

1965

An Investigation of Literature Concerning Identification Procedures and Methods of Teaching the Specific Reading Disability of Dyslexia

Anne Eleanor King
Central Washington University

Follow this and additional works at: <http://digitalcommons.cwu.edu/etd>

 Part of the [Accessibility Commons](#), and the [Educational Assessment, Evaluation, and Research Commons](#)

Recommended Citation

King, Anne Eleanor, "An Investigation of Literature Concerning Identification Procedures and Methods of Teaching the Specific Reading Disability of Dyslexia" (1965). *All Master's Theses*. 501.
<http://digitalcommons.cwu.edu/etd/501>

This Thesis is brought to you for free and open access by the Master's Theses at ScholarWorks@CWU. It has been accepted for inclusion in All Master's Theses by an authorized administrator of ScholarWorks@CWU.

AN INVESTIGATION OF LITERATURE
CONCERNING IDENTIFICATION PROCEDURES AND METHODS OF TEACHING
THE SPECIFIC READING DISABILITY OF DYSLEXIA



A Thesis
Presented to
the Graduate Faculty
Central Washington State College



In Partial Fulfillment
of the Requirements for the Degree
Master of Education



by
Ann Eleanor King
June 1965

LD
5771.3

K52i



SPECIAL
COLLECTION

130705

APPROVED FOR THE GRADUATE FACULTY

Dohn A. Miller, COMMITTEE CHAIRMAN

Darwin J. Goodey

John A. Schwenker

ACKNOWLEDGMENTS

The writer extends her sincerest appreciation to the committee members Dr. Dohn A. Miller, chairman; Mr. Darwin J. Goodey and Mr. John A. Schwenker, for their individual encouragement and assistance.

TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND DEFINITIONS OF TERMS USED	1
The Problem	2
Statement of the problem	2
Importance of the study	2
Incidence of the problem	6
Definitions of Terms Used	7
Dyslexia	7
Congenital word-blindness	7
Reversal	8
Kinetic reversal	8
Static reversal	8
Mirror reading	8
Reading disability	8
Specific language disability	8
Cerebral dominance	8
Mixed cerebral dominance	9
Phonogram	9
II. HISTORICAL BACKGROUND AND NATURE OF THE PROBLEM .	10
III. IDENTIFICATION OF THE DYSLEXIC CHILD	17
Who is the Dyslexic Child?	17
How is he to be Identified?	19
Associated characteristics	19
Primary characteristics	23

CHAPTER	PAGE
How Important is Early Identification?	25
IV. TREATMENT AND METHODS OF TEACHING THE DYSLEXIC . .	27
Criteria and Procedures for Referrals	31
Who should be referred	31
Who should not be referred	32
Referral Procedures	32
Diagnosis of Reading Problems and Levels	33
Description of Teaching Methods	33
The kinesthetic method	34
The phonetic method	36
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	42
Summary and Conclusions	42
Recommendations	46
BIBLIOGRAPHY	47

CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

A handicap in reading is a disabling disorder in a society that is increasingly dependent upon literacy. When the avenue to printed material is blocked, the individual not only has the treasures of literature forever closed to him, but he will also find increasing difficulty in earning a living, finding his way about our complex cities, and assimilating the information necessary for adequate social adjustment. Those corners of society in which a disabled reader might hide himself and be undistinguishable from his literate peers are well nearly nonexistent (25:3).

For those of our pupils who are crippled, for those who are blind, and for those who are mentally defective, we feel great compassion. Special schools are provided for them. Sympathy and encouragement are given to them. Yet there is no case in our schools more pathetic than the child who is unable to learn to read, not from lack of ability, nor from lack of effort, nor yet from the lack of desire, but because of late and improper identification and the denial of either the kinesthetic or phonetic method by which he could learn to read. Not only is he denied an education which he is quite capable of receiving, but he is humiliated by his constant failure, often called names by his classmates, sometimes ridiculed by his teacher, until he is further

handicapped in life by acquiring an inferiority complex and/or becomes an emotional problem in one way or another. He may withdraw into himself and live in a dream world of his own or he may through misbehavior seek the attention he cannot get through his work (8:1). The specific reading disability referred to above is known as dyslexia.

I. THE PROBLEM

Statement of the problem. The purpose of this study was twofold: to gain a better understanding of the nature of the specific reading disability of dyslexia and to find out how a classroom teacher could best meet the needs of the dyslexic child. After reviewing and analyzing the literature dealing with this problem of reading disabilities, the writer attempted to present the significant problems confronting those planning an educational program for the child handicapped with dyslexia. The problems were: (1) early identification of the specific reading disability, (2) comprehension of the nature and causes of dyslexia, and (3) determining the special teaching methods necessary in order to help a child overcome this disability and constant failure.

Importance of the study. Insistence upon adequacy in reading has been especially true of American education from its earliest days to the present time (18:1). "Reading," says

Edith Gann, "was the most important subject in our early American schools, and it has continued to be the most important subject all through the years of our national growth" (18:1).

In recent years perhaps no part of the public school program has received more attention or criticism than reading. To many it has become synonymous with education. In appraising the adequacy of an educational program, whether at the elementary, high school, or college level, reading often is used as the criterion (29:15).

Myklebust reports the following:

Learning to read is a part of the total language development. It is a step in a developmental sequence which is not fully matured until well after the age of entering school. While studies are limited, written language, which develops last, seems not to be fully matured until about thirteen years of age. Contrary to an assumption held by many, there is a relationship between the spoken and read word. Spoken language precedes read language; this is true phylogenetically and it is true autogenetically (29:15).

"Reading," states Delwyn G. Schubert, "and living are practically synonymous in our society. It is very difficult to accomplish anything in our modern day world without the ability to read" (36:3).

Reading is of inestimable value in extending and enriching our experiences. Through reading, a form of experiencing, we may live vicariously many lives. Reading also provides the entrance into the minds of men in all walks

of life. By expanding and extending our limited present into the broad past, reading enables us to gain insight into our cultural heritage and that of other people (36:3).

One of the keys to better citizenship is reading. It is essential and important for citizens to make intelligent decisions regarding governmental issues on the local as well as on the national level. The good health of our government is dependent on an informed citizenry. The reading of current magazines and newspapers plays a vital role in the formulation of public opinion. And it is public opinion that can and does influence, and therefore, determines the course of our national destiny (36:3).

Since reading is important in our modern world, it is therefore important in the modern school. The ability to read printed symbols constitutes the chief basis for promotion in the lower grades. In the upper grades, the ability to read comprehensively forms the chief means for acquiring new information and expanding the student's thinking. Even in the high school the ability to read with comprehension still determines student progress in many of the subjects of the secondary school (18:1-2).

Anna Gillingham and Bessie W. Stillman wrote their viewpoint in the following statement:

In every school there are children who do not learn to read satisfactorily. Because the makers of surveys and the statisticians have shown that most children in

the lower mental levels are poor readers, it is too often assumed that any poor reader has a relatively low mentality. When it is discovered that a child of average or high intelligence is not reading, the first reaction is usually reproach--reproach of the child for lack of effort, reproach of the preceding teacher for inefficiency. Thus the college blames the high school for its poor readers, the high school blames the grammar school, and at last reproach falls back on the unfortunate primary teacher (19:2).

