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A Study of the Betts Ready to Read Tests: Their Predictive Values in Determining Reading Achievement and Their Comparison with Other Predictive Measures

Charles L. Mills

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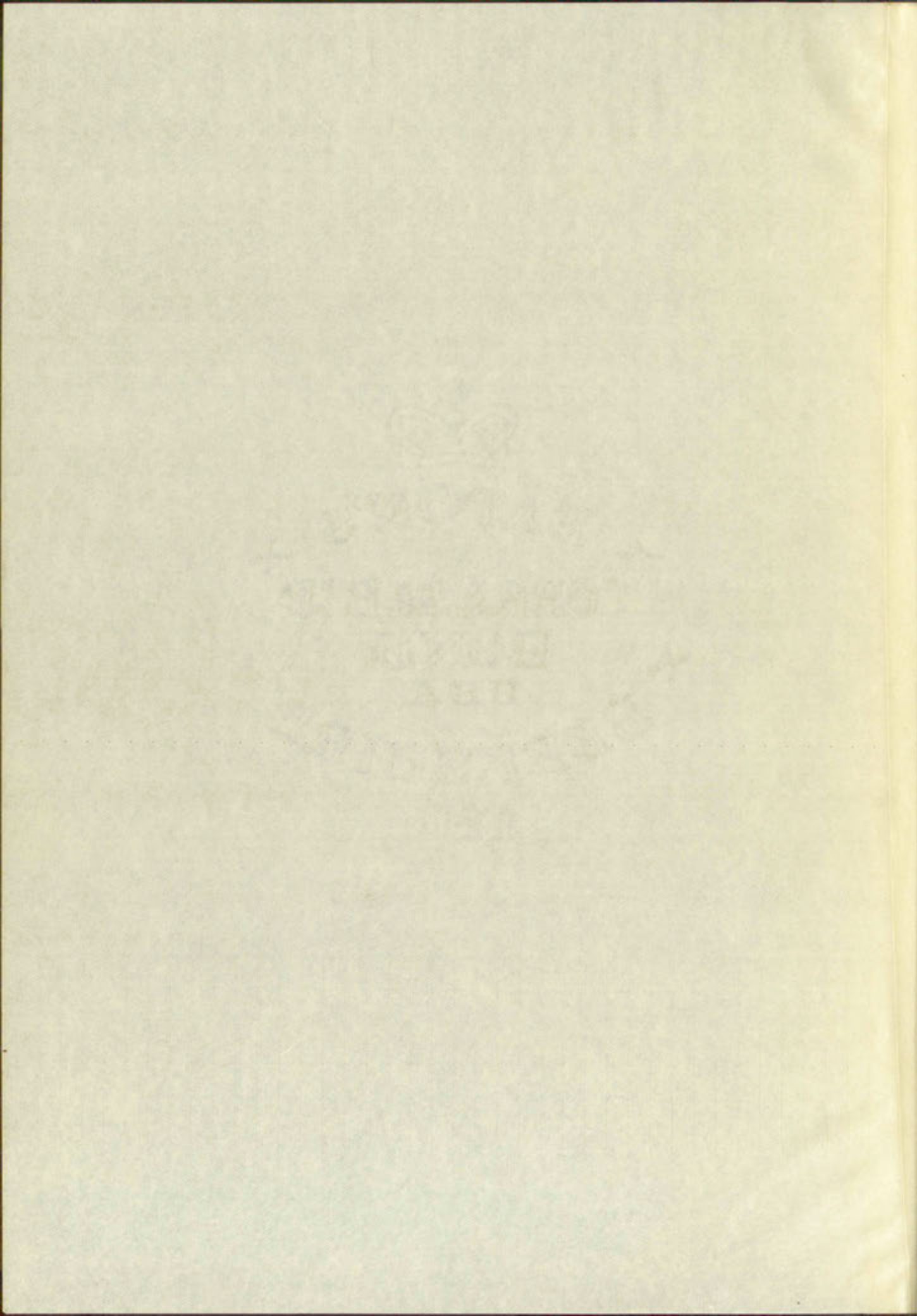
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A STUDY OF THE
BETTS READY TO READ TESTS
THEIR PREDICTIVE VALUES IN DETERMINING READING
ACHIEVEMENT AND THEIR COMPARISON
WITH OTHER PREDICTIVE MEASURES

By

Charles L. Mills

A Thesis

Submitted in partial fulfillment of the
Requirements for the Degree of
Master of Arts in Education

University of New Mexico

1941

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This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of the University of New Mexico in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

(Signed) George P. Hammond
DEAN

June 2, 1941
DATE

Thesis committee

L. S. Tireman
CHAIRMAN

R. A. Moyers

L. H. Fisher

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The first part of the report is devoted to a description of the work done during the year. It is divided into two main sections, the first of which deals with the work done in the laboratory and the second with the work done in the field.

REPORT ON THE WORK DONE DURING THE YEAR

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The first part of the report deals with the general situation in the country. It is followed by a detailed account of the work done during the year. The report then discusses the results of the work and the conclusions reached. Finally, it contains a list of references and an appendix.

The work done during the year has been very extensive. It has included a number of important projects, and has resulted in a number of valuable publications. The results of the work have been very satisfactory, and it is hoped that they will be of great value to the community.

The conclusions reached in the report are that the work done during the year has been very successful. It has resulted in a number of important discoveries, and has shown that the methods used are very effective. It is hoped that these results will be of great value to the community.

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

The ability to read is basic to the acquisition of knowledge in all school subjects. Consequently, classroom teachers have long been interested in what determines readiness for reading, and in tests which will predict reading achievement. Prominent among those which have appeared in recent years is the Betts Ready to Read Tests¹ which in reality are a series of twelve individual vision tests that require expensive equipment, a great deal of time, and a certain amount of technical skill to administer, score, and interpret.

I. THE PROBLEM

Statement of the problem. The purposes of this investigation are (1) to determine the predictive values of the factors of binocular vision in reading readiness, as measured by the Visual Sensation and Perception Tests of Betts Ready to Read Tests, and (2) to compare the relative values of the Betts tests as measures of probable future success in reading with those of other group and individual standardized and non-standardized predictive instruments.

¹ Emmett Albert Betts, Betts Ready to Read Tests (Meadville, Pennsylvania: Keystone View Company, 1936.)

The ability to work in a laboratory is a necessary part of the education of a chemist. In all actual subjects, the laboratory is the best place to learn. The laboratory is the best place to learn because it is the only place where the student can see the results of his work. The laboratory is the best place to learn because it is the only place where the student can see the results of his work. The laboratory is the best place to learn because it is the only place where the student can see the results of his work.

Reaction of the System
The reaction of the system is a complex process. It involves the interaction of various factors, including the concentration of the reactants, the temperature, and the presence of a catalyst. The reaction is exothermic, and the heat released is a function of the amount of reactants that have reacted. The reaction is also reversible, and the equilibrium constant is a function of the temperature. The reaction is also affected by the presence of a catalyst, which lowers the activation energy and increases the rate of the reaction.

Importance of the problem. The average teacher is confused by the claims being made for the many prognostic tests now being used to predict success in learning to read. Consequently, if this investigation can either prove that the Betts tests are worth the time, expense, and technical training they involve, or that other more simple prognostic tests are equally as good, a great service will have been rendered education.

Delimitation. The scope of this investigation is limited to all regularly enrolled beginning first grade pupils, in the Hobbs, New Mexico, public schools, who were in regular attendance during the school year 1937-1938, regardless of individual differences in home background, mental ability, educational opportunity, physical maturity, general health, chronological age, and psychological factors peculiar to the developmental age of young children.

II. DEFINITIONS OF TERMS USED

Beginning first grade pupils. Beginning first grade pupils are children entering the first grade of the public elementary schools for the first time.

Binocular vision. Throughout the report of this investigation, the term "binocular vision" shall be interpreted as meaning the co-ordinate action of the eyes.

Importance of the problem.

continued by the child with more or less regularity
tasks are being used to produce a more systematic
Consequently, it is suggested that the
the Beta tests are with the Alpha tests, the
training they involve, or the other factors, it
tests are given as good, a great number will
readers of interest.

Method.

limited to all the children who were
public, in the Bronx, New York, and
in regular attendance during the school year
regarding an individual's ability to
mental ability, school achievement, and
general health, and other factors, and
parents to the local health and social
agencies.

III. Description of the tests.

Personality tests. - Personality tests
people are children who are in the
elementary schools for the first time.

Intelligence tests. - Intelligence tests
investigation, the tests were given
proved as showing the co-operative nature of the group.

Prognosis. The term "prognosis" and its derivatives are used in this investigation in referring to the predictive values which certain reading readiness and eye conditions tests possess for indicating future success in reading.

III. SOURCES OF THE DATA

In determining the importance of the factors of binocular vision in reading readiness, 167 beginning first grade pupils enrolled in six classrooms in the Hobbs, New Mexico, public schools during the 1937-1938 term of school were examined individually in September, 1937, by the writer and two assistants on each of the twelve tests included in the Visual Sensation and Perception Tests of the Betts Ready to Read Tests, and rated as passing or failing each test. The data thus secured were used to determine the correlations between the factors of binocular vision in reading readiness and reading achievement.

In comparing the results of the Betts tests of the factors of binocular vision in reading readiness with those of the other predictive instruments administered in September, 1937, to the 167 beginning first grade pupils included in this investigation, the raw scores made by the pupils on these other tests were correlated with the scores on the same measures of reading achievement.

The data used as measures of reading achievement and

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... five values which occur in the table ...
... some tests possible for determining ...

III. RESULTS OF THE TESTS

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for determining the correlations between all predictive instruments included in this study and success in reading consisted of the raw scores made on (1) the Detroit Word Test, (2) the Betts Oculmotor and Perception Habits Tests, Level One, (3) the Metropolitan Achievement Test, Form A, (4) teacher's marks in general scholarship, (5) the Metropolitan Reading Test, Form A, and (6) teacher's marks in reading scholarship in May, 1938.

IV. METHOD OF PROCEDURE

This study was conducted in a normal public school situation, wherein all the variations common to any given school population might be present. Special care was used to preserve the same plan of grouping pupils for instructional purposes and the usual methods of instruction practiced in first grade public school classrooms, by urging that all teachers concerned follow their customary routine of procedures.

In selecting the 167 cases used in this investigation only those pupils were included who (1) were beginning first grade pupils regularly enrolled in the Hobbs, New Mexico, public schools during the 1937-1938 term of school; (2) had no previous public school experience; and (3) were actually in school when the predictive tests were given in September, 1937, and when the achievement measures were administered.

for determining the correlation between the two variables. The results of the analysis are presented in Table 1. The results show that there is a significant positive correlation between the two variables. The correlation coefficient is .45, which is significant at the .05 level. This indicates that as the independent variable increases, the dependent variable also tends to increase.

IV. CONCLUSIONS

This study was conducted to determine the relationship between the two variables. The results of the study indicate that there is a significant positive correlation between the two variables. This suggests that the independent variable has a positive effect on the dependent variable. The findings of this study have important implications for the field of research. Further research is needed to explore the underlying mechanisms of this relationship.

In collecting the data for this study, several factors were taken into account. The sample was selected to be representative of the population. The data collection process was rigorous and followed established protocols. The results of the study are based on the analysis of the collected data. It is important to note that the study has some limitations, and the findings should be interpreted with caution. The study provides a foundation for further research in this area.

V. ORGANIZATION OF REMAINDER OF THESIS

The remainder of this thesis is divided into five chapters. Chapter II presents a review of related literature.

Chapter III is an outline of the procedure followed by the investigator in making this study.

Chapter IV is concerned with a study of the correlation between the binocular factors of reading readiness as determined by the Visual Sensation and Perception Tests of Betts Ready to Read Tests, (administered in the fall of 1937), and success in learning to read as revealed by standardized tests and teacher's marks (administered in the spring of 1938).

Chapter V sets forth a comparative study of the correlation between other standardized reading readiness tests, including teacher's ratings of first grade pupils (administered in the fall of 1937), and reading achievement as revealed by standardized tests and teacher's marks (administered in the spring of 1938).

The final chapter gives a summary of the findings and presents the conclusions of the investigation.

V. SUMMARY OF RESULTS

The results at this stage are presented in the following chapters. Chapter II describes the general experimental method.

Chapter III is devoted to the study of the effect of the concentration of the reactants on the rate of reaction.

Chapter IV is concerned with a study of the effect of the temperature on the rate of reaction.

Chapter V is devoted to the study of the effect of the presence of a catalyst on the rate of reaction.

Chapter VI is devoted to the study of the effect of the presence of an inhibitor on the rate of reaction.

Chapter VII is devoted to the study of the effect of the presence of a solvent on the rate of reaction.

Chapter VIII is devoted to the study of the effect of the presence of a salt on the rate of reaction.

Chapter IX is devoted to the study of the effect of the presence of a gas on the rate of reaction.

Chapter X is devoted to the study of the effect of the presence of a liquid on the rate of reaction.

Chapter XI is devoted to the study of the effect of the presence of a solid on the rate of reaction.

Chapter XII is devoted to the study of the effect of the presence of a plasma on the rate of reaction.

Chapter XIII is devoted to the study of the effect of the presence of a vacuum on the rate of reaction.

Chapter XIV is devoted to the study of the effect of the presence of a magnetic field on the rate of reaction.

Chapter XV is devoted to the study of the effect of the presence of an electric field on the rate of reaction.

CHAPTER II

REVIEW OF RELATED LITERATURE

Many recent investigations of the relationship between reading readiness and reading achievement have been made on the assumption that the co-ordinate visual efficiency or the binocular co-ordination of the eyes is essential to success in learning to read.

I. REVIEW OF RELATED STUDIES

Betts,² who is one of the leaders in the field of visual readiness for reading and who has developed tests to reveal visual defects, states that the binocular co-ordination required in reading was not subject to scientific study until the development of the material on "visual sensation and perception" and "oculomotor habits" used in the Betts Ready to Read Tests. His very excellent description of the tests follows:

The Betts Ready to Read Tests are devised to appraise the co-ordinate action of the eyes. The chief factors contributing to the validity of the tests of visual sensation and perception are: First, each eye is tested

² Emmett Albert Betts, "A Physiological Approach to the Analysis of Reading Disabilities," The Educational Research Bulletin, 13:135-40, 163-74, September 19 and October 17, 1934.

CHAPTER I

REVIEW OF RELATED LITERATURE

Very recent investigations of the relationship between reading readiness and reading achievement have been made on the assumption that the relationship is a function of the binocular co-ordination of the eyes in reading to succeed in learning to read.

1. REVIEW OF RELATED LITERATURE

Passa,² who is one of the first to have investigated visual readiness for reading and who has suggested that visual details, when they are observed, are a function of the readiness to read, has not reported any correlation between the readiness to read and the readiness to read. His very striking results are as follows:

The data seem to lead to the conclusion that the co-ordination of the eyes is not a function of the readiness to read, but that the co-ordination of the eyes is a function of the readiness to read and the readiness to read.

² Edward Albert Passa, "The Relationship Between the Analysis of Reading Readiness and the Binocular Co-ordination of the Eyes," *Journal of Experimental Psychology*, 1931, 15: 1-12, December, 1931, p. 12.

independently while both eyes are seeing. This is accomplished by a dissociation of the eyes. The eye which is not being tested can look at a blank surface, while the seeing eye is being tested without the subject's awareness of the phenomena. Second, binocular co-ordination which is essential to rapid and efficient reading habits is appraised. Muscle imbalance, near-point and far-point fusion, and stereopsis level are tested. Third, binocular acuity, as well as the acuity of each eye, is tested.³

Wagner,⁴ in investigating the maturation of certain visual functions and the relationship between these functions and success in reading and arithmetic, used the Betts Ready to Read Tests for measuring certain physiological functions of the eye which are related to binocular vision. The tests were given during the last month of the school year to 850 children in grades kindergarten to six, inclusive, of the Syracuse, New York, public schools. The test scores were correlated with teachers' marks for the same year in reading and arithmetic. He concluded:

The differences in visual functioning between good and poor readers are small, and in some cases, perhaps, due to chance. However, the fact that in almost every case the difference favors the good readers supports the general hypothesis that visual inefficiencies, as revealed by the Betts battery, are basically associated

³ Ibid., p. 164.

⁴ Guy W. Wagner, "The Maturation of Certain Visual Functions and the Relationship Between These Functions and Success in Reading and Arithmetic," (Psychological Monograph No. 215 Iowa City, Iowa, University of Iowa, 1937), pp. 108-146.

with poor reading at the age levels considered in this study.⁵

Selzer⁶ constructed stereoscopic tests for studying lateral balance and distance fusion, and examined thirty-three poor readers and one hundred unselected school children. Ninety per cent of the poor readers displayed heterophoria, while only nine of the one hundred unselected school children exhibited similar defects. His conclusions were:

Conditions of muscle imbalance and alternating of vision, in addition to a lack of fusion, . . . account for such reading disability as are not accounted for by general mental disability. The lack of visual fusion is due to muscle imbalance that has existed from birth or early infancy.⁷

Witty and Kopel⁸ investigated the relationship between visual defects and reading disability. Their experimental group consisted of the one hundred poorest readers in grades three to six, inclusive, of the Evanston, Illinois, public schools. A control group was selected from the same grades and schools. All children were examined for eye con-

⁵ Ibid., p. 146.

⁶ Charles A. Selzer, "Lateral Dominance and Distance Fusion." (Harvard Monographs in Education, No. 12 Cambridge, Massachusetts: Harvard University Press, 1933), 119 pp.

⁷ Ibid., p. 119.

⁸ Paul A. Witty and David Kopel, "Heterophoria and Reading Disability," Journal of Educational Psychology, 5:222-230, March, 1936.

with your reading of the new laws, contained in this study.

Several controlled experiments were conducted

to determine the effect of the new laws on the

three post-war years, and the results are given in

Table I. It is seen that the new laws have had a

marked effect, while only some of the other measures

adopted after the war have had any effect. The results

are:

1. The number of cases of child abuse and neglect has
decreased from 1,200 in 1945 to 800 in 1950.
2. The number of cases of child labor has decreased from
1,500 in 1945 to 1,000 in 1950.
3. The number of cases of child prostitution has decreased
from 2,000 in 1945 to 1,500 in 1950.
4. The number of cases of child delinquency has decreased
from 3,000 in 1945 to 2,500 in 1950.

It is seen that the new laws have had a marked effect

on the three post-war years, and the results are given in

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from 2,000 in 1945 to 1,500 in 1950.

4. The number of cases of child delinquency has decreased

from 3,000 in 1945 to 2,500 in 1950.

dition with the Betts visual tests. An analysis of the data led to the following conclusions:

The cause of reading disability (as an entity) lies in no single visual factor. Every visual (defect) item considered seems to play a relatively negligible role in the attainment of good and poor readers. Nevertheless, normal vision is indubitably essential to maximum attainment. Therefore it is highly desirable that each child, upon entrance to school and at regular intervals thereafter, should receive thorough ophthalmological study. When this attention is not available, the teacher, nurse, or school psychologist will find apparatus such as the Keystone Ophthalmic Telebinocular helpful in isolating quickly many serious visual defects. In every case of reading disability search should be made for visual difficulties. Such information is a vital item in the comprehensive individual diagnosis which should precede remedial endeavor.⁹

Fendrick¹⁰ paired sixty-four poor readers with an equal number of good readers in grades two and three of the New York City schools and tested them for eye condition with the Betts apparatus. The results revealed a lack of relationship between ocular anomalies or deficiencies and the degree of reading disability, except where teaching methods rely preponderantly upon visual techniques. Since most systems for teaching beginning reading stress the ability to make visual discrimination between word forms, Fendrick's conclusion that there is a relationship between eye condition and

⁹ Ibid., p. 230.

¹⁰ Paul Fendrick, "Visual Characteristics of Poor Readers," (Teachers College Contributions to Education, No. 656 New York: Bureau of Publications, Teachers College, Columbia University, 1935), 54 pp.

dition with the best visual... led to the following...

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success in reading where teaching methods rely preponderantly upon visual techniques is significant.

Smith and Jensen¹¹ state that the investigation of the vision of school children began some years ago, but that only recently a movement has been started to make this work usable in determining reading readiness, and that the Betts Ready to Read Tests should have real value in the determination of reading readiness.

Dean¹² states that lack of visual efficiency may be a serious drawback to children in their school work. He found that 10 to 22 per cent of first grade entrants had defective vision, but that, according to present evidence, nervous instability, restlessness, headaches, and other results of visual deficiency do not impair reading efficiency at the first grade level to the extent that prediction of success or failure can be based on the absence or presence of visual defects.

II. SUMMARY

An analysis of the investigations reviewed in this

¹¹ Charles A. Smith and Myrtle R. Jensen, "Educational, Psychological, and Physiological Factors in Reading Readiness, II," Elementary School Journal, 36:683-691, May, 1936.

¹² Charles D. Dean, "Predicting First Grade Reading Achievement," Elementary School Journal, 39:609-616, April, 1939.

chapter reveals contradictory findings regarding the relationship between vision and success in learning to read, both in the light of results and the techniques used to obtain these results. Typical of the two points of view most commonly held are the studies described below.

Wagner,¹³ after using the Betts Ready to Read Tests to examine 850 children in grades kindergarten to six, inclusive, of the Syracuse, New York, public schools during the last month of the school year concluded that the differences in visual functioning between good and poor readers were small, and in some cases, perhaps, due to chance.

On the other side Selzer,¹⁴ after constructing stereoscopic tests for studying lateral eye balance and distance fusion, and examining thirty-three poor readers and one hundred unselected school children, concluded that conditions of muscle imbalance and alternating vision, in addition to a lack of distance fusion, accounts for such reading disabilities as are not accounted for by general mental disability.

These investigations reveal an interest in the physical phenomena of vision on the part of research workers

¹³ Wagner, op. cit., p. 146.

¹⁴ Selzer, op. cit., p. 119.

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and a definite need for additional investigations and experiments, which will produce evidence for the determination of proper standards in the field of vision.

and a definite need for additional research in the field of
health, which will require a systematic approach to the study of
proper procedure in the field of health.

CHAPTER III

THE CONDUCTION OF THE INVESTIGATION

A normal public school population of beginning first grade pupils was selected for this investigation. This group presented within itself all the variations which might be common to any given public school situation. Special care was used to preserve the ordinary plan of grouping pupils and the usual methods of instruction practiced in first grade public school classrooms, by urging that all teachers concerned follow their customary routine of classroom procedures.

I. SELECTION OF CASES

In selecting the 167 cases used in this investigation, only those pupils were included who (1) were beginning first grade pupils regularly enrolled in the Hobbs, New Mexico, public schools during the 1937-1938 term of school; (2) had no previous public school experience; and (3) were actually in attendance when all tests, including both group and individual prognostic and achievement tests, were administered.

II. TESTING PROCEDURE

The prognostic tests used in this study were given in September, 1937. The achievement measures were administered

The following is a list of the names of the persons who were present at the meeting held on the 15th day of August, 1907, at the residence of Mr. J. H. [Name] in the city of [City], State of [State].

A list of the names of the persons who were present at the meeting held on the 15th day of August, 1907, at the residence of Mr. J. H. [Name] in the city of [City], State of [State].

The following is a list of the names of the persons who were present at the meeting held on the 15th day of August, 1907, at the residence of Mr. J. H. [Name] in the city of [City], State of [State].

The following is a list of the names of the persons who were present at the meeting held on the 15th day of August, 1907, at the residence of Mr. J. H. [Name] in the city of [City], State of [State].

The following is a list of the names of the persons who were present at the meeting held on the 15th day of August, 1907, at the residence of Mr. J. H. [Name] in the city of [City], State of [State].

In testimony whereof, I have hereunto set my hand and the seal of the said [Organization] at the city of [City], State of [State], this 15th day of August, 1907.

[Signature]

[Title]

The foregoing is a true and correct copy of the original as the same appears in the records of the [Organization] at the city of [City], State of [State], this 15th day of August, 1907.

[Signature]

[Title]

eight months later to the same pupils in May, 1938.

All group tests were administered by the writer. With the exception of the teacher's rating, all individual tests were given by the investigator and two assistants, each using the same prearranged procedure.

III. BETTS READY TO READ TESTS

Three different batteries of Betts Ready to Read Tests were used in this investigation. First, the Visual Sensation and Perception Tests, which in reality are twelve individual tests, were used as tests of important binocular functions of the eyes. Second, the Word Form and Auditory Span Tests, which are the basic tests of Betts Visual and Auditory Readiness Tests, were used as reading readiness tests. And third, the Oculomotor and Perception Habits Test, Level One, which is designed to measure the individual pupil's habits of word perception and two-eyed reading tendencies as he views the test through the lens system of the Keystone Ophthalmic Telebinocular,¹⁵ was used as a measure of reading achievement.

The Visual Sensation and Perception Tests were administered in September, 1937 for the purpose of determining

¹⁵ Emmett Albert Betts, The Prevention and Correction of Reading Disabilities (Evanston, Illinois: Row, Peterson and Company, 1936), pp. 162-163.

eight months later in the same year, 1933.
All group tests were conducted in the field.
With the exception of the "memory" test, all individual
tests were given by the same person and the individual
each being the same person, respectively.

III. TEST RESULTS

Three different methods of testing were used.
Tests were used in this order: (1) the "memory"
test, (2) the "reading" test, and (3) the "writing"
test. Twelve individuals were used in each of the three
different methods of testing. The "memory" test was
and another group test, which was the "writing" test.
Before Visual and Memory tests were given, the
reading test was given. In the "writing" test,
the individual had to write a letter and the
name of the individual with the letter of the alphabet
and two-eyed reading test was given. The
through the lens which is the "writing" test.
The Visual test was given in the order of the
writing, reading, and memory tests. The
individuals in the order of the writing, reading,
and memory tests.

¹⁰ See also other tests, "The Visual Test" and "The Memory Test" of Reading Instruction (Linnell, 1933, pp. 1-10) and (Linnell, 1933, pp. 1-10).

the value of these vision tests as prognostic tests of reading achievement.

In addition to the various other tests by other authors, the Betts Word Form and Auditory Span Tests of reading readiness were administered in September, 1937.

The Oculmotor and Perception Habits Test, Level One, was given in May, 1938, as an achievement measure for the purpose of determining the correlation between the factors of binocular vision as measured by the Visual Sensation and Perceptions Tests, and this telebinocular test of the efficiency of the eyes in letter, number, and word recognition skills.

IV. OTHER PROGNOSTIC AND ACHIEVEMENT MEASURES USED IN THIS STUDY

For the purpose of comparing the prognostic usefulness of the Visual Sensation and Perception Tests of the Betts Ready to Read Tests with the predictive values of certain commonly used devices for determining reading readiness, (1) Monroe's Reading Aptitude Test, (2) the Metropolitan Readiness Test, (3) Pressey's Primary Classification Test, and (4) Pintner-Cunningham's Primary Mental Test were included in this study as standardized reading readiness tests.

A teacher's rating scale of first grade pupils is

The value of these variables is determined by the reading assignment.

In addition to the reading assignment, the student is required to read the textbook, the article, and the assigned reading. The assignment is given in the form of a reading assignment and is given in the form of a reading assignment. The purpose of determining the relationship between the reading of the assigned reading and the reading of the assigned reading is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading.

Reading assignments are given in the form of a reading assignment and are given in the form of a reading assignment. The purpose of determining the relationship between the reading of the assigned reading and the reading of the assigned reading is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading.

IV. CONCLUSION

The purpose of this study is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading. The purpose of this study is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading. The purpose of this study is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading.

The purpose of this study is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading. The purpose of this study is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading. The purpose of this study is to determine the relationship between the reading of the assigned reading and the reading of the assigned reading.

A teacher's reading assignment is given in the form of a reading assignment.

a predictive measure used by all teachers either consciously or unconsciously. Consequently, the writer felt that this investigation would be incomplete without correlating the teacher's rating of the reading readiness of her pupils with reading achievement at the end of the year.

The teacher's rating scale¹⁶ used in this study was co-operatively constructed by the investigator and the six first grade teachers employed in the Hobbs public schools during the 1937-1938 term of school, and used in September, 1937, by the teachers as an objective standard of reference for rating all first grade pupils considered in this study.

Another measuring device used by all teachers to indicate school success or failure is the teacher's marks recorded on the report card. Hence, in keeping with an attempt to make this investigation of as much practical worth as possible, teachers' marks¹⁷ were correlated with each prognostic measure.

Teachers' marks and teachers' rating of first grade pupils were converted into scores by arbitrarily allowing five points for an excellent rating, four points for a good rating, three points for an average rating, two points for a poor rating, and one point for rating of failure on

¹⁶ Cf. post, p. 60, Appendix B.

¹⁷ Cf. post, p. 61, Appendix B.

a productive research... or unconsciously... investigation would be... teacher's review of the... teaching activities... The teacher's... co-operatively... first grade teacher... during the 1957-1958... 1957, by the... for writing... another... indicate school... recorded on the... attempt to... work as possible... each progressive... Teacher's... points were observed... five points... good E... for a poor...

each item so rated. The teacher's rating of first grade pupils contained five separate items, teacher's marks in general scholarship twenty-one items, and teacher's marks in reading scholarship four items.

V. STATISTICAL PROCEDURES

The Bi-Serial Correlation Method¹⁸ was used for finding the correlations between each of the Visual Sensation and Perception Tests of the Betts Ready to Read Tests and the achievement measures used in this study. The pupil's response on each of these tests was simply indicated as passing or failing according to the standards recommended by Betts.¹⁹ Hence, the method of correlation used is identical with that used for correlating the responses a class makes on a certain item of a true false test with their total scores on the same test. This method was not only easier to handle statistically but was perhaps more accurate than the Pearson Product-Moment Method of Correlation²⁰ would have been, because no assumed means were used.

¹⁸ Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Company, 1938), p. 367.

¹⁹ Betts, op. cit., pp. 323-350.

²⁰ Harry A. Greene, Workbook in Educational Measurements: Form B (New York: Longmans, Green and Company, 1936), pp. 76-84.

each from so far as the teacher's...
pupils continue the...
general abolition of...
in feeding...
the...
The...
ing the...
and...
movement...
on each...
falling...
Hence, the...
used for...
less of...
same...
statistical...
Pedagogical...
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10 Henry A. ...
Education ...
p. 301.
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VI. SUMMARY

An unselected public school population of 167 beginning first grade pupils was given the Visual Sensation and Perception Tests of the factors of binocular vision for the purpose of determining the importance of each of these tests as predictive measures of future success in learning to read.

Other predictive measures, including Betts Word Form and Auditory Span Tests, Pressey's Primary Classification Test, the Pintner-Cunningham Primary Mental Test, the Metropolitan Readiness Test, Monroe's reading Aptitude Test, teachers' rating of first grade pupils, and chronological age, were correlated with reading achievement for the purpose of comparison with the Visual Sensation and Perception Tests as to their relative values as reading readiness tests.

