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Present practices in testing deaf children.

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UNIVERSITY OF LOUISVILLE

PRESENT PRACTICES in TESTING DEAF CHILDREN

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PRESENT PRACTICES IN TESTING

DEAF CHILDREN

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A NORMATIVE SURVEY

FOREWORD

Deaf children have had a large amount of research and study applied to them through the medium of testing in recent years. The history of such testing before 1931 and of the decade since then may be obtained from three published summaries These three studies are so complete that it is not considered necessary to repeat their findings here.

It is the intention of the present study to investigate rather extensively present practice, to the end that some useful information may be made available to those who intend to test deaf children. In it may be found tests which are being used with deaf children. These tests are discussed as to several factors affecting their use with the deaf. They are described as fully as seems necessary to evaluate their appropriateness for use with the deaf.

The new test of speech for the deaf is explained at length as this is the only source of information about it yet in print. The adaptation of the vision test is given much space for the same reason.

The whole is offered in the hope that it may in some small measure contribute to the total progress of the education of deaf children.

Chapter 1.

THE QUