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## Remedial reading technique applied to the deaf

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## WASHINGTON UNIVERSITY Central Institute for the Deaf

# REMEDIAL READING TECHNIQUE APPLIED TO THE DEAF

bу

ELIZABETH A. GORSUCH

A dissertation presented to the Board of Graduate Studies of Washington University in partial fulfilment of the requirements for the degree of Master of Science in Education

> June, 1938 Seint Louis, Missouri

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#### CHAPTER I.

#### INTRODUCTION

Fundamentally, only in the loss of one sense, that of hearing is the deef child different from the hearing child. This loss however, produces a basic difference in the informal education each receives. The informal education of the hearing child is largely an auditory process. He picks up new words and new concepts without being consciously swars of it. The implications of such a mode of education lead to the realization of the vast limitations of the informal education of the deef child. Thus it is evident that the deef child and the hearing child do not enter formal education with the same background. As Dr. Schick Lane has so aptly stated

Educators of the deaf have elways recognized and accepted the fact that the deaf child is retarded educationally. Due to his auditory defect there is a language handicap and therefore a gap between his mental and his scholastic progress, which could not be evoided.

Formerly the educational retardation was said to be from four to five years; more recent findings have shown this retardation to be only two years. In view of this fact the present trend is to overcome the gap and educate the deaf child in such a way that he will be able to take his

<sup>1</sup> Schick, H. F., "A Five Year Testing Program to Measure the Educational Achievement of the Deaf Child," <u>Oralism and Auralism</u>, p. 5, June, 1936.

Auralian, p. 5, June, 1936.

2 Pintner, R., "Measurement of Language Ability and Language
Processes of the Deaf Children," Volta Review, 20: 757-764, 1918.

3 Schick, H. F., Op. Cit. p. 12

proper place in a hearing environment.

What, then, are some of the procedures that may be adopted to overcome this deficiency?

One procedure is to begin the education of the deef child at an early age. As Dr. Goldstein has expressed the sentiments of the progressive educators

that the preschool training idea may be of inestimable velue for scholarship to the congenitally deaf child.

A second method, used by the oral advocates, is one in which speech and lip reading predominate. Such a system does much to eliminate the gap in communication.

Emphasizing visual training is a third means of compensating for the language handicap. This program involves an increase in the amount of reading instruction.

Teachers of the deaf have realized the importance of preschool and oral education as a means of reducing the educational retardation. However, fear of slighting these two methods has led to the neglect of the full possibilities of the visual training program. Emphasis on lip reading and speech frequently leaves less time for the reading program which to the deaf child is an important avenue of learning. A combination of all three procedures is the most desirable means of reducing the gap between mental ability and educational accomplishment, sacrificing no one procedure at the expense

<sup>4</sup> Goldstein, Max A., Problems of the Deaf. St. Louis: Laryngoscope Press, 1933, p. 254.

of the others.

The information the beering child gets as a natural result of his auditory experience, may be realized in the deef child through an extensive reading program. Even for the hearing, the importance of such a program cannot be overly stressed as is brought out by the following studies.

Percival<sup>5</sup> in his study of hearing children in the first grade showed reading to be responsible for ninety-nine por cent of the fellures in city schools and minety-five per cent in mural districts.

In a similar study of all the grades, Fr. Doris Lee found that the general achievement index we seriously lowered when the pupil fell one-tenth of a grade in reading ability.

In her work with the Stanford Achievement Test as applied to the deaf, Or. Schick Lene found that tests involving the interpretation of written language showed the greatest retardation. The following tests ere erranged according to the difficulty presented to the deaf child:

> Paregraph Meaning litereture Word Meaning

<sup>5</sup> Betts, Smmett, Prevention and Correction of Gaading

Difficulties, New York: Row, Feterson and Jo., 1936, p. 4.

Setts, Semest, Oc. cit., p. 5.

7. Schick, H. F., A Five Year Testing Program to Measure the Educational Achievement of the Doef Child," Cralism and Aureliam, 9-12, June, 1936.

History and Civics
Arithmetic Ressoning
Language Usage
Geography

Arithmetic Computation

Scores on the first five tests are particularly dependent upon the subject's reading ability. One of the suggestions for bridging the educational gap is to increase the amount of reading and stimulate the vocabulary thus improving the deef child's skill in handling language.

Summerizing - in order to bring the deef child's educational achievement up to the level of his mental ability it is necessary to:

- 1. Begin the education of the deef child at three years of age so that he may obtain formally a part of the informal education of the hearing child.
- 2. Stress lipresding and speech so that he has a means of communicating with the hearing.
- 3. Develop a reading program that will increase his information, his vocabulary, and stimulate a desire for reading.

This study deals with a reading program developed by the author to consider the following problems:

- 1. Does it take the deaf child longer to learn to read then the hearing child? If so, how much longer?
- 2. How much does the vocabulary limitation effect the reading of the deaf?

- 3. Does the lack of suditory memory hinder the reading of the deef?
- 4. Can vision be trained to overcome this auditory deficiency?
- 5. Does progress of the reading of the deef depend upon the acquisition of speech?
- 6. By starting the deef child reading at an earlier age does he come up to the normal hearing child's standard for a given grade?

In order to solve these problems three groups of totally deef children were given instructions following remedial reading techniques used successfully with hearing children. The first group consisted of children of the primary grade, their ages renging from five to seven years.

A second group was composed of children of third and fourth grade shility (Chronological age - ten to eleven years).

The third group of children were of eighth grade ability. (Chronological age fourteen to fifteen, years.)

The effectiveness of the program was judged by the results obtained from standardized tests. It is the author's hope that from this remedial reading technique, teachers of the deaf may be efforced some helpful suggestions for the improvement of reading.

#### CEATTER II.

#### EISTORY

The history of teaching reading to the hearing is included with the history of teaching reading to the deaf in order to emphasize the difficulties encountered by educators in the latter field. The improvement of teaching procedures in both fields was slow, but particularly in the field for the deaf as many of the methods available to the hearing were not applicable to the deaf.

History of Methods of Teaching Reading for the Hearing.

1. Alphabetical Method.

The alphabetical method has been used for centuries as a method of teaching reading. It originated when symbols representing language ideas were in themselves meaningful.

Amphasis was placed on the memorizing and naming of the letters of the alphabet and combining them into words. The whole procedure assumed that the ability to name letters of a word would lead to correct pronunciation of the word.

Judging from some of the teaching devices used, the method was not entirely satisfactory.

The Greeks often used their slaves to represent the letters of the alphabet.

<sup>8</sup> Hildreth, G. Learning the Three R's. Minneapolis: Educational Publishers, 1936, p. 106.

<sup>9</sup> Storm and Smith, Reading Activities in Primary Grades Boston: Sinn and Co., 1950, p. 3.

In Germany, the Gingerbreed Method was used. The letters of the elphabet were made of singerbreed and when the child had learned a letter he was permitted to eat it. 10

The Dutch School of New Amsterdam employed the practice of writing the A B C's in sand. The primary curriculum included:

#### In send:

- 1. A B C's.
- 2. Words of one syllable.
- 3. Words of more than one syllable.

#### On slates:

- 1. The same process only more advanced.
- 2. Reading from the primer. 11

The first method of teaching reading used in this country was the alphabetical method. The Puriters introduced the Hornbook and Primer, both of which contained letters of the alphabet, into this country.12

Teaching of reading by spelling was used until fairly recent times in America, as late as 1870.13

In these later years emphasis was placed upon:

1. Articulation and pronunciation as means of eliminating

<sup>10</sup> Storm end Smith, Resding Activities in the Primary Grades, Boston: Ginn end Co., 1930, p. 4.