The responses to each of the twelve Visual Sensation and Perception Tests were simply classified as passing or failing and correlated with reading achievement by the bi-serial correlation method. The raw scores²¹ of the other predictive measures mentioned above were correlated with reading achievement by the Pearson Product-Moment Correlation Method.

²¹ Cf. post, p. 58, Appendix A.

An unaltered copy of the original
 remains in the hands of the
 original possessor and is not
 for the purpose of distribution
 these books are printed in
 limited quantities.

Other printed books, including
 and including the book, are
 first, the highest quality
 material is used in the
 process of printing and
 are printed on a high
 of paper and the
 as to their relative value.

The result is that the
 and therefore their value
 falling and increasing
 biennially published books
 other printed books
 also need to be printed

The Detroit Word Test, the Betts Oculomotor and Perception Habits Test, Level One, the Metropolitan Achievement Test, Form A, teachers' marks in general scholarship, the Metropolitan Reading Test, Form A, and teachers' marks in reading scholarship were used as measures of reading achievement or success in learning to read.

devised to appraise the binocular as well as the monocular vision of the eyes under conditions simulating the conditions of reading. (1) appraising the binocular co-ordination of the eyes under such working conditions as reading, (2) testing the blackboard distance, (3) testing each eye separately while both eyes are seeing as habitually, (4) testing the binocular two-eyed visual efficiency as well as the efficiency of each eye.

The purpose of this chapter is to describe each of the twelve Visual Sensation and Perception Tests, to present the question each test is designed to answer, to outline the nature of a successful response, to summarize the responses made by the 127 pupils to the tests, and to show the relationship of each of the tests with reading achievement.

Dr. Samuel Albert Betts, *The Prevention of Reading Difficulties* (Evanson, Illinois: Educational Testing House and Company, 1928), pp. 163-164 and 223-224.

CHAPTER IV

THE FACTORS OF BINOCULAR VISION IN READING READINESS

Betts²² states that all tests of the Visual Sensation and Perception Tests of Betts Ready to Read Tests are devised to appraise the binocular or co-ordinate action of the eyes under conditions simulating the reading process by (1) appraising the binocular co-ordination efficiency of the eyes under such working conditions as reading distance and blackboard distance, (2) testing each eye independently while both eyes are seeing as habitually, and (3) determining two-eyed visual efficiency as well as the acuity of each eye.

The purpose of this chapter is briefly to describe each of the twelve Visual Sensation and Perception Tests, to present the question each test is designed to answer, to outline the nature of a successful response in each case, to summarize the responses made by the 167 first grade pupils to the tests, and to show the bi-serial correlation of each of the tests with reading achievement.

²² Emmett Albert Betts, The Prevention and Correction of Reading Difficulties (Evanston, Illinois: Row, Peterson and Company, 1936), pp. 163-164 and 323-350.

I. DOES BINOCULAR VISION EXIST?

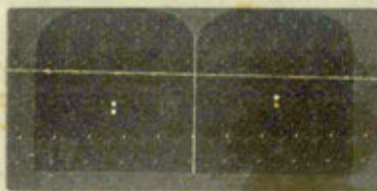


In this first test the above picture is viewed through the lens system of the Keystone Ophthalmic Telebinocular. It is designed to secure the immediate interest of the child in the tests and to enable the examiner to detect one-eyed vision.

Normal response. The dog should be seen jumping through the hoop.

Results. All the pupils passed this test, none failed. Consequently no correlations were calculated between the responses on this test and the achievement measures.

II. IS FUSION NORMAL AT BLACKBOARD DISTANCE?



The purpose of this test is to appraise the individual's

1. The first part of the document is a letter from the Secretary of the Board of Directors to the Shareholders.

2. The second part is a report on the activities of the Board during the year.

3. The third part is a report on the financial results of the company.

4. The fourth part is a report on the operations of the company.

5. The fifth part is a report on the legal and administrative matters.

6. The sixth part is a report on the general management of the company.

7. The seventh part is a report on the future prospects of the company.

8. The eighth part is a report on the shareholders' meeting.

9. The ninth part is a report on the general state of the company.

10. The tenth part is a report on the general state of the industry.

11. The eleventh part is a report on the general state of the economy.

12. The twelfth part is a report on the general state of the world.



The above report is submitted to the Shareholders for their consideration and approval.

Yours faithfully,
Secretary of the Board of Directors

fusion power for isolated letter-size images at blackboard distance.

Normal performance. Normal eyes will quickly fuse the four balls into three.

Results. Sixty-two passed, 105 failed, and the bi-serial correlation with the various achievement measures were as follows:

Detroit Word Test	Bis _r	.117
Oculmotor and Perception Habits Test, Level one	Bis _r	.093
Metropolitan General Achievement Test	Bis _r	.063
Teachers' Marks, General Scholarship	Bis _r	.099
Metropolitan Reading Achievement Test	Bis _r	.097
Teachers' Marks, Reading Scholarship	Bis _r	.080

III. ARE BOTH EYES EFFICIENT, WORKING TOGETHER?

This is a test of the visual efficiency of both eyes.

Normal performance. Dots appear in each of the signs

These were for lateral lateral-like in position of the
diaphragm.

Normal respiratory - normal in all respects
the four pairs of ribs.

Results, Sixty-two cases, 1911-1912, were
diagnosed as follows:

- 1. Normal respiratory
- 2. Normal respiratory
- 3. Normal respiratory
- 4. Normal respiratory
- 5. Normal respiratory
- 6. Normal respiratory
- 7. Normal respiratory
- 8. Normal respiratory
- 9. Normal respiratory
- 10. Normal respiratory
- 11. Normal respiratory
- 12. Normal respiratory
- 13. Normal respiratory
- 14. Normal respiratory
- 15. Normal respiratory
- 16. Normal respiratory
- 17. Normal respiratory
- 18. Normal respiratory
- 19. Normal respiratory
- 20. Normal respiratory
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- 22. Normal respiratory
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- 24. Normal respiratory
- 25. Normal respiratory
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- 45. Normal respiratory
- 46. Normal respiratory
- 47. Normal respiratory
- 48. Normal respiratory
- 49. Normal respiratory
- 50. Normal respiratory
- 51. Normal respiratory
- 52. Normal respiratory
- 53. Normal respiratory
- 54. Normal respiratory
- 55. Normal respiratory
- 56. Normal respiratory
- 57. Normal respiratory
- 58. Normal respiratory
- 59. Normal respiratory
- 60. Normal respiratory
- 61. Normal respiratory
- 62. Normal respiratory

III. THE LATERAL-LIKE TYPE

This was found at the time of the
Normal respiratory.

before each eye and normally are fused into one dot for each sign. The score increases as the pupil successfully responds as increasingly smaller signs are presented. A score of 100 per cent is considered normal or passing.

Results. One hundred forty-eight made a normal response, nineteen failed, and the bi-serial correlations were as follows:

Detroit Word Test	Bis _r	.201
Oculomotor and Perception Habits Test, Level One	Bis _r	.154
Metropolitan General Achievement Test	Bis _r	.126
Teachers' Marks, General Scholarship	Bis _r	.232
Metropolitan Reading Achievement Test	Bis _r	.152
Teachers' Marks, Reading Scholarship	Bis _r	.184

IV. IS THE LEFT EYE EFFICIENT, BOTH EYES WORKING TOGETHER?



The purpose of this test is to test the sharpness of the vision of the left eye.

before each eye and usually air forced into one eye for each
eye. The acute inflammation of the eye is usually relieved
as indicated by smaller signs are presented. A course of 100
per cent is considered a trial of success.

Results. The number forty-eight were a total of
specimens, including later, the eye of each of the specimens are

as follows:

100	Eye	Eye
100	Eye	Eye
100	Eye	Eye
100	Eye	Eye
100	Eye	Eye
100	Eye	Eye
100	Eye	Eye

IV. IS THE EYE THE SOURCE
OF BOTH THE TONIC AND TONIC

The purpose of this study is to find the amount of
the vision of the eye.

Normal performance. There are no dots in the signs before the right eye; therefore, the visual efficiency of the left eye is checked while both eyes are seeing as habitually. The score increases as the pupil successfully responds as increasingly smaller signs are presented. A score of ninety per cent or above is considered normal.

Results. One hundred twenty-six passed this test, forty one failed, and the bi-serial correlations with the six achievement devices used in this investigation were as follows:

Detroit Word Test	Bis _r	.175
Oculmotor and Perception Habits Test, Level one	Bis _r	.129
Metropolitan General Achievement Test	Bis _r	.174
Teachers' Marks, General Scholarship	Bis _r	.185
Metropolitan Reading Achievement Test	Bis _r	.137
Teachers' Marks, Reading Scholarship	Bis _r	.132

V. IS THE RIGHT EYE EFFICIENT,
BOTH EYES WORKING TOGETHER?



The purpose of this test is to check the sharpness

of the vision of the right eye while the left eye is seeing also.

Normal performance. There are no dots in the signs before the left eye; therefore, the visual efficiency of the right eye is checked while the left eye is also seeing. The score increases as the pupil successfully responds as increasingly smaller signs are presented. A score of ninety per cent or above is considered passing.

Results. One hundred fifty three tested normal, fourteen failed, and the bi-serial correlations were as follows:

Detroit Word Test	Bis _r	.111
Oculmotor and Perception Habits Test, Level one	Bis _r	.116
Metropolitan General Achievement Test	Bis _r	.090
Teachers' Marks, General Scholarship	Bis _r	.163
Metropolitan Reading Achievement Test	Bis _r	.094
Teachers' Marks, Reading Scholarship	Bis _r	.165

VI. ARE THE EYES BALANCED VERTICALLY?

This test is designed to determine whether or not the

of the Union of the States, and the...
also.

General Instructions. The...
before the...
right eye is...
score...
creasing...
per cent...

Results. The...
fourteen...

Detroit...
Operator and...
Test, Level...

Horizontal...
Test...

Vertical...
Horizontal...
Advancement...

Vertical...
Horizontal...

VI. THE...

This test is...

the eyes function in the same horizontal plane.

Normal performance. If the individual sees the line superimposed upon any part of the ball, his response is considered normal.

Results. One hundred sixty-six passed this test, and only one failed. Consequently, no bi-serial correlations were figured for this test.

VII. HAS DEPTH PERCEPTION BEEN DEVELOPED?



The purpose of this test is to measure the individual's eye co-ordination power.

Normal performance. One of the five figures in each row stands out apparently nearer to the person being examined than do any of the other four figures. The score is the per cent of eye co-ordination for the last row of figures read promptly and correctly. A score of 100 per cent is considered normal.

Results. Only thirty-seven tested normal, and 140 failed. The bi-serial correlations with achievement were as follows:

The organ function in the same horizontal plane.

Normal performance. In the horizontal plane the line
superimposed upon any part of the ball, his response is
considered normal.

Positive. One hundred sixty-six cases were tested, and
only one failed. Consequently, no bilateral deviations
were figured for this test.

VII. HAS BEEN KNOWN TO BE NORMAL.

The purpose of this test is to measure the individual's
eye co-ordination power.

Normal performance. One of the five fingers in each
row stands out apparently nearer to the person being examined
than do any of the other four fingers. The accuracy of the per-
cent of eye co-ordination for the test was 75 percent.
Promptly and correctly. A score of 100 per cent is considered
normal.

Positive. Only thirty-seven cases tested normal, and 140 failed.
The bilateral deviations with adjustment were as follows:

Detroit Word Test	Bis _r	.218
Oculmotor and Perception Habits Test, Level one	Bis _r	.163
Metropolitan General Achievement Test	Bis _r	.209
Teachers' Marks, General Scholarship	Bis _r	.287
Metropolitan Reading Achievement Test	Bis _r	.167
Teachers' Marks, Reading Scholarship	Bis _r	.265

VIII. IS LATERAL EYE BALANCE AT DISTANCE NORMAL?

The purpose of this test is to determine the tendency of the eyes to turn in or out or to remain normally parallel for blackboard distance seeing.

Normal performance. The range of tolerance is to see the pointer somewhere from 7 to 11 inclusive.

Results. One hundred forty-four successfully passed this test, twenty-three failed, and the bi-serial correlations with achievement were as follows:

Detroit Word Test	Bis _r	.080
-------------------	------------------	------

Detroit, Mich. 1911
 Dear Sir,
 I have the honor to acknowledge the receipt of your letter of the 14th inst. in relation to the above matter.
 I am sorry to hear that you are unable to visit Detroit at this time.
 I am, Sir, very respectfully,
 Yours,
 J. W. ...

VIII. THE ...

The first of the ...
 of the eye to ...
 for ...

Normal ...
 the ...

...
 this ...
 ...

...
 ...

Oculmotor and Perception Habits Test, Level one	Bis _r	.067
Metropolitan General Achievement Test	Bis _r	.002
Teachers' Marks, General Scholarship	Bis _r	.035
Metropolitan Reading Achievement Test	Bis _r	.030
Teachers' Marks, Reading Scholarship	Bis _r	.044

IX. IS LATERAL EYE BALANCE
AT READING DISTANCE NORMAL?



This test is the same as Test VIII except that the slide holder is set at reading distance for this test and at blackboard distance for Test VIII. Its purpose is to determine the tendency of the eyes to turn in or out or to remain normally parallel for reading distance seeing.

Normal performance. The range of tolerance for seeing the pointer is anywhere from 3 to $6\frac{1}{2}$ inclusive.

Results. One hundred sixty-one successfully passed this test, while only six failed. The bi-serial correla-

100	100	100	100
100	100	100	100
100	100	100	100
100	100	100	100
100	100	100	100

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

This case is the same as that which was decided in the case of *United States v. ...* and the same principles apply. The court in that case held that the government is not required to prove that the defendant had a specific intent to defraud at the time of the transaction. It is sufficient to show that the defendant acted with a general intent to defraud.

Legal questions. The legal questions presented in this case are: (1) Whether the government is required to prove that the defendant had a specific intent to defraud at the time of the transaction; and (2) Whether the government is required to prove that the defendant acted with a general intent to defraud.

Results. The court in this case has held that the government is not required to prove that the defendant had a specific intent to defraud at the time of the transaction. It is sufficient to show that the defendant acted with a general intent to defraud.

tions were as follows: ~~results were as follows:~~

Detroit Word Test	Bis _r	-.059
Oculmotor and Perception Habits Test, Level one	Bis _r	-.092
Metropolitan General Achievement Test	Bis _r	-.107
Teachers' Marks, General Scholarship	Bis _r	-.023
Metropolitan Reading Achievement Test	Bis _r	-.117
Teachers' Marks, Reading Scholarship	Bis _r	-.091

X. IS FUSION NORMAL AT READING DISTANCE?

~~THIS TEST AT READING DISTANCE~~



This test provides an index to the individual's fusion ability at reading distance and is not to be confused with Test II, which is used to appraise the individual's fusion power for isolated letter size images.

Normal performance. Normal fusion at reading distance will fuse the four balls into three instantly.

Results. One hundred twelve possessed normal fusion at reading distance, fifty-five did not, and the bi-serial

shown were as follows:

Year	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Production	100	100	100	100	100	100	100	100	100	100
Consumption	100	100	100	100	100	100	100	100	100	100
Exports	100	100	100	100	100	100	100	100	100	100
Imports	100	100	100	100	100	100	100	100	100	100
Stocks	100	100	100	100	100	100	100	100	100	100

APPENDIX I - STATISTICAL DATA



This table provides a summary of the statistical data for the period 1951-1960. The data is presented in a tabular format, with the years listed in the columns and the various statistical categories listed in the rows. The values are normalized to 100 for the base year 1951.

The following table shows the production and consumption of the commodity in question, along with the corresponding export and import figures. The data is presented in a tabular format, with the years listed in the columns and the various statistical categories listed in the rows.