Delwyn G. Schubert's opinion is as follows:

It is obvious that only the remarkable uninformed would place the sole blame for reading failure on the school. ...The chances are that nothing will be done about it until the school administrators, parents and the public are willing to abandon the idea that the teacher is entirely to blame for these failures. By no means should the teacher be relieved from her responsibility either. It is equally important that physicians assume their proper role in the solution of the problem (36:6).

Increasingly, however, conscientious and discerning teachers and anxious parents are realizing that there are intelligent non-readers who possess the endeavor and desire to learn to read. Such children present a challenge which customary teacher-training does not enable the teacher to meet (19:2).

Saunders (34:75) reports that for over a century there have been startling accounts reported in medical journals of individuals who, after some type of cerebral trauma, lost their ability to read, with or without accompanying language deficits and disturbances. "More recently it has been further discovered" revealed Saunders (34:75) "that even in the absence of evidence of cerebral accident, some intellectually competent individuals exhibit a similar symptom of inability to learn to read."

Many studies show that children of today read as well, if not better, than youngsters of one or two generations ago (16:37-8). However, it always can be expected that there will be some variability in reading skills due to the factor of individual differences. Children having mild and severe reading disabilities will undoubtedly always remain a part of our society in spite of the efforts of skilled teachers and concerned parents. It has been emphasized by Saunders (34:75) that since success in reading is important it becomes quite essential and appropriate that even greater attention should be given to those individuals who find it impossible to achieve the bare minimum of success in this task that the culture demands.

Incidence of the problem. To date very little information is available on the incidence of dyslexia in children. Hallgren (1950) states that 10 percent of school children have a reading disability of this type. Myklebust and Boshes (1960) have reported that at least five percent of school children have some type of psychoneurological learning disorder. Although extensive knowledge in regard to incidence is lacking, it is evident that dyslexia is substantially more widespread than has been assumed by most educators. Moreover, there is agreement that it is much more common in males than in females, suggesting the prevalence of sex-linked genetic factor. Dyslexia occurs at least five times more frequently in males (29:16).

Dr. J. Roswell Gallagher contended that:

. . . Only about one percent of girls suffer from this difficulty. The evidence suggests that there is a hereditary factor which is apparently sex-linked and more frequently produces the tendency to a specific language disability in males than in females. Like stuttering and defects in color vision are also more common among boys than among girls (16:37).

Dr. Samuel T. Orton estimates that from ten to fifteen percent of all children have this difficulty. Some of them are severe cases, while others are less severe who drag along two years behind their age in reading (8:2).

Dr. Lauretta Bender (3:25) related that her experiences with the problem children at Bellevue Hospital led to the recognition that more than 50 per cent of boys were non-readers or severely retarded in reading. In contrast to the above information reading retardation in the general school population of this country is variously reported between 5 and 15 per cent (3:25).

II. DEFINITIONS OF TERMS USED

The writer has used the following definitions to apply to the terms as they appear in this paper.

Dyslexia. A reading disability which is characterized by the inefficiency to recognize words.

Congenital word-blindness. Inability in learning to read which is out of harmony with the individual's general intelligence and ability to learn by other channels.

Reversal. The tendency to read from right to left, causing the reader to reverse the order of letters, to confuse one letter with another, or to mix the order of letters in words, which results in mistaking one word for another.

Kinetic reversal. The mental confusion of directional sequence of a word with another word made up of the same letters in a different order such as reading "felt" for "left" or the reverse.

Static reversal. The mental confusion of letters of similar or identical form normally distinguished by their spatial orientation such as the confusion of "b" for "d" or "n" for "u".

Mirror reading. This term refers to reading when the word is seen upside down rather than right side up.

Reading disability. Lack of ability to read due to some physical, mental, or other cause, ranging from partial to complete inability to read; a handicap in reading.

Specific language disability. This term is used synonymously with such terms as dyslexia, congenital word-blindness, and reading disability, and is one of the many causes of scholastic failure.

Cerebral dominance. The normal condition in which one hemisphere of the brain dominates or leads the other in

initiating or controlling bodily movements, this dominance normally resides in the left hemisphere in right-handed persons and in the right hemisphere in left-handed persons.

Mixed cerebral dominance. A theoretical condition of alternating or confused dominance of the cerebral hemispheres in regard to a language function, supposedly the cause of certain reading and language disabilities.

Phonogram. This term refers to a written symbol that represents an articulate sound.

CHAPTER II

HISTORICAL BACKGROUND AND NATURE OF THE PROBLEM

The history of clinically recognized word-blindness can be traced back to 1896. At that time the English school doctor James Kerr drew attention to difficulties in reading in children who were otherwise intellectually normally developed. Later in the same year a short article entitled "A Case of Congenital Word-Blindness" was published in the British Medical Journal by W. Pringle Morgan, a British oculist. This article reported the considerable difficulties in reading and writing displayed by a fourteen year old boy of normal intelligence. "The disturbances of reading and writing," concluded Morgan, "must depend on a congenital cerebral condition since there was no information pointing to, nor any signs of an acquired brain lesion" (23:15). Morgan assigned the cause as congenital word-blindness, a term which he coined, implying a neurological disorder (33:35).

The observations of failure of reading ability in children of normal intelligence made by Kerr (1896) and Morgan (1896) thus portrayed a defect of function, which has since shown itself to be a problem of considerable social magnitude (23:15).

Perhaps the earliest to observe the fundamental and possibly innate nature of reading disabilities was James

Hinshelwood, an English ophthalmologist, who developed and popularized the previous work of Morgan (1896). Hinshelwood gave the first extensive, systematic description of congenital word-blindness in a monograph published in 1917 (22:245).

A number of children were referred to Hinshelwood due to their lack of progress in learning to read, and therefore, was thought that their condition might be caused by some visual disorder. This did not prove to be the case, however in his critical study of these children. Hinshelwood placed emphasis on two very pertinent facts: First, that there were often several such cases in one family, and second, that the symptoms which they displayed were very closely parallel to those which appeared in adults who had lost the capacity to read due to a brain injury (30:70). Like Morgan, Hinshelwood thought that the cause of the left cerebral hemisphere in a limited area, where he assumed the visual memory images of letters and words to be stored (23:16).

It was cited by Robinson (33:35) that in 1917 Hinshelwood wrote:

Word-blindness occurs when difficulty in interpretation of written and printed language is not caused by ocular defects, but by disorder of the visual centers of the brain. He interpreted congenital word-blindness as a defect of children possessing normal and undamaged brains. It is characterized by difficulty in learning to read, manifestly due to a pathological condition. Ordinary methods of teaching the child to read have failed completely. He

emphasized, first, the seriousness of the defect in reading and, second, the fact that it is not complicated by other signs of cerebral defect or by visual disorders. He further qualified his definition when he stated that general intelligence, powers of observation, and reasoning are not affected in true cases of word-blindness and that auditory memory is average or even above that of other pupils. This definition was widely accepted and, except for minor changes, is used even today.

Hinshelwood (1917) was one of the first to recognize reading disabilities in children. His theory has never been proved or disproved, because methods of verification have not yet been established (33:38-39).

In 1918, Clara Schmitt preferred to apply the term "developmental alexia" to these poor readers, although she stated, "Congenital word-blindness, inability to learn to read, or dyslexia, has been defined as an extreme difficulty to learn to recognize printed or written language..." (33:35-6). Schmitt noted that this difficulty was demonstrated by persons with normal mental endowment and "without defect of vision or other physical defect of such gravity as to constitute an interference of the process of learning to read" (33:35-6).