<sup>11</sup> Hildreth, G., Learning the Three R's, Minneapolis: Educational Publishers, 1936, p. 106.

<sup>12</sup> Storm and Smith, op. cit. p. 3. 13 Hildreth, G., op. cit., pp. 106-108.

the numerous dialects that had sprung up in the United States.

2. Elecution, which became popular with the growth of the democratic form of government.

This emphasis, particularly upon articulation and pronunciation, was significant in that it brought about the
practice of teaching the sounds of the letters.

II. Sound Method.

In 1534 a German, Inkelsomer suggested that sounds of letters be used instead of letters. Not only the sound of the letter but elso the object or animal that could suggest the sound of the letter such as the sound of a dog growling for  $\underline{r}$ , etc.

The method found followers in France and Switzerland.

It became a dominant factor in our country in the latter part of the nineteenth century. 15 This method as we have come to know it, may be further divided into the phonic method and the phonetic method.

Phonic technique consisted of memorization of the elementary sounds rather than their names. The sounds of the individual letters were then blended together. It was found that the sound of a word was not always the same as the sound of the individual letters in the word. Single letters often have various sounds. Many times words have

<sup>14</sup> Smith, Nila B. American Reading Instruction, New York: Silver Burdett and Co. 1934, p. 69.
15 Storm and Smith, Reading Activities in the Primary Grades, Boston: Ginn and Co., 1930, p. 5.

#### silent letters.16

In an effort to overcome these defects the phonetic method was developed. Attempting to overcome the difficulty. forty-four sounds in the English lenguage were established, elthough there were only twenty-six letters in the alphabet. 17

This method has been used from the latter half of the nineteenth century until the present day in more or less elaborate forms.

#### III. Word Method.

Origin of the word method lies in the early work of Comenius, medieval educator. 18 This method did not find favor in America until the minetoenth century. Horsee Mann found, in a survey of schools in Marsachusetts, that eleventwelfths of all the children in the reading classes did not understand the meaning of the words they read. He criticised the alphabet method very severely as being responsible for this condition. As a result of his criticisms the A B C method was abandoned in preference to the word method which most progressive schools adopted by 1880.19

The edvocates of the method believe that any effective method in reading is one which emphasizes thought getting. They believe the word to be the unit of thought. Using this

<sup>16</sup> Hildreth, Certrude, Learning the Three R's, Minneapolis, Educational Publishers, 1935, pp. 106-107.

<sup>17</sup> Hildreth, loc. cit.
18 Hildreth, loc. cit.
19 Storm and Smith, Heeding Activities in the Primary Grades,
Boston: Ginn and Co., 1930, pp. 5-7.

method the child is taught entire words during his first week of reading instruction.

IV. Centence and Story Method.

An outgrowth of the word method is the sentence end story method.

The sentence method was introduced into America by George L. Farham of Binghamton, New York. It was not used extensively until 1890.20

Ferhem believed that reading should be taught in wholes and that the sentence rather than the word was the natural unit of thought.

This approach to reading is an analytical one. The teacher often uses the children's experiences of a femiliar story as the basis of the beginning reading lesson. The children read the selection and then enelyze it into single words. Very often words are broken up into their sound elements. This is to give the child a method of attacking the pronunciation of unfamiliar words.

The more modern use of these principals is a combination of word, phrase, sentence and phonetic methods.

V. Experience Reading.

The newest trend in reading methods is what is sometimes called experience reading. It is, as its name indicates, based on the children's experiences.

<sup>20</sup> Smith, Nile S., American Reading Instruction, New York: Silver Burdett end Co. 1934, p. 104.
21 Smith, op. cit., pp. 140-141.

The teacher and the children prepare the reading material.

Nila B. Smith gives a description of the method in her book, "American Reading Instruction."22

Teachers employing this type of reading instruction do not use any one basal set of readers or any one systematized method for the classes in the same grade or in consecutive grades. Their methods and material vary with the interests and maturity of each group of children they teach. The children and the teacher prepare much of their own reading materials in connection with class and individual activities. They also make use of many different basal and supplementary readers as well as a wide variety of other books of both literary and informative types, all of which ere drawn upon as they serve the needs and interests of the group.

The history of teaching reading to the deaf concerns itself with the type of reading taught (silent or oral) and the age at which instruction is begun, rather than the methods of teaching.

The interest of educators of the deaf in reading and reading methods is comparatively recent.

The earliest reference to reading is that of Felgerno in 1680 who proposed that the deaf should be taught reading at an early age. 23

In this country Alexander Bell who introduced the oral method in 1872, was a strong advocate of the teaching of

<sup>22</sup> Smith, Nila ... serican Reading Instruction, New York: Silver Burdett and Co., 1904, p. 229

<sup>23</sup> Groff, M. L., "Esychology of Language With Special Reference to the Deaf," American Annals of the Deaf, 71: March, 1936.

reading for he said:

I would have the deaf child read books in order to learn language, instead of learning language in order to read books. 24

But with the introduction of the oral method came the controversy between the manual and oral method. This struggle dominated educational thought and any interest in reading was a minor thing.

For years the general idea in regard to teaching deef children has been that the teaching of lenguage, speech and lipresding must always precede the written form.

Interest in reading wee renewed in the early part of the twentieth century. At this time the testing movement was introduced into hearing schools and the testing movement had its effect upon the education of the deaf as well as the hearing. In 1923 Dr. Gates gave certain tests in the Institution for Improved Instruction of Deaf Eutes in which he found deaf children to be uniformly good spellers. He attributed this superiority to their ability to visualize words. However, the habit of visualizing individual words became a hindrance on reading tests. On a reading test with a five minute time limit, the deaf children, in comparison with normal hearing children of the same grade, read so slowly that they failed to greep the meaning of the subject

<sup>24</sup> Davies, R. D., "Primary Reading for Deaf Children", Oralism and Aurelism, 3: 100-104, Oct., 1924.

25 Bennett, J., "An Experiment in Reading," Oralism and Aurelism, 6:94-97, Oct., 1927.

matter.26

As a result of this investigation Gates concluded that deef children could be taught comprehension of language at a much earlier age. 20

A graduate student of Dr. Gates, Dr. Helen Thompson, carried on the investigation in the school, the following year. She spent this year, 1924, in observing the methods used in the various classrooms.

In 1925 she carried out the methods of teaching reading to the dear, as suggested by Gates. The work was done with several groups of children ranging in age from four and a half to nine years. The majority of the children were less than seven years of age, the average age being sit and a half years. The average I. 4. was ninety-five. The experiment was carried on from 1925 to 1926 an hour a day for five days a week.

Heretofore the teneral method of reading used in the Institute for Improved Instruction of Deaf Mutes had been dramatic rather than visual. In dramatizing of the stories the children used just the language they already knew. Thus the children were not required to read independently beyond their vocabulary limits.

<sup>26</sup> Bennett, J., "An Experiment in Resding," Oralism and Auralism, 6:94-97, Oct., 1927.

27 Proceedings of Thirteenth Conference of Superintendents and Principals of American Schools for the Deaf, American Annals of the Deaf, 72:230-234, May, 1927.

28 Bennett, Op. cit., pp.94-97.

The experiment interfered in no way with the regular teaching program. 29

Since this experiment had such a fer reaching effect upon methods of teaching the deaf, it seems fitting to describe it in detail.

Gates 30 gives the following characteristics of the method in his book, "Improvement in Reeding."