The following table shows the stocks of the commodity in question, along with the corresponding production and consumption figures. The data is presented in a tabular format, with the years listed in the columns and the various statistical categories listed in the rows.

correlations with achievement were as follows:

Detroit Word Test	Bis _r	.112
Oculmotor and Perception Habits Test, Level one	Bis _r	.090
Metropolitan General Achievement Test	Bis _r	.085
Teachers' Marks, General Scholarship	Bis _r	.096
Metropolitan Reading Achievement Test	Bis _r	.087
Teachers' Marks, Reading Scholarship	Bis _r	.212

XI. IS THERE MINIMUM ACUITY FOR
FINE PRINT AT READING DISTANCE?

This test is used to detect errors of focus caused by farsightedness, nearsightedness, and astigmatism which interfere with efficient vision at reading distance.

Normal performance. The subject should see three lines in each of the test balls, A, D, and E for the left eye, and test balls 1, 4, and 5 for the right eye.

Results. One hundred sixteen passed this test, fifty-

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

This part is used to
by
... ..
Medical examination. The
... ..
... ..
Results.

one failed, and the bi-serial correlations were as follows:

Detroit Word Test	Bis _r	.165
Oculmotor and Perception Habits Test, Level one	Bis _r	.235
Metropolitan General Achievement Test	Bis _r	.213
Teachers' Marks, General Scholarship	Bis _r	.268
Metropolitan Reading Achievement Test	Bis _r	.216
Teachers' Marks, Reading Scholarship	Bis _r	.247

XII. IS THERE MINIMUM SHARPNESS
OF IMAGE AT DISTANCE?

This test is used to detect errors of focus caused by farsightedness, nearsightedness, and astigmatism which interfere with efficient vision at blackboard distance.

Normal performance. The subject should see three lines in each of the test balls B, C, and F for the left eye, and test balls 2, 3, and 6 for the right eye.

Results. One hundred five made normal responses,

one failed, and the 21-yr-old girl died.

Medical history: ...

Onset of symptoms: ...

Physical examination: ...

Investigations: ...

Diagnosis: ...

Prognosis: ...

Treatment: ...

Outcome: ...

Discussion: ...

References: ...

Conclusion: ...

Summary: ...

Key words: ...

Abstract: ...

Introduction: ...

Materials and Methods: ...

Results: ...

Discussion: ...

Conclusion: ...

References: ...

Summary: ...

Key words: ...

Abstract: ...

Introduction: ...

Materials and Methods: ...

Results: ...

Discussion: ...

Conclusion: ...

sixty-two failed, and the bi-serial correlations with achievement were as follows:

Detroit Word Test	Bis _r	.114
Oculmotor and Perception Habits Test, Level one	Bis _r	.135
Metropolitan General Achievement Test	Bis _r	.152
Teachers' Marks, General Scholarship	Bis _r	.255
Metropolitan Reading Achievement Test	Bis _r	.156
Teachers' Marks, Reading Scholarship	Bis _r	.236

XIII. SUMMARY

The purpose of this chapter was to determine the correlation between reading achievement and the factors of binocular vision as measured by the Visual Sensation and Perception Tests of the Betts tests. The question presented by Test I, Does binocular vision exist? was answered in the affirmative, as all of the 167 cases were found to possess two-eyed vision. Consequently, this test was not correlated with reading achievement.

The correlation of blackboard distance fusion with reading achievement ranged from .063 with the Metropolitan Achievement Test to .117 with the Detroit Word Test.

The efficiency of both eyes correlated from .126 with the Metropolitan Achievement Test to .232 with teachers'

sixty-two failed, and the 61-second correlations with
achievement were as follows:

110	110	Detroit word Test
115	115	Compositor and Perceptual Habits Test, Level one
120	120	Metropolitan General Achievement Test
125	125	Teachers' Marks, General Scholarship
130	130	Metropolitan Reading Achievement Test
135	135	Teachers' Marks, Reading Scholarship

XIII. GENERAL

The purpose of this chapter was to determine the
correlation between reading achievement and the factors
of binocular vision as measured by the Visual Separation
and Perception Tests of the Bessie tests. The question
presented by Test I, Does binocular vision exist was
answered in the affirmative, as all of the 107 cases were
found to possess two-eyed vision. Consequently, this test
was not correlated with reading achievement.

The correlation of blackboard distance found with
reading achievement ranged from .065 with the Metropolitan
Achievement Test to .117 with the Detroit word Test.

The efficiency of both eyes correlated from .120 with
the Metropolitan Achievement Test to .238 with the Detroit

marks in general scholarship, the left eye from .129 with Betts Oculmotor and Perception Habits Test, Level One, to .185 with teachers' marks in general scholarship, and the right eye from .090 with the Metropolitan Achievement Test to .165 with teachers' marks in reading scholarship.

Only one child was found to have vertically imbalanced eyes. Consequently no correlations were made between this test and reading achievement.

The correlation between depth perception or coordination level and reading achievement ranged from .167 with Betts Oculmotor and Perception Habits Test, Level One, to .287 with teachers' marks in general scholarship.

The correlation between reading achievement and lateral eye balance ranged from $-.023$ with teachers' marks in general scholarship to $-.117$ with the Metropolitan Reading Test.

Reading distance fusion correlated with reading achievement from .085 with the Metropolitan Achievement Test to .212 with teachers' marks in reading scholarship.

The correlation between reading achievement and minimum acuity for fine print ranged from .165 with the Detroit Word Test to .268 with teachers' marks in general scholarship, while sharpness of image at blackboard distance ranged from .114 with the Detroit Word Test to .255 with teachers' marks in general scholarship.

CHAPTER V

OTHER PROGNOSTIC TESTS USED IN THIS STUDY

Since the value of the Betts vision tests as predictive measures of reading achievement have by the data thus far presented been found open to serious question, the writer felt that if other tests or devices more simple and less expensive were found to be just as effective as the Betts tests, such information would have definite practical value for first grade teachers. Consequently, the writer felt justified in including other group and individual tests of reading readiness in this study.

I. BETTS WORD FORM TEST²³

The purpose of this test is to determine reading readiness by analyzing the individual's ability to discriminate rapidly between (1) long and short words; (2) variations within words having like beginnings and endings; (3) words subject to total reversals; and (4) words, parts of which are subject to reversals.

The Betts Word Form Test was given in September, 1937, and its raw score correlations with reading achievement were as follows:

²³ Betts, op. cit., pp. 314-316.

THESE RESULTS ARE DISCUSSED IN THE

It is the purpose of this paper to discuss the results of the present study in the manner of testing the hypothesis that the results of the present study are similar to those of other studies of the same type. It is felt that the results of the present study are similar to those of other studies of the same type. It is felt that the results of the present study are similar to those of other studies of the same type.

1. INTRODUCTION

The purpose of this paper is to discuss the results of the present study in the manner of testing the hypothesis that the results of the present study are similar to those of other studies of the same type. It is felt that the results of the present study are similar to those of other studies of the same type. It is felt that the results of the present study are similar to those of other studies of the same type.

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as follows:

Detroit Word Test	r	.478 ± .040
Oculmotor and Perception Habits Test, Level one	r	.384 ± .042
Metropolitan General Achievement Test	r	.397 ± .041
Teachers' Marks, General Scholarship	r	.281 ± .044
Metropolitan Reading Achievement Test	r	.436 ± .041
Teachers' Marks, Reading Scholarship	r	.374 ± .042

II. BETTS AUDITORY SPAN TEST²⁴

This test is designed to indicate the tendency of the subject to confuse and reverse letter and word-sounds heard spoken by others.

The Betts Auditory Span Test was also given in September, 1937, and its raw scores were correlated with reading achievement with the following results:

Detroit Word Test	r	.382 ± .042
Oculmotor and Perception Habits Test, Level one	r	.215 ± .048
Metropolitan General Achievement Test	r	.413 ± .041
Teachers' Marks, General Scholarship	r	.293 ± .044
Metropolitan Reading Achievement Test	r	.376 ± .042

²⁴ Betts, op. cit., pp. 318-319.

1910

Director and Secretary
T. J. ...

Medical Director
...

Teachers' ...
...

Medical Director
...

Teachers' ...
...

This text is a response to the ...
the subject of ...
heard ...

The ...
September, 1910, ...
...

Director and Secretary
T. J. ...

Medical Director
...

Teachers' ...
...

Medical Director
...

Teachers' ...
...

...

Teachers' Marks, Reading Scholarship	r	.348 \pm .043
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III. PRESSEY'S PRIMARY CLASSIFICATION TEST

This test is designed to appraise certain skills or abilities necessary to do first grade work, such as the individual's ability to (1) take directions, (2) classify objects, (3) dot patterns, and (4) locate absurdities.

Pressey's Primary Classification Test was given in September, 1937, and its correlations with reading achievement based on raw scores were as follows:

Detroit Word Test	r	.611 \pm .033
Oculmotor and Perception Habits Test, Level one	r	.404 \pm .041
Metropolitan General Achievement Test	r	.523 \pm .037
Teachers' Marks, General Scholarship	r	.303 \pm .044
Metropolitan Reading Achievement Test	r	.523 \pm .037
Teachers' Marks, Reading Scholarship	r	.409 \pm .041

IV. PINTNER-CUNNINGHAM PRIMARY MENTAL TEST

The purpose of this test, rather widely used with kindergarten, first, and second grade children, is to measure the mental ability of the child through the responses he makes to tests of (1) common observation, (2) aesthetic

III. PRIMARY SCHOOL-LEVEL TESTS

This test is designed to measure the reading ability of children in the primary school level. It is based on the reading material used in the primary school curriculum. The test is divided into three parts: (1) the reading passage, (2) the comprehension questions, and (3) the writing task. The reading passage is a short story about a boy who likes to read. The comprehension questions are multiple choice and short answer. The writing task is a short story about a boy who likes to read.

Test Level	Test Level	Test Level
General and Professional	General	General
Test Level	Test Level	Test Level
Metropolitan General	Metropolitan General	Metropolitan General
Achievement Test	Achievement Test	Achievement Test
Teachers' Marks, General	Teachers' Marks, General	Teachers' Marks, General
Sociolinguistic	Sociolinguistic	Sociolinguistic
Metropolitan Reading	Metropolitan Reading	Metropolitan Reading
Achievement Test	Achievement Test	Achievement Test
Teachers' Marks, Reading	Teachers' Marks, Reading	Teachers' Marks, Reading
Sociolinguistic	Sociolinguistic	Sociolinguistic

IV. FURTHER-CONSIDERATION

The purpose of this test is to measure the reading ability of children in the primary school level. It is based on the reading material used in the primary school curriculum. The test is divided into three parts: (1) the reading passage, (2) the comprehension questions, and (3) the writing task. The reading passage is a short story about a boy who likes to read. The comprehension questions are multiple choice and short answer. The writing task is a short story about a boy who likes to read.

differences, (3) associated objects, (4) size discrimination, (5) picture parts, and (6) picture completion.

The Pintner-Cunningham Primary Mental Test was also given in September, 1937, and the correlations of the raw scores made on this test with those made on the reading achievement measures were as follows:

Detroit Word Test	r	.597 ± .034
Oculomotor and Perception Habits Test, Level one	r	.313 ± .044
Metropolitan General Achievement Test	r	.543 ± .035
Teachers' Marks, General Scholarship	r	.318 ± .044
Metropolitan Reading Achievement Test	r	.517 ± .038
Teachers' Marks, Reading Scholarship	r	.438 ± .041

V. METROPOLITAN READINESS TEST

This test is a battery of six tests designed to indicate the subject's readiness for reading through an analysis of his responses to a total of 124 items. The pictorial method is applied to all the tests in this battery.

The Metropolitan Readiness Test was administered in September, 1937, and the correlations between the raw scores on this test and those made on the six tests or devices used for measuring success in learning to read were as follows:

Detroit Word Test	r	.683 ± .028
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Aluminum, (3) account of the
also, (3) account of the
The following table shows the

given in October, 1937, and the
shown in this table are the
achieved in various years as follows:

Year	Production (tons)	Consumption (tons)	Exports (tons)	Imports (tons)
1937	1,000	1,000	0	0
1938	1,000	1,000	0	0
1939	1,000	1,000	0	0
1940	1,000	1,000	0	0
1941	1,000	1,000	0	0
1942	1,000	1,000	0	0
1943	1,000	1,000	0	0
1944	1,000	1,000	0	0
1945	1,000	1,000	0	0
1946	1,000	1,000	0	0
1947	1,000	1,000	0	0
1948	1,000	1,000	0	0
1949	1,000	1,000	0	0
1950	1,000	1,000	0	0
1951	1,000	1,000	0	0
1952	1,000	1,000	0	0
1953	1,000	1,000	0	0
1954	1,000	1,000	0	0
1955	1,000	1,000	0	0
1956	1,000	1,000	0	0
1957	1,000	1,000	0	0
1958	1,000	1,000	0	0
1959	1,000	1,000	0	0
1960	1,000	1,000	0	0

This table is a summary of the
also the following information
analysis of the production
physical output of the
The following table shows the
October, 1937, and the
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also the following information
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The following table shows the
October, 1937, and the
on this table and the
for comparing purposes is
Details are given

Oculmotor and Perception Habits Test, Level one	r	.507 \pm .037
Metropolitan General Achievement Test	r	.642 \pm .031
Teachers' Marks, General Scholarship	r	.402 \pm .041
Metropolitan Reading Achievement Test	r	.619 \pm .032
Teachers' Marks, Reading Scholarship	r	.504 \pm .039

VI. MONROE'S READING APTITUDE TEST

This battery of tests consists of both group and individual items, and is designed to measure those aptitudes most essential to success in learning to read, namely, visual, auditory, motor, articulation, and language aptitudes.

Monroe's Reading Aptitude Test was administered in September, 1937, and the total raw scores made on the five aptitude tests included in this battery of tests correlated with reading achievement as follows:

Detroit Word Test	r	.481 \pm .040
Oculmotor and Perception Habits Test, Level one	r	.440 \pm .041
Metropolitan General Achievement Test	r	.557 \pm .035
Teachers' Marks, General Scholarship	r	.556 \pm .035
Metropolitan Reading Achievement Test	r	.291 \pm .044
Teachers' Marks, Reading Scholarship	r	.576 \pm .034

Director and Professor
Test, Level one

Instructional
Achievement Test

Teachers, Staff, General
Scholarship

Instructional
Achievement Test

Teachers, Staff, General
Scholarship

The Test

This test is a...
Individual items, and...
which most essential...
visual, auditory, and...
codes.

Director and Professor
September, 1951, and...
achieve tests...
with reading achievement...

Test, Level one

Director and Professor
Test, Level one

Instructional
Achievement Test

Teachers, Staff, General
Scholarship

Instructional
Achievement Test

Teachers, Staff, General
Scholarship

VI. TEACHER'S RATING OF FIRST GRADE PUPILS

This rating scale was devised for the purpose of obtaining the objective opinion of classroom teachers of each pupil's readiness for reading in terms of ability to learn, emotional stability, social adjustment, and personal habits of initiative and industry. This is an adaptation of an idea used by Wright²⁵ in his prognostic study of reading readiness.

The correlations between teacher predictions and actual achievements were as follows:

Detroit Word Test	r	.391 ± .042
Oculomotor and Perception Habits Test, Level one	r	.418 ± .041
Metropolitan General Achievement Test	r	.397 ± .042
Teachers' Marks, General Scholarship	r	.542 ± .035
Metropolitan Reading Achievement Test	r	.409 ± .041
Teachers' Marks, Reading Scholarship	r	.504 ± .039

VIII. CHRONOLOGICAL AGE IN MONTHS

The correlations between chronological age and success

²⁵ Wendell William Wright, Reading Readiness-- A Prognostic Study (Bulletin of School of Education, Vol. 12 No. 3, Bloomington, Indiana: Indiana University, 1936), p. 8.

VI. TEACHER'S RATING OF FIRST GRADE PUPILS

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The correlations between teacher predictions and actual achievements were as follows:

0.351 ± .023	r	Detroit Word Test
0.418 ± .041	r	Combinator and Perception Habits Test, Level one
0.387 ± .043	r	Metropolitan General Achievement Test
0.343 ± .038	r	Teachers' Marks, General Scholarship
0.402 ± .041	r	Metropolitan Reading Achievement Test
0.304 ± .039	r	Teachers' Marks, Reading Scholarship

VIII. CHRONOLOGICAL AGE IN MONTHS

The correlations between chronological age and success

²⁵ Wendell William Wright, Reading Readiness-- A Progressive Study (Bulletin of Bureau of Education, Vol. 12, No. 3, Bloomington, Indiana: Indiana University, 1933), p. 8.

in reading as indicated by academic achievement were as follows:

Detroit Word Test	r	.106 ± .050
Oculmotor and Perception Habits Test, Level one	r	-.033 ± .052
Metropolitan General Achievement Test	r	.028 ± .052
Teachers' Marks, General Scholarship	r	-.158 ± .047
Metropolitan Reading Achievement Test	r	.038 ± .052
Teachers' Marks, Reading Scholarship	r	-.108 ± .050

IX. SUMMARY

From the standpoint of median correlations the three best predictive instruments were found to be: (1) The Metropolitan Readiness Test with a median correlation of .563 ranged from .402 ± .041 with teacher's marks in general scholarship to .683 ± .028 with the Detroit Word Test. (2) The Monroe Reading Aptitude Test with a median correlation of .519 ranged from .291 ± .044 with the Metropolitan reading Test to .576 ± .034 with teacher's marks in reading scholarship. (3) The Pintner-Cunningham Primary Mental Test with a median correlation of .478 ranged from .313 ± .044 with Betts Oculmotor Perception Habits Test, Level One, to .597 ± .034 with the Detroit Word Test.

in reading as indicated by standard achievement tests as

follows:

100	100	100	100	100	100
90	90	90	90	90	90
80	80	80	80	80	80
70	70	70	70	70	70
60	60	60	60	60	60
50	50	50	50	50	50
40	40	40	40	40	40
30	30	30	30	30	30
20	20	20	20	20	20
10	10	10	10	10	10
0	0	0	0	0	0

II. SUMMARY

From the standpoint of reading comprehension the three best predictive instruments were found to be (1) The Reading Police Reading Test with a median correlation of .752 ranged from .602 to .902 with the Metropolitan Achievement Test; (2) The Reading Police Reading Test with a median correlation of .712 ranged from .562 to .862 with the Metropolitan Achievement Test; (3) The Reading Police Reading Test with a median correlation of .672 ranged from .522 to .822 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .632 ranged from .482 to .782 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .592 ranged from .442 to .742 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .552 ranged from .402 to .702 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .512 ranged from .362 to .662 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .472 ranged from .322 to .622 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .432 ranged from .282 to .582 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .392 ranged from .242 to .542 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .352 ranged from .202 to .502 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .312 ranged from .162 to .462 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .272 ranged from .122 to .422 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .232 ranged from .082 to .382 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .192 ranged from .042 to .342 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .152 ranged from .002 to .302 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .112 ranged from .000 to .262 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .072 ranged from .000 to .222 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .032 ranged from .000 to .182 with the Metropolitan Achievement Test. The Reading Police Reading Test with a median correlation of .000 ranged from .000 to .142 with the Metropolitan Achievement Test.

Pressey's Primary Classification Test ranked fourth as a predictive measure, with a median correlation of .466 which ranged from .303 \pm .044 with teachers' marks in general scholarship to .611 \pm .033 with the Detroit Word Test.

The teacher's rating of first grade pupils ranked next, with a median correlation of .414 which ranged from .391 \pm .041 with the Detroit Word Test to .542 \pm .035 with teachers' marks in general scholarship. It ranked ahead of both the Betts Word Form Test and the Betts Auditory Span Test as an instrument for predicting future success in learning to read.

The Betts Word Form Test had a median correlation of .391 with reading achievement, ranging from .261 \pm .044 with teachers' marks in general scholarship to .478 \pm .040 with the Detroit Word Test. The Betts Auditory Span Test had a median correlation of .362 ranging from .215 \pm .048 with Betts Oculomotor and Perception Habits Test, Level One, to .413 \pm .041 with the Metropolitan Achievement Test.

The lowest degrees of correlation between any prognostic test and reading achievement were those between chronological age and reading achievement. Chronological age had a median correlation of $-.072$ ranging from .028 \pm .052 with the Metropolitan Achievement Test to $-.158$ \pm .047 with teachers' marks in general scholarship.

Tracy's primary classification of the reading tests
as a predictive measure, with a median correlation of .405
which ranged from .305 to .505 with teachers' marks in general
correlating to .511 to .625 with the Detroit Word Test.
The teacher's rating of their own reading level
next, with a median correlation of .414 which ranged from
.321 to .501 with the Detroit Word Test to .505 to .625 with
teachers' marks in general correlating to .414 which ranged from
both the better word test and the better reading level
Test as an instrument for predicting future success in
learning to read.

The better word test had a median correlation of .414
with reading achievement, ranging from .321 to .501 with
teachers' marks in general correlating to .414 which ranged from
the Detroit Word Test. The better reading level test had a
median correlation of .505 ranging from .414 to .505
with teachers' marks in general correlating to .414 which ranged from
the Detroit Word Test. The lowest degree of correlation between the two
word tests and reading achievement were found between
chronological age and reading achievement. The lowest
age had a median correlation of .305 ranging from .205
to .405 with the Detroit Word Test to .305 to .405
with teachers' marks in general correlating to .305 to .405

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purposes of this investigation were (1) to determine the predictive values of the factors of binocular vision in reading readiness, as measured by the Visual Sensation and Perception Tests of Betts Ready to Read Tests, and (2) to compare the relative values of the Betts tests as measures of probable future success in reading with those of other group and individual standardized and non-standardized prognostic tests.

I. PROCEDURE

One hundred sixty-seven beginning first grade pupils enrolled in six regular classrooms of the Hobbs, New Mexico, public schools during the 1937-1938 term of school were given prognostic tests in September, 1937, and achievement tests eight months later in May, 1938, in an attempt to compare the usefulness of the Betts Ready to Read Tests with other devices for predicting success or failure in learning to read.

II. THE FACTORS OF BINOCULAR VISION IN READING READINESS

Table I gives a summary of the number who passed

The purpose of this study was to determine the effect of the treatment on the growth of the plants. The results of the study are shown in Table I. The data show that the treatment had a significant effect on the growth of the plants. The plants treated with the treatment showed a significant increase in height and weight compared to the control plants. The results of the study are shown in Table I.

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Table I shows the results of the study. The data show that the treatment had a significant effect on the growth of the plants. The plants treated with the treatment showed a significant increase in height and weight compared to the control plants. The results of the study are shown in Table I.

TABLE I
 RECORD OF 167 PUPILS ON THE BETTS
 VISUAL SENSATION AND PERCEPTION TESTS

Test	Purpose	Number passing	Number failing
1.	Does binocular vision exist?	167	0
2.	Is fusion normal at blackboard distance?	62	105
3.	Are both eyes efficient, working together?	148	19
4.	Is the left eye efficient, both eyes working together?	126	41
5.	Is the right eye efficient, both eyes working together?	153	14
6.	Are the eyes balanced vertically?	166	1
7.	Has depth perception been developed?	37	140
8.	Is lateral eye balance at blackboard distance normal?	144	23
9.	Is lateral eye balance at reading distance normal?	161	6
10.	Is fusion normal at reading distance?	112	55
11.	Is there minimum acuity for fine print at reading distance?	116	51
12.	Is there minimum sharpness of image at blackboard distance?	105	62

TABLE I

RECORD OF 187 POINTS ON THE BETTS
VISUAL ORIENTATION AND PERCEPTION TESTS

Test	Purpose	Number passing	Number Failing
1.	Does binocular vision exist?	187	0
2.	Is fusion normal at blackboard distance?	82	105
3.	Are both eyes efficient, working together?	148	39
4.	Is the left eye efficient, both eyes working together?	138	49
5.	Is the right eye efficient, both eyes working together?	133	54
6.	Are the eyes balanced vertically?	155	32
7.	Has depth perception been developed?	87	100
8.	Is lateral eye balance at blackboard distance normal?	144	43
9.	Is lateral eye balance at reading distance normal?	161	26
10.	Is fusion normal at reading distance?	112	75
11.	Is there minimum acuity for fine print at reading distance?	115	72
12.	Is there minimum sharpness of image at blackboard distance?	103	84

each of the twelve Betts Visual Sensation and Perception Tests. It will be noted that in only two of the tests were there more children who failed than passed. One hundred forty cases failed the depth perception test, and 105 the blackboard distance fusion test. It will also be noted that all the children were found to possess two-eyed vision, and that only one child had vertically imbalanced eyes.

Table II gives a summary of the bi-serial correlations found to exist between the Betts Visual Sensation and Perception Tests and each of the six measures of reading achievement used in this study.

With the exception of lateral eye balance at reading distance, which had a negative correlation with reading achievement, all the Betts Visual Sensation and Perception Tests were found to have a positive correlation with reading achievement. However, the degree of correlation was less than .200 for five of the tests, and below .288 for all the tests.

Consequently, the relationship between responses made to the Betts Visual Sensation and Perception Tests and later success in reading, as measured by the six reading achievement measures used in this study, is of little or no significance in the light of the findings of this investigation. That is, the degrees of correlation are entirely too low to

each of the twelve Beta Visual Sensation and Perception Tests. It will be noted that in only two of the tests were there more children who failed than passed. One hundred forty cases failed the depth perception test, and 108 the blackboard distance fusion test. It will also be noted that all the children were found to possess two-eyed vision, and that only one child had vertically imbalanced eyes.

Table II gives a summary of the bi-ocular correlations found to exist between the Beta Visual Sensation and Perception Tests and each of the six measures of reading achievement used in this study.

With the exception of lateral eye balance at reading distance, which had a negative correlation with reading achievement, all the Beta Visual Sensation and Perception Tests were found to have a positive correlation with reading achievement. However, the degree of correlation was less than .300 for five of the tests, and below .200 for all the tests.

Consequently, the relationship between responses made to the Beta Visual Sensation and Perception Tests and later success in reading, as measured by the six reading achievement measures used in this study, is of little or no significance in the light of the findings of this investigation. That is, the degrees of correlation are entirely too low to

TABLE II

BI-SERIAL CORRELATIONS BETWEEN THE BETTS VISUAL SENSATION AND PERCEPTION TESTS AND SIX READING ACHIEVEMENT MEASURES

Betts Visual Sensation and Perception Tests	Achievement measures					
	Detroit Word Test	Oculmotor and Perception Habits Test	Metropolitan Achievement Test	Teachers' marks in general scholarship	Metropolitan Reading Test	Teachers' marks in general scholarship
*Does binocular vision exist?	.117	.093	.063	.099	.097	.080
Is fusion normal at blackboard distance?	.201	.154	.126	.232	.152	.184
Are both eyes efficient, working together?	.175	.129	.174	.165	.137	.132
Is the left eye efficient, both eyes working together?	.111	.116	.090	.163	.094	.165
Is the right eye efficient, both eyes working together?	.218	.163	.209	.267	.167	.265
*Are the eyes balanced vertically?	.080	.067	.002	.035	.030	.044
Has depth perception been developed?	-.059	-.092	-.107	-.073	-.117	-.091
Is lateral eye balance at reading distance normal?	.112	.090	.085	.096	.087	.212
Is fusion normal at reading distance?	.165	.235	.213	.268	.216	.247
Is there minimum acuity for fine print at reading distance?	.114	.135	.152	.255	.156	.236
Is there minimum sharpness of image at blackboard distance?						

*This test was not correlated with reading achievement.

1900

1901

1902

1903

1904

1905

1906

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1908

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THE PROVISIONS OF THE ACT RELATIVE TO THE REGISTRATION OF VOTERS

indicate that these tests of the factors of binocular vision have any value as reading readiness tests.

III. OTHER PROGNOSTIC TESTS USED IN THIS STUDY

Table III shows the degree of correlation and the probable error of the correlation between the raw scores of each of the eight predictive instruments included in this study for comparison with Betts Visual Sensation and Perception Tests, and the raw scores of each of the six measures of reading achievement.

It will be noted that all the correlations were positive, with the exception of chronological age, which had a slightly negative near-zero correlation with reading achievement. The median correlations of the other seven predictive tests with reading achievements, ranging from .362 for Betts Auditory Span Test to .563 for the Metropolitan Readiness Test, were much higher than the correlations between the Betts Visual Sensation and Perception Tests and reading achievement, which ranged from a near-zero correlation for the eye imbalance tests to a median correlation of only .225 for acuity for fine print at reading distance.

However, the correlations between Betts Word Form and Auditory Span Tests and reading achievement are too low,

indicate that these tests of the factors of reading achievement
have any value as reading readiness tests.

III. OTHER PSYCHOTIC TESTS USED IN THIS STUDY

Table III shows the degree of correlation between the
probable error of the correlation between the two tests
of each of the eight predictive instruments included in
this study for comparison with Table I and I₁. The
reduction tests, and the raw scores of each of the
measures of reading achievement.

It will be noted that all the correlations are
positive, with the exception of correlation 12, which
had a slightly negative near-zero correlation with reading
achievement. The rather low correlation of the reading
predictive tests with reading achievement, ranging from
.588 for Beta Auditory Span Test to .287 for the
Politeness Test, were much higher than the correla-
tions between the Beta Visual Span Test and reading
tests and reading achievement, which ranged from a near-
zero correlation for the eye balance test to a
correlation of only .303 for Beta for line length
reading distance.

However, the correlations between Beta and
and Auditory Span Tests and reading achievement are

TABLE III

PEARSON CORRELATIONS BETWEEN THE RAW SCORES OF EIGHT
READING READINESS MEASUREMENTS AND SIX READING ACHIEVEMENT MEASURES

Reading Readiness Tests	Achievement measures					
	Detroit Word Test	Oculmotor and Perception Habits Test, Level one	Metropolitan Achievement Test, Form A	Teachers' marks in General scholarship	Metropolitan Reading Test, Form A	Teachers' marks in General scholarship
Betts Word Form Test	.478±.040	.384±.042	.397±.041	.281±.044	.436±.041	.374±.042
Betts Auditory Span Test	.382±.042	.215±.048	.413±.041	.293±.044	.376±.042	.348±.043
Fressey's Primary Classification Test	.611±.033	.404±.041	.523±.037	.303±.044	.523±.037	.409±.041
Pintner-Cunningham Primary Mental Test	.597±.034	.313±.044	.543±.035	.318±.044	.517±.038	.438±.041
Metropolitan Readiness Test	.683±.028	.507±.037	.642±.031	.402±.041	.619±.032	.504±.039
Monroe's Reading Aptitude Test	.481±.040	.440±.041	.557±.035	.556±.035	.291±.044	.576±.034
Teachers' Rating of First Grade Pupils	.391±.042	.418±.041	.397±.042	.542±.035	.409±.041	.504±.039
Chronological Age in Months	.106±.050	-.033±.052	.028±.052	-.158±.047	.038±.052	-.108±.050

TABLE III

RESEARCH ON THE EFFECTS OF THE POLYMERIZATION OF ETHYLENE ON THE POLYMERIZATION OF ETHYLENE

Run No.	Time (min)	Temperature (°C)	Pressure (atm)	Conversion (%)	Yield (g)	Notes
1	10	40	10	10	1.0	Control
2	10	40	10	10	1.0	Control
3	10	40	10	10	1.0	Control
4	10	40	10	10	1.0	Control
5	10	40	10	10	1.0	Control
6	10	40	10	10	1.0	Control
7	10	40	10	10	1.0	Control
8	10	40	10	10	1.0	Control
9	10	40	10	10	1.0	Control
10	10	40	10	10	1.0	Control
11	10	40	10	10	1.0	Control
12	10	40	10	10	1.0	Control
13	10	40	10	10	1.0	Control
14	10	40	10	10	1.0	Control
15	10	40	10	10	1.0	Control
16	10	40	10	10	1.0	Control
17	10	40	10	10	1.0	Control
18	10	40	10	10	1.0	Control
19	10	40	10	10	1.0	Control
20	10	40	10	10	1.0	Control
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22	10	40	10	10	1.0	Control
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25	10	40	10	10	1.0	Control
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29	10	40	10	10	1.0	Control
30	10	40	10	10	1.0	Control
31	10	40	10	10	1.0	Control
32	10	40	10	10	1.0	Control
33	10	40	10	10	1.0	Control
34	10	40	10	10	1.0	Control
35	10	40	10	10	1.0	Control
36	10	40	10	10	1.0	Control
37	10	40	10	10	1.0	Control
38	10	40	10	10	1.0	Control
39	10	40	10	10	1.0	Control
40	10	40	10	10	1.0	Control
41	10	40	10	10	1.0	Control
42	10	40	10	10	1.0	Control
43	10	40	10	10	1.0	Control
44	10	40	10	10	1.0	Control
45	10	40	10	10	1.0	Control
46	10	40	10	10	1.0	Control
47	10	40	10	10	1.0	Control
48	10	40	10	10	1.0	Control
49	10	40	10	10	1.0	Control
50	10	40	10	10	1.0	Control

the median correlation being merely .391 for the Word Form Test and .362 for the Auditory Span Test, to justify their usage as tests of reading readiness.

The teachers' rating of first grade pupils, with a median correlation of .414, ranging from .391 \pm .041 with the Detroit Word Test to .542 \pm .035 with teacher marks in general scholarship, indicates that this device has possibilities as an instrument for predicting probable success in learning to read.

Assuming that each of the six measures of reading achievement was of equal value in measuring success in reading, and by finding the median correlation of each prognostic test with the six achievement measures, the eight prognostic tests were found to rank in descending order as tests of reading readiness as follows:

1. The Metropolitan Readiness Test
2. The Monroe Reading Aptitude Test
3. The Pintner-Cunningham Primary Mental Test
4. Pressey's Primary Classification Test
5. Teacher's rating of first grade pupils
6. Betts Word Form Test
7. Betts Auditory Span Test
8. Chronological age

IV. CONCLUSIONS AND INFERENCES

The median correlation being .751 for the first test and .788 for the auditory span test, the latter being usage as tests of reading readiness.

The teachers' rating of first grade pupils' reading readiness was .751, indicating that the median correlation of the reading test with the auditory span test was .788. This indicates that the reading test is a better predictor of reading readiness than the auditory span test. The latter is used as an instrument for predicting reading readiness in learning to read.

Assuming that each of the six measures of reading achievement was of equal value in predicting reading readiness, and by finding the median correlation of each prognostic test with the six achievement measures, the eight prognostic tests were found to rank in descending order as tests of reading readiness as follows:

1. The Metropolitan Readiness Test
2. The Kounce Reading Attitude Test
3. The Lintner-Dunningham Reading Readiness Test
4. Teacher's Rating of First Grade Pupils
5. First Grade Test
6. Pattern Auditory Span Test
8. Chronological Age

IV. CONCLUSIONS AND RECOMMENDATIONS

The writer has drawn the following conclusions and inferences from the findings of this investigation:

1. With all the correlations between the Betts Visual Sensation and Perception Tests of the factors of binocular vision and reading achievement being below .288 for all tests, the writer concludes that the Betts Visual Sensation and Perception Tests of the co-ordinate actions of the eyes cannot, therefore, be used as criteria for determining reading readiness.

2. While the median correlation between reading achievement and the vision tests of eye co-ordination or depth perception, visual acuity for fine print, two-eyed visual efficiency, and distance sharpness of image were approximately .200, all the correlations are too low to indicate that any of the Betts Visual Sensation and Perception Tests have any value as predictive measures of success in reading.

3. The near-zero correlations of the eye imbalance tests, both lateral and vertical, with reading achievement were the most insignificant of any of the vision test correlations.

4. The teachers' rating of first grade pupils, with a median correlation of .414 with the six achievement measures, with individual correlations ranging from .391 with the Detroit Word Test to .542 with teacher's marks in

The writer has tried to describe the

intention of the study, of which the

1. The first part of the study

Visual perception and reading

includes a study of the

for all people, the writer

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regarding reading

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measures, with

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general scholarship, seems to warrant further investigation as to the possibilities of a teacher's rating scale, when used under careful supervision, as a practical, inexpensive test of reading readiness.

5. The median correlation between each prognostic test and the six achievement measures with which it was correlated shows that the Metropolitan Readiness Test with a median correlation of .563, the Monroe Reading Aptitude Test with a median correlation of .519, the Pintner-Cunningham Primary Mental Test with a median correlation of .478, and Pressey's Primary Classification Test with a median correlation of .466, have the highest correlations with reading achievement of all the predictive instruments used in this study.

6. The median correlation between reading achievement and the Betts Word Form Test was .391, and the median correlation between reading achievement and the Betts Auditory Span Test was .362. These correlations are both so low as to indicate that neither of these individual tests is a valid criterion of reading readiness.

7. The slightly negative, near-zero correlation between chronological age and reading achievement suggests that chronological age is not a valid criterion of reading readiness.

generally uncorrelated, except in certain cases, as for example, in the case of the correlation of a patient's reading speed with the number of words read, which is highly correlated, and in the case of the correlation of a patient's reading speed with the number of words read, which is highly correlated.

5. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99.

6. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99. The median correlation between reading speed and the number of words read is .75, and the six highest correlations are .80, .85, .90, .95, .98, and .99.

7. The slightly negative, non-significant correlation between chronological age and reading achievement suggests that chronological age is not a valid criterion for the prediction of reading achievement.

V. RECOMMENDATIONS

The writer makes the following recommendations for further study and investigation:

1. That further study be made of the relation between reading achievement and vision tests of eye co-ordination or depth perception, visual acuity for fine print at reading distance, two-eyed visual efficiency, and sharpness of image at blackboard distance. The present study merely considers each tendency or factor as passing or failing. It is also the opinion of the writer that the tests used for such study would need to be more interesting and better adapted to the age of beginning first grade children and easier to score than the Betts Vision Tests.

2. That the possibilities of the average classroom teacher's ability to rate, under careful supervision, the reading readiness of beginning first grade children be determined through further study and investigation involving a large number of teachers in many different kinds of situations.

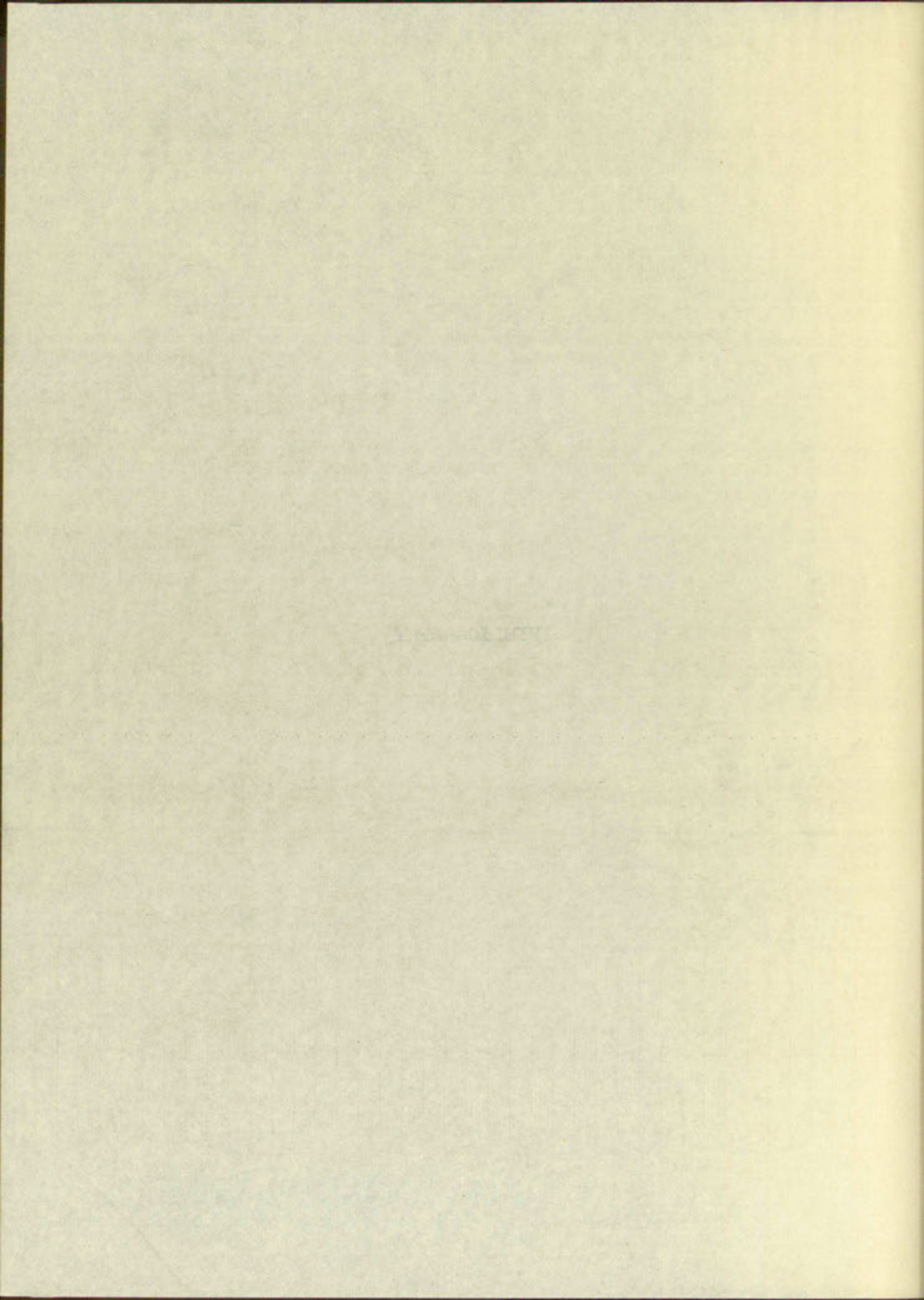
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It is also the intention of the author to determine the effect of ...

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APPENDIX A

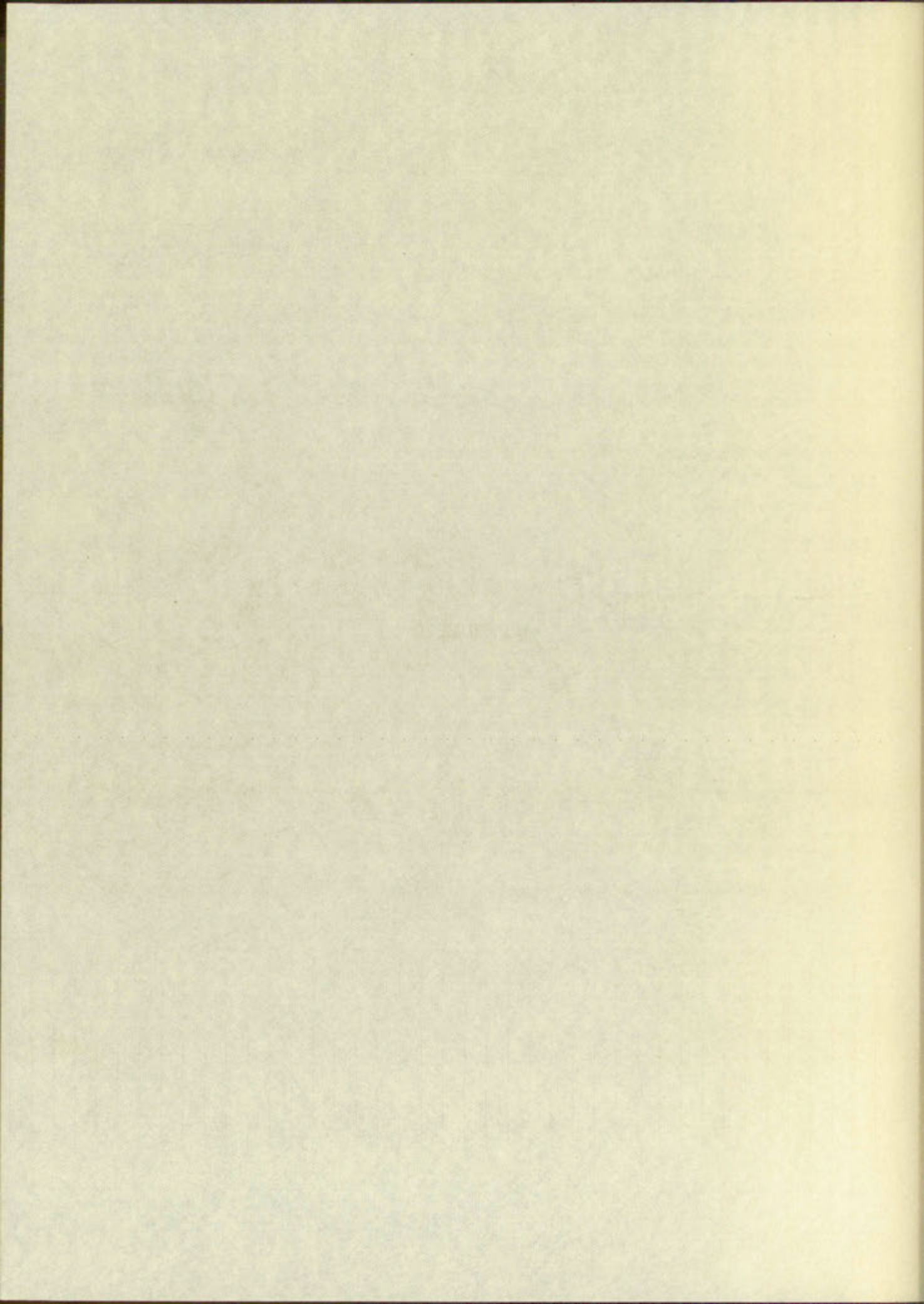


TABLE IV

ARITHMETIC MEANS AND STANDARD DEVIATIONS OF RAW SCORES
OF PROGNOSTIC MEASURES USED IN THIS INVESTIGATION

Test	Arithmetic Means	Standard Deviations
Betts Word Form Test	18.880	5.180
Betts Auditory Span Test	13.090	4.092
Pressly's Primary Classification Test	26.555	14.215
Pintner-Cunningham's Primary Mental Test	32.826	8.186
Metropolitan Readiness Test	82.994	16.416
Monroe's Reading Aptitude Test	47.305	19.141
Teachers' Rating of First Grade Pupils	16.898	3.864
Chronological Age (C. A.)	76.856	4.897
Mental Age (M. A.)	84.395	10.956
Intelligence Quotient (I. Q.)	108.359	15.296

Test	Result
Test 1	Pass
Test 2	Pass
Test 3	Pass
Test 4	Pass
Test 5	Pass
Test 6	Pass
Test 7	Pass
Test 8	Pass
Test 9	Pass
Test 10	Pass
Test 11	Pass
Test 12	Pass
Test 13	Pass
Test 14	Pass
Test 15	Pass
Test 16	Pass
Test 17	Pass
Test 18	Pass
Test 19	Pass
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Test 33	Pass
Test 34	Pass
Test 35	Pass
Test 36	Pass
Test 37	Pass
Test 38	Pass
Test 39	Pass
Test 40	Pass
Test 41	Pass
Test 42	Pass
Test 43	Pass
Test 44	Pass
Test 45	Pass
Test 46	Pass
Test 47	Pass
Test 48	Pass
Test 49	Pass
Test 50	Pass

TABLE V

ARITHMETIC MEANS AND STANDARD DEVIATIONS OF RAW SCORES
OF ACHIEVEMENT MEASURES USED IN THIS INVESTIGATION

Test	Arithmetic Means	Standard Deviations
Detroit Word Test	19.419	9.545
Oculmotor and Perception Habits Test, Level one	66.174	24.408
Metropolitan Achievement Test	98.491	30.023
Teachers' Marks, General Scholarship	73.928	11.578
Metropolitan Reading Achievement Test	48.776	19.575
Teachers' Marks, Reading Scholarship	13.832	2.847

TABLE V

ATTENDING INSTRUCTORS AND STUDENTS DIVISIONS OF LAW COURSES
ON ADJUSTMENT RESEARCH TEST IN THIS INVESTIGATION

Divisions	Attending Instructors	Test
2,343	19,419	General Test
24,408	28,174	General and Special Habits Test, Level one
30,022	28,491	Professional Achievement Test
11,328	75,923	Teachers' Work, General Scholarship
12,242	49,778	Professional Reading Achievement Test
1,247	12,832	Teachers' Work, Reading Scholarship

TABLE VI

RAW SCORES MADE BY EACH PUPIL ON EACH MEASURE USED IN THIS STUDY

PUPIL NO.	OTHER PROGNOSTIC TESTS USED IN THIS STUDY				ACTIVATION TESTS USED IN THIS STUDY									
	BETTS VISUAL SEPARATION AND PERCEPTION TESTS	Intelligence quotient (I.Q.)	Chronological age in months	Teacher's Rating of First Grade Pupils	Betta Word Test	Betta Auditory Span Test	Pressey's Primary Classification Test	Metropolitan Reading Readiness Test	Metropolitan Reading Aptitude Test	Teacher's Reading Habits Test, Level one	Metropolitan General Achievement Test	Teacher's Marks, General Scholarship	Metropolitan Reading Achievement Test	Teacher's Marks, Reading Achievement Test
1	100	100	60	100	100	100	100	100	100	100	100	100	100	100
2	95	95	55	95	95	95	95	95	95	95	95	95	95	95
3	90	90	50	90	90	90	90	90	90	90	90	90	90	90
4	85	85	45	85	85	85	85	85	85	85	85	85	85	85
5	80	80	40	80	80	80	80	80	80	80	80	80	80	80
6	75	75	35	75	75	75	75	75	75	75	75	75	75	75
7	70	70	30	70	70	70	70	70	70	70	70	70	70	70
8	65	65	25	65	65	65	65	65	65	65	65	65	65	65
9	60	60	20	60	60	60	60	60	60	60	60	60	60	60
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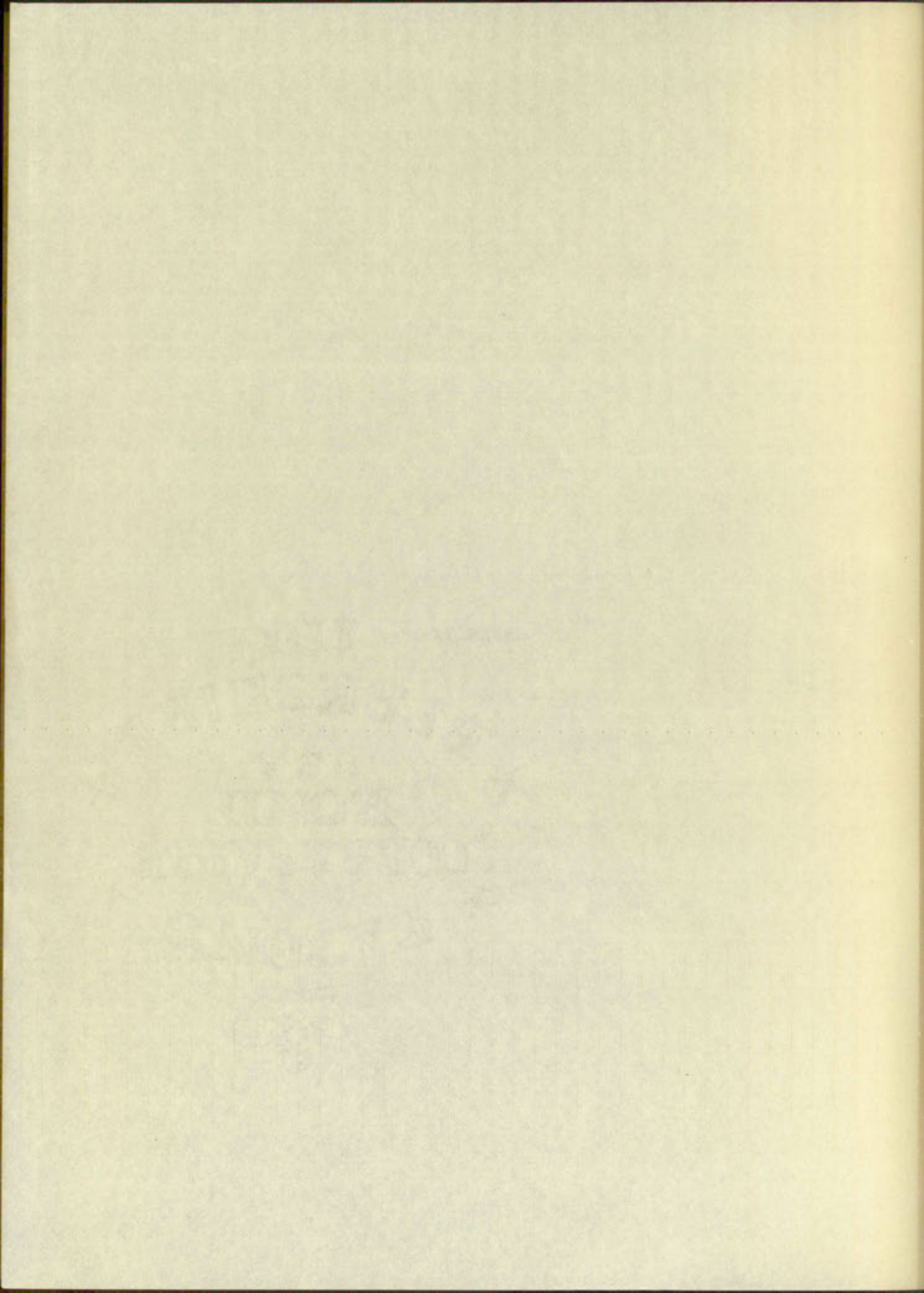
Very well
I am very
satisfied
with the
results
of the
work.

I am
very
satisfied
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results
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work.

APPENDIX B

Very well
I am very
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with the
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work.

Very well
I am very
satisfied
with the
results
of the
work.



Name of pupil _____ School _____

Date _____ Sex _____ Teacher _____

"Note" Check the division in which you think the pupil should be classified.

Social Adaptation

Excellent	Good	Average	Poor	Failing
Plays well with others				Interferes and is rough with others
Un-obtrusive				Shows off
Un-selfish and popular				Selfish and unpopular
Is at ease with teacher and group				Is timid and self conscious
Obedient, keeps order				Dis-obedient, creates confusion
Is usually mature				Is very im-mature, baby-ish

Personal Characteristics

Excellent	Good	Average	Poor	Failing
Independent, has initiative				Dependent; must be directed
Energetic, gives sustained attention				Lethargic, in-attentive, lazy
Persistent, imaginative				Gives up easily; un-imaginative
Careful, neat, quiet				Careless, messy, noisy
Purposeful, questioning				Aimless, in-curious
Not destructive or wasteful				Destructive and wasteful
Stable and self confident				Confused and uncertain

Emotional Stability

Excellent	Good	Average	Poor	Failing
Cheerful, non variable mood				Grave, variable mood
Not nervous or self conscious				Nervous, self conscious, excitable
Deliberative, controls tears				Impulsive, cries easily
Is a good sport, controls temper				Is stubborn and sulky, shows temper
Enjoys school				Is bored and afraid
Spontaneous and venturesome				Restrained and timid
Patient and forgiving				Impatient and revengeful

Ability to Learn

Excellent	Good	Average	Poor	Failing
Quick and bright				Very slow and dull
Stable and mature				Confused, uncertain, baby-ish
Excellent background of experiences				Poor background of experiences
Fine attitude toward learning				Poor attitude toward learning
Proper attitude toward effort				Wrong attitude toward effort
Good health				Physical health undermined
Has good learning habits				Has poor learning habits

Reading Readiness

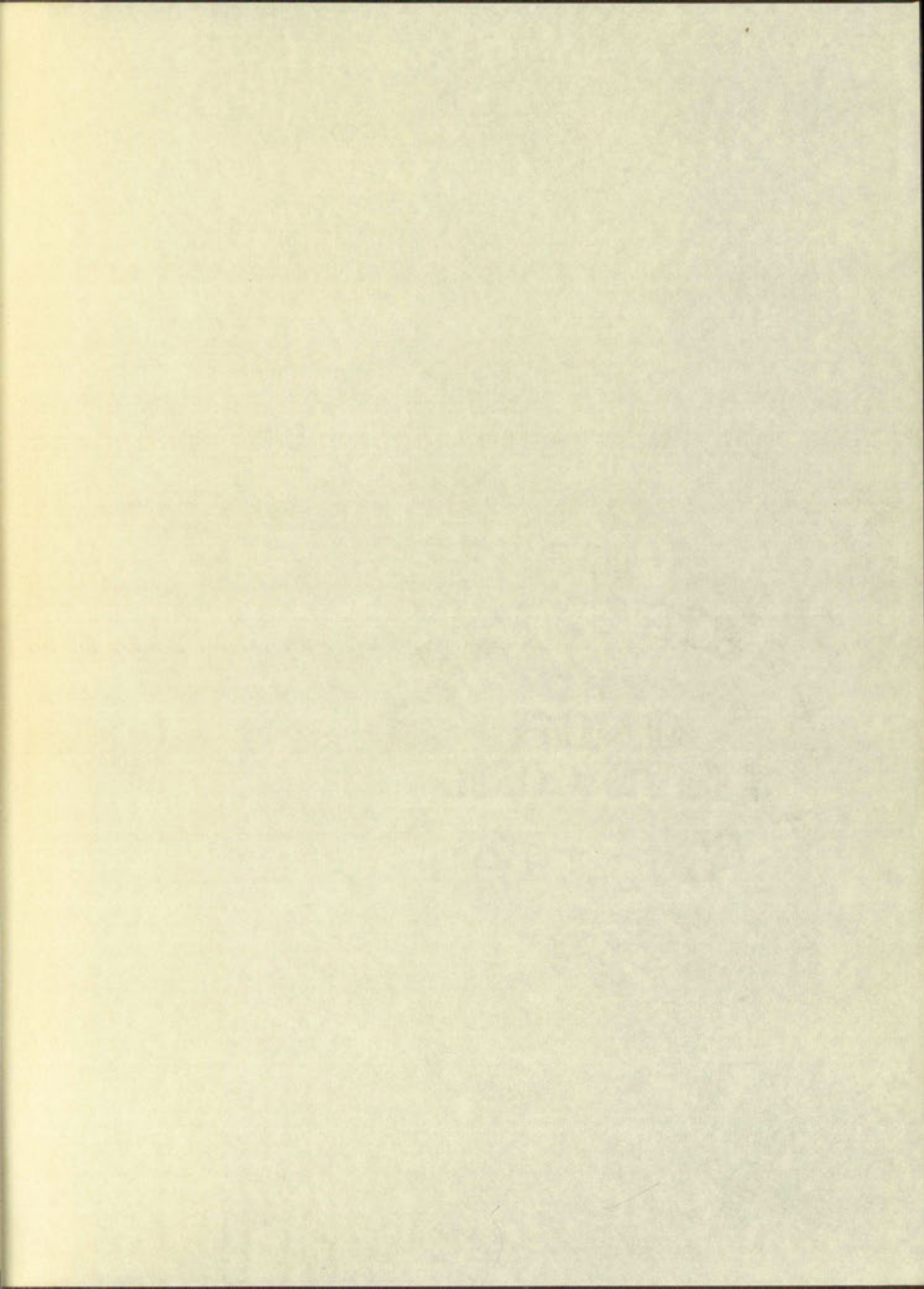
Excellent	Good	Average	Poor	Failing
Wants to learn to read				Not interested in learning to read
Has good speaking vocabulary				Poor speaking vocabulary, "baby talk"
Shows much interest in telling stories, in being told stories, in being read to				Shows little or no interest in stories and pictures
Excellent motor control, pure laterality				Poor motor control, mixed laterality
Remembers word forms, sees and uses relationships, thinks abstractly				Cannot remember word forms, see, or use relationships
Good experiential background				Poor experiential background
Good vision and hearing				Poor vision and hearing

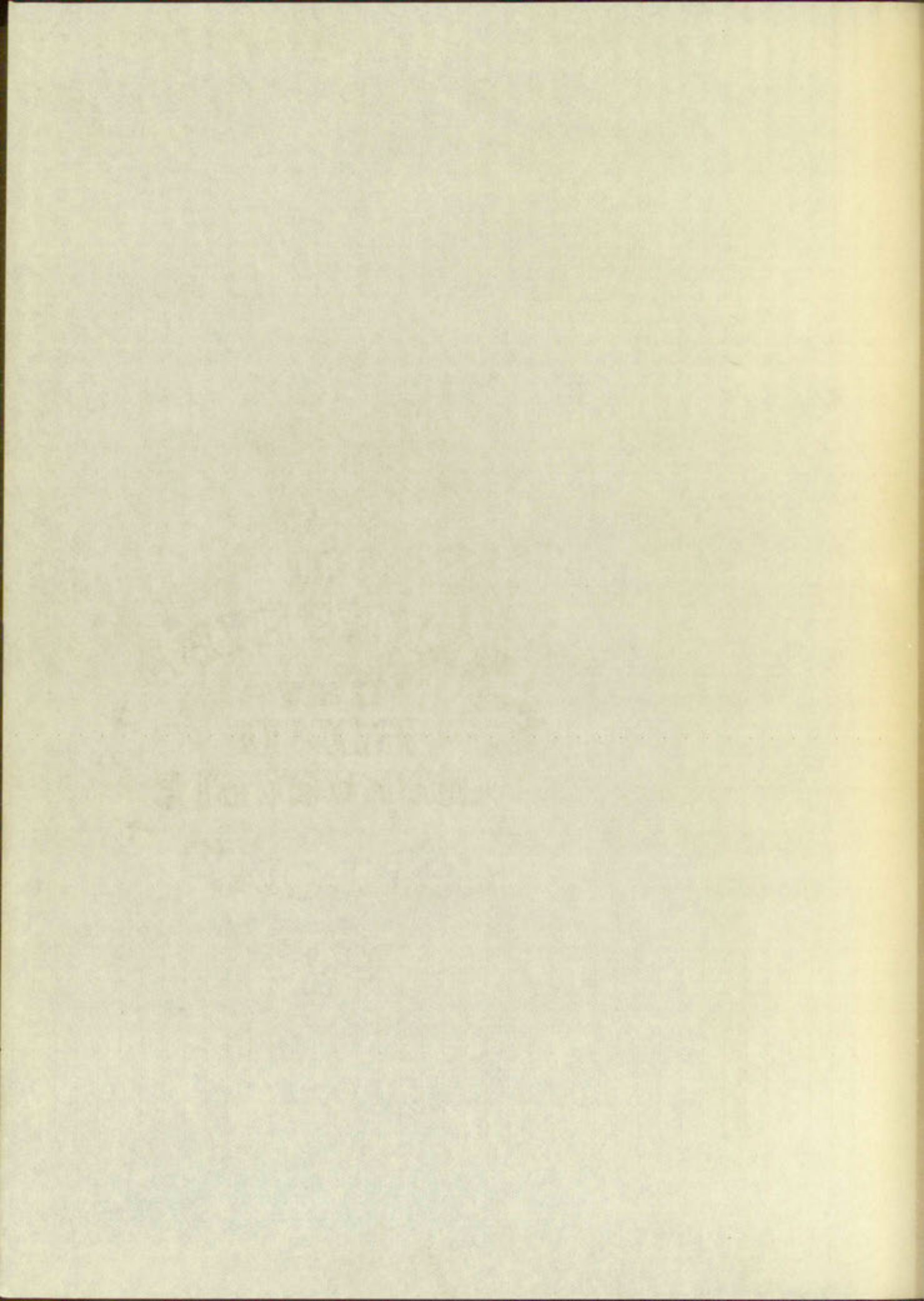
SCHOLARSHIP

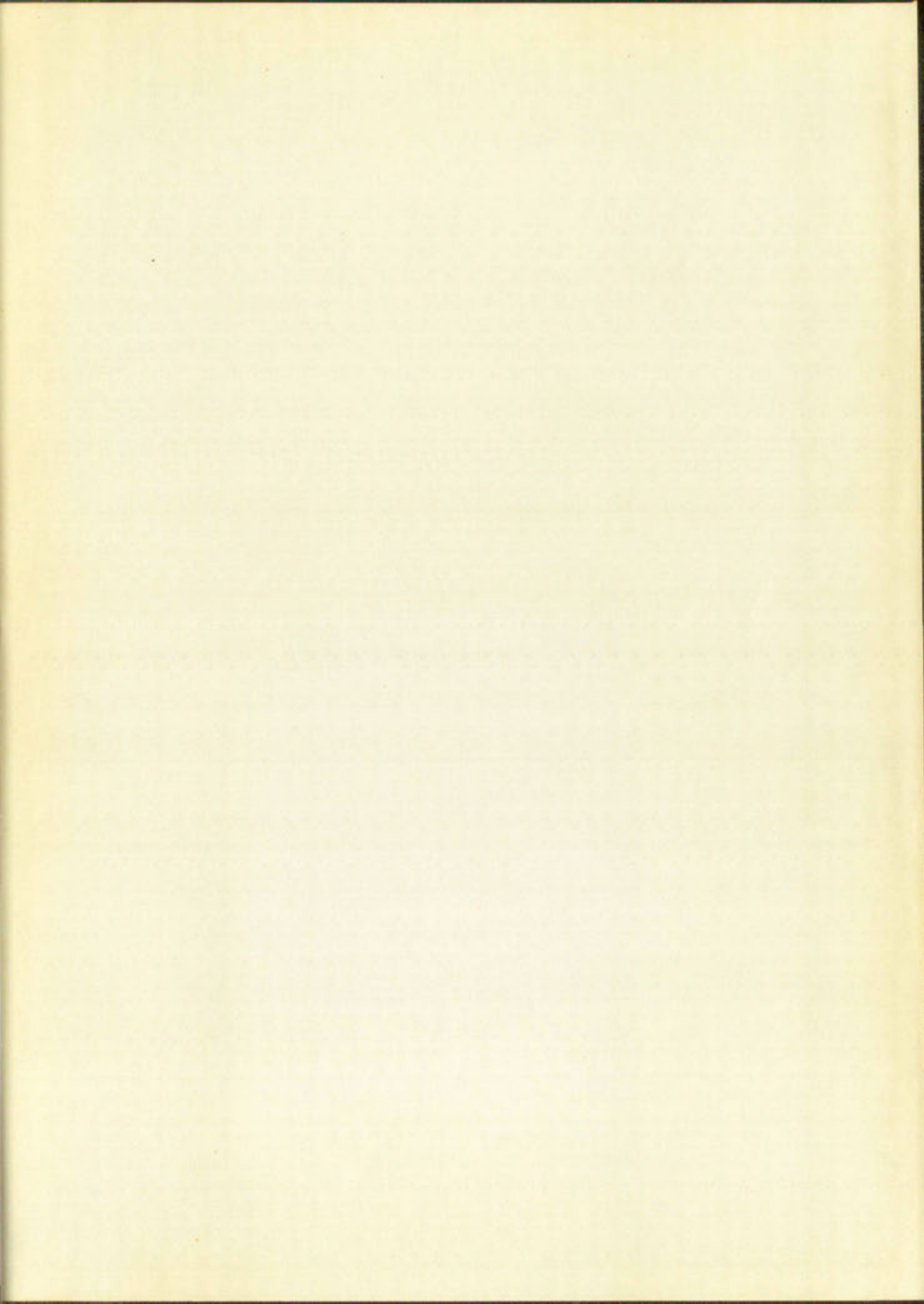
BARRIERS: It is essential that the student be a native-born American citizen, at least 17 years of age, and that he be a member of one of the Christian churches. The student must also be a resident of the United States and must have a high school diploma or its equivalent. The student must also be a member of one of the Christian churches. The student must also be a resident of the United States and must have a high school diploma or its equivalent.

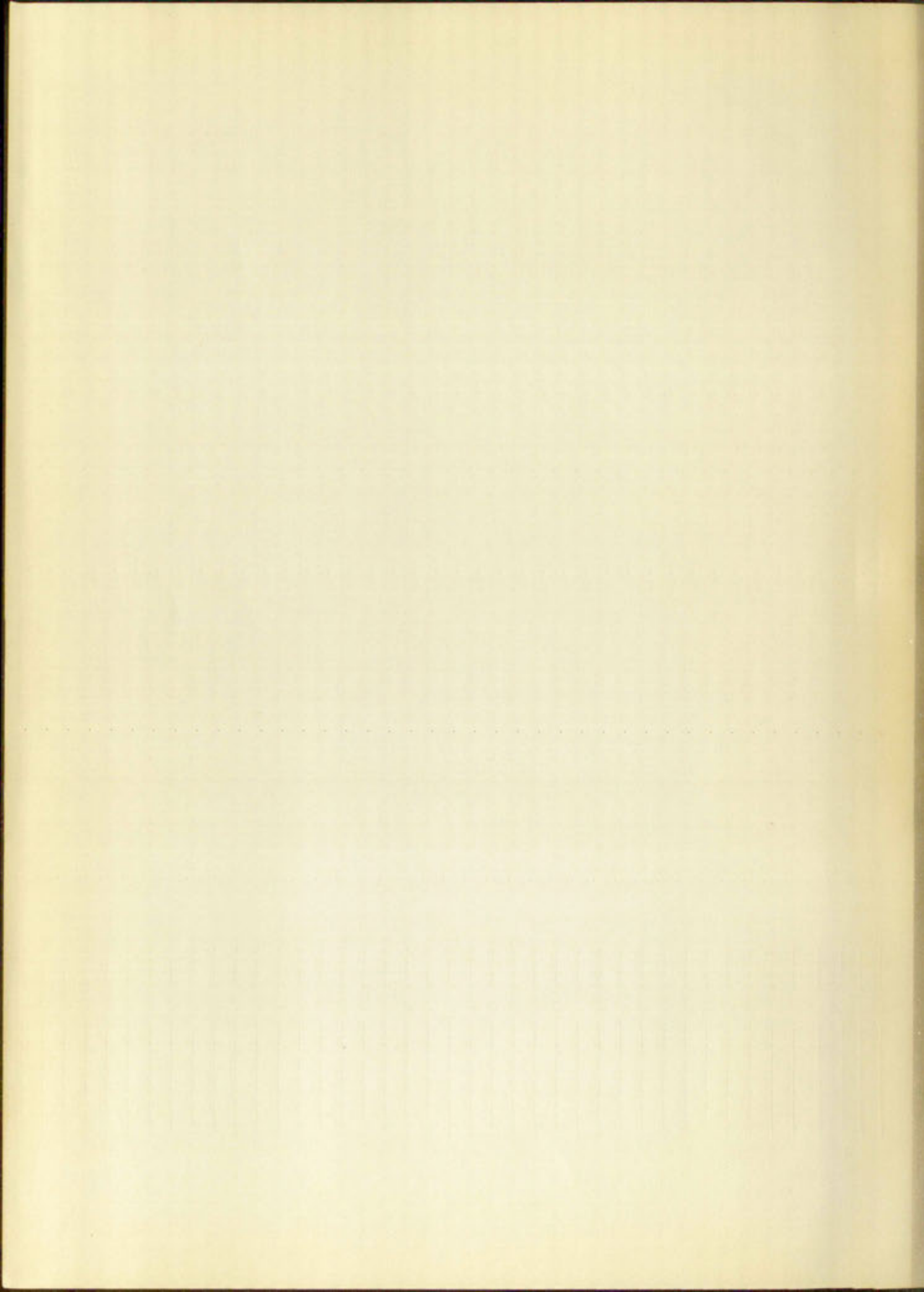
No.	Name	Address	City	State	Date of Birth	Date of Application	Date of Decision	Remarks
1	John Doe	123 Main St	Springfield	Ill.	1910	1925	1925	Accepted
2	Jane Smith	456 Elm St	Chicago	Ill.	1912	1925	1925	Accepted
3	Robert Brown	789 Oak St	Peoria	Ill.	1915	1925	1925	Accepted
4	Mary White	101 Pine St	St. Louis	Mo.	1918	1925	1925	Accepted
5	William Black	202 Cedar St	St. Paul	Minn.	1920	1925	1925	Accepted
6	Elizabeth Green	303 Birch St	Portland	Me.	1922	1925	1925	Accepted
7	Thomas Gray	404 Spruce St	Portland	Me.	1924	1925	1925	Accepted
8	Anna King	505 Maple St	Portland	Me.	1926	1925	1925	Accepted
9	Charles Lee	606 Elm St	Portland	Me.	1928	1925	1925	Accepted
10	Harriet Hall	707 Oak St	Portland	Me.	1930	1925	1925	Accepted

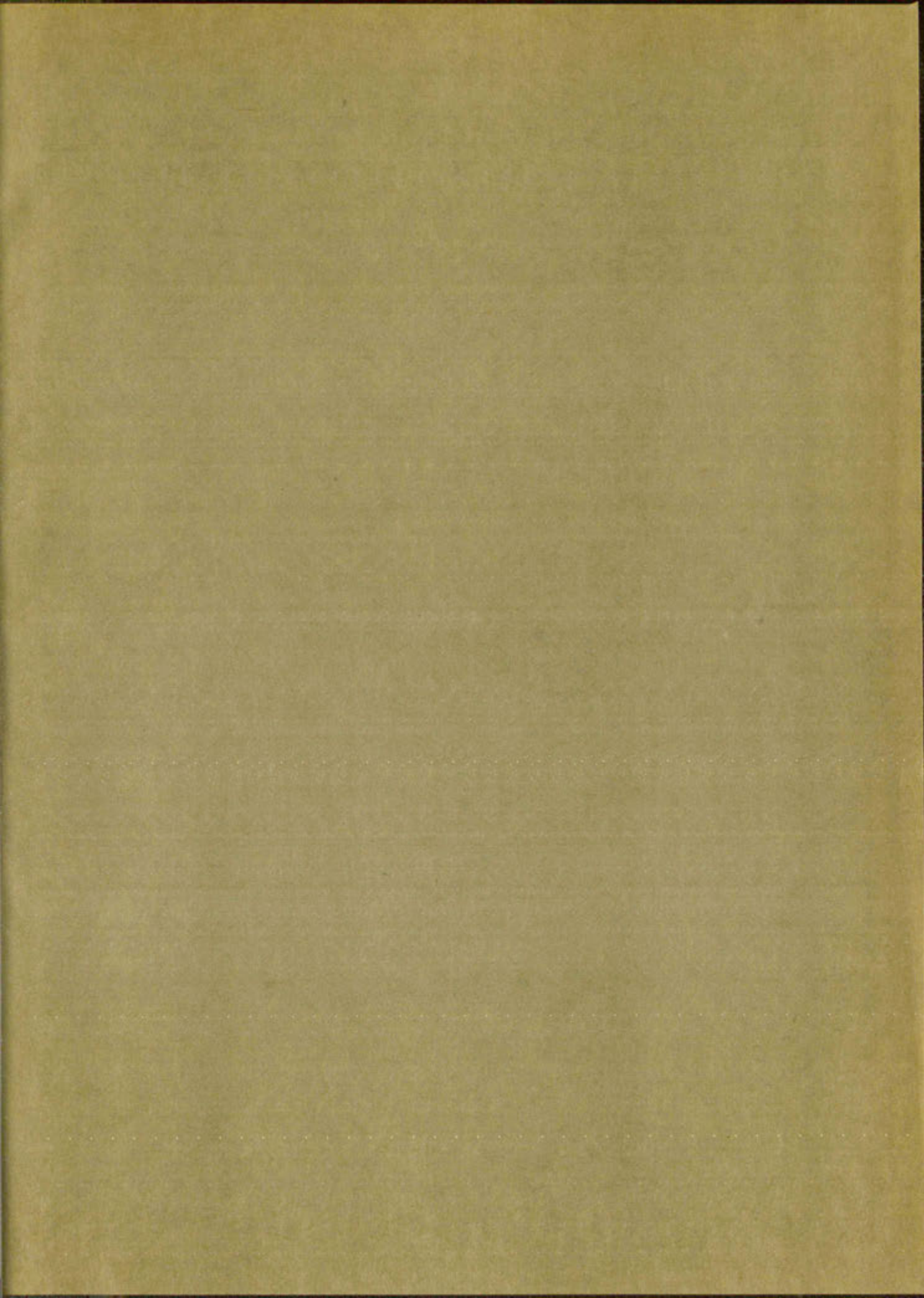
No.	Name	Address	City	State	Date of Birth	Date of Application	Date of Decision	Remarks
11	George Adams	808 Pine St	Portland	Me.	1932	1925	1925	Accepted
12	Frances Baker	909 Cedar St	Portland	Me.	1934	1925	1925	Accepted
13	Edward Clark	1010 Birch St	Portland	Me.	1936	1925	1925	Accepted
14	Elizabeth Davis	1111 Spruce St	Portland	Me.	1938	1925	1925	Accepted
15	Thomas Evans	1212 Maple St	Portland	Me.	1940	1925	1925	Accepted











IMPORTANT!

Special care should be taken to prevent loss or damage of this volume. If lost or damaged, it must be paid for at the current rate of typing.

Date Due	
2-7-45	MAR 13 RECD
AUG 3 - 1951 <i>pt 4-1-51</i>	JUL 8 1965
JUN 23 1956	NO CARD RECD
JUL 9 1958	OCT 12 '75 UNM 2nd
JUL 1 RECD	<i>no card</i> RECD UNM OCT 13 '75
JUL 30 1958	
JUL 31 RECD	
JAN 21 1958	
SEP 10 1961	
SEP 12 RECD	
JAN 21 1963	
FEB - 1 RECD	
MAR 6 1963	
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