Hinshelwood also made the observation that congenital word-blindness was characterized by a familiar incidence. C. J. Thomas had drawn attention to this aspect as early as 1905, and various authors, in a long series of publications, confirmed that heredity must be regarded as important in congenital word-blindness. H. B. Skydsgaard's dissertation of 1942 contains a series of genealogical tables which illustrate the unquestionable importance of heredity, but not

until 1950 was Bertil Hallgren in his genetic studies able to establish firmly the hereditary transmission (23:16).

For over a century there have been startling accounts reported in medical journals of individuals who, after some type of cerebral trauma, lost their ability to read, with or without accompanying language deficits and disturbances. More recently it has been further discovered that, even in the absence of evidence of cerebral accident, some intellectually competent individuals exhibit a similar symptom of inability to learn to read (34:35). For a long time American psychologists and educators minimized the neurological aspects of reading disabilities, but interest in this area of inquiry has grown recently (22:245). As expressed by Robinson (33:34) neurological difficulties include, first, damage to or lack of development of function of any part of the brain and, second, dominance, or the inconsistent preference of one cerebral hemisphere over the other for activities of the body and, in addition, the control of language function.

In this country Samuel T. Orton (1937), an American neurologist, is noted for his work in describing and defining the dyslexia syndrome. According to Saunders (34:35-6) Dr. Orton felt certain of the inter-relatedness of all language functions and that children, in particular, with dyslexia were experiencing a developmental lag in acquiring language skills. Orton made a unique contribution

to education as a result of his findings. He motivated the development of pedagogical techniques for the remediation of dyslexia.

An explanation of the Orton theory is given by Gallagher (16:38):

It was Orton who developed the theory that reversals, mirror writing, and confusions in spelling and reading result from a failure to develop a distinct dominance of one cerebral hemisphere over the other. He believed that an impression of every word is stored in the language center in each hemisphere of the brain, and that the word as stored in one half of the brain is the mirror image of that stored in the other. In most persons words will be consistently recalled from one side of the brain and no confusion will result, but in those who have not developed a dominance of one hemisphere over the other, letters or words which are the mirror images of their counterparts may occasionally be recalled from the opposite hemisphere, thereby producing the delays, the confusions, and the reversals.

This hypothesis does not suggest any abnormality or deficiency of the brain or its language mechanism, but only a hereditary tendency to fail to develop complete dominance of one cerebral hemisphere. "It does, however," stated Orton, "seem to be true that in those children and families where language disabilities exist, there is more apt to be ambidexterity and mixture of eyedness, handedness, and footedness" (16:38). The above information suggests that a complete dominance of one hemisphere is not present. The present status of the Orton theory is still that of an unproved hypothesis, however, the practical value of his contribution is coming to be more and more widely accepted as the evidence of experience accumulates (19:15).

In 1933 Walter F. Dearborn presented another major theory. It is quoted by Harris (22:252) as follows:

It is easier for the left-handed person to move his left hand from right to left than from left to right, and easier for the left-eyed person to look from right to left than from left to right. Deviations from right-handedness, then, would be expected to be accompanied by greater than average tendencies to move the eyes in the wrong direction in reading. With mixed dominance or a lack of consistent preference for either side, confusion in the direction of eye movements in reading, and reversals and other types of word-recognition difficulties, would be expected.

Orton (1937) and Dearborn (1933) agreed that consistent left-sidedness is less of a problem than mixed dominance, and that left-eyed dominance is more important, so far as reading is concerned, than left-hand dominance. Orton's theory stresses confusion in mental imagery, while Dearborn places the major responsibility on confusion in motor activity (22:252).

Dr. Edwin M. Cole (1937) gave his account in a neurological explanation of the problem as the following:

. . . Although we have two halves of the brain which are identical in structure, weight, and so forth, they are not identical in respect to the functioning of language. . . We know that language, for its proper functioning, depends upon the integrity of one--the dominant--hemisphere. By observation then, we conclude that where there is a conflict in the cerebral dominance in language, through the heredity, there is apt to be a lack of facility in some of the language processes. Whether the individual himself is right- or left-handed is of little importance. The latter point is stressed because of the misconceptions of many good workers who do not understand the neurological basis of language (39:9-10).

Despite the pioneering work of Kerr (1896), Morgan (1896), Hinshelwood (1917), Schmitt (1918), Thomas (1905),

Dearborn (1933), Orton (1937), Cole (1937), Skydsgaard (1942), Hallgren (1950), and Hermann (1959), only minor attention has been given to the problem of dyslexia in children. Reading specialists to a great extent have ignored this condition as a causative factor in children's reading disabilities. Nevertheless, gradually there is a growing awareness of its importance, not only in terms of the needs for appropriate diagnosis and specialized training, but because of the opportunities for expanding our knowledge of the processes whereby all children learn to read (29:15-16).

The cause of the development of a specific language disability has not been undisputedly proved, and there is considerable disagreement among those who have studied the problem. However, a working hypothesis suggesting methods of identification and teaching has been developed (16:38).

CHAPTER III

IDENTIFICATION OF THE DYSLEXIC CHILD

I. WHO IS THE DYSLEXIC CHILD?

The first problem is to determine the children that have dyslexia. History shows us that no one has yet devised a foolproof way of diagnosing this condition. It is a simple matter to identify reading retardation, but far from simple to make the differential diagnosis of dyslexia. It was Schiffman (1964) who became aware of this problem in identifying pupils for special reading services in schools. There is seldom argument about extreme cases with their extreme handicap and their telltale errors. The problem arises in less severe cases (25:15-16).

The work compiled by Monroe and Backus has been indicated by Hermann (23:23).

Reading disabilities are usually the result of several contributing factors rather than one isolated cause. Studies of the causes of reading disabilities reveal no clear-cut factors which occur only in poor readers but never in good readers. Some children who possess the impeding factors appear to be able to read in spite of them . . . A few good readers are found who have poor vision, poor hearing, emotional instability, who come from environment detrimental to reading and who have had inferior teaching . . . We may conclude that in most cases one factor alone is not sufficient to inhibit the act of reading, if compensating abilities are present, and if the child's reaction is a favorable one.

Robinson (1947) maintains that it would be "an oversimplification of a complex situation" to attempt to isolate one single factor as the cause of reading handicap in children. ". . . And as already mentioned, difficulties in reading vary not only in regard to their nature but also their severity" (23:23).

Vernon (1957) labels these pupils "illiterates" and defines them as "those who for some reason or other are unable to master even the simpler mechanics of reading." Fernald (1943) calls their conditions "total or extreme disabilities." She defines these disabled readers as those "individuals who fail to learn to read under the most careful instruction by methods that are successful with the average child." Other educators classify this group as "word-blind" or "alexia" or "dyslexia," while members of the Orton Society diagnose these cases as having a specific reading disability of the strephosymbolic type (35:47).

Children with reading disabilities possess mental ability that should enable them to read considerably better than they do. All of the child's school work may be below average, but on intelligence tests he shows that he has the mental capacity to do much better work in school than he has achieved thus far. The child's scholastic difficulties are confined to reading and the closely related skills of spelling and composition, or are most extreme in those areas. In

arithmetic or other subjects he may be doing normal or superior work. The retarded reader whose achievement in reading is significantly below the normal expectancy for his mental ability is said to be a case of reading disability (22:17).

II. HOW IS HE TO BE IDENTIFIED?

Associated Characteristics. Dyslexia first becomes evident as a child reaches kindergarten and first grade. It is often not recognized until much later and, indeed, is frequently never recognized for what it is. While the primary symptoms are not apparent until school age, many associated symptoms occur with much greater frequency than in the normal population (5:196).

The child with dyslexia is usually a boy although the reason for this has not been completely established. Bryant's (1964) explanations include: (a) greater vulnerability of males to prenatal and other sources of brain damage; (b) sex linked or sex influenced genetic factors; (c) slower maturation of males; (d) different social expectations and activity levels for males. "It is probable," states Bryant, "that at least in some cases, each of these factors contribute individually or in combination to the higher frequency of dyslexia in males" (5:196).

He is a child who has been in school one or two or even several years. He has been taught by teachers at least

sufficiently skilled to teach the majority of the class to read and spell acceptably. He has at least normal or superior intelligence as measured on an individual psychometric scale. He has normal sensory acuity, both visual and auditory. Yet, with all these average or superior attributes he has been unable to acquire reading and spelling skills by ordinary school methods (19:20).

Dyslexia is a complex syndrome with considerable variability in degree of reading disability and nature of associated characteristics. As a result there are many children, mostly boys, who show a syndrome which will include some or many of the following characteristics listed in the following terms by Myklebust and Johnson (1962); (29:16-18):

1. Disturbance of Orientation. This is an inability to properly orient oneself in space and learn to distinguish right from left; Benton (1959) has made an extensive study of this ability and its maturation in children. Usually the child cannot indicate right or left, and cannot associate meaning with directions such as north, south, east, and west. He is at a loss in giving the direction a flag would float if the wind is from the north, or in determining the direction to his right if he is facing south. (Goody and Reinhold, 1952) Disturbances in orientation cause him to be confused in many daily life situations.

2. Topographic Disorder. A disturbance of the ability to read maps, globes, graphs, floor plans and blue prints is referred to as a topographic disorder. (Paterson, 1945) The child cannot normally learn to associate meaning with such representational materials; he cannot spatialize symbolically, which might cause a serious deficiency in school subjects, especially geography.

3. Dyschronometria. A dyschronometric disturbance means that the child cannot normally learn the significance of sequence and time (Goody, 1958). He cannot learn to tell time from a clock and usually he has great difficulty in learning to name the days of the week, the months and seasons of the year. Often highly intelligent dyslexic children have not learned to give simple sequences in order even by fifteen years of age.

4. Inability to Write. Most dyslexic children are referred for study with the complaint, "he is unable to read or write." Actually, except for a few who are dysgraphic, the limitation in writing is a direct manifestation of the inability to read. As the dyslexic child learns to read he can write. In general, dyslexic children can copy but those having dysgraphia cannot (Orton, 1937; Critchley, 1953).

5. Spelling Disability. Ability to write and ability to spell are not synonymous. Many dyslexic children, although able to write sentences, are seriously deficient in spelling. An inability to spell can be viewed as an excellent indication of a reading disorder such as dyslexia. Apparently spelling in the written form requires simultaneous ability to visualize and to auditorize letters. If either of these is deficient it will result in limitations in both reading and spelling (Monroe, 1932; Thurston, 1954).

6. Dyscalculia. A deficiency in learning the symbolic significance of numbers because of a dysfunction in the brain is referred to as dyscalculia (Cohn, 1961; Gertsman, 1940). In school children this condition often is manifested by an obvious disability in arithmetic although intelligence and other aspects of behavior are well within the normal range. Some are deficient in arithmetical concepts, some cannot read numbers and hence, cannot write them. Others cannot associate meaning with the symbols which indicate the arithmetical process to be employed, such as =, x, and +. Hermann (1959), too, found that dyslexic children often were dyscalculic.

7. Foreign Language Disability. A number of our students from high schools and colleges have attempted to learn a foreign language. Almost without exception this has resulted in failure. As a part of our counseling of such students we advise that they do not include a foreign language in their studies.

8. Memory Disorders. Memory disorders are extremely common in dyslexic children, some having deficits in both auditory and visual recall. However, one of these usually is more substantially affected than the other. There are several types of memory disturbances, each with its own significance in terms of learning and adjustment. Some children cannot remember the sequence to be followed from a given set of instructions; they are confused and make errors when told to "first close the door, then get your book, and bring your chair over here and sit next to Johnny." Some cannot recall what they have read; others cannot remember a series of numbers or repeat a sentence. These memory deficiencies are of utmost importance diagnostically and therapeutically.

9. Inability to Auditorize or Inability to Visualize. Extensive psychometric appraisal reveals that the dyslexic child usually is characterized by a learning disorder which is primarily auditory or visual in nature. This is the basis for the generalization that some children have difficulty reading because of an inability to learn what letters sound like, while others cannot read because of a deficit in learning what the letters look like. Although an obvious over-simplification, with many children showing limitations in both, the sensory channel which is most effective for learning must be ascertained through diagnosis and stressed in remedial instruction (Gates, 1947).

As might be anticipated from the above discussion, those having primary deficits in ability to auditorize are the most affected psychologically; they show more debilitation psychoneurologically. In one of the studies comparing the "auditory" with the "visual" it was found that the "visuals" were superior in social maturity, ability to unscramble sentences, articulation, writing numbers from dictation, and ability to draw a man; the differences were statistically significant. Moreover, from experience in language therapy it is apparent that unless the remedial instruction is pursued according to the primary type of deficit, progress in learning to read is impeded (Pimsleur and Bonkowski, 1952).

10. Deviate Motor Pattern. Dyslexic children do not have obvious motor disorders, nor are they significantly retarded in sitting or walking age. However, when motor

tests are administered they fall below average as a group; they are also found to be inferior on tests of locomotor coordination. Furthermore, they manifest a higher incidence of disturbances of laterality as compared to the normal (Orton, 1937; McFie, 1952).

11. Neurological Disturbances. While some authorities have indicated the neurological studies do not reveal characteristic dysfunctioning in dyslexic children (Hermann, 1959), the results of Myklebust and Johnson (1962) are to the contrary.

"It should not be construed," states Myklebust and Johnson (29:18), "that all facets of this syndrome of childhood dyslexia necessarily will be present in a given child." The above authorities suggested that when taken as a group, these symptoms characterize children having this type of reading disorder (29:18).

Primary Characteristics. With the exposure to reading instruction, the primary characteristics of the disability become apparent. There are at least three characteristics that are so consistent as to be considered primarily causing the disability. According to Craig (1945), Myklebust and Johnson (1962), these are:

1. The child will be unable to recognize words no matter how often he is told them, or he will know them in one sentence but not in the next. This difficulty is related to trouble in simple learning of associations between letter symbols and letter sounds, especially multisound vowels.

2. He will have static reversals, reverse of letters, calling b "d", p "q", or "d", n "u", h "y", or m "w". The

word dig may be read "big", dog "bog", pet "det", met "wet" and pop "bob". He will also reverse words, kinetic reversals, calling was "saw" and no "on", top "pot" and pin "nip". As long as the letters spell something backwards he will call it as he sees it. Numbers may also be read backwards, so that 21 becomes "12" and 63 "36", thus upsetting his work in arithmetic.