- 1. Presentation of word in variety of contexts.
  - e. In connection with real objects, actions, pictures, etc. with things to do, cut, color, draw.
- 2. Provestion of practice in errors by acquiring mastery of each step in the work before the others are attempted.
- 5. Provision for wide individual difficulty with plenty of reserve material for slow learner.
- 4. Sufficient variety of materials and exercises to make it possible to avoid monotony of repetition.
- 5. Provision for development of all phases of silent reading without oral direction.

One of the major features of the method was the use of the Gates Picture Dictionary. This consisted of mimeographed sheets on which a word was printed with a picture beneath to Indicate its meaning. It was so arranged that there were

<sup>29</sup> Bennett, J., "An Experiment in Reading," Oralism and Auralism, 6: 94-97, Oct., 1927.

30 Cates, Arthur I., The Improvement of Reading, New York: Macmillan Co., 1928, p. 276.

two sets for the same word on one sheet. The pupil put one set in his own book and used the other for a flash card. 31

The speech of the words was not taught and each child was permitted to work independently at his own rate of speed.

The experimental group when compared with the control group, which had been taught by usual methods, was found to be superior. When comparing the deaf children with normal first grade hearing children in the Detroit Public Schools the deaf attained a score almost identical with the average attainment of the hearing group. The comparison was based on the Detroit Reading Test. Those children who were tested by the Gates Reading Test did as well if not better than the hearing children in the New York Schools.

Thompson 33 says of the results:

The results of the experiment were highly significant. Not only was it found that a reading curriculum can be devised which is independent of oral language but we found, that taught in this manner, the deaf children achieve in one year of beginning reading five-sixths of the achievement of a normal hearing class in their first year of reading. This surely indicates that the deaf child's inexperience in oral lenguage, up to the age of school entrance is not as serious as it would first seem. Beginning even at this late age, it is possible to approximate normal progress in reading if the method of instruction is adopted to the child's capacities; that is if a purely

<sup>31</sup> Gates, Arthur I. The Improvement of Reading, New York: MacMillan Co., 1928, pp. 279-232.

<sup>32</sup> Gates, op. cit. p. 297.

<sup>33</sup> Thompson, H. "Importance of Reading in the Education of the Deaf," Proceedings of the International Congress on The Education of the Deaf, West Trenton, p. 115, 1933.

visual method is used.

In 1924 two articles on silent reading were published one by Mergaret Fitzgerald and the other by Helen Northrop. 35

These two articles showed how methods of teaching reading to the hearing were beginning to be seriously noticed
by educators of the deaf.

Both writers stressed the importance of teaching reading to the deaf and both urged that reading be divorced from the speech period.

Fitizgerald 36 says:

Correct pronunciation and clear articulation while necessary for correct speech and to be desired are not synomymous with reading which consists essentially in getting thought from the printed page.

Northrop 37 says:

Reading sloud should be part of the speech period where proper attention will be given to articulation and emphasis but it should most decidedly not be a part of the reading period except incidentally as the teacher assists in pronunciation of new words.

Fitzgerald also states that the lack of ability of older deaf children in reading was largely due to the methods of teaching. She questioned whether the teacher

<sup>34</sup> Fitzgerald, M. "Silent Reading," Oralism and Aurelism, 3: 100-104, Oct., 1924.

<sup>35</sup> Northrop, H. "Reading for the Deef," American Annals of the Deef, 69: 401-425, Nov., 1924.

<sup>36</sup> Fitzgereld, op. cit.,pp. 101-102.

<sup>37</sup> Northrop, op. cit., p. 408.

of the deaf was informed of the scientific research in the field of reading or that any such information was being applied to the deaf.

At the Thirteenth Conference of Superintendents and Frincipels of American Schools for the Deef one of the subjects discussed was the "Proper Adjustment of the Course of Study to Meet the Requirements of the Very Young Child."

Included in this discussion was a reference to methods of teaching reading. It was the concensus of opinion that the young deaf child could comprehend language much earlier then he is able to reproduce it. If the child is given reading in the beginning, when he does begin to reproduce language, he will have a wealth of verbal ideas.

The following theory in regard to reeding was postulated:

That by developing and utilizing silent reading devices involving principally abilities of pictorial comprehension and learning it would be rossible to teach deef children to read at an earlier age and more quickly than is possible with present methods, which are contingent upon the development of speech and lip reading. 38

"An Educational Experiment With a Young Deaf Child" was reported in 1928 by Marne Lauritsen, 39 in which he described the methods used with a six and one half year old deaf child.

Deaf Child," American Annals of the Deaf, 73:433-442, Nov. 1928.

<sup>38</sup> Proceedings of the Thirteenth Conference of Superintendents and Principals of American Schools for the Deaf, American Annals of the Deaf, 72; May, 1927.

39 Lauristen, M. G., "And Educational Experiment With a Young

The method consisted of four characteristic features:-

- 1. Print was used instead of script from the beginning.
- 2. Printed vocabulary was not limited by lip reading end spoken vocabulary.
- 5. Formal sense training was omitted and seatwork in accordance with trands of modern aducation was given.
- 4. The sentence method was used in preference to the word method. The child after five weeks of school, had acquired a vocabulary (lipresding and silent reading vocabulary) of sixty-eight noune, twenty-eight vorbs and sixteen adjectives.

In 1930 Clare Newlee<sup>40</sup> reported an experiment cerried on in the Parker Practice School of Chicago.

The reading ability of the children was measured by standardized end informal tests. These tests showed the children to be deficient in reading abilities particularly in comprehension and reading mechanics.

The experiment was carried out in the Kindergarten with six children between the ages of four and one-helf and six years. Since the Kindergarten session was in the morning, only a few minutes daily was ellotted to silent reading. During this period the teacher herself used speech but ignored any oral response ande by the children. A stop watch was used

<sup>40</sup> Newlee, C. 3. "Reading as a Means of Teaching Lenguage to the Leaf," American Annals of the Deaf, 75: 345-361, Nov. 1930.

to time periods - six minutes for speech work, three minutes for speech reading and three minutes for reading print.

A combination of modified word, phrase and sentence methods was used. It was found that a new word given in print was fixed in less time than when given in either speech reading or in speech. The vocabulary increased one hundred per cent over the number of words required in the Kindergarten year. The children were able to absorb language forms that had never been attempted before the second and third grade.

The speech reading elso improved after the printed reading had been given. Until this time the majority of reading methods and studies were centered upon primary reading.

In 1931 41 Lilian Church cited the problems of teaching reading to an adolescent.

Hudgin,  $^{43}$  and Carver  $^{43}$  reported their success in using silent reading methods for the deaf.

The Committee on Research of the New Jersey School was asked in 1932 to make a survey comparing the work done in New Jersey with the work done in the public schools and to find some reason for the failure of the deaf to approximate the educational achievements of the hearing children.

<sup>41</sup> Church, L. L., "Reading for the Deaf Adolescent,"

Volta Review, 33:251-252, June, 1931.

42. Hudgin, S. G., "Silent Reading," Volta Review, 33:

391-392, Sopt., 1931.

43 Carver, L., "Silent Reading in Beginning Classes,"

Volta Review, 33:393, Sept., 1931

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<sup>41</sup> Church, L. L. "Reading for the Beaf Adolescent,"

Volta Review, 35:251-252, June, 1931.

42 Hudgin, S. G. "Silent Reading," Volta Review, 35:321-392,

Sept., 1931.

43 Carver, L. "Silent Reading in Beginning Classes," Volta
Review, 33:393, Sept., 1931.

The committee reported:44

- 1. Children in the public schools are surrounded by print whereas the deaf children are surrounded by script.

