scale appears in Table 1 on the following page.

The Practical Handwriting Scale.³⁶ These nine separate scales with five levels of quality on each scale are used in measuring the rate and quality of cursive writing. The three scales in pencil form are used in Grades I through III, whereas the six scales in pen and ink are used in Grades III through VIII. Thousands of children's handwriting samples from all parts of the United States were used in constructing these scales. The basis of standardization lies on the theory that differences in quality which are noted equally are equal in magnitude. This scale makes use of the widely used letter grades of A, B, C, D and F to determine separate grades of rate and quality of cursive writing. The

³⁵Edith U. Conard, "Manuscript Writing Standards," Teachers College Record, XXX (April, 1929), pp. 669-680.

³⁶Henry D. Rinsland, The Practical Handwriting Scale (Dallas: Practical Drawing Co., 1930).

TABLE 1
COMPARISON OF CONARD'S STANDARDS AND SCALES
DEVELOPED IN THIS STUDY

	Conard's Standards	This Study
Sampling	20 schools	73 schools
	4000-5000 samples	7212 samples
	10 samples per child	1 sample per child
Working samples	130	150 (50 per grade)
Number of scales and degree of measurement	1 pencil form contains 12 steps of quality for Grades I-IV	1 scale with 5 degrees of quality for each Grade I, II and III.
	1 pen form contains 10 steps of quality for Grades III to adult handwriting	
Factors measured	Quality	Rate and Quality
Validity	Face validity	Face and cross-validity

letter grades are also given per cent equivalents.

The American Handwriting Scale.³⁷ This is the most recently published handwriting scale. It is adapted to the Palmer Handwriting Method. This scale affords a means whereby pupils, teachers, and administrators can measure the rate

³⁷Paul V. West, The American Handwriting Scale (New York: A. N. Palmer Co., Department of Research, 1946).

and quality of cursive writing in Grades II through VIII. This scale is a group of seven scales, one for each grade from II through VIII. Scale values have been assigned in several different ways so that the interpretation may be adapted to any local marking system. Further work is planned on this scale so that the scores made on it will be equated in terms of values of other well known scales.

Other cursive handwriting scales that were located during the basic research for the study are: Fraiser Writing Scale, Holmes Penmanship Test, Kansas City Scale for Measuring Handwriting.

In reviewing handwriting scales, only Conard's standards are used for judging manuscript writing; however, several cities, such as Winnetka, Illinois, and Bronxville, New York, have developed manuscript scales representing work in their own localities.

Justification of the Study

At the present time there are no manuscript scales that measure both rate and five degrees of quality of manuscript writing for each Grade I, II and III. Nor are there any manuscript scales that have been cross-validated with equivalent cursive scales of five degrees of quality.

The basic result of the study would be to produce standardized scales that can be used in Grades I, II and III to measure rate and five degrees of quality of manuscript

writing. These scales can be of practical value to all who advocate the measurement and evaluation of manuscript writing.

Statement of the Problem

The problem is to produce standardized manuscript scales for Grades I, II and III that measure rate and five degrees of quality.

Since the problem is to construct manuscript scales, considerable attention has been given to the construction of Conard's Manuscript Writing Standards.³⁸ A comparison between Conard's Standards and the proposed scales of the study was shown in Table 1.

³⁸Conard, "Manuscript Writing Standards."

CHAPTER II

THE DEVELOPMENTAL PROCEDURE

Method of Sampling

Selection of Cities

The Editor and Publisher Co., Inc., publishers of the Market Guide¹ have indexed 1440 cities in the United States, ranked in order of population. The population range chosen for representative random sampling gives the following data: .35 per cent of the total number of cities are in Group I; 7.15 per cent of the total number of cities are in Group II; 24.10 per cent of the total number of cities are in Group III; and 68.40 per cent of the total number of cities are in Group IV. These percentages which are shown in Table 2 are significant when stratified sampling is attempted.

Considering the basic data in Table 2 and desiring random stratified sampling, random digits listed in Fisher and Yates' Statistical Tables² were employed to select one

¹Market Guide (New York: The Editor and Publisher Co., Inc., 1952), pp. 11-15.

²Ronald A. Fisher and Frank Yates, Statistical Tables (New York: Hafner Publishing Co., 1953), pp. 114-119.

hundred thirty cities located throughout the United States. The number appearing within each percentage represents the number of pupils deemed sufficient for that group.

TABLE 2
CITIES OF THE UNITED STATES RANKED
ACCORDING TO POPULATION

Group	Cities		Population Range
	Number	Per Cent of Total	
I	5	.35	1,000,000 or more
II	103	7.15	100,000-1,000,000
III	347	24.10	25,000 - 100,000
IV	985	68.40	2,500 - 25,000
TOTALS	1,440	100.00

Table 3 reveals that no cities were sampled from Group I; nine cities were sampled from Group II; thirty-two cities were sampled from Group III; and, eighty-nine cities were sampled from Group IV. These data show that five cities or 6.85 per cent of the total number of cities whose school systems participated in this study were from Group II; sixteen or 21.92 per cent of the total number of cities were in Group III; and, fifty-two, or 71.23 per cent of the total number of cities were in Group IV.

Table 3 presents data to show how the distribution of the one hundred thirty cities was structured to insure

representative stratified sampling and the extent of co-operation attained from these cities.

TABLE 3
REPRESENTATIVE STRATIFIED SAMPLING OF
CITIES AND CO-OPERATION FACTORS

Group	Number of Cities Contacted	Replies Received	Co-operation		Percentage of the Total of Co-operating Schools
			Yes	No	
I	0	0	0	0	0
II	9	6	5	1	6.85
III	32	22	15	6	21.92
IV	89	60	52	8	71.23
TOTALS	130	88	73	15	100.00

Securing Co-operation

A letter³, a self-addressed, stamped envelope and a short reply form⁴ were sent to the superintendents of schools of the selected one hundred thirty cities, asking their co-operation in securing manuscript handwriting samples. As indicated in the preceding table, replies were received from eighty-eight or 67.69 per cent of the one hundred thirty schools. Of the eighty-eight schools that replied, seventy-three, or 82.95 per cent of the schools assured their

³See Appendix A.

⁴See Appendix-B.

co-operation in this study.

Securing Samples

In order to construct standardized manuscript writing scales, many samples were desired. These samples were secured through the use of a set of standard directions.⁵ One set of directions was sent to each teacher of a section of Grades I, II and III whom the administrator of the selected schools⁶ had appointed. The tests to secure samples were administered during the month of April, 1956.

One finds that 9424 handwriting samples were collected with 7212 being used in the present study. The remaining 2212 samples were found to be non-usable and were discarded. One finds also that 540 or 7.49 per cent of the total number of usable samples were secured from Group II schools; 1843 or 25.55 per cent were secured from Group III schools; and, 4829 or 66.96 per cent were secured from Group IV schools. These percentages, which are listed in Table 4, indicate that a significant level of stratified sampling was achieved in reference to the distribution of samples.

Standardization Procedure

Scoring for Rate

Samples were discarded in which directions had not

⁵See Appendix C

⁶See Appendix D

TABLE 4

DISTRIBUTION, NUMBER AND PERCENTAGE OF SAMPLES
RECEIVED AND USED IN THIS STUDY

Group	Samples Received	Usable Samples	Percentage of Usable Samples
I	0	0	0
II	540	540	7.49
III	1873	1843	25.55
IV	7011	4829	66.96
TOTALS	9424	7212	100.00

been followed by having the pupils write in cursive style; writing other than the prescribed passage, pronounced erasures and pronounced marking over of letters. If any letters were added or omitted, the necessary corrections were made in the gross total of the number of letters written. Only completed letters were counted. In all three grades the rate count is expressed in letters written per minute. To determine the rate score in Grade I, the letters written in each first grade sample were counted. To obtain the rate scores in Grades II and III, the total number of letters written per sample of each grade was divided by two. Odd numbered totals in Grades II and III gave scores ending in five tenths. A keyed copy of the selections⁷ was utilized to expedite the

⁷See Appendix E.

counting of letters.

Rate norms were expressed in three comparative ways: raw scores, which represent the basic score; percentiles, which are widely used and understood by teachers; and T-scores, which are used in standardized tests with reference to a standard scale of 100 equal units based upon the base line of the normal probability curve, with 0 set at minus five standard deviations, 50 set at the mean and 100 set at plus five standard deviations.

Scaling for Quality

Scaling for quality was purely subjective and therefore judgments of value. After the samples of each grade were identified by a number, the initial sorting of samples was done in accordance with a set of directions.⁸ These directions were structured from suggestions made by primary teachers who were teaching the art of manuscript writing. The nine separate sortings, three for each grade, were done by three teachers of that particular grade level from which the samples came. This procedure in the selection of judges was used because it was believed that teachers who will use this scale should have a leading part in its construction. The results of these sortings, recorded in Tables 5, 6 and 7, are used in the selection of the fifty working samples for each grade. From within each quality group of each grade the

⁸See Appendix F.

identification number of the samples, upon which all three judges agreed as to their placement, was tabulated. By using tables of random digits, fifty samples from each grade were selected as being representative of that grade. To achieve normality in the selection of the fifty samples from each grade, three samples were selected from the first quality group; twelve from the second quality group; nineteen from the third quality group; twelve from the fourth quality group; and four from the fifth quality group, respectively, in each grade. This approximates, in general, numbers of the normal distribution for 100 cases--7, 24, 38, 24 and 7 per cents. The selections of the fifty working samples for each grade are shown in Tables 5, 6 and 7.

After the fifty samples had been selected from each of the three grades, each sample was identified by a number. Each group of fifty samples was then rated by thirteen teachers of the respective grades from which the samples were selected. Each teacher was asked to rate the samples according to a set of directions.⁹ These results were tabulated, and norms were expressed in the same scale values as used in the rate scale. The statistical treatment of these data appears in the following chapter and is the basis for the selection of the five scaled samples for each grade. These fifteen photographed samples, five from each grade,

⁹See Appendix G.