3. He fails to recognize small words, using the first two letters as a guide in guessing as pronouncing has "have" and even "ever". He is likely to leave off the final s's and ing's. He may omit words or substitute entirely different words that fit the general meaning. This difficulty is related to trouble in use of insufficient word recognition cues by attending primarily to initial letter, length, and general shape while tending to ignore cues of details with words (8:2; 29:199).

"These three primary characteristics are probably manifestations of basic defects in neurological functioning," states Myklebust and Johnson (29:197). "However, for purposes of describing the consistent symptoms of dyslexia, these characteristics may be adequate even if not all inclusive."

The above authors (29:197) continue to mention that:

These same characteristics are normally seen in children just beginning to read but they are rapidly overcome without special help. The dyslexic child persists in these characteristics as he grows older. It is as if dyslexia represents a massive unreadiness for reading. The maturational process, that, in

conjunction with experience, produces reading readiness in beginning readers seems to lag for dyslexic youngsters even though there is some slow improvement apparent as the child grows older. . .

III. HOW IMPORTANT IS EARLY IDENTIFICATION?

"If the child cannot be identified and remediated on the elementary level, what chance does he have in the complex secondary program?" questioned Schiffman (1964). "Emphasis must be placed upon early identification and placement in the proper program before an individual's problem becomes too complex" (35:43).

As the non-reader ascends through the primary grades, his problems multiply--all other subject matter is conditional on reading. Thus, he cannot solve the problems in arithmetic or social studies, even though he may have the skill to do so, because he cannot read the examination questions. The impression is one of general academic failure. He is likely to be considered mentally retarded or as a lazy child with the view that "he could if he would." It is difficult to imagine a more chilling indictment of a confused child bewildered by his inability to learn despite earnest efforts to do so (35:42).

That dyslexia occurs in children cannot be questioned. This condition varies greatly in degree. Severe disabilities usually mean early scholastic failure; very mild disabilities may go unnoticed and be only a slight handicap. If schools are to bring out the best in youngsters, it is well to remember that a reading handicap can exist even if the scholastic record is good. Therefore, according to Gallagher (1948), early identification and preventive practices are the only solution (16:37).

According to Schiffman (1964) education is faced with three major factors: (a) that early identification of the reading disability is vital for total remediation, (b) that the school program must adjust to the child, and not the child to the program, and (c) a program is needed to rehabilitate these lost children and give every child in the schools an opportunity to develop his language abilities to the highest level of his capacity (35:44). Schiffman has observed that pupils with reading disabilities identified as early as the second grade have over ten times as great a chance of being remediated in a prescribed period than a comparable disability detected in the ninth grade. He concluded by saying, "Early identification of reading disabilities is the responsibility of the public schools" (35:42).

CHAPTER IV

TREATMENT AND METHODS OF TEACHING THE DYSLEXIC

The basic responsibility of the public school is to attempt to educate each pupil to the full extent of his capacity. In order to carry out this responsibility, it is necessary to provide special services and programs for pupils with problems which cannot be handled within the regular classroom. There are pupils within any system who are not reading at a level in keeping with their capacity. Authorities indicate that this figure ranges from twenty to forty per cent of the school's population. Ideally these pupils would be identified and their difficulties remedied in the regular classroom by proper grouping and instruction. However, from experience it is known that this is not always possible or practical. For many of these children it is necessary that special reading programs be available at the elementary and secondary level to supplement the developmental program. Emphasis should be placed upon early identification and placement in the proper program before an individual's problem has become too complex (35:45).

Much individual misfortune might be avoided if identification and grouping of children having a specific language disability could be established as early as their first year in school. A deep seated fear is developed once failure has been experienced. A fear that some new demand

may be made upon them which they cannot meet. As a result they have ingrained in their unconscious minds that failure can follow the most earnest effort. To select at an early age children who lack facility in handling words is not easy, but it can be done by a trained person experienced in dealing with young children. If this is accomplished those who have this handicap to academic success can be helped, and to a very considerable extent without ever having to suffer this insecurity (16:38). However, in most school systems a lack of funds, trained personnel, or a general unawareness of the problem have prevented the development of a clinically oriented program for the disabled reader (35:48).

Most of our teachers in the classrooms today have been trained to teach reading according to the manual and when they find a child who doesn't respond to the manual's instructions they do not know what to do. If there is a special supervisor or remedial reading teacher a call of help is sent out for his services. If there is no such person, the teacher gives the youngster more of the same, hoping that it will work. If it doesn't the youngster is labeled as slow. These children are passed on and by the time they reach junior high and high school they are hopelessly poor readers. Because of this they barely progress through high school. Everyone who is a teacher realizes these facts but nothing of any great importance is done about it (14:559).

Surveys of the literature reveal the disturbing fact that educators, even when they recognize the problem, often cannot agree on a name for these pupils, let alone their symptoms or methods of remedying their condition (35:48).

The dilemma in which the classroom teacher finds herself with regards to these children is similar to that of the physician who limits himself to one form of treatment for all patients regardless of their ailments. We emphasize over and over again that each child is an individual who has different abilities and yet we use the same type of reading method and text for all (14:559).

Children with a specific language disability are unable or find it very difficult to learn by recognizing configurations or "word-wholes". They do not perceive and recall visual and/or auditory symbols in correct sequence, and also, some do not retain the "feel" of letter forms, all or part of which prevents learning to read, write and spell. It takes an entirely different approach to teach such children how to cope with their disabilities. How long this takes depends upon the degree of the disability, the intelligence of the child, and the skill and attitude of the teacher. The teacher must have the training in the basic principles upon which the technique is developed and an insight into how learning takes place before methods of treatment are undertaken. "These children," stated Dr. Samuel T. Orton, "cannot be taught correctly unless the teacher has been trained" (8:2).

The attitude of the parents in this situation is also vital. It has been found that despite the ridicule of his classmates and condemnation of his teachers such a child does not usually experience the extreme effects of failure if he can feel that his parents are sympathetic and do not reproach him. A sense of family solidarity in meeting a trying situation helps to prevent emotional problems for the child with a reading disability.

Quite contrary to the pattern of the understanding family is another pattern. Very often the parents are as bewildered as the child, have even greater awareness of how serious a reading handicap can be and so feel their ambitions for giving him "a good education" thwarted. It is difficult or impossible for them to obtain constructive advice. Teachers tell them that their child is so bright that "he could if he only would," or even blame the parents themselves for being over-indulgent or over-strict (19:24).

The appeal of the blind, deaf or crippled child is so obvious that every heart is moved to sympathy and every hand outstretched to help. Accordingly, each blind, deaf or crippled child is conscious of a loving attitude on the part of friend and stranger. They do not know the bewilderment and despair and sense of being objects of reproach which are common to the children whose school work is blocked by their poor reading (19:17). "It should be recognized," concludes

Gillingham and Stillman, "that children with these tendencies will be less likely to develop emotional problems if they can feel the steadfast sympathy and understanding of their teachers and parents" (19:19).

I. CRITERIA AND PROCEDURES FOR REFERRALS

During the 1960-1961 school year educators in the Baltimore County Public Schools developed a remedial program for their disabled readers. This remedial reading program was a clinical type of program designed for those children with an intelligence slightly below average, average, or superior, who could not profit from the pedagogical techniques that were used in the regular reading program. The following criteria and procedures have been developed by Schiffman (35:49-51):

Who should be referred:

1. Students who have average, above average, or slightly below average intelligence and who exhibit difficulty with some or many phases of reading. These children combine an average or a high capacity level and a low achievement level. If they are read to, they are able to comprehend, and answer questions about, information beyond the level at which they read independently with understanding.
2. Students who seem to be intelligent enough to read at a much higher level than they do, even though their intelligence-test scores are a great deal below average.

McLaulin and Schiffman (1960) made a study of the relationship between the California Test of Mental Maturity and the WISC scores for disabled readers. Evidence was found that low scores obtained by children

who have reading difficulties frequently reflect their degree of retardation rather than their basic capacity to learn. There is no question that when group intelligence tests are used, the IQs of children who have severe reading disabilities present an erroneous picture of the learning capacity of these children (35:50).

Who should not be referred:

1. Mentally retarded or very slow-learning students who are reading as well as students with their mental capacity can be expected to read.
2. Students with average or superior intelligence who are not reading quite as well as they might, but difference between their achievement and capacity is not significant enough to request outside help.
3. Students who have learning problems other than reading.
4. Students who are disciplinary problems because of factors other than deficiencies in reading.

Referral Procedures:

1. Referrals to the remedial reading clinic should come from the corrective teachers or psychologist.
2. The remedial reading clinician diagnoses the needs of the pupil and one of the following procedures is pursued: (a) The pupil is assigned to the remedial clinic where an individual program is planned by the clinician and the remedial teacher. (b) If the pupil is not found to be in need of remedial assistance, he is returned to either the corrective or developmental program. (c) If it is found that the pupil's problem is not primarily reading, he is referred to the proper service.
3. When it is determined that a child should be placed in the remedial reading program, the reading specialist contacts his parents to explain the nature of this service and secure permission for his placement.
4. A pupil is dismissed from the remedial clinic when the reading specialist feels the pupil is ready to progress in either the corrective or the developmental program.

II. DIAGNOSIS OF READING PROBLEMS AND LEVELS

According to Schiffman (1960) proper diagnosis of reading problems and reading levels is made possible by the use of the following eleven apparatuses in a complete reading analysis (35:51):

1. Social, familial, developmental, and school case histories.
2. Individual intelligence or capacity test.
3. Personality evaluation including the Rorschach and Draw-A-Person.
4. A reading battery including standardized achievement tests and informal reading skills analysis.
5. Gates Associative Learning Test.
6. Detroit Tests of Memory Span.
7. Laterality Tests to determine eye and hand dominance.
8. Physical screening.
9. Bender Visual-Motor Gestalt Test.
10. Frostig Perceptual Development Examination.
11. Eisenson Examination for Aphasia.

III. DESCRIPTION OF TEACHING METHODS

When a child with normal or superior intelligence and sensory perception has been exposed to reading by the sight-word method in the hands of a competent teacher for months or years and has not acquired adequate reading skills, it is time for a radical change in approach. What the child could

profit from is a teacher expert in the appropriate techniques to train him in the reading skills, step by step. Not a teacher to "hear him read for practice", or to divide words by means of "functional phonics", when he is unable to learn the words thus divided (19:20). "The important thing to remember," says Schiffman, "is that there is no one approach to remediate these severely retarded readers" (35:55).

THE KINESTHETIC METHOD

The kinesthetic method involving the visual, auditory, and motor senses is frequently a most effective way of teaching the nonreader. The following description of the method is based on the account given in Grace M. Fernald's book (13:33-35) (37:165-167).

Explain to the child that you have a new way of learning words and that many bright people who have had the same difficulty as he have learned easily by this method. Let him select any words he wants to learn. Teach him the words in this manner:

1. Teacher writes the word in manuscript with crayola.
2. Child traces the word with his finger and says each part of the word as he traces it.
3. Child writes the word without looking at the copy and then compares his effort with the copy.
4. If he has made an error, he continues to trace the copy until he can write it correctly.

After the child has learned several words in this manner and has discovered that he can learn, he begins to write stories about any subject he chooses. The following six procedures are used:

1. The child asks the teacher to write any word which he needs in his story.

2. He learns the word by tracing it and saying the parts as he does so.

3. He writes the word first on scrap paper and then in his story.

4. He files the word.

5. The teacher types the story.

6. The child reads the story to the teacher or to the group.

Cautions to the teacher:

1. Be sure that the child always writes the word in the story without looking at the copy.

2. Be sure that the child's finger actually touches the paper as he traces the word.

3. The word should always be written as a unit and should never be patched up by erasing or substituting.

4. Emphasize success. Call attention to the new words which he has learned.

A child who begins to learn to read by the kinesthetic method will need to learn words by tracing for only a limited period. He may be expected to pass through the four following stages:

1. Tracing stage. The average tracing stage is about two months.

2. Learns new words by simply looking at the word in script and saying it over to himself and then writing it. He should say the word as he writes it.

3. The child learns directly from the printed word without having it written for him. He begins to want to read from books. He is allowed to read as much and whatever he wishes. He is told words he does not know. After he has finished a story, he goes over the new words and writes them. The teacher should check the words later to see that they have been retained.

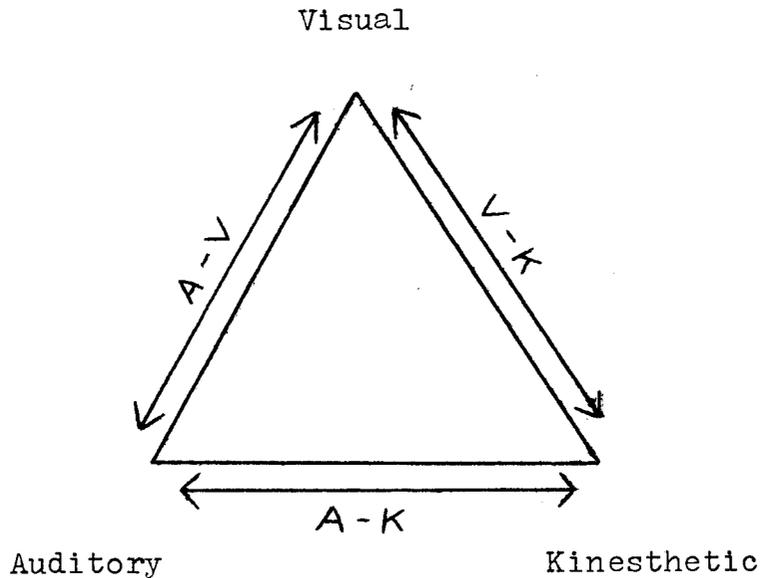
4. He soon begins to make out new words from those he already knows. He glances over a paragraph and notes all the words which he does not recognize. He sounds these words and then reads the paragraph.

Total nonreaders are started at stage one. Children with partial disabilities are often started at stage two. No special techniques are used to overcome such difficulties as reversals or omissions; these are said to be eliminated without special attention, since the tracing-writing process enforces a consistent left-to-right direction and requires correct reproduction of the entire word.

"The kinesthetic method has produced very successful results with many severe disability cases." Unique features in Fernald's method are the great emphasis on tracing and writing, the teaching of difficult as well as easy words from the very beginning, the use of the child's own compositions as the only reading material in the early stages, and the beginning of book reading on a fairly difficult level (22:386).

THE PHONETIC METHOD

The phonetic method developed by Dr. Samuel T. Orton and Anna Gillingham, now known as the Orton-Gillingham technique, is based on the close association of visual, auditory and kinesthetic elements forming what is sometimes called the "language triangle" (19:40).



The first principle of the Orton-Gillingham technique is to learn one phonogram at a time and, by blending phonograms, the child can pronounce the whole word. The basis of this method is teaching the child to translate letters into sounds which make words, and sounds into letters for spelling. In this way he has both eye and ear as a guide instead of having to depend on his confused visual memory alone. According to Gillingham (19:2), this has nothing to do with eye span, or visual acuity. A child suffering from dyslexia cannot take in the whole word at once, therefore, he cannot learn by the sight method. "Even though their teachers give them much individual help, they make little progress. But they can learn by phonics!" (19:2)

Each new phonogram is taught by the following processes, which are referred to as associations and involve the

associations between visual (V), auditory (A), and kinesthetic (K) records on the brain. The following three associations have been developed by Gillingham and Stillman (19:40-42).

Association I. This association consists of two parts: (a) association of the visual symbol with the name of the letter, and association of visual symbol with the sound of the letter, and (b) the association of the feel of the child's speech organs in producing the name or sound of the letter as he hears himself say it. Association I is V - A and A - K. Part two is the basis of oral reading.

1. The card is exposed and the name of the letter is spoken by the teacher and repeated by the child.

2. As soon as the name of the letter has been mastered, the sound is made by the teacher and repeated by the child. It is here that most emphasis must be placed if the case is primarily one of speech defect. The card is exposed, the implied question being, "What does this letter (or phonogram) say?", and the child gives its sound.

Association II. The teacher makes the sound represented by the letter (or phonogram), the face of the card not being seen by the child, and says "Tell me the name of the letter that has this sound." Sound to name is A - A, and is essentially oral spelling.

Association III. The letter is carefully made by the teacher and then its form and orientation explained. It is then traced by the child over the teacher's lines, then copied, written for memory, and finally written again with eyes averted while the teacher watches closely. This association is V - K and K - V. Now, the teacher makes the sound, saying, "Write the letter that has this sound." This association is A - K, and is the basis of written spelling.

Certain other associations are basic to the drills just described and, if not already formed, should be formed as soon as possible by the four exercises that follow. In all cases these various drills should be tried out, but in any particular case it may be found that the child has

already naturally acquired certain ones of them, for example, his production of speech sounds by echoing may be perfect, in which case the corresponding echo drill should be dropped.

The four exercises are advocated by the above authorities (19:41-42).

1. The most basic requirement of all is that the child should be taught the name of each letter, or the letters in each phonogram. This is done by showing the card and teaching the child to say the name.

2. If the child's production of sounds is faulty, there will have to be practice in echo speech, for example, the teacher will produce the sound for the child to imitate. Very little of this drill may be needed, and then, perhaps only for certain sounds. On the other hand, other children, who may be able to recognize and remember the sound correctly, will persist in furnishing it incorrectly, so that practice with echo speech will have to be continued for a considerable period of time.

3. When the name of the phonogram has been acquired, and correct sounds of speech have been found to be largely dependable, the following drill will be found to be a useful reinforcement. The teacher says the names of various phonograms, and the child responds with the related sound or sounds which he has learned.

4. Before he is asked to write there must be whatever practice is necessary in tracing, copying, and writing from memory to dictation, this last being sometimes carried out with the child's eyes averted. Except in tracing and copying, the teacher dictates the name of the phonogram. In all instances the child says the name of each letter as he writes it. This is called simultaneous oral spelling.

Many children who are able to make moderately well-formed letters still begin at the wrong spot and move the pencil in the wrong direction. It must be noted that while tracing, copying, and writing to dictation are not neurologically equivalent processes, yet they all serve to establish

the K - V association, except when the child is writing to dictation with eyes averted. No symbol is really serviceable for easy writing until it can be formed without visual supervision.

The Orton-Gillingham technique teaches the child a few letters comprising one or two short vowels and consonants that have only unequivocal sounds and forms which do not become letters if reversed as "b" and "d". When these letters are known by their names and sounds they can be made into words. Slowly new letters and letter combinations are introduced and new words are added until finally used in sentences (14:560).

Since the core of this approach is to establish the concept of words as built out of phonetic units, the first fundamental of this technique is to break down the child's attitude towards words as ideograms and to eliminate all guessing. Gillingham (19:42) concluded that:

There is no use in attempting to attain results from our techniques unless the school, the parents and the students themselves all understand these fundamental demands and cooperate in meeting them.

By tests Gillingham has learned that children taught in this way can learn to read fluently up to their ability level by the end of the fourth year, children who otherwise might be very well reading in what teachers now call their "slow group" or as the other children call it "the dumb group".

"Children who have this difficulty are no longer classified as "slow learners" or "dumb" but recognized as children who have dyslexia, a specific reading disability" (14:561).

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY AND CONCLUSIONS

As one investigates and reviews the literature concerning dyslexia, a specific reading disability, he finds a multitude of terms for the disability, a mass of contradictory causes, and a great deal of questionable research on specific methods of remediation.

Dyslexia is a complex syndrome with a considerable amount of disagreement among the findings of its researchers. As to the nature and cause of this specific reading disability, Kerr (1896), Morgan (1896), and Hinshelwood (1917) have similar reports which conclude that it probably results from a defect of function, a neurological disorder. Hinshelwood (1917) also considers the condition to be one of heredity, a genetic defect. This viewpoint is also shared by Thomas (1905), Skydsgaard (1942), Hallgren (1950), and Hermann (1959). Both Orton (1937) and Dearborn (1933) state the disability is one of neurological basis, a hereditary tendency to fail to develop complete dominance of one cerebral hemisphere. However, Orton stresses the confusion in mental imagery, while Dearborn places the emphasis on confusion of motor ability. While a specific reading disability can result

from numerous causes and not the result of one isolated factor, a consistent pattern is shown in most cases which can be meaningfully explained as an aspect of neurological dysfunctioning.

While the primary characteristics are not apparent until school age, many associated characteristics occur with much greater frequency than in the normal population. When taken as a group the following symptoms are associated with children having dyslexia: (1) disturbance of orientation, (2) topographic disorder, (3) dyschronometria, (4) inability to write, (5) spelling disability, (6) dyscalculia, (7) foreign language disability, (8) memory disorders, (9) inability to auditorize or inability to visualize, (10) deviate motor pattern, and (11) neurological disturbances.

For many reasons, boys are more likely to have dyslexia than girls. In general eight out of ten children who have difficulty with perception and recognition of words are boys. Greater vulnerability of boys to developmental defects or later injury, as well as the possibility of sex-linked or influenced genetic factor, can explain the prevalence of boys among cases of reading disability.

With the exposure to reading instruction, the primary characteristics of the disability become apparent. There are at least three that are so consistent as to be a fundamental to the disability. These are: (1) difficulty in simple

learning of associations between letter symbols and letter sounds, (2) the presents of static reversals, reverse of letters such as "b" for "d" and the presents of kinetic reversals, reverse of words such as "dig" for "big" and (3) use of insufficient word recognition cues by attending primarily to initial letter, length, and general shape while tending to ignore cues of details within words.

Studies have shown that approximately ten percent of the school children have a reading disability of this type. Emphasis must be placed upon early identification and placement in the proper program before an individual's problem becomes too complex. The responsibility of identifying and providing for special needs lies with the schools, for it is the philosophy of public education that the needs of all our children should be provided. Authorities agree that early identification and preventive practices are the only solution.