  The committee asked how this affected the reading of the deaf.
- 2. Reading for the deaf is not considered important in the lower grades.
  - 3. The deaf have a vocabulary handicap.

The committee suggested that more reference books on reading be placed in the teachers' library.

Two entirely new ideas for teaching the deaf reading were suggested by Elizabeth Scott and Helen Hammer.

Elizabeth Scott<sup>45</sup> suggested using the lantern slide as a means of teaching beginning reading.

Helen Hammer 46 suggested a project method as a means of teaching primary reading to the deaf.

Rechel Dawes Davies 47 renews the argument for teaching print before lipreading saying,

Print is regular and therefore easier for the child than lip reading which is all movement.

She also suggests experience chart reading to be used after the child has acquired a print vocabulary of one hundred to two hundred words and some knowledge of sentences.

<sup>44</sup> Report of Committee on Research, New Jersey Schools, Volta Review, 34: 603, Jan., 1932.

45 Scott, E. "Uses of Slides in Primary Classes,"

<sup>46</sup> Hammer, H. "A Project on School Room Pets," Volta Review, 34: 396-398, Sept., 1932.

<sup>47</sup> Davies, R. D. "Primary Reading for Deaf Children," Oralism and Auralism, 11:44-48, Oct., 1932.

An interesting study is one made by Groff<sup>48</sup> in 1933 who enalyzed first year vocabularies with the view of suggesting a basic first year vocabulary. His questionnaire included the following items:

- 1. Lists of words children can speak.
- 2. Lists of lipreading words.
- 3. Words the children can write.
- 4. List of words children can read in print.
- 5. List of textbooks used and the average age of the first year group.

This form was sent to two hundred schools but only fifty schools replied. The group included both public and residential schools.

He found a total of 25,227 words were taught; 6,355 were spoken; 9,027 listed as lipreading words and 5,721 words in the written vocabulary; 4,124 words were read in print.

Fifty four per cent of the schools taught speech, lipreading, print and writing the first year.

Forty per cent used all four methods, but did not develop the vocabulary equally.

Four per cent used speech, lipreading, and writing exclusively.

Twenty six percent used the three methods unequally.

That scientific investigation into the reading habits was beginning to grow, is evidenced by a study made of the reading

<sup>48</sup> Groff, M. L. "An Analysis of First Year Vocabularies," American Annals of the Deaf, 78: 219-228, May, 1933.

habits of deaf children by the research department at the Clarke School.

The investigation included ninety-four pupils of the Texas School for the Deaf as subjects. All of these children had lost their hearing at about two years of age and had less than thirty-five per cent residual hearing.

It was found that the deaf children showed maturity in eye movements but that they differed significantly from the eye movements of hearing subjects.

There was a tendency for both the hearing and the deaf to have an increase in the number of fixations and regressions during the first grades. In the first five grades increase in comprehension was accomplished by an increase in number of fixations.

That the teaching of reading has not yet been universally accepted as a major part of the curriculum by teachers of the deaf is evidenced by the amount of literature in 1938 stressing the importance of reading for the deaf and urging that it be taught earlier.

To summarize-the history of previous investigations an attempt has been made to organize the methods used in teaching the hearing end then discuss briefly studies in reading applied to the deaf.

<sup>49</sup> Clarke School Research Department Abstracts of Scientific Studies, "An Analytical Study of Reading Habits of Deaf Children," Journal of Experimental Education, 5: 40-58, 1936.

Previous investigations on reading of the deef seem to show:

- 1. That development of reading vocabulary is not dependent upon spoken vocabulary.
- 2. That with intensive reading instruction the deaf child can equal the reading ability in the primary grades.
- 3. That educators of the deef have realized the importance of reading but have not until very recent years attempted to meet reading problems. This was probably due to the stress placed on speech and lipreading in defense of the oral method.
- 4. That no remedia) reading technique as developed for the hearing has been applied to the deaf.

#### CHAPTER III.

#### PROCEDURE

The investigation was made at Central Institute for the Deaf. A remedial reading program was carried out by the author in addition to the regular reading instruction given by the classroom teacher.

The instruction was given to three groups of children.

Group I. Six children in the beginning part of the
first grade whose chronological ages ranged from
five to six years.

- Group II. Eight children in the third grade whose chronological ages ranged from eleven to twelve years.
- Group III. Four children in the eighth grade whose chronological ages ranged from fourteen to fifteen years.

The children in all three groups were of normal intelligence with the exception of one child in the first group
who was a dull child. The I. Q.'s in group I renged from
eighty three to one hundred and thirty; in group II, ninety
eight to one hundred and thirty six; in group III one hundred
and twelve to one hundred and twenty six.
GROUP I.

This group consisted of six boys who had been in school for about three years. During this time they were taught speech, reading, and lipreading. Speech was developed from single vowel and consonant elements; and as each element was

taught, the written form and lipreading were introduced. When the child was successful in these three, he was required to write the element.

As soon as the child had mastered a few vowels and consonants they were combined into words. The same procedure used in building up single elements was carried out in developing words. Only an additional step was introduced, the association of the word with an object and picture. Then commends were given, the child getting the command first from the teachers lips and then from the written form. By the time the children reached the third year of school they were able to read anything, phonetically. However, they were unable to read print as instruction had been given in script.

Many comments were made on beginning reading at such an early age. Some educators who believed the child should not begin reading until six years of age objected on this basis. Others thought the children were not really reading, in the true sense of the word, that it was merely phonetic recognition of elements.

#### GROUPS II AND III.

These two groups had backgrounds which were similar. Group II, a class of seven, has attended school for about seven years. Group III, a class of four has been in school for about twelve years.

Since these two groups were in the "rotating department" of the school, they went to a different teacher for each

subject. In the English class the emphasis in reading was placed on interest and enjoyment. The attitude of the teacher is expressed by the following:

We are trying to lead the deaf child into the richer fuller life which should be his. As one of the most important measures by which we hope to accomplish our purpose, we are trying to arouse in him a permanent interest in good books. We earnestly desire for him that he will find real enjoyment in the best there is in our literature.

The Remedial Reading Program will be described in the following pages.

GROUP I.

The children were divided into two sections, three children in a section. Each group was given twenty-five minutes of instruction, four days a week, for twenty-two weeks. After a week and a half of instruction the children were grouped according to ability.

The methods used paralleled those used with hearing children as much as possible. The children were introduced to the printed form much in the same way any ordinary hearing group entering first grade. The first lesson is given as an example of the procedure used. Since the children had been taught colors the previous term, this served as the material for the first lesson.

LESSON I.

1. Review of color names.

<sup>50</sup> Skinner, J., "Literature for the Deef Child," Oralism and Auralism, p. 50, June, 1936.

- 2. Each color was mounted on a piece of cardboard with the corresponding name printed beneath. The child's attention was called to the printed form and he was told that it said red, blue, etc.
- 3. Duplicated printed slips of the names of the colors were given the child who was to match his slip with the color chart.
- 4. Then the color chart was turned over so that only the color and not the printed form was visible. The child was given a slip on which the name of the color was printed. He matched his slip with the color.
- 5. Flash card drills were given next. The children called out the name of the color, printed on the flash card. The drill was presented in the form of a game.

The reading was done silently or orally depending upon the inclination of the child. Sometimes the child was stopped in order to obtain the correct speech pattern end sometimes he was not. The speech instruction was given by the regular classroom teacher who endeavored to keep the spoken vocabulary at a level with the reading vocabulary. Thus, none of the reading time was taken away by speech work.

The children were given seatwork very early, in which directions such as COLOR A BALL RED, DRAW A CHAIR were given. The author prepared the seatwork deily besing it on the mistakes the children made from day to day. Then the two directions were combined: DRAW A BALL. COLOR THE BALL RED. The first part of the period was spent in class

instruction; and the second half the children worked individually at their seats.

As soon as the children became familiar with the printed form:- commands, directions, and Journals were printed on the blackboard. By December, two months after reading instruction was begun each child was given a simple A B C coloring book, "Teaching Children A B C's" by Rose Goldberger. After the completion of this book, the class was given the alson Pre-Primer"and two other books, "The Learn to Read Book" by Jean Ayer, and "Resy Reading" by Lois Donaldson. The individual seat work was continued.

When the children had completed their work they were permitted to read additional books. The children's interest was stimulated by dramatizing the stories they read and by telling them stories too difficult for them to read. Every opportunity for reading was utilized.

GROUP II.

The class of seven was divided into two groups, one group of four enother of three. The two groups were instructed one hour a day, for two days a week, for thirteen weeks.

"Facts and Fancies" by William D. Lewis and Albert L.
Rowland was the text used. This book is used in the fourth
grade in the St. Louis Public Schools system. The book has
been organized with the idea that skill in reading is a
combination of many reading techniques and therefore definite
instruction and drill are necessary. Instruction in the
following skills is given in the text:

- 1. To recognize the important thought in a paragraph and to take brief notes for later use.
- 2. To organize the important thoughts of a series of paragraphs into an outline or summary and to give adequate oral or written reports.
- 5. To recall and use material read in answering thought questions.
- 4. To learn new words from the context and from the use of the dictionery, and add them to the spoken and written vocabulary.
- 5. To gain command of the tools of study, such as tables of contents, indices, side headings, charts, graphs, maps, etc.
- 6. To increase the speed of reading to the limit of the individual's ability, without loss of comprehension.
- 7. To recognize such literary elements as story structure and choice phrasing.
- 8. To get real pleasure from reading end to widen the range of reading interests.
- 9. To develop the hebit of self testing material read for comprehension, organization of thought, end speed. 51

Checks in the form of informal speed tests, vocabulary tests, and recall tests were made. The children also dramatized and retold stories they had read.

<sup>51</sup> Lewis, Wm. D. and Rowland, A. Facts and Fancies. Chicago: Winston Co. 1937, p. 111.

GROUP III.

"Real Life Stories" Book II by Theisin and Lenonard were used with these children, books also used in the eighth grade of the St. Louis Public Schools. In using these books emphasis was placed on comprehension of the material, informal speed tests, purposeful reading, and the ability to grasp the meaning of words from the context.

The Leo Brueckner and Wm. Dodge Lewis "Diagnostic Tests and Remedial Exercises in Reading" were also used in Group II and III as a part of the reading instruction.

The purpose of this book is to provide a series of systematically arranged diagnostic exercises in reading and remedial corrective meterials for overcoming the difficulties revealed by careful diagnosis. Special emphasis is placed on methods which may be used with problem cases to aid in determining the types of corrective work that are needed in each particular case. 52

The corrective and remedial exercises are grouped thus:

- 1. Exercises to develop accurate perception and word analysis.
- 2. Exercises to increase vocabulary.
- 3. Exercises to develop correct eye movements.
- 4. Exercises requiring careful reading, emphasis and comprehension.
- 5. Exercises to develop comprehension of larger units

<sup>52</sup> Brueckner, Leo J. and Lewis, Wm. D. Diagnostic Tests and Remedial Exercises in Reading, Chicago: Winston Co. 1935, p. 6.

of material, involving:

- a. Comprehension of significant details.
- b. Comprehension of main ideas.
- c. Reading for the purpose of solving a problem.
- 6. Exercises involving reading to remember (both immediate and delayed recall).
- 7. Exercises on organization and evaluation of what is read.

The effectiveness of the remedial program was evaluated by the results of the Detroit Word Recognition Test used with GROUP I, and the Stanford Achievement Test used with GROUPS II and III. These two tests were chosen because they are adaptable to testing the deaf.

The Detroit Word Recognition Test is a simple group reading test for the first grade. It consists of forty words and phrases and their corresponding pictures. The material is based upon vocabulary selected from Thorndike's Word Book and ten first readers. 54

This insures first, that all the words in the test are words that occur frequently in children's books, and second that no words are included that are not essential to the reading vocabulary of the elementary school pupil.

The number of words and phrases and their variety can be seen from the following talls:

<sup>53</sup> Brueckner, Leo J. and Lewis, Wm. D. <u>Diagnostic Tests and</u>
Remedial Exercises in Reading, Chicago: Winston Co. 1935, p. 1.

54 Oglesby, Elizabeth, "Detroit Word Recognition Test,"
Manual of Directions, p. 2.

Number of words	and phrases per form40	
Total number of	words per form	
Number of diffe	rent words per form	
Total number of	different words and phrase groups271	
Total number of	words in all forms	5

The test is easily administered, for on the front page of the test there is a practice sheet and all the examiner has to do is to indicate with a gesture what is to be done. The child draws a line from the word or phrase to the right picture.

The reliability of the test has been found in two ways:-56

First by finding the correlation between two complete forms of the test, and second by finding the correlation between two halves of a single test, letting the odd items be halve and the even the other halve. In the first case the coefficients were .86, .77. .72, and .52 for Grades 1B, 1A, 2B, and 2A, respectively. For these grades the coefficients of correlation between two halves of the same test were, respectively, .95, .93, .84, and .96. It will be seen that these coefficients are much higher then the first even though one helf a test is necessarily less reliable than the whole Therefore the lack of agreement test. between acores in the two administrations of the whole test which were given a day apart cannot be attributed to the unreliability of the test and must be due. therefore, to the fact that little children vary greatly from day to day in their ability to concentrate, in the quality of their attention, interest, etc.

<sup>55</sup> Oglesby, Elizabeth, "Detroit Word Recognition Test," Manual of Directions, p. 3.

56 Oglesby, op. cit. p. 8

The Stanford Achievement Test in its advanced form consists of ten different tests:

- 1. Paragraph Meaning
- 2. Word Meaning
- 3. Dictation
- 4. Language Usage
- 5. Literature
- 6. History and Civics
- 7. Geography
- 8. Physiology and Hygiene
- 9. Arithmetic Reasoning
- 10. Arithmetic Computation

Two of the tests were omitted. Since Test three is a spelling test given orally and would therefore test the lipreading ability of the deaf children, it was omitted. Test eight was also omitted because Physiology was not a part of the regular course of study.

The Stanford Achievement Test is especially adapted to the testing of the older deaf children. The directions are comparatively simple and speed is not a dominant factor. The reliability coefficient of the Stanford Achievement Test is .95.

# Summarizing:

A remedial reading program was carried out at Central Institute for the Deaf in addition to the usual reading program. Three groups of children with normal intelligence, with the exception of one child, were used for the study.

The children in group one were in the first grade, the children in group two in the fourth grade, the children group three in the eighth grade.

The remedial program was administered to group one for twenty-two weeks; while groups two end three were given instruction over a period of thirteen weeks.

The Detroit Word Recognition Test was used with group one and the advanced form of the Stanford Achievement Test was used with groups two and three in order to judge the effectiveness of such a program.

## CHAPTER IV.

## RETURNS

The success of any type of teaching procedure may be judged objectively or subjectively. Through an annual achievement teating program, Central Institute makes an objective measure of pupil progress. The achievement tests are given in March of each year to all the pupils at the school from the second grade through the eighth grade. These results have been used to measure improvement in reading following the remedial reading technique described in the previous chapter. Tables showing testing results for March 1936, 1937, and 1938 are given in order to compare the results previous to the technique with results following the technique.

The Stanford Achievement Test was given to Groups II and III in March, 1938. The reading scores of the two groups are given in Tables I and II.

Table I Reading Score....Group III

Subject	Far.	Mean	ng	Word	Weenj:	ng	Reading Average			
	1936	1937	1938	1936	1937	1938	1936	1937	1938	
A	6 <b>0</b>	67	84	65	65	65	62	66	75	
В	70	80	93	68	66	68	69	73	81	
С	67	77	97	69	6 <b>4</b>	68	68	71	8 <b>3</b>	
D	71	82	65	61	62	68	66	72	77	
Average Score	67	77	90	65	64	67	66	70	79	

Table I gives the satual scores made on the Stenford Achievement Test for Group III. The table shows a steady improvement on the paragraph meaning test for the three years with the greatest increase from 1937 to 1938. The everage score was relead ten points from 1936 to 1937, and thirteen points from 1937 to 1938.

As may be noticed, the greatest improvement was shown by subject C with an increase of twenty points for 1937 to 1938.

The everage score on the word meaning test in 1937 is one point less than in 1936. From 1937 to 1938 there is a three point improvement. This advancement is not so marked as in paragraph meaning.

Ry taking the average of the two tests, paragraph meaning and word meaning, the average score is found, which shows an increase of four points from 1936 to 1937, and an increase of nine points from 1937 to 1938. This is significant, for the older the deaf oills, the less educational improvement he shows, particularly in reading.

Table II presents similar results for Group II. For this group the increase in persgraph meaning was not a steady one, as the table shows only four points improvement from 1936 to 1937 as compared with eleven points gain in 1937 to 1938.

Again progress in word meaning proved less than in paragraph meaning. During 1936 to 1937 there is an increase of nine points, and one of five points from 1937 to 1939.

A comparison of everage reading scores shows an edvancement

of seven points from 1936 to 1937 and also from 1937 to 1938.

Subject G whose reading average increased thirty-six

points showed the greatest improvement.

Table II			Re	ading	Scor	es	Grou	p II	
Subject	Par. 1936	Mean:  1937		Word 1936	Mean 1937	ing 1938	Read	ing A	verage 1938
А	33	43	55	38	68	58	36	56	57
В	41	52	59	46	50	62	44	51	61
C	49	49	5 <b>6</b>	50	50	63	50	50	60
D	50	5 <b>0</b>	54	49	49	50	50	50	52
E	39	47	<b>4</b> 8	49	55	61	44	50	5 <b>4</b> .
F	39	28	<b>4</b> 8	31	46	50	35	37	49
G	29	42	6 <b>3</b>	<b>3</b> 8	44	5 <b>3</b>	34	22	58
Average Score	40	44	55	43	52	57	42	49	56

The fact that neither Group II nor Group III made tremendous advances on the word meaning test is probably due to the instruction. Isolated vocabulary was not stressed; instead emphasis was placed upon word meaning as secured from the context.

Table II	<u> </u>	- Agastildari basiyası göçlede sa	-	Mauce	<u>tiona</u>	l Age:	<b>5</b>	Gr	oup I	I.I.
Subject	Per. 1936	Moen 1937	ng 1988	%ord 1936	1997	<u>ing</u> 1950	Ronû 1938	1937	v. 1938	Chr. Ase Mar.1938
A			1			11-1	and		I	14-8
3	11-5	1%-6	14-6	The state of expression of the state of the	11-2	11-4	115	11-10	<b>3</b> -11	14-9
S	11-3	12-2	15-2	11-5	11-0	11-4	11-4	11-7	13-3	15-4
Ð	11-7	12-8	13-1	10-9	10 <b>-</b> 10	11-4	1.1-8	11-9	12-3	25-4
Averege Score	11-3	12-2	18 -บ	11-1	D-12	11-3	And the state of t	11-7	12-7	Average Age 14-9

Tables III and IV express progress in terms of educa-

Examining Table III am eleven wonth improvement in paragraph meaning from 1936 to 1937 may be noticed, and one of twenty-one months from 1937 to 1938. This indicates that after the remedial program the educational ages almost doubled.

On the word meening test from 1936 to 1937 there was a decrease of e month rather than an increase, whereas from 1937 to 1938 there was an increase of three months.

Teking the receipt everage, the educational age in reeding increased five months from 1936 to 1937, and twelve
months from 1937 to 1938, which represents normal growth for
the hearing child with average intelligence.

Comparing chronological age with educational age in reeding, the average educational age is twelve years and seven months

while the average chronological age is fourteen years and nine months. Thus there is an educational retardation of two years and two months. If just the educational ages of individual subjects on the paragraph meaning test are considered, Subject G is only three months retarded and Subject C two months retarded.

The same measurements are expressed in Table IV for Group II. There was a four month improvement from 1936 to 1937, and one of ten months from 1937 to 1938 on the paragraph meaning test.

Table IV

Educational Ages

Group II

Subject		Mean		Word	Mean:	ing	Read	ing Ar	er.		Chron. As
	1936	1937	1938	1936	1937	1938	1936	1937	193	3	ar.1,193
A	8-8	9-5	10-4	9-1			8-11				11-0
В	9-3	10-1	10-7	9-8	9-11	1040	9-6	10-0	10-9	,	11-5
G	9-11	9-11	°0 <b>-</b> 5	9-11	9-11	10-11	9-11	9-11	10-8	·	12-2
Þ	9-11	9-11	10-3	9-11	9-11	9-11	9-11	9-11	10-1		11-6
B	9-2	9-9	9-10	9-11	10-4	10-9	9-7	10-1	10-4		11-1
F	9-2	8 <b>-3</b> ୍	9-10	8 <b>-6</b>	9 <b>-</b> 8	9-11	8-10	9-0	9-11		11-5
G	8 <b>-4</b>	9-4	10-11	9-1	9-6	<b>10-</b> 2	9-9	9-5	10-7		11-3
verage core	9-2	9-6	10-4	9-5	9-10	10-5	7-3	9-10	10-3	1	12-2

The average score on the word meaning test increased five months from 1936 to 1937 and seven months from 1937 to 1938. Subject G again showed the greatest progress with an educational age increase of fourteen months.

The children in this group, judging from the deta of 1938 are retarded educationally one year and eleven months.

Table	V		Sub,	ject G	uotie	nts	**	Group III			
Sub <b>ject</b>		Meer 1937	ing 193	Word 1956	Mean 1937	ing 193	Read 1936	Ing / 1937	¥. 193	I.Q Mer 193	
A	84	88	88	86	81	75	85	88	82	11	
3	90	91	98	89	8 <b>1</b>	77	90	86	88	126	
G	84	85	99	86	77	74	85	81	87	115	
D	67	68	85	81	76	74	84	88	80	112	
Averege	88	8 <b>7</b>	93	86	79	75	86	83	84	117	

Table V. in presenting subject quotients, gives the ratio of the dronological age of the child to his educational age.

In the paragraph meaning the subject quotient increased one point from 1936 to 1937 and six points from 1937 to 1938. The word meaning test results present a different picture. The subject quotient in 1938 is lower than the subject quotient in 1936.

6

The Table shows very dearly the gap between intelligence

quotient and educational quotient. The gap is particularly noticeable in reading; for retardation is naturally greater in tests involving the understanding of language. Thus with this handicap, as the chronological age increases, the subject quotient becomes smaller because of this educational retardation.

A partial explanation may be found in the fact that the group in 1936 participated in an outside reading activity in the form of a Story Hour Club. The group did not have this opportunity in 1937 and 1938.

The increase in subject quotient of the group on paragraph meaning is especially significant.

Table VI expresses subject quotients for Group II. Again there is a large gap between intelligence quotient and educational quotient. The children in this group have reached or are just approaching the adolescent period in which a marked slump usually occurs. This Table shows just such a retardation.

In paragraph meaning there was a decrease of six points from 1936 to 1937 and neither a decrease nor an increase in 1937 to 1938.

The decrease in reading subject quotient was not so marked. This showed a minus five score from 1936 to 1937 and a minus three from 1937 to 1938, which seems to indicate that further decline was prevented by the remedial reading program.

Subject		Mean			Meen		Read	ing A	v .	1.0.
	1936	1937	1934	1936	1937	1938	1936	1937	1938	Mer. 1936
Λ	96	94	94	100	113	95	96	104	95	120
B	98	97	93	101	94	95	100	96	94	98
С	98	89	86	98	69	90	98	89	88	102
D	104	<b>94</b>	89	104	94	-86	104	94	88	136
B	100	96	89	109	102	98	105	99	94	100
P	96	79	86	89	92	87	93	86	87	111
G	89	91	97	97	93	90	93	92	94	103
Average Score	97	91	91	100	96	90	39	94	91	110

Subject A showed a very definite retardation in his word meening quotient. This boy was absent for over a month during the time the reading program was carried on, and was given the test immediately upon his return to school.

Another way of expressing results is by a comparison of improvement in terms of months from year to year. This consists of a comparison of the educational age of 1936 with that of 1937, and of 1937 with that of 1938. Such a comparison is given in Table VII.

Improvement in Months

						i	
Group	Number of Cases	Par. Mea 1936-1937	ning 1937 <b>-19</b> 38	Word Mean: 1936-1937	ing 1937–1938	Reading 1936-1937	1937-1938
III	4	10	21	3	3	6.5	12
II	7	. 4	ð	E	6	5.	7.5
Con- trol	14	3.8	12	4.5	5 <b>.</b> 5	3.9	පි.6

Examination of Table VII presents several facts.

- 1. Group III doubled its improvement from 1937 to 1938 in paragraph meaning.
- 2. Group II showed an increase of five months in paragraph meaning.
- 3. The control group increased twelve months from 1937 to 1938 as compared with a three and eight tenths improvement from 1936 to 1937.
- 4. Group III remained the same in word meaning.
- 5. Group II also remained the same on the word meaning test.
- 6. The control group showed a four and five tenths improvement in 1936 to 1937 and a five and five tenths improvement in 1937 to 1938.
- 7. All three groups improved on the reading test when the two individual tests were averaged together.

Improvement in Months

Group		Liter <i>e</i> ture 1937–19 <b>3</b> 8	History 1937-1938	Geography 1937-1938	Arith. Reason. 1937-1938
III	20 16		17	17.5	2
II	-1 22		3	5	16
Con- trol	8	.07	8.1	5.2	12.5

Table VIII shows the improvement made by the three groups on other tests involving reading.

Group III showed progress in Language Usage. Group II did not score as high as the preceding year. Both experimental groups for surpassed the control group on the Literature Test. Group III surpassed the control group on the History Test while Group II fell below the standard. Similar results are given on the Geography Test. In Arithmetic Reasoning, Group II excelled whereas Group III fell below the average of the control group. The reason for this may be that the improvement was so great in the previous year that this group achieved about maximum scores. Hence, there was only slight improvement between 1937-1938.

These discrepancies may be accounted for by the fact that equivalent forms of the Stanford Tests are not equivalent for the deaf. So Dr. Schick Lane found, as a result of her Five Year Testing Program, using the Stanford Achievement Test to measure the educational achievement of

the deaf child. The language handicap shows greater effect on some school subjects than others.

retarded in Paragraph Meaning, Word Meaning, and Literature. In these subjects the Language is most marked. In History and Arithmetic Reasoning he approximates his own average ability; and in Language Usage he excels. This improved performance in Language Usage can be explained as due to learning of only the correct grammatical form and not hearing poor grammar. Perhaps Geography as a subject is more tangible and information in this field can be acquired usually more easily than in other subjects. 57

Table IX Detroit Word Recognition Form B. Group I.

Subject	1. Q.	Chron.Age* 4-1-38	19 <b>37</b> Score	19 <b>3</b> 8 Seo <b>re</b>	Reading Grade
A	125	6-5	-	20	28
В	130	5-9	10	21	2B
G.	104	7-1	<b>w</b>	17	2B <b>-</b>
D	83	8-0	0	16	la +
The second secon	113	7-3	5	15	1A
● All (でなったがったま)が中心 人・一分 ・	118	6-1	2	15	1.4

<sup>57</sup> Schick, Helen F."A Five Year Testing Program to Measure the Educational Achievement of the Deaf Child." Oralism and Auralism, p. 10, June 1936.

A statistical raview of the ramedial program with Group I is presented in Table IX. This table makes possible a comparison of the scores made on the test in 1937 and 1938.

Subject A, a bright child who could not be tested in 1937, made a score of twenty in 1938. Accordingly this placed him, as far as his reading was concerned in grade 2B, as based upon the standard median score for hearing children. From the standpoint of chronological age he was farther advanced than the average hearing child of the same age.

Subject B who made a score of ten in 1937 and twenty one in 1938 was also advenced for his age. The average hearing child is just entering school at this age.

In 1957, subject C and D could not be tested. Subject C made a score of seventeen. This placed him in grade 28-. As far as his grade placement was concerned, he was advanced for his age. Subject D made a score of sixteen which put him in grade 14 /. He was retarded as far as his chronological age was concerned.

Subjects E and E showed improvement in test scores from 1937-1938. Their grade placement was normal for their chronological ages.

The objective results have been given and now the subjective results will be considered.

### GROUP III

At the beginning of the remedial period it was evident that the children had difficulty in paragraph comprehension.

Very simple material was given, some of it on the third and fourth grade level, but none of the four pupils made a parfect score. The students, with the exception of subject C who showed the greatest progress on the Stanford Test tended to be slow readers. Fupil A usually finished a reading assignment last. The students often asked the meaning of individual words. They also had difficulty in retalling the stories read.

In order to increase speed and comprehension many informal speed tests and other devices were used. For instance when the children were motivated in their reading and therefore read with a definite purpose their speed increased. A number of exercises in the Brusekner Diagnostic and Remedial tests were also given. The author found that speed in reading improved but not at the expense of comprehension. Subject A who had been the slowest reader in the class became as fast a reader as the others.

With practice, skill in paragraph comprehension was increased to a great extent. Since the class as a whole did not read directions as carefully as they might they were given the Bruckner for Careful Reading Exercises.

The abilities to be developed in these exercises are:

- 1. Ability to follow directions.
- 2. Ability to read for details.

<sup>58</sup> Brueckner, Leo J. and Lewis Wa. Bodge, <u>Diagnostic</u> Tests and Regardial Exercises in Reading, Chicago, Winston Co., 1935, p. 87.

- 3. The ability to read for main ideas.
- 4. The ability to remember what is reed.
- 5. The ability to organize material read.

The exercises that involved illustration of the solutions found, especially arithmetic problems, were not so difficult for the group. This indicates that visualization was a contributory factor.

Exercises to develop comprehension of words such as finding words within words, organizing, classifying and seeing the similarities of words showed the group's need for definite drill in these reading mechanics. As similar exercises were repeated, the group improved.