TABLE 5

DISTRIBUTION OF GRADE I SAMPLES ACCORDING TO PLACEMENT
IN IDENTICAL GROUP BY ALL THREE JUDGES

Group One	Group Two	Group Three	Group Four	Group Five						
20	4	340	2*	201*	395	723	15*	243	453	91
162	7*	357	14	202	396	726*	34	246	454	92
168*	11*	358	19*	206	397	752	35	251	471	93
173	13*	380	24	214	400	756	53	280	477	132
176	21	392*	26	221	409*	757	57	300*	484	244
181	84*	431	27	257	415	778	59	302	486	245*
186	85*	461*	29*	265	417	789	62*	305	498	259
235	89	465*	32	266	419	798	63	311	499*	299
290	96	514	36*	267	424	799	64	315	502	440
379	97	535*	39	272	444	800*	68	319	504	441
509	112	543	40	285*	451	802	80	334	523	452
510	113	553	50	286	456	804	94	337	531	485
511	115	559	51	287	457	825	102	342	537*	497
512	117	562	52	294	473		103	345	541	508*
513	138	565	54	297	474		119	347	545	515
560	139	570*	55	306	480		120	365	558	516
569	140	594	56	308	505		121	382	584	517
592	144	601	58	309	529		126	383	622	518
604*	150	611	60	313	548		135	384*	623	519
608	157	618	63	314*	549		136	385	624	520

*Samples selected by random digits which constitute the fifty working samples.

TABLE 5--Continued

Group One	Group Two	Group Three	Group Four	Group Five					
634	166	630	77	317	554	137	388	647	521
729*	192	631	79	318	585	153	398	652	533
	194*	635	82	323	586	155	401	665	534
	212	638	104	325*	606	171	410	674	625
	220	683	106*	338*	636	191*	411	675	680
	222	695	127	341*	651	193	414	693	686
	227	698	134*	344	659	196	418	706	687
	229	701	141	362	660	204	422	713	700*
	233	730	142	363	663	205	423	745*	702
	263	732	151*	367	682	207*	425	748	719
	277*	743	152	373	704	208	426*	753	720
	279	751	154	374	708	209*	427	782	807
	281	772	156	378*	709	213	430	806*	818
	282	792	159	386*	712	216	434	808	819
	283	794	163	387	714	236	435	813	824*
	324	795	164*	394	718	241	439		

*Samples selected by random digits which constitute the fifty working samples.

TABLE 6

DISTRIBUTION OF GRADE II SAMPLES ACCORDING TO PLACEMENT
IN IDENTICAL GROUP BY ALL THREE JUDGES

Group One	Group Two	Group Three	Group Four	Group Five							
174	21	456	706	1	170	357	525	2	214*	615	13
177	49	474	718	8	171	359	555	6	219	616	46*
186	54*	479	735	11	179	371	557	12	243	617	47
210	75	480	736	16	180	387	559*	14	245	627	88
211	76	481	739	17	183	390	585	24	247*	631	93
212	78	482	744	22	192	394	610	27	251	632	97
318	100	506	754	25*	206	396	612	31	255	639	98
333	127*	507	765	38	208	399*	618	34	263	641	158
626	133	516	766	39	213	400	620	41	266	646	185
752	134	522	767	45	217*	401	622	64	267	647	197
760	136	536	768	53	218	402*	629	69	272	651	204
772	141	537	771	55*	224	406	637	71	273	654	253
778	142	538	774	56*	225	416	640	80	305*	657*	262
781	143	544	775	58	227	420	642*	81	306	658	268
800	144	546	782	59	229	423	643	85	307	665	270
804	146*	548	783	61	238	430	644	89	310*	666	275
825	169	550	784	67	239	432	649	91	314*	670	276
830	189	551	790	68	244	433	679	92	322	674	286
837	205*	552	802	83*	246	438	682*	94	329	675	287*
858*	231	553	808	86	256	451	685	101	389	680	289

*Samples selected by random digits which constitute the fifty working samples.

TABLE 6--Continued

Group One	Group Two		Group Three		Group Four		Group Five				
859	235	571	811	95	259	452	694	103	414	684	338*
860	236*	572	813	99	269	453	699	107	441*	722	362
865	280	579	815	104	279	457	728	119	442	723	365
867	308	581	816	105	284	458	729	120	447	725	368
868	361*	583	828	109	285	461	732	123	448	743	384
874	364	584	829	110	293	463	734	131	460	745*	385
876*	370	590	862	111*	294*	477	770	132	462	746	439
883*	373	624	897	113	301	487	787	138	468	748	444
889	374*	652*	904*	114	312	491	789	149	476*	749	492
898	375	653	912	117	320*	492*	803*	151	493	750	594
908	376	687	915*	124	332	494	818*	160	497	764	741
909	377	688	921*	128	341	499	836	161	500	793	791
931	379	689	924	150*	346	501*	844	162	513	796	792
932	382	698		153	348	502	845	164	530	798	893*
933	388	703		156	352*	503		184*	541	799*	926
	393	704*		159	354	508		187	561	856*	

*Samples selected by random digits which constitute the fifty working samples.

TABLE 7

DISTRIBUTION OF GRADE III SAMPLES ACCORDING TO PLACEMENT
IN IDENTICAL GROUP BY ALL THREE JUDGES

Group One	Group Two	Group Three	Group Four	Group Five				
30*	2	307	26	292	475	9	363	25*
60*	22	334	29	294	522*	13	372	53
81	25	346*	41	297	534	50	376*	96
169	27	348*	47	304	547*	62	382	102
175	33	368	51	306*	549	84	383	103*
201	36	375	63	312	552	85	384	106
230	43	377	64	313*	559	88	403	127
231	58	385	69*	314	566	109	404*	155*
234	74	420	83	316	572*	110	405	158
235	79	433	99	317	575*	111	408	204*
236	86	440	101	326*	604	115	409*	205
237	117	444	119	328	605*	121	410*	206
238	130	456	120	330	616	125	413	263
246	136	462	131	331	621	138*	415	266
309	170	473	140*	332*	624	139	431	268
353	172	478	141*	335	627	153	451	270
366	173	481	150	345	628	180	452	516
381	178*	487	159	350	632	197*	453	
448	193	495	162	364*	633	202	455	

*Samples selected by random digits which constitute the fifty working samples.

TABLE 7--Continued

Group One	Group Two	Group Three	Group Four	Group Five
461	194 518	184*	365 638	203* 480
468	198 531	188	373* 641	254 494
507	199* 553	189	374	255 523
570*	200 554*	191	390	257 525
598	215* 555	192	391	258 528
	216* 565*	210	392	259 532
	221* 580	213	394	272 533
	224 584	222	406*	281 535
	233 586	225	407	293 577*
	244 587	228	412	318 585
	245 600	256	426	324 589
	250 602	264	437	325* 617
	252* 603	269*	454*	336* 619
	280* 608	271	458	340 628*
	282 626*	285	471	343
	302	288	472*	352

*Samples selected by random digits which constitute the fifty working samples.

constitute the three scales¹⁰ of quality for Grades I, II and III. The five levels of quality in each grade are A, B, C, D and F. These letters have no reference to letter grades, being merely identification for levels of quality.

Overlap in Quality of Manuscript Writing

The distinctive character of the type of writing done by each grade and the overlapping in quality of writing by the grades is very striking, but natural. To measure the degree of overlapping in the quality of manuscript writing among Grades I, II and III, twenty-five teachers' opinions were secured on a prescribed problem sheet.¹¹ Statistical treatment and analysis of the data derived from the problem sheets are shown in the following chapter.

Face Validity

The measure of face validity is plainly manuscript writing. It is evident that the scales can be used as models to measure rate and quality of children's manuscript writing.

Cross Validity

The proposed manuscript scales were cross-validated with The Practical Handwriting Scale.¹² In order to cross

¹⁰See Appendix H.

¹¹See Appendix I.

¹²Henry D. Rinsland, The Practical Handwriting Scale (Dallas: Practical Drawing Co., 1930).

validate the two scales, twenty-five teachers' opinions were secured on prescribed problem sheets.¹³ Statistical treatment and analysis of the data derived from the problem sheets are shown in the following chapter.

¹³See Appendix J.

CHAPTER III

STATISTICAL TREATMENT OF DATA USED IN STANDARDIZATION

Rate Scales

The Tentative Rate Norms

The three tentative sets of rate norms, one for each grade, were based upon the letter count of 7212 samples: 2478 in Grade I, 2799 in Grade II and 1935 in Grade III. Percentiles and T-scores were computed for each grade and are presented in Tables 8, 9 and 10. In column (1) the raw scores or letters written per minute are listed; in column (2) the frequencies are listed; in column (3) cumulative frequencies are listed; in column (4) the number of subjects who fall below each score, plus one-half of those who earn the given score are listed; in column (5) the percentiles are listed; in column (6) the standard deviation of the given percentages are listed as read from Garrett's Table A¹; and in column (7) the T-Scores are listed. Since the standard deviation of the T-Scale is ten, in computing T-Scores, each

¹Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Co., 1954), p. 424.

TABLE 8
DISTRIBUTION OF RATE IN GRADE I ACCORDING TO
RAW SCORES, PERCENTILES AND T-SCORES

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Raw Score	f	Cum. f	Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	Col.(4) in Per Cent	S. D.	T-Score
42	10	2478	2473	99.91	3.12	81
41	23	2468	2456.5	99.24	2.43	74
40	31	2445	2429.5	98.15	2.09	71
39	13	2414	2407.5	97.26	1.92	69
38	10	2401	2396	96.78	1.85	68
37	34	2391	2374	95.91	1.74	67
36	15	2357	2349.5	94.91	1.64	66
35	16	2342	2334	94.29	1.49	65
34	41	2326	2305.5	93.14	1.49	65
33	29	2285	2270.5	91.72	1.39	64
32	21	2256	2245.5	90.72	1.32	63
31	92	2235	2189	88.43	1.20	62
30	16	2143	2135	86.25	1.09	61
29	18	2127	2118	85.57	.98	59
28	100	2109	2059	83.18	.96	59
27	16	2009	2001	80.84	.87	59
26	26	1993	1980	80.00	.84	58
25	18	1967	1958	79.10	.81	58
24	23	1949	1937.5	78.26	.78	58
23	19	1926	1916.5	77.43	.75	58
22	105	1907	1854.5	74.92	.67	57
21	129	1802	1737.5	70.20	.53	55
20	43	1673	1651.5	66.72	.43	54
19	67	1630	1596.5	64.50	.37	54
18	186	1563	1470	59.39	.24	52
17	53	1377	1350.5	54.56	.12	51
16	58	1324	1295	52.32	.06	51
15	106	1266	1213	49.00	-.03	50
14	92	1160	1114	45.00	-.12	49
13	324	1068	806	32.56	-.45	46
12	96	744	696	28.12	-.58	44
11	119	648	588.5	23.78	-.71	43
10	94	529	482	19.47	-.85	41
9	165	435	352.5	14.24	-1.07	39
8	119	270	210.5	8.54	-1.37	36
7	44	151	129	5.21	-1.62	34
6	51	107	91.5	3.70	-1.79	32
5	35	56	38.5	1.55	-2.16	28
4	12	21	15	.61	-2.50	25
3	6	9	6	.24	-2.79	22
2	2	3	2	.08	-3.16	18
1	1	1	.5	.02	-3.61	14

TABLE 9

DISTRIBUTION OF RATE IN GRADE II ACCORDING TO
RAW SCORES, PERCENTILES AND T-SCORES

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Raw Score	f	Cum. f	Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	Col.(4) in Per Cent	S. D.	T-Score
52.0	1	2799	2798.5	99.91	3.12	81
51.5	2	2798	2797	99.85	2.96	80
51.0	3	2796	2794.5	99.76	2.82	78
50.5	3	2793	2791.5	99.66	2.71	77
50.0	6	2790	2787	99.50	2.58	76
49.5	8	2784	2780	99.25	2.43	74
49.0	3	2776	2774.5	99.05	2.35	74
48.5	2	2773	2772	98.96	2.31	73
48.0	12	2771	2765	98.71	2.23	72
47.5	1	2759	2758.5	98.48	2.17	72
47.0	3	2758	2756.5	98.41	2.15	72
46.5	1	2755	2754.5	98.33	2.13	71
46.0	1	2754	2753.5	98.30	2.12	71
45.5	5	2753	2750.5	98.19	2.10	71
45.0	10	2748	2738.5	97.76	2.01	70
44.5	1	2738	2737.5	97.73	2.00	70
44.0	4	2737	2735	97.64	1.98	70
43.5	38	2733	2714	96.89	1.86	69
43.0	4	2695	2693	96.14	1.77	68
42.5	5	2691	2688.5	95.98	1.75	68
42.0	4	2686	2684	95.82	1.73	67
41.5	17	2682	2673.5	95.44	1.69	67
41.0	3	2665	2663.5	95.09	1.65	67
40.5	9	2662	2657.5	94.87	1.63	66
40.0	10	2653	2648	94.53	1.60	66
39.5	26	2643	2630	93.89	1.54	65
39.0	8	2617	2613	93.28	1.50	65
38.5	3	2609	2607.5	93.09	1.48	65
38.0	13	2606	2599.5	92.80	1.46	65
37.5	6	2593	2590	92.46	1.44	64
37.0	52	2587	2561	91.43	1.37	64
36.5	4	2535	2533	90.41	1.31	63
36.0	8	2531	2527	90.21	1.29	63
35.5	17	2523	2514.5	89.77	1.27	63
35.0	25	2506	2493.5	89.02	1.23	62
34.5	7	2481	2477.5	88.45	1.20	62

TABLE 9--Continued

(1) Raw Score	(2) f	(3) Cum. f	(4) Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	(5) Col.(4) in Per Cent	(6) S. D.	(7) T-Score
34.0	13	2474	2467.5	88.09	1.18	62
33.5	11	2461	2455.5	87.66	1.16	62
33.0	52	2450	2424	86.54	1.11	61
32.5	8	2398	2394	85.46	1.06	61
32.0	15	2390	2382.5	85.06	1.04	60
31.5	15	2375	2367.5	84.52	1.02	60
31.0	15	2360	2352.5	83.98	.99	60
30.5	57	2345	2310.5	82.48	.93	59
30.0	7	2288	2284.5	81.56	.90	59
29.5	22	2281	2270	81.04	.88	58
29.0	51	2259	2233.5	79.74	.83	58
28.5	11	2208	2202	78.61	.79	58
28.0	132	2197	2131	76.08	.71	57
27.5	11	2065	2059.5	73.52	.63	56
27.0	16	2054	2046	73.04	.62	56
26.5	43	2038	2016.5	71.99	.58	56
26.0	100	1995	1945	69.46	.42	54
25.5	14	1895	1888	67.40	.45	54
25.0	36	1881	1863	66.51	.43	54
24.5	23	1845	1833.5	65.46	.40	54
24.0	33	1822	1805.5	64.46	.37	54
23.5	36	1789	1771	63.22	.34	53
23.0	125	1753	1690.5	60.35	.26	53
22.5	19	1628	1618.5	57.78	.20	52
22.0	63	1609	1577.5	56.32	.16	52
21.5	103	1546	1494.5	53.35	.09	51
21.0	353	1443	1266.5	45.21	-.12	49
20.5	29	1090	1075.5	38.40	-.30	47
20.0	46	1061	1038	37.06	-.33	47
19.5	38	1015	996	35.56	-.37	46
19.0	45	977	954.5	34.08	-.41	46
18.5	139	932	862.5	30.79	-.50	45
18.0	20	793	783	27.95	-.59	44
17.5	29	773	758.5	27.08	-.61	44
17.0	101	744	693.5	24.76	-.68	43
16.5	14	643	636	22.71	-.75	42

TABLE 9--Continued

(1) Raw Score	(2) f	(3) Cum. f	(4) Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	(5) Col.(4) in Per Cent	(6) S.D.	(7) T-Score
16.0	34	629	612	21.85	- .78	42
15.5	101	595	544.5	19.44	- .86	41
15.0	13	494	487.5	17.40	- .94	41
14.5	29	481	467.5	16.69	- .97	40
14.0	94	452	405	14.46	-1.06	39
13.5	12	358	352	12.57	-1.15	38
13.0	26	346	333	11.89	-1.18	38
12.5	16	320	312	11.14	-1.22	38
12.0	15	304	296.5	10.59	-1.25	38
11.5	18	289	280	10.00	-1.28	37
11.0	45	271	248.5	8.87	-1.35	36
10.5	43	226	204.5	7.30	-1.45	36
10.0	16	183	165	5.90	-1.56	34
9.5	18	167	158	5.64	-1.59	34
9.0	61	149	118.5	4.23	-1.72	33
8.5	7	88	84.5	3.02	-1.88	31
8.0	11	81	75.5	2.70	-1.93	31
7.5	5	70	67.5	2.41	-1.98	30
7.0	8	65	61	2.18	-2.02	30
6.5	35	57	39.5	1.41	-2.20	28
6.0	7	22	18.5	.66	-2.48	25
5.5	2	15	14	.50	-2.58	24
5.0	0	13	13	.46	-2.61	24
4.5	8	13	9	.32	-2.73	23
4.0	2	5	4	.14	-2.98	20
3.5	1	3	2.5	.09	-3.12	19
3.0	1	2	1.5	.05	-3.30	17
2.5	1	1	.5	.02	-3.60	14
2.0	0	0				
1.5	0	0				
1.0	0	0				

TABLE 10

DISTRIBUTION OF RATE IN GRADE III ACCORDING TO
RAW SCORES, PERCENTILES AND T-SCORES

(1) Raw Score	(2) f	(3) Cum. f	(4) Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	(5) Col.(4) in Per Cent	(6) S. D.	(7) T-Score
95.5	1	1935	1934.5	99.9999	3.80	88
95.0	0	1934	1934	99.9878	3.60	86
94.5	0	1934	1934	99.9878	3.60	86
94.0	1	1934	1933.5	99.9619	3.40	84
93.5	0	1933	1933	99.9361	3.20	82
93.0	1	1933	1932.5	99.9102	3.12	81
92.5	1	1932	1931.5	99.8585	2.97	80
92.0	1	1931	1930.5	99.81	2.90	79
91.5	1	1930	1929.5	99.75	2.81	78
91.0	0	1929	1929	99.73	2.78	78
90.5	0	1929	1929	99.73	2.78	78
90.0	0	1929	1929	99.73	2.78	78
89.5	0	1929	1929	99.73	2.78	78
89.0	0	1929	1929	99.73	2.78	78
88.5	1	1929	1928.5	99.70	2.75	78
88.0	0	1928	1928	99.68	2.73	77
87.5	0	1928	1928	99.68	2.73	77
87.0	0	1928	1928	99.68	2.73	77
86.5	0	1928	1928	99.68	2.73	77
86.0	0	1928	1928	99.66	2.73	77
85.5	2	1928	1927	99.62	2.67	77
85.0	0	1926	1926	99.57	2.63	76
84.5	0	1926	1926	99.57	2.63	76
84.0	0	1926	1926	99.57	2.63	76
83.5	1	1926	1925.5	99.55	2.61	76
83.0	0	1925	1925	99.52	2.59	76
82.5	0	1925	1925	99.52	2.59	76
82.0	0	1925	1925	99.52	2.59	76
81.5	0	1925	1925	99.52	2.59	76
81.0	0	1925	1925	99.52	2.59	76
80.5	0	1925	1925	99.52	2.59	76
80.0	5	1925	1922.5	99.39	2.51	75
79.5	0	1920	1920	99.26	2.44	74
79.0	1	1920	1919.5	99.24	2.43	74
78.5	2	1919	1918	99.16	2.39	74
78.0	1	1917	1916.5	99.08	2.36	74

TABLE 10--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Raw Score	f	Cum. f	Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	Col.(4) in Per Cent	S. D.	T-Score
77.5	0	1916	1916	99.06	2.35	74
77.0	0	1916	1916	99.06	2.35	74
76.5	0	1916	1916	99.06	2.35	74
76.0	2	1916	1915	99.01	2.33	73
75.5	0	1914	1914	98.95	2.31	73
75.0	0	1914	1914	98.95	2.31	73
74.5	2	1914	1913	98.90	2.29	73
74.0	1	1912	1911.5	98.82	2.26	73
73.5	2	1911	1910	98.74	2.24	72
73.0	0	1909	1909	98.69	2.22	72
72.5	0	1909	1909	98.69	2.22	72
72.0	2	1909	1908	98.64	2.21	72
71.5	0	1907	1907	98.59	2.20	72
71.0	0	1907	1907	98.59	2.20	72
70.5	1	1907	1906.5	98.57	2.19	72
70.0	9	1906	1901.5	98.31	2.12	71
69.5	1	1897	1896.5	98.05	2.06	71
69.0	0	1896	1896	98.02	2.05	71
68.5	0	1896	1896	98.02	2.06	71
68.0	3	1896	1894.5	97.94	2.04	70
67.5	0	1893	1893	97.87	2.03	70
67.0	2	1893	1892	97.81	2.02	70
66.5	4	1891	1889	97.66	1.99	70
66.0	1	1887	1886.5	97.53	1.97	70
65.5	0	1886	1886	97.51	1.96	70
65.0	3	1886	1884.5	97.43	1.95	70
64.5	5	1883	1880.5	97.22	1.91	69
64.0	0	1878	1878	97.09	1.89	69
63.5	0	1878	1878	97.09	1.89	69
63.0	2	1878	1877	97.04	1.89	69
62.5	4	1876	1874	96.88	1.86	69
62.0	0	1872	1872	96.78	1.85	68
61.5	0	1872	1872	96.78	1.85	68
61.0	1	1872	1871.5	96.76	1.85	68
60.5	4	1871	1869	96.63	1.83	68
60.0	2	1867	1866	96.47	1.81	68
59.5	2	1865	1864	96.37	1.80	68
59.0	1	1863	1862.5	96.29	1.79	68
58.5	6	1862	1859	96.11	1.76	68

TABLE 10--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Raw Score	f	Cum. f	Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	Col.(4) in Per Cent	S. D.	T-Score
58.0	2	1856	1855	95.90	1.74	67
57.5	0	1854	1854	95.85	1.73	67
57.0	2	1854	1853	95.80	1.73	67
56.5	5	1852	1849.5	95.62	1.71	67
56.0	0	1847	1847	95.49	1.69	67
55.5	4	1847	1845	95.39	1.68	67
55.0	12	1843	1837	94.97	1.64	66
54.5	0	1831	1831	94.66	1.61	66
54.0	2	1831	1830	94.61	1.61	66
53.5	3	1829	1827.5	94.48	1.60	66
53.0	14	1826	1819	94.04	1.56	66
52.5	4	1812	1814	93.78	1.54	65
52.0	93	1808	1761.5	91.07	1.35	64
51.5	6	1715	1712	88.51	1.20	62
51.0	5	1709	1706.5	88.23	1.19	62
50.5	2	1704	1703	88.04	1.18	62
50.0	3	1702	1700.5	87.91	1.17	62
49.5	17	1699	1690.5	87.40	1.15	62
49.0	5	1682	1679.5	86.83	1.12	61
48.5	1	1677	1676.5	86.65	1.11	61
48.0	23	1676	1664.5	86.05	1.08	61
47.5	5	1653	1650.5	85.33	1.05	61
47.0	3	1648	1646.5	85.12	1.04	60
46.5	3	1645	1643.5	84.97	1.04	60
46.0	1	1642	1641.5	84.86	1.03	60
45.5	1	1641	1640.5	84.81	1.03	60
45.0	13	1640	1633.5	84.45	1.01	60
44.5	1	1627	1626.5	84.09	1.00	60
44.0	2	1626	1625	84.01	1.00	60
43.5	29	1624	1609.5	83.21	.96	60
43.0	5	1595	1592.5	82.33	.93	59
42.5	3	1590	1588.5	82.12	.92	59
42.0	4	1587	1585	81.94	.91	59
41.5	31	1583	1567.5	81.04	.88	59
41.0	3	1552	1564	80.86	.87	59
40.5	4	1549	1547	79.98	.84	58
40.0	9	1545	1540.5	79.64	.83	58
39.5	27	1536	1522.5	78.71	.80	58
39.0	3	1509	1507.5	77.94	.77	58

TABLE 10--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Raw Score	f	Cum. f	Cum. Freq. Below Score Plus $\frac{1}{2}$ on Given Score	Col.(4) in Per Cent	S. D.	T-Score
38.5	8	1506	1502	77.65	.76	58
38.0	28	1498	1484	76.72	.73	57
37.5	6	1470	1467	75.84	.70	57
37.0	51	1464	1438.5	74.37	.65	56
36.5	7	1413	1409.5	72.87	.61	56
36.0	3	1406	1404.5	72.61	.60	56
35.5	20	1403	1393	72.02	.58	56
35.0	41	1383	1362.5	70.44	.54	55
34.5	4	1342	1340	69.28	.51	55
34.0	11	1338	1332.5	68.89	.49	55
33.5	15	1327	1319.5	68.22	.47	55
33.0	61	1312	1281.5	66.25	.42	54
32.5	3	1251	1249.5	64.60	.37	54
32.0	14	1248	1241	64.16	.36	54
31.5	18	1234	1225	63.33	.34	53
31.0	15	1216	1208.5	62.48	.32	53
30.5	37	1201	1182.5	61.13	.28	53
30.0	5	1164	1161.5	60.95	.25	52
29.5	12	1159	1153	59.61	.25	52
29.0	47	1147	1123.5	58.08	.21	52
28.5	3	1100	1098.5	56.79	.17	52
28.0	113	1097	1040.5	53.79	.09	51
27.5	2	984	983	50.82	.02	50
27.0	10	982	977	50.51	.01	50
26.5	40	972	952	49.22	-.02	50
26.0	84	932	890	46.01	-.10	49
25.5	9	848	843.5	43.61	-.16	48
25.0	18	839	839	42.91	-.18	48
24.5	10	821	816	42.19	-.18	48
24.0	21	811	800.5	41.38	-.22	48
23.5	19	790	780.5	40.35	-.25	48
23.0	105	771	718.5	37.15	-.33	47
22.5	6	666	663	34.28	-.40	46
22.0	16	660	652	33.71	-.42	46
21.5	26	644	631	32.62	-.45	46
21.0	127	618	554.5	28.67	-.56	44
20.5	7	491	487.5	25.20	-.67	43
20.0	29	484	469.5	24.27	-.70	43
19.5	25	455	442.5	22.88	-.74	43

TABLE 10--Continued

(1) Raw Score	(2) f	(3) Cum. f	(4) Cum. Freq. Below Score Plus ½ on Given Score	(5) Col.(4) in Per Cent	(6) S. D.	(7) T-Score
19.0	23	430	418.5	21.64	-.78	42
18.5	71	407	371.5	19.21	-.87	41
18.0	17	336	327.5	16.93	-.96	40
17.5	21	319	308.5	15.95	-1.00	40
17.0	58	298	269	13.91	-1.09	39
16.5	12	240	234	12.10	-1.17	38
16.0	14	228	221	11.42	-1.20	38
15.5	53	214	187.5	9.69	-1.30	37
15.0	4	161	159	8.22	-1.39	36
14.5	13	157	150.5	7.78	-1.42	36
14.0	50	144	119	6.15	-1.54	35
13.5	4	94	92	4.76	-1.67	33
13.0	6	90	87	4.50	-1.70	33
12.5	11	84	78.5	4.06	-1.74	33
12.0	5	73	70.5	3.64	-1.79	32
11.5	2	68	67	3.46	-1.82	32
11.0	20	66	56	2.89	-1.90	31
10.5	14	46	39	2.02	-2.05	30
10.0	2	32	31	1.60	-2.15	28
9.5	4	30	28	1.45	-2.18	28
9.0	12	26	20	1.03	-2.32	27
8.5	0	14	14	.72	-2.45	26
8.0	1	14	13.5	.70	-2.47	25
7.5	1	13	12.5	.65	-2.49	25
7.0	1	12	11.5	.59	-2.52	25
6.5	1	11	10.5	.54	-2.55	24
6.0	2	10	9	.46	-2.61	24
5.5	3	8	6.5	.34	-2.71	23
5.0	1	5	4.5	.23	-2.83	22
4.5	1	4	3.5	.18	-2.92	21
4.0	1	3	2.5	.13	-3.02	20
3.5	0	2	2	.10	-3.09	19
3.0	0	2	2	.10	-3.09	19
2.5	0	2	2	.10	-3.09	19
2.0	1	2	1.5	.077	-3.16	18
1.5	0	1	1	.052	-3.30	17
1.0	1	1	.5	.026	-3.50	15

standard deviation is multiplied by ten and then added or subtracted from fifty, depending upon its negative or positive value.

Tables 8, 9 and 10 should be used as tentative rate norms; probably further sampling would not change the whole numbers in percentiles or T-Scores significantly.

Scales of Quality

Rank Position

The three scales of quality, one for each grade, are based upon nine initial and thirty-nine final opinions of primary teachers. The final ranking in merit order of the fifty working samples for each grade was recorded, mean ranks computed and rank position assigned in the Tables 11, 12 and 13.

Selection of Scale Samples and Tentative Quality Norms

That sample which received the mean rank nearest to one was selected as the sample of the first quality of manuscript writing and was identified by the letter A. That sample which received the mean rank nearest to 12.5 represents the second quality of manuscript writing and was identified by the letter B. That sample which received the mean rank nearest to 25 represents the third quality of manuscript writing and was identified by the letter C. That sample which received the mean rank nearest to 37.5 represents the

TABLE 11

DISTRIBUTION OF GRADE I SAMPLES ACCORDING TO RANKING
IN MERIT ORDER, MEAN RANK AND RANK POSITION

No.	Judges													Total	Mean Rank	Rank Position
	1	2	3	4	5	6	7	8	9	10	11	12	13			
1	2	1	2	2	2	2	2	2	2	3	2	1	2	25	1.92	2
2	1	2	1	1	1	1	1	1	1	1	1	2	1	15	1.15	1
3	3	4	4	4	7	5	5	3	4	2	4	3	3	51	3.92	4
4	4	5	5	5	5	4	4	5	5	5	5	5	6	63	4.85	5
5	5	3	3	3	4	3	3	4	6	4	3	4	4	49	3.77	3
6	6	8	8	9	10	10	14	10	10	9	10	10	9	123	9.46	9
7	17	12	12	11	12	13	16	16	15	15	7	15	13	174	13.38	13
8	9	10	10	12	17	8	9	9	9	12	13	11	14	143	11.00	10
9	8	6	6	6	6	7	6	6	3	6	6	7	8	81	6.23	6
10	10	9	9	8	11	6	8	8	8	7	8	8	7	107	8.23	8
11	11	13	13	13	8	11	11	12	12	10	11	9	10	144	11.08	11
12	7	7	7	7	3	9	7	7	7	8	9	6	5	89	6.85	7
13	12	11	11	10	9	12	10	11	11	11	12	12	12	144	11.08	12
14	14	14	14	15	14	15	17	18	17	16	16	17	18	205	15.76	16
15	15	15	15	14	13	14	12	14	13	13	14	13	11	176	13.54	14
16	18	19	20	20	21	24	25	25	25	26	26	24	23	296	22.77	23
17	16	17	19	19	23	23	23	23	22	24	17	20	21	267	20.54	19
18	13	16	17	17	20	17	15	15	14	14	15	14	15	202	15.54	15
19	20	25	26	26	26	26	24	24	24	23	24	26	24	318	24.46	25
20	19	18	18	18	15	18	18	17	18	19	20	22	22	242	18.61	18
21	22	21	23	23	19	20	20	20	19	21	22	19	19	268	20.61	20
22	21	20	21	21	18	19	19	19	20	18	19	18	37	270	20.77	21
23	24	24	24	24	22	25	28	29	28	29	29	29	27	342	26.31	26

TABLE 11--Continued

No.	Judges													Total	Mean Rank	Rank Position
	1	2	3	4	5	6	7	8	9	10	11	12	13			
24	25	23	25	25	25	27	32	32	32	32	32	32	32	374	28.77	28
25	26	34	34	34	34	34	34	34	33	34	34	33	31	429	33.00	33
26	30	29	29	30	30	29	30	30	30	30	30	30	30	387	29.77	31
27	27	28	30	29	29	28	26	26	27	28	28	27	25	358	27.54	27
28	23	22	22	22	24	21	21	22	21	20	21	23	16	278	21.38	22
29	32	36	36	36	36	33	33	33	34	35	35	35	33	447	34.38	34
30	29	27	28	28	28	30	31	31	31	31	31	31	29	385	29.61	30
31	28	26	27	27	27	22	22	21	23	22	23	21	20	309	23.77	24
32	33	31	31	31	31	37	37	40	36	38	38	38	36	457	35.15	35
33	34	32	32	32	32	32	27	27	26	25	25	25	26	375	28.85	29
34	31	30	16	16	16	16	13	13	16	17	18	16	17	235	18.08	17
35	35	33	33	33	33	31	29	28	29	27	27	28	28	394	30.31	32
36	36	39	39	39	40	38	45	46	46	47	47	46	44	552	42.46	43
37	37	35	35	35	35	39	44	45	44	44	45	43	41	522	40.15	39
38	41	40	40	40	39	40	40	39	38	39	39	40	42	517	39.77	38
39	38	37	37	37	37	36	33	36	35	33	33	34	39	470	36.15	36
40	39	47	48	48	48	46	45	48	47	46	42	41	38	584	44.92	46
41	40	38	38	38	38	35	35	35	37	36	36	37	34	477	36.69	37
42	43	41	41	41	41	41	41	42	41	40	40	39	46	537	41.31	41
43	44	44	42	42	42	45	42	41	43	41	41	42	40	549	42.23	42
44	45	43	44	44	45	44	37	37	39	37	37	35	35	522	40.15	40
45	42	42	43	43	44	42	43	43	40	43	44	45	45	559	43.00	45
46	46	45	46	46	43	43	36	38	42	42	43	44	43	557	42.85	44
47	49	48	47	47	47	48	48	47	45	45	46	47	49	613	47.15	47
48	47	49	49	49	49	49	49	44	48	49	49	50	50	631	48.54	49
49	50	50	50	50	50	50	50	50	50	50	50	49	48	647	49.77	50
50	48	46	45	45	46	47	47	49	49	48	48	48	47	613	47.15	48

TABLE 12

DISTRIBUTION OF GRADE II SAMPLES ACCORDING TO RANKING
IN MERIT ORDER, MEAN RANK AND RANK POSITION

No.	Judges													Total	Mean Rank	Rank Position
	1	2	3	4	5	6	7	8	9	10	11	12	13			
1	3	3	2	3	4	4	3	3	4	3	2	2	3	39	3.00	3
2	2	2	3	2	2	1	2	1	2	2	1	1	1	22	1.69	2
3	1	1	1	1	1	2	1	2	1	1	3	3	2	20	1.54	1
4	4	5	5	4	3	3	4	4	3	6	6	14	10	71	5.46	4
5	5	4	4	5	5	6	7	8	8	9	9	8	11	89	6.85	7
6	6	6	6	6	6	7	5	6	6	5	5	10	8	82	6.31	6
7	9	10	11	11	9	9	10	10	9	10	10	7	5	120	9.23	9
8	7	8	9	10	11	11	12	12	11	13	13	11	13	141	10.85	11
9	8	7	7	7	7	8	8	7	7	8	8	5	6	93	7.15	8
10	11	11	12	12	12	12	14	14	13	14	14	13	15	167	12.85	12
11	16	18	18	18	20	20	18	18	18	18	19	21	22	244	18.77	19
12	17	16	17	17	19	19	19	19	19	17	16	17	16	228	17.54	17
13	12	12	10	9	10	10	9	9	10	7	7	6	12	123	9.46	10
14	10	9	8	8	8	5	6	5	5	4	4	4	4	80	6.15	5
15	18	17	15	23	16	16	15	16	15	15	15	15	23	219	16.85	16
16	13	13	13	21	14	14	13	11	12	12	11	12	9	168	12.92	13
17	20	21	19	14	18	18	21	21	21	21	21	20	14	249	19.15	20
18	22	20	21	15	17	17	17	17	17	20	20	18	18	239	18.38	18
19	23	23	23	19	23	24	24	26	26	27	28	27	28	321	24.69	25
20	24	24	24	20	30	30	29	30	29	26	26	26	27	345	26.54	27
21	15	15	14	25	24	25	25	24	24	23	23	23	24	284	21.85	22
22	25	25	25	24	25	21	20	20	20	19	18	19	17	278	21.38	21
23	14	14	16	16	13	13	11	15	16	16	17	16	19	196	15.08	15

TABLE 12--Continued

No.	Judges													Total	Mean Rank	Rank Position
	1	2	3	4	5	6	7	8	9	10	11	12	13			
24	19	19	20	13	15	15	16	13	14	11	12	9	7	183	14.08	14
25	21	22	22	32	21	23	23	22	22	22	22	22	21	295	22.69	23
26	27	27	27	29	28	28	28	28	28	31	31	30	32	374	28.77	29
27	29	29	29	28	27	27	27	27	27	29	30	33	31	373	28.69	28
28	26	26	26	22	22	22	22	23	23	24	24	25	25	310	23.85	24
29	28	28	28	27	31	31	31	32	31	28	29	29	30	383	29.46	30
30	31	30	31	26	26	26	26	25	25	25	25	24	20	340	26.15	26
31	32	32	32	30	33	33	33	33	33	33	32	31	29	416	32.00	33
32	33	33	33	34	32	32	32	31	30	30	27	28	26	401	30.85	31
33	34	35	35	35	35	36	35	34	35	35	35	34	34	452	34.77	34
34	35	34	34	33	37	37	37	36	36	34	34	32	33	452	34.77	35
35	30	31	30	31	29	29	30	29	32	32	33	35	36	407	31.31	32
36	36	36	36	36	34	34	34	35	34	36	36	37	38	462	35.54	36
37	37	37	37	38	48	38	38	39	38	37	37	36	35	495	38.08	38
38	38	39	39	37	36	35	36	37	37	38	39	38	39	488	37.54	37
39	39	40	38	39	38	39	39	40	40	42	41	44	42	521	40.08	40
40	40	38	41	41	39	42	42	41	42	41	42	41	44	534	41.08	41
41	42	42	42	42	43	43	43	43	43	43	43	43	43	555	42.69	43
42	43	43	44	46	42	40	41	42	41	40	38	39	37	536	41.23	42
43	44	44	45	44	44	44	46	46	46	44	45	45	46	583	44.85	45
44	45	45	43	43	41	45	44	45	45	46	46	47	47	582	44.77	44
45	46	46	48	48	47	48	45	44	44	45	44	42	41	588	45.23	46
46	41	41	40	40	40	41	40	38	39	39	40	40	40	519	39.92	39
47	47	47	46	45	45	46	48	48	48	48	48	48	50	614	47.23	47
48	48	50	50	50	50	50	50	50	50	50	50	50	49	647	49.77	50
49	49	48	47	49	46	47	47	47	49	49	49	49	48	624	48.00	49
50	50	49	49	47	49	49	49	49	47	47	47	46	45	623	47.92	48

TABLE 13

DISTRIBUTION OF GRADE III SAMPLES ACCORDING TO RANKING
IN MERIT ORDER, MEAN RANK AND RANK POSITION

No.	Judges													Total	Mean Rank	Rank Position
	1	2	3	4	5	6	7	8	9	10	11	12	13			
1	3	3	3	3	3	3	3	2	1	3	2	3	2	34	2.61	3
2	2	1	2	2	2	2	2	1	3	2	3	2	3	27	2.08	2
3	1	2	1	1	1	1	1	3	2	1	1	1	1	17	1.31	1
4	9	18	17	15	15	15	15	16	15	15	13	14	13	190	14.61	15
5	16	4	10	9	9	9	9	9	8	8	9	10	9	119	9.15	9
6	7	5	6	6	6	7	7	6	7	6	5	6	5	79	6.08	6
7	11	17	15	14	14	14	14	12	11	13	14	13	14	176	13.54	13
8	13	6	7	7	7	6	6	5	5	7	8	7	7	91	7.00	7
9	10	11	11	10	10	10	10	8	9	10	10	9	10	128	9.85	10
10	6	8	4	4	5	5	5	7	6	5	6	5	6	72	5.54	5
11	4	10	8	8	8	8	8	10	10	9	7	8	8	106	8.15	8
12	8	13	9	12	12	12	12	13	13	12	12	11	12	151	11.61	12
13	14	19	25	23	23	23	19	19	20	19	20	19	18	261	20.08	20
14	15	7	12	11	11	11	11	11	12	11	11	12	11	146	11.23	11
15	5	9	5	5	4	4	4	4	4	4	4	4	4	60	4.61	4
16	12	20	18	18	18	18	21	20	21	20	18	17	17	238	18.31	17
17	27	27	43	36	36	36	36	38	39	37	35	36	35	461	35.46	35
18	23	24	31	32	32	31	33	35	36	33	32	31	32	406	31.23	32
19	26	26	23	21	21	21	24	24	25	24	23	22	23	303	23.31	23
20	17	16	28	22	22	22	23	22	23	22	22	21	21	281	21.61	22
21	24	28	33	31	30	29	30	31	31	29	28	29	27	380	29.23	30
22	19	14	13	13	13	13	13	14	14	14	15	15	15	185	14.23	14
23	22	22	27	24	24	24	25	27	17	23	24	23	22	304	23.38	24

TABLE 13--Continued

No.	Judges													Total	Mean Rank	Rank Position
	1	2	3	4	5	6	7	8	9	10	11	12	13			
24	18	35	37	37	37	37	37	39	37	39	40	39	40	472	36.31	37
25	21	12	14	17	17	17	17	15	16	16	17	16	16	211	16.23	16
26	25	24	19	19	19	19	18	18	19	18	19	18	19	254	19.54	19
27	20	21	16	16	16	16	16	17	18	17	16	32	28	249	19.15	18
28	43	44	44	43	43	43	43	43	42	42	41	40	41	552	42.46	44
29	31	30	21	26	26	26	26	26	27	25	25	24	24	337	25.92	25
30	28	23	20	20	20	20	22	21	22	21	21	20	20	278	21.38	21
31	34	34	26	33	33	33	32	30	30	31	30	28	30	404	31.08	31
32	30	31	30	30	31	32	31	32	32	32	33	33	33	410	31.54	33
33	32	41	40	40	40	41	39	40	40	41	42	42	42	520	40.00	39
34	29	29	24	27	27	28	27	25	26	26	27	27	26	348	26.77	26
35	45	46	46	45	45	45	45	45	46	45	44	43	44	584	44.92	45
36	35	37	35	35	35	35	35	36	35	36	36	35	36	461	35.46	36
37	33	36	34	34	34	34	34	33	34	35	37	34	38	450	34.61	34
38	41	40	41	44	44	44	44	44	44	40	38	39	37	540	41.54	42
39	42	43	36	42	41	40	40	42	43	44	45	45	45	548	42.15	43
40	36	32	22	25	25	25	20	23	24	30	31	30	31	354	27.23	27
41	39	39	39	39	38	38	38	34	33	34	34	37	34	476	36.61	38
42	38	38	38	38	39	39	41	41	41	43	43	44	43	526	40.46	40
43	40	15	29	29	29	30	29	29	29	28	29	26	29	371	28.54	28
44	37	33	32	28	28	27	28	28	28	27	26	25	25	372	28.61	29
45	44	42	42	41	42	42	42	37	38	38	39	41	39	527	40.54	41
46	46	45	47	46	46	47	46	46	47	46	46	46	49	603	46.38	46
47	47	48	45	48	48	48	48	49	49	49	47	47	48	621	47.77	48
48	50	50	50	50	50	50	50	50	50	50	50	50	50	650	50.00	50
49	48	49	49	49	49	49	49	47	45	47	49	48	47	647	49.77	49
50	49	47	48	47	47	46	47	48	48	48	48	49	46	618	47.54	47

fourth quality of manuscript writing and was identified by the letter D. That sample which received the mean rank nearest to 50 was taken as the fifth quality of manuscript writing and identified by the letter F. The letters A, B, C, D, and F are not to be interpreted as letter grades; they are merely identification letters. In each scale the identified samples were photographed and are the scales of quality.