Procedures for referral and diagnosis of the reading problem usually follows the identification of the child. It is necessary to establish criteria for referrals such as who should be referred, and who should not be referred. Next the avenues of procedures need to be established. Apparatus and screening devices for proper diagnosis of reading problems and reading levels are necessary for a complete reading analysis of each individual identified as having a specific reading disability.

It takes an entirely different approach to teach children with a specific reading disability. How long this takes depends upon the degree of the disability, the intelligence of the child, and the skill and attitude of the teacher. The attitude and the understanding of the parents in the situation is also vital.

Dyslexia must be accepted as a definite handicap that can be overcome through proper training. However, it must be emphasized that there is no one approach to remediate these severely retarded readers. Two methods were investigated by the writer. The kinesthetic method which involves the visual, auditory, and motor senses as described by Fernald (1943) has produced very successful results with many readers who have a severe disability. The phonetic method developed by Orton and Gillingham is based on the close associations of visual, auditory and kinesthetic elements forming what is sometimes called the "language triangle". Children with a specific reading disability taught by the Orton-Gillingham technique have had unusual success.

It was the purpose of this study to determine if the specific reading disability of dyslexia could be overcome by using specific teaching methods of reading when early identification of the reading disability was established. After the investigation and review of the literature, the

writer concludes that early identification of dyslexia is vital for successful remediation. Intelligent, industrious children who have a specific reading disability can be helped. Both teacher and parent should try to recognize dyslexia and then to understand such children having this disability. They offer the teacher a challenge and an opportunity.

II. RECOMMENDATIONS

The writer presents the following recommendations as a result of this investigation:

1. More research concerning both the medical and educational aspects in this area are greatly needed.
2. Educators must develop better tests for screening in order to identify children who cannot learn to read by the normal techniques that are so successful with most children.
3. Educators must develop the most effective teaching procedures for all children who cannot learn by the normal techniques.
4. Educators must develop the format or school organization to implement points (1) and (2). The ungraded school might be one answer to this problem.
5. Educators in institutions of higher learning should require their teacher candidates to take at least one course involving the exceptionalities of children.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Austin, Mary C., and Coleman Morrison. The First R: The Harvard Report on Reading in Elementary Schools. New York: The MacMillan Company, 1964.
2. Bateman, Barbara. "Learning Disabilities--Yesterday, Today, and Tomorrow", Exceptional Children, pp. 167-77, December, 1964.
3. Bender, Laretta. "Specific Reading Disability as a Maturational Lag", Bulletin of the Orton Society, 13:25-44, 1963.
4. Betts, Emmett A. "Reading Abilities: Averages and Deviations", Education, pp. 323-26, January, 1954.
5. Bryant, N. Dale. "Characteristics of Dyslexia and Their Remedial Implication", Exceptional Children, pp. 195-99, December, 1964
6. Cohn, Robert. "The Neurological Study of Children with Learning Disabilities", Exceptional Children, pp. 179-85, December, 1964.
7. Conference on Reading. Corrective and Remedial Reading. University of Pittsburgh, 1960.
8. Craig, Lillian. "The Strophosymbolic Can Learn to Read", Virginia Journal of Education, pp. 1-2, February, 1945.
9. Critchley, Macdonald. Developmental Dyslexia. London: William Heinmann Medical Books Limited, 1964.
10. Diack, Hunter. Reading and the Psychology of Perception. New York: Philosophical Library Inc., 1960.
11. Durrell, Donald D. Improvement of Basic Reading Abilities. New York: World Book Company, 1940.
12. Eiseson, Jon. "Aphasia and Dyslexia in Children", Bulletin of the Orton Society, 13:101-109, 1963.
13. Fernald, Grace M. Remedial Techniques in Basic School Subjects. New York: McGraw-Hill Book Company, Inc.,
14. Filbin, Robert L. "Prescription for the Johnny Who Can't Read", Elementary English, 34:559-61, December, 1957.

15. Gallagher, J. Roswell. "Specific Language Disability: Dyslexia", Bulletin of the Orton Society. 13:45-57, 1963.
16. _____. "Can't Spell, Can't Read", Atlantic Monthly, 181:35-9, June, 1948.
17. _____. "Specific Language Disabilities: Dyslexia with Special Reference to Adolescents", Bulletin of the Orton Society, 13:45-57, 1963.
18. Gann, Edith. Reading Difficulty and Personality Organization. New York: King's Crown Press, 1945.
19. Gillingham, Anna and Bessie W. Stillman. Remedial Training for Children with Specific Disability in Reading, Spelling, and Penmanship. New York: New York Lithographing Corp., 1960.
20. Goldberg, H. K. "Dyslexia and Ophthalmology", Bulletin of the Orton Society, 14:39-40, 1964.
21. Hardy, William G. "Dyslexia, Hearing, and Speech Disorders", Bulletin of the Orton Society, 14:40-41, 1964.
22. Harris, Albert J. How to Increase Reading Ability. New York: Longmans, Green and Company, 1961.
23. Hermann, Knud. Reading Disability: A Medical Study of Word-Blindness and Related Handicaps. Springfield, Illinois: Charles C. Thomas, 1959.
24. International Reading Association. Challenge and Experiment in Reading. New York: Scholastic Magazines, Volume 7, 1962.
25. John Hopkins Conference. Reading Disability: Progress and Research Needs in Dyslexia. Baltimore: The John Hopkins Press, 1962.
26. Kottmeyer, William. Teacher's Guide for Remedial Reading. St. Louis: Webster Publishing Company, 1959.
27. Krise, E. Morley. "Reversals in Reading: A Problem in Space Perception", Elementary School Journal, 49:278-84, January, 1949.
28. Monroe, Marion. Children Who Cannot Read. Chicago: The University of Chicago Press, 1933.

29. Myklebust, Helmer R. and Doris Johnson. "Dyslexia in Children", Exceptional Children, 29:14-25, September, 1962.
30. Orton, Samuel T. Reading, Writing and Speech Problems in Children. New York: W. W. Norton and Company, Inc., 1937.
31. _____. "Specific Reading Disability--Strephosymbolia", Bulletin of the Orton Society. 13:9-17, 1963.
32. Potter, Muriel Catherine. Perception of Symbol Orientation and Early Reading Success. New York: Bureau of Publications, Teachers College, Columbia University, 1949.
33. Robinson, Helen Mansfield. Why Pupils Fail in Reading. Chicago: The University of Chicago Press, 1946.
34. Saunders, Roger E. "Dyslexia: Its Phenomenology", Bulletin of the Orton Society. 13:75-82, 1963.
35. Schiffman, Gilbert. "Early Identification of Reading Disabilities", Bulletin of the Orton Society. 14:42-4, 1964.
36. Schubert, Delwyn G. The Doctor Eyes the Poor Reader. Springfield, Illinois: Charles C. Thomas, 1957.
37. _____, and Theodore L. Torgerson. Improving Reading in the Elementary School. Dubuque, Iowa: Wm. C. Brown Company, 1963.
38. Slingerland, Beth H. "Specific Language Disability is Recognized by the Renton, Washington, School District", Bulletin of the Orton Society, 13:161-69, 1963.
39. Stanger, Margaret A. and Donohue, Ellen K. Prediction and Prevention of Reading Difficulties. New York: Oxford University Press, 1937.
40. Vernon, M.D. Backwardness in Reading: A Study of its Nature and Origin. New York: Cambridge University Press, 1938.
41. _____. "The Development of Visual Perception in Children", Education, 78:547-9, May, 1958.