## GROUP II

The extent to which this class was retarded in speed and comprehension was indicated by the results of a Bruckner Silent Reading Test on paragraph meaning. These results showed that three members of the class had the ability of first grade children and three were at the reading level of the beginning of the second grade.

With this in mind the progress made on the Stanford Test is more significant. Subjects B and C who rated first grade on the Brueckner Test rated four years and seven months on the Stanford Test. Subject D who also rated first grade on the Brueckner rated four years and two months on the Stanford. Subject E approximated second grade on the Brueckner and reached four years and two months level on the Stanford. Subject F ranked second grade level on the Brueckner and four years and one

month on the Stanford. Subject G rated second grade on the Brueckner and four years and six months on the Stanford Test.

The great difference between test results was probably due to the fact that speed in reading was emphasized in the Brueckner Test whereas in the Stanford Test time limits are ample.

The concept of speed is a difficult one for the deaf child. There are many factors contributing to this difficulty.

For example the education of the deaf child from the first lessons in speech and lip reading emphasizes accuracy. No matter how many repetitions are refined, the goal is perfection in speech and lip reading.

Consequently, the deef child in his later scholestic work continues to place greatest emphasis on the accuracy of his work and cannot be rushed in any task. Such an emphasis gives the child a slow, deliberate and almost cautious attack in a problematic situation. Therefore any speed test does not give a true picture of schievement unless the child has been taught to work rapidly and realizes his time for a task is limited.

Subject D, for instance moved her lips while she read sounding out each word and consequently she was a very slow reader. When speed exercises were given she made the lowest scores. With practice and elimination of the lip movement she became one of the fastest readers.

Subject F was a slow reader and also had poor comprehension. With practice her comprehension was improved and also her speed. According to the author's subjective estimate she showed the greatest relative progress in the group.

The group as a whole showed some difficulty in careful discrimination. Brueckner tests provide exercises
for discrimination between various letters, combination
of letters or words similar in form. The class showed
some inability in careful perception of word beginnings
and word building.

This class, as did Group III, also showed greatest weakness in vocabulary comprehension. This defect was expressed in the organization of word meaning and similarities.

## Group I.

Prior to this remedial program the class had read cursive script but not manuscript. They were unable to read even familiar vocabulary in the printed form. In a short time they were able to read a few printed forms; but each time a new word or idea was introduced in print the children disregarded it. They did not read each word carefully; but eventually they realized that it was necessary to read the entire sentence in order to carry out the direction. This was brought about through practice on several directions as: color a...., draw a...., show me a...., etc.

At first the children needed assistance with their seat work; however they soon grew independent. Nouns that the children had encountered casually in various books were

introduced into the seatwork and the children had no difficulty with them.

Approximately two months after instruction was begun the class was working independently in work books.

In the author's opinion the class is ranked in reading ability as follows:

- 1. Subjects A and E
- 2. Subject B
- 3. Subject D
- 4. Subject F
- 5. Subject C

This rating was made keeping the following points in mind:

- 1. Attitude toward reading.
- 2. Ability to get ideas from the printed page.
- 3. Ability to work independently.
- 4. Ability to handle new material.
- 5. Ability to notice details.
- 6. Ability to follow directions accurately.

#### CHAPTER V.

### CONCLUSIONS

Consideration will now be given to answers to the problems postulated at the beginning of this study.

1. Does it take the deaf child longer to learn to read than the hearing child? If so, why?

Whether the ability to give phonetic elements in word reading, is to be considered reading or merely thought to be equivalent to the incidental education of the hearing child, is a deciding factor in enswering the question.

Considering the letter criterion, it takes a deef child one month or more than the hearing child to learn to read. One teacher of hearing children said that her pupils of average intelligence learned to read in about four to six weeks indicating that they were able to get meaning from the printed form.

The author's subjective estimate is that Group I (children in the first grade) learned to read in about two months.

The previous phonetic training is considered, it means that the deaf child takes about three years longer than the hearing child to learn to read. Recognition of phonetic elements starts with the deaf child from his very earliest training at the age of three years. If this be included as reading instruction it takes the deaf child three years longer to learn to read.

2. How much does the vocabulary limitation effect the reading of the deaf?

and efforts are made to overcome the limitation, there is no effect; for all of the children in the first grade with the exception of one child who is a slow child, tested as either advanced or normal for their chronological age in word recognition.

At the child grows older the vocabulary limitation is more marked. Both Groups II (children in the third grade) and III (pupils in the eighth grade) showed retardation in word meaning on the Stanford Achievement Test which consequently lowered the reading average.

The eighth grade students averaged an educational age of eleven years and three months on the word meaning test whereas the average chronological age was fourteen years and nine months. This shows a retardation of three years and three months.

The third grade class whose average educational age was ten years and three months, and chronological age twelve years and two months showed a retardation of two years and two months.

3. Does the lack of suditory memory hinder the reading of the deaf?

The retardation in reading found in Groups II and III may be attributed to the lack of auditory memory.

4. Can vision be trained to overcome this auditory deficiency?

The results of the Detroit Word Recognition Test used with the first grade children seer to indicate that the deficiency might be overcome.

5. Does the progress of the reading of the deef depend upon the acquisition of speech?

The progress of the beginning reading group seems to indicate that after a basic vocabulary has been established the reading vocabulary for exceeds the speaking vocabulary.

6. By starting a child reading at an earlier age does he come up to the normal hearing child's standard for a given grade?

Considering the results obtained with the first grade children the deaf child does reach the standard mentioned if he has the adventage of early instruction.

The results of work with children in the third and eighth grades would necessitate a negative answer but the progress made during this investigation would werrent the conclusion that the retardation need not be so great, if reading instruction is emphasized from Kindergerten age throughout the elementary grades.

The question remains, will the beginning reading group continue to show this progress?

Would the pupils in the third and cighth grade have reached the standard if greater emphasis had been

placed on reading earlier?

From the results of this study we may conclude that:

- 1. By increasing the amount of reading instruction, by applying certain remedial technique and by stimulating the desire to read, the deaf child shows marked improvement.
- 2. By following a program of both remedial reading technique and regular instruction, remembering constantly that regular reading instruction is not entirely sufficient in itself, the reading ability of the deaf may approximate that of the hearing.
- 2. By beginning the reading instruction of the deaf child at an earlier age, he is able to reach a given grade standard of the hearing child.
- 4. By using definite visual side in reading, vision may be trained to overcome the lack of suditory memory of the deaf child.

The ctudy also leeds to the following recommendations:

- 1. That reading, as a very important phase of the deaf child's training, should be stressed in his curriculum.
- 2. Thet because of the general interest in reading within the last flow years, information concerning this subject is unlimited. The teacher of the deaf chould be alert to the scientific studies and suggested methods for the bearing. She should consider these methods with the idea of evaluating their worth for use with the deaf.

Further studies should be made in order to find edditional solutions to the problems suggested in this study and to apply verious methods to find the ones best suited to the deef. For instance, a study might be made in which a hearing group and a deef group of approximately the same mental ability would be given the same reading instruction. The work done by the two groups, as measured by standardized reading tests, could be compared.

reading by the phonetic method with the results of teaching reading by the phonetic method with the results of teaching reading by the word method. This kind of study might also be applied in discovering the merits of the sentence and experience methods. These studies are merely examples of what can be done in the field.

If such studies are made, the follow up work should not be neglected, in order to verify previous results and edd information to the field. It is the author's intention to follow up the work done with the primary group in the future, in order to discover whether the group will continue its improvement or whether it will become retarded as were the two more advenced groups studied.

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