The three tentative quality norm tables, one for each grade, were based upon teachers opinions as to what constitute the five quality levels of manuscript writing. In each grade the descending merit order of mean rank samples were recorded, percentile position and T-Scores of each sample were computed in the same manner as in the rate norms, thereby scores are expressed in three comparative ways in Tables 14, 15 and 16. These tables should be used as tentative norms when the quality of children's manuscript writing is being determined.

Overlap in the Qualities of Manuscript Writing

The degree of overlap in the qualities of manuscript writing was determined by the opinions of twenty-five primary teachers. In the tabulation and analysis of their opinions a definite degree of overlap in writing was evident between Grades I and II and between II and III. It was possible to measure six degrees of overlap, but in each case only two prevailed; complete and four-step overlap. Complete overlap

TABLE 14

DISTRIBUTION OF SELECTED SAMPLES IN GRADE I ACCORDING
TO MEAN RANK, RANK POSITION, PERCENTILE,
T-SCORE AND LEVEL OF QUALITY

Mean Rank	Rank Position	Per Cent	S. D.	T-Score	Level of Quality
1.15	50	99	2.33	73	A
1.92	49	97	1.88	69	
3.77	48	95	1.65	66	
3.92	47	93	1.48	65	
4.85	46	91	1.34	63	
6.23	45	89	1.28	63	
6.85	44	87	1.13	61	
8.23	43	85	1.04	60	
9.46	42	83	.95	60	
11.00	41	81	.88	59	
11.08	40	79	.81	58	
11.08	39	77	.74	57	
13.38	38	75	.67	56	B
13.54	37	73	.61	56	
15.54	36	71	.57	56	
15.76	35	69	.50	55	
18.08	34	67	.44	54	
18.61	33	65	.39	54	
20.54	32	63	.33	53	
20.61	31	61	.28	53	
20.77	30	59	.23	52	
21.38	29	57	.18	52	
22.77	28	55	.13	51	
23.77	27	53	.08	51	
24.46	26	51	.02	50	C
26.31	25	49	-.02	50	
27.54	24	47	-.08	49	
28.77	23	45	-.13	49	
28.85	22	43	-.18	48	
29.61	21	41	-.23	48	
29.77	20	39	-.28	47	
30.31	19	37	-.33	47	
33.00	18	35	-.39	46	
34.38	17	33	-.44	46	
35.15	16	31	-.50	45	
36.15	15	29	-.55	44	

TABLE 14--Continued

Mean Rank	Rank Position	Per Cent	S. D.	T-Score	Level of Quality
36.69	14	27	-.61	44	D
39.77	13	25	-.67	43	
40.15	12	23	-.74	43	
40.15	11	21	-.81	42	
41.31	10	19	-.88	41	
42.23	9	17	-.95	40	
42.46	8	15	-1.04	40	
42.83	7	13	-1.13	39	
43.00	6	11	-1.28	37	
44.92	5	9	-1.34	37	
47.15	4	7	-1.48	35	
47.15	3	5	-1.65	34	
48.54	2	3	-1.68	31	
49.77	1	1	-2.33	27	

TABLE 15

DISTRIBUTION OF SELECTED SAMPLES IN GRADE II ACCORDING TO MEAN RANK, RANK POSITION, PERCENTILE, T-SCORE AND LEVEL OF QUALITY

Mean Rank	Rank Position	Per Cent	S. D.	T-Score	Level of Quality	
1.54	50	99	2.33	73	A	
1.69	49	97	1.88	69		
3.00	48	95	1.65	66		
5.46	47	93	1.48	65		
6.15	46	91	1.34	63		
6.31	45	89	1.28	63		
6.85	44	87	1.13	61		
7.15	43	85	1.04	60		
9.23	42	83	.95	60		
9.46	41	81	.88	59		
10.85	40	79	.81	58		
12.85	39	77	.74	57		B

TABLE 15--Continued

Mean Rank	Rank Position	Per Cent	S. D.	T-Score	Level of Quality
12.92	38	75	.67	56	B
14.08	37	73	.61	56	
15.08	36	71	.57	56	
16.85	35	69	.50	55	
17.54	34	67	.44	54	
18.38	33	65	.39	54	
18.77	32	63	.33	53	
19.15	31	61	.28	53	
21.38	30	59	.23	52	
21.85	29	57	.18	52	
22.69	28	55	.13	51	
23.85	27	53	.08	51	
24.69	26	51	.02	50	C
26.15	25	49	-.02	50	
26.54	24	47	-.08	49	
28.69	23	45	-.13	49	
28.77	22	43	-.18	48	
29.46	21	41	-.23	48	
30.85	20	39	-.28	47	
31.31	19	37	-.33	47	
32.00	18	35	-.39	46	
34.77	17	33	-.44	46	
34.77	16	31	-.50	45	
35.54	15	29	-.57	44	
37.54	14	27	-.61	44	D
38.08	13	25	-.67	43	
39.92	12	23	-.74	43	
40.08	11	21	-.81	42	
41.08	10	19	-.88	41	
41.23	9	17	-.95	40	
42.69	8	15	-1.04	40	
44.77	7	13	-1.13	39	
44.85	6	11	-1.28	37	
45.23	5	9	-1.34	37	
47.23	4	7	-1.48	35	
47.92	3	5	-1.65	34	
48.00	2	3	-1.88	31	
49.77	1	1	-2.37	27	F

TABLE 16

DISTRIBUTION OF SELECTED SAMPLES IN GRADE III ACCORDING
TO MEAN RANK, RANK POSITION, PERCENTILE,
T-SCORE AND LEVEL OF QUALITY

Mean Rank	Rank Position	Per Cent	S. D.	T-Score	Level of Quality
1.31	50	99	2.33	73	A
2.08	49	97	1.88	69	
2.61	48	95	1.65	66	
4.61	47	93	1.48	65	
5.54	46	91	1.34	63	
6.08	45	89	1.28	63	
7.00	44	87	1.13	61	
8.15	43	85	1.04	60	
9.15	42	83	.95	60	
9.85	41	81	.88	59	
11.23	40	79	.81	58	
11.61	39	77	.74	57	B
13.54	38	75	.67	56	
14.23	37	73	.61	56	
14.61	36	71	.57	56	
16.23	35	69	.50	55	
18.31	34	67	.44	54	
19.15	33	65	.39	54	
19.54	32	63	.33	53	
20.08	31	61	.28	53	
21.38	30	59	.23	52	
21.61	29	57	.18	52	
23.31	28	55	.13	51	
23.38	27	53	.08	51	
25.92	26	51	.02	50	C
26.77	25	49	-.02	50	
27.23	24	47	-.08	49	
28.54	23	45	-.13	49	
28.61	22	43	-.18	48	
29.23	21	41	-.23	48	
31.08	20	39	-.28	47	
31.23	19	37	-.33	47	
31.54	18	35	-.39	46	
34.61	17	33	-.44	46	
35.46	16	31	-.50	45	
35.46	15	29	-.55	44	
36.31	14	27	-.61	44	
36.61	13	25	-.67	43	D

TABLE 16--Continued

Mean Rank	Rank Position	Per Cent	S. D.	T-Score	Level of Quality
40.00	12	23	-.74	43	
40.46	11	21	-.81	42	
40.54	10	19	-.88	41	
41.54	9	17	-.95	40	
42.15	8	15	-1.04	40	
42.46	7	13	-1.13	39	
44.92	6	11	-1.28	37	
46.38	5	9	-1.34	37	
47.54	4	7	-1.48	35	
47.77	3	5	-1.65	34	
49.77	2	3	-1.88	31	
50.00	1	1	-2.33	27	F

was indicated by the A, B, C, D and F levels of quality in Grade I as being equal to the A, B, C, D and F levels of quality in Grade II respectively. Four-step overlap was indicated by the A level of quality in Grade I as being equal to the B level of quality in Grade II; or the B level of quality in Grade I as being equal to the C level of quality in Grade II; or the C level of quality in Grade I as being equal to the D level of quality in Grade II; or the D level of quality in Grade I as being equal to the F level of quality in Grade II. To determine the degree of overlap in writing in Grades II and III the same criteria were used.

In studying Table 17 one will notice that 5 per cent of the twenty-five teachers noticed complete overlap in the qualities of manuscript writing between Grades I and II, and

95 per cent noticed four steps of overlap between Grades I and II. Twenty per cent of the twenty-five teachers noticed complete overlap in the quality of manuscript writing between Grades II and III, and 80 per cent noticed four steps of overlap between Grades II and III. In both cases four-step overlap was most significant and a unique factor. The degrees of overlap are found in Table 17.

TABLE 17
OVERLAP IN THE QUALITIES OF MANUSCRIPT WRITING
BETWEEN GRADES I AND II AND
BETWEEN GRADES II AND III

Degree of Overlap	Frequency and Extent of Overlap	
	Between Grades I and II	Between Grades II and III
Complete	1 (5 per cent)	5 (20 per cent)
4 step	24 (95 per cent)	20 (80 per cent)

Cross Validity

The proposed manuscript scales were cross-validated with a cursive scale. This comparative validity was measured by the analysis of the opinions of twenty-five primary teachers. The teachers' opinions were secured on problem sheets on which they rated a quality of manuscript writing of one grade as being equal to a quality of cursive writing of the same grade. The five levels of quality were considered

the equal of the levels A, B, C, D and F of manuscript writing of one grade if they were rated as being equal to the A, B, C, D and F levels of cursive writing of the same grade respectively. If the ratings of the B, C, D and F quality levels of manuscript writing of one grade were rated as being equal to the A, B, C and D quality levels of cursive writing of the same grade, the manuscript writing was one quality level better than the cursive.

In studying Table 18, one will notice that 16 per cent, 8 per cent and 16 per cent of the teachers in Grades I, II and III noticed that the same quality levels of manuscript and cursive writing were equal in their respective grade. Eighty-four per cent, 92 per cent and 84 per cent of the teachers in Grades I, II and III noticed that the manuscript writing was one quality level better than the cursive

TABLE 18

CROSS-VALIDATION OF MANUSCRIPT AND CURSIVE WRITING
IN GRADES I, II AND III

Degree of Comparison	Grade I	Grade II	Grade III
The same quality level of manuscript and cursive are equal	4 (16 per cent)	2 (8 per cent)	4 (16 per cent)
Manuscript one quality level better than cursive	21 (84 per cent)	23 (92 per cent)	21 (84 per cent)

writing. These differences are significant at the 1 per cent level of confidence and are unique facts. These comparative validation data are found in Table 18.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The present study has been concerned with the development of manuscript scales for Grades I, II and III. The purpose of this chapter is to summarize the findings of this study.

During the past fifty years much research has been done in the area of handwriting. Until 1920 educators taught only cursive writing, but when the merits of manuscript were seen, there was a rapid movement in many schools to adopt the print script method of writing.

Students of handwriting early realized that the most valid and reliable criteria for evaluating children's handwriting were handwriting scales, and during the past half century numerous handwriting scales were developed. The purpose of this study was to construct three manuscript scales, since there are no manuscript scales that measure both rate and five degrees of quality of manuscript writing for Grades I, II and III.

Random stratified sampling was employed to select one hundred thirty schools. Letters were sent to the

superintendents of the selected schools asking their co-operation in securing manuscript handwriting samples. Directions for giving the test were sent to the co-operating schools, and these tests were administered during the month of April, 1956.

Those samples were discarded in which directions had not been followed. The three tentative sets of rate-norm tables, one for each grade, were based upon the letter count in terms of letters per minute of the 7212 samples. The rate norms are expressed in raw scores, percentiles and T-scores.

Fifty samples from each grade were selected by a systematic plan so as to assure normality to their distribution. The fifty samples in each of these three sets were identified by number and handed to judges for ranking, with full instructions as to procedure. The judges consisted of teachers from the particular grade level from which the samples came. In each grade these samples that received a designated mean rank were assigned a level of quality and appear as the scales of quality.

The three tentative quality rate-norm tables, one for each grade, were based upon teachers' opinions as to what constitutes the five quality levels of manuscript writing. The quality norms are expressed in raw scores, percentiles and T-scores.

The overlap in quality of writing by the grades is very striking, but natural. — There is a four-step overlap —

in the quality of writing between Grades I and II, and II and III.

The manuscript scales were cross-validated with a cursive scale. Eighty-four per cent of the teachers in Grades I, II and III rated the manuscript writing one quality level better than the cursive writing.

In conclusion, this study produced standardized manuscript scales which afford a means whereby the pupil, the teacher and the administrator may evaluate with a high degree of accuracy the manuscript handwriting of any pupil or group of pupils.

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APPENDIX A
LETTER OF TRANSMITTAL

=

March 10, 1956

Mr. Frank J. Ogden
Superintendent of Schools
Winchester, Kentucky

Dear Mr. Ogden:

Your school has been selected, by representative sampling of the schools of the United States, from which to secure samples of manuscript writing for Grades I, II and III. The study, in the procedure of candidacy for the degree of Ed. D. by Diodato Bezzi, a student in residence, is under the direction of Dr. Henry D. Rinsland, professor of Education of The University of Oklahoma, and a writer of standardized tests and college textbooks in testing.

You may be interested to know the purpose of this study is to construct standardized scales for manuscript writing. The uniqueness of these scales lies in the fact that they will measure rate and five degrees of quality of manuscript writing, and will be cross-validated with a currently published cursive scale. These scales will be of great value to all who advocate the measurement and evaluation of manuscript writing. A copy of the completed scales will be furnished you as a small compliment for your cooperation.

You will be asked to have three teachers, one from each Grade I, II and III, from one of your elementary schools, send samples of manuscript writing of all pupils in the primary grades. These samples will consist of a short passage, written according to a set of directions. These samples will be sent by express, at our expense, to my advisor at The University of Oklahoma.

A self-addressed, stamped envelope and short form is enclosed for your convenience in replying your willingness to cooperate in this study. I should appreciate a reply by March 19, 1956.

Sincerely yours,

Diodato Bezzi

Dr. Henry D. Rinsland
Advisor

Encl. _____

APPENDIX B

REPLY FORM

REPLY FORM

Number _____

March 9, 1956

Name of co-operating school _____

Town _____ State _____

In the spaces designated list the total enrollment in each grade and the name of the teacher who will secure the manuscript samples from all pupils in that grade.

Enrollment	Number of Sections	Name of Teacher
Grade I _____	_____	_____
Grade II _____	_____	_____
Grade III _____	_____	_____

Name of the person completing this form:

 Title

Dr. Henry D. Rinsland
 College of Education
 University of Oklahoma
 Norman, Oklahoma

Diodato Bezzi
 Doctoral Candidate

APPENDIX C

DIRECTIONS FOR ADMINISTERING THE TEST WHICH WILL
RESULT IN SECURING MANUSCRIPT WRITING SAMPLES

DIRECTIONS FOR ADMINISTERING THE TEST WHICH WILL
RESULT IN SECURING MANUSCRIPT WRITING SAMPLES

A. Preliminary Steps for Administering the Test

1. First Day:

a. Write in manuscript the proper selection on the blackboard. In order for the children to become familiar with the selection they are to read it in unison.

b. Selection for Each Grade:

Grade I: Once upon a time there was a little old man and woman.

Grade II: Once upon a time there was a little old man and woman. They wanted a boy. So the woman made a boy. He ran away from the little old woman.

Grade III: Once upon a time there was a little old man and woman. They wanted a boy. So the woman made a boy. He ran away from the little old woman. He also ran away from a hen, a dog, a pig and a cat. They could not catch him. But a fox caught and ate him. The little boy was made of gingerbread.

B. Administering the Test

1. Second Day:

a. During the writing period the pupils will write, on standard paper used for their grade, the selection that is on the board.

b. The teacher should now say, "Let us repeat the story that is on the board." The teacher and pupils will now read the selection. "The lesson for today is to write the short story that is on the board. Begin on the top line of the paper, do not skip any lines and write as you usually do. Do not start writing until I say 'Go'. Do not go back and erase or make over any letter

that you have written. When I say 'Stop' you must stop writing." Do not tell the children how many minutes they are to write.

- c. When the second hand reaches 50, say, "Get ready to write." Observe the pupils to see that all are ready. When the second hand reaches 60, say 'Go'. Watch the time carefully. Allowing one minute for Grade I and two minutes for Grades II and III. When the allotted time is up say 'Stop'. Then say, "On the bottom line write Grade I, II or III (whatever the case may be.)"

C. Preparing the Samples for Shipment to the Center

1. The principal, or one of the teachers, will secure the samples from the other teachers, place them in a light carton, enclose the identification slip, adhere the enclosed sticker to the carton and ship express, collect to Dr. Henry D. Rinsland, College of Education, University of Oklahoma, Norman, Oklahoma. Your Railway Express Agent will call for this package at your telephoned request. It would be appreciated if these samples are sent by the last week of April.

APPENDIX D

SCHOOLS PARTICIPATING IN THIS STUDY GROUPED
ACCORDING TO THE SIZE OF THE CITY IN
WHICH THEY ARE LOCATED AND THE
NUMBER OF SAMPLES SECURED

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ACCORDING TO THE SIZE OF THE CITY IN
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NUMBER OF SAMPLES SECURED

GROUP I

Zero Schools
Size of City: 1,000,000 population or more

GROUP II

Five Schools
Size of City: 100,000 to 1,000,000 population

	Name of School	Location	Number of Samples
1.	Omaha Public Schools	Omaha, Nebraska	131
2.	Linberg Elementary	Tulsa, Oklahoma	157
3.	Manitou Elementary	Tacoma, Washington	80
4.	Leinkanf Public	Mobile, Alabama	72
5.	Chisolm Elementary	Montgomery, Alabama	100
TOTAL:			540

GROUP III

Sixteen Schools
Size of City: 25,000 to 100,000

	Name of School	Location	Number of Samples
1.	Virginia Heights	Roanoke, Virginia	74
2.	Schneider Elementary	Columbia, South Carolina	87
3.	South Port Elementary	Kenosha, Wisconsin	63

GROUP III--Continued

	Name of School	Location	Number of Samples
4.	Tank Elementary	Green Bay, Wisconsin	379
5.	Union District	Jackson, Michigan	275
6.	Chestnut Street	Wilmington, North Carolina	136
7.	Euclid Avenue	Jamestown, New York	72
8.	McKinley Elementary	Portsmouth, Ohio	81
9.	Pine Street Elementary	Spartanburg, South Carolina	91
10.	Washington	Billings, Montana	80
11.	Park View Elementary	Jackson Tennessee	92
12.	Franklin Elementary	Marion, Indiana	87
13.	Jefferson Elementary	Johnson City, Tennessee	106
14.	South Park Elementary	Salina, Kansas	70
15.	Redwood City District	Redwood City, California	119
16.	New Kensington	New Kensington, Pennsylvania	61
			TOTAL: 1873

GROUP IV

Fifty-two Schools
Size of City: 2,500 to 25,000

	Name of School	Location	Number of Samples
1.	East Elementary	Lancaster, Ohio	406
2.	Anderson Elementary	Orange, Texas	187
3.	Roosevelt Elementary	Aberdeen, South Dakota	76

GROUP IV--Continued

	Name of School	Location	Number of Samples
4.	Tiffon Elementary	Chillicothe, Ohio	83
5.	First District	Meadville, Pennsylvania	137
6.	Washington Elementary	Fayetteville, Arkansas	78
7.	Roosevelt-Wilson	Texas City, Texas	354
8.	Longe Central	Blytheville, Arkansas	83
9.	Jefferson Elementary	Shenandoah, Pennsylvania	86
10.	Fort Myers	Fort Myers, Florida	67
11.	Morristown	Morristown, Tennessee	641
12.	Gay Street	Phoenixville, Pennsylvania	85
13.	Elizabeth City	Elizabeth City, North Carolina	360
14.	Shive Elementary	Vernon, Texas	52
15.	Nicolet Elementary	Menasha, Wisconsin	57
16.	North Side Elementary	Opelika, Alabama	99
17.	University Elementary	Bowling Green, Ohio	77
18.	Miller Park School	Gainesville, Georgia	90
19.	Coshocton Public	Coshocton, Ohio	340
20.	Lindsay Elementary	Gainesville, Texas	84
21.	Keister Elementary	Harrisonburg, Virginia	87
22.	West Park Elementary	Moscow, Idaho	62
23.	South Elementary	Fulton, Missouri	88
24.	John Small Elementary	Washington, North Carolina	132
25.	Hichman-Elementary	Winchester, Kentucky	58

GROUP IV--Continued

Name of School	Location	Number of Samples
26. Williams Elementary	Monongahela, Pennsylvania	69
27. Levelland Elementary	Levelland, Texas	129
28. Havre Public Schools	Havre, Montana	56
29. Longfellow Elementary	Elk City, Oklahoma	67
30. Wright Elementary	Corry, Pennsylvania	71
31. Central Grammar	Union City, Tennessee	81
32. Falls Church Elementary	Falls Church, Virginia	87
33. Central Elementary	Pratt, Kansas	75
34. Marlin Elementary	Marlin, Texas	91
35. Paris City Schools	Paris, Kentucky	385
36. Ellis Elementary	Bellevue, Ohio	84
37. Central Elementary	Haines City, Florida	79
38. Breckenridge Elementary	Breckenridge, Texas	81
39. Patrick Hamilton	Dowagiac, Michigan	57
40. Central Elementary	Bluffton, Indiana	93
41. Searcy Primary	Searcy, Arkansas	95
42. Mt. Pleasant Elemen- tary	Mt. Pleasant, Iowa	59
43. Joint Class A	Kellog, Idaho	59
44. Lyons City Schools	Lyons, Kansas	174
45. Monticello Elementary	Monticello, New York	381
46. Macon Elementary	Macon, Missouri	85

GROUP IV--CONTINUED

Name of School	Location	Number of Samples
47. Towanda Elementary	Towanda, Pennsylvania	68
48. Nevada Elementary	Nevada, Iowa	201
49. Renovo Boro Elementary	Renovo, Pennsylvania	84
50. Butler Elementary	Butler, Missouri	227
51. Edinburg Elementary	Edinburg, Indiana	117
52. Winnemucca Grammar	Winnemucca, Nevada	99
	TOTAL:	7011
	GRAND TOTAL:	9424

APPENDIX E

KEYED COPY OF SELECTIONS

KEYED COPY OF SELECTIONS

4 8 9 13 18 21 22 28
 Once upon a time there was a little

31 34 37 42
 old man and woman. (Grade I to here)

46 52 53 56 58 61 66 70
 They wanted a boy. So the woman made

71 74 76 79 83 87 90 96
 a boy. He ran away from the little

99: 104
 old , woman. (Grade II to here)

106 110 113 117 121 122 125 126 129
 He also ran away from a hen, a dog,

130 133 136 137 140 144 149 152
 a pig and a cat. They could not

157 160 163 164 167 173 176 179
 catch him. But a fox caught and ate

182 185 191 194 197 201 203
 him. The little boy was made of

214
 gingerbread. (Grade III to here)

APPENDIX F

QUALITIES OF MANUSCRIPT WRITING AND
DIRECTIONS FOR ACHIEVING NORMALCY

QUALITIES OF MANUSCRIPT WRITING AND DIRECTIONS FOR ACHIEVING NORMALCY

Qualities of Manuscript Writing

Scoring for quality is purely subjective and therefore a judgment of value. The elements of quality that one must consider in the rating of handwriting samples are: spacing, letter alignment, letter formation, uniformity of size, and uniformity of slant.

Spacing is thought of as the uniformity and the width of space between letters within words, and between words. Spacing within words should be as follows: the straight letters should be placed apart and the round letters should be placed closer together. Spacing between words should be comparable to the width of two wide letters, such as m or w.

Letter alignment has reference to the evenness of line. The writing should follow a line which is perpendicular to the edge of the paper.

Letter formation suggests the degree in which letters conform to a standard form. Letters should be round, firm and the ending strokes should be solid.

Uniformity of size has reference to the height of the letters. The writing should be neither too small nor too large. There should be a direct constant proportion between the tall and the short letters. All tall letters should be of an equal height and all short letters should be of an equal height.

Uniformity of slant has reference to the degree of inclination of each letter as compared to a perpendicular drawn to the baseline of the paper. This inclination should not be extreme in either direction.

Directions for Achieving Normalcy

The initial sorting of samples will place them in five groups of different merit. Group one is designated for the best samples of writing; group two is designated for the next best samples of writing; groups three and four are designated for samples of inferior merit, as compared to the preceding group; whereas group five is designated for the poorest samples of writing.

It is important that normalcy be attained, that is:

- 7 per cent of the samples are to be placed in group one
- 24 per cent of the samples are to be placed in group two
- 38 per cent of the samples are to be placed in group three
- 24 per cent of the samples are to be placed in group four
- 7 per cent of the samples are to be placed in group five

By reading from the table below one can determine how the samples are to be distributed.

TABLE OF DISTRIBUTION

Grade	Total Samples	Group One (7%)	Group Two (24%)	Group Three (38%)	Group Four (24%)	Group Five (7%)
I	826	58	198	314	198	58
II	933	65	224	355	224	65
III	645	45	145	245	155	45

If in group one there are more than the required number of samples, review all samples in group one, selecting the best samples until the required number is attained. Place the remaining samples in group two. If in group one there are less than the required number of samples, review all samples in group two. From the best samples in group two select the required number of samples and place them in group one.

By repeating the procedure for each group normalcy will be attained.

When normalcy has been realized place the samples in the designated boxes.

APPENDIX G

CRITERIA AND DIRECTIONS FOR
RATING MANUSCRIPT WRITING

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CRITERIA AND DIRECTIONS FOR RATING MANUSCRIPT WRITING

Criteria to be Used in Rating Manuscript Writing

Scoring for quality is purely subjective and therefore a judgment of value. The elements of quality that one must consider in the rating of handwriting samples are: spacing, letter alignment, letter formation, uniformity of size and uniformity of slant.

Spacing is thought of as the uniformity and the width of space between letters within words, and between words. Spacing within words should be as follows: the straight letters should be placed apart and the round letters should be placed closer together. Spacing between words should be comparable to the width of two wide letters, such as m or w.

Letter alignment has reference to the evenness of line. The writing should follow a line which is perpendicular to the edge of the paper.

Letter formation suggests the degree in which letters conform to a standard form. Letters should be round, firm and the ending strokes should be solid.

Uniformity of size has reference to the height of the letters. The writing should be neither too small nor too large. There should be a direct constant proportion between the tall and the short letters. All tall letters should be of an equal height and all short letters should be of an equal height.

Uniformity of slant has reference to the degree of inclination of each letter as compared to a perpendicular drawn to the baseline of the paper. This inclination should not be extreme in either direction.

Direction for Rating Manuscript Writing Samples

Each judge will place the samples in merit order from high to low, giving the one receiving the highest rank the top position and the one receiving the lowest rank the bottom position. Number each sample on the back, giving the one receiving the highest rank number one, and the lowest number fifty.

APPENDIX H

SCALES FOR GRADES I, II AND III

SCALE FOR GRADE I

Once upon a time
there was a little

QUALITY A

Once upon a time
there was a li

QUALITY B

Once upon a time
there was

QUALITY C

Once upon a time
there wa

QUALITY D

Once upon a time
there was

QUALITY E

SCALE FOR GRADE II

Once upon a time there was a
 little old man and woman.
 They wanted a boy. So the

QUALITY A

One upon a time there was
 a little old man and woman.
 They wanted a boy. So the

QUALITY B

Once upon a time there was a
 little old man and woman. They

QUALITY C

Once upon a time there was a little
 old man and woman. They wanted a boy.
 So the woman made a boy. He ran away
 from the little old woman.

QUALITY D

Once upon a time there
 was a little old man
 and woman. They

QUALITY F

SCALE FOR GRADE III

Once upon a time there was a little old man and woman. They wanted a boy. So the woman made a boy. He ran away from the little old woman.

QUALITY A

Once upon a time there was a little old man and woman. They wanted a boy. So

QUALITY B

Once upon a time there was a little old man and woman. They wanted a boy. So the woman made a boy. He ran away from the little old

QUALITY C

Once upon a time there was a little old man and woman. They wanted a boy. So the woman made

QUALITY D

Once upon a time there was a little old man and woman. They

QUALITY F

APPENDIX I

PROBLEM SHEET USED TO DETERMINE OVERLAP
IN QUALITY OF MANUSCRIPT WRITING

PROBLEM SHEET USED TO DETERMINE OVERLAP
IN QUALITY OF MANUSCRIPT WRITING

TEACHER'S NAME _____ GRADE _____

DIRECTIONS: (1) Problem: rate a quality of one grade, beginning with Grade I, as being equal to a quality of the grade just above it; as, starting with Grade I, it would be Grade II, etc. (2) Record results of your opinion in the blanks below -- ONE quality only.

GRADE I

Quality (A, B, C, D, or F)
of Grade I, is equal to
quality (A, B, C, D, or F)
of Grade II.

GRADE II

Quality (A, B, C, D, or F)
of II, is equal to
quality (A, B, C, D, or F)
of Grade III.

APPENDIX J

PROBLEM SHEET USED TO DETERMINE CROSS-VALIDITY
BETWEEN MANUSCRIPT AND CURSIVE WRITING

PROBLEM SHEET USED TO DETERMINE CROSS-VALIDITY
BETWEEN MANUSCRIPT AND CURSIVE WRITING

TEACHER'S NAME _____ GRADE _____

DIRECTIONS: (1) Problem: rate a quality of manuscript writing of one grade, beginning with Grade I, as being equal to a quality of cursive writing of the same grade.
(2) Record results of your opinion in the blanks below -- ONE quality only.

GRADE I

Manuscript quality (A, B, C, D, or F)
of Grade I, is equal to cursive quality
(A, B, C, D, or F) of Grade I:

GRADE II

Manuscript quality (A, B, C, D, or F)
of Grade II, is equal to cursive quality
(A, B, C, D, or F) of Grade II:

GRADE III

Manuscript quality (A, B, C, D, or F)
of Grade III, is equal to cursive quality
(A, B, C, D, or F) of Grade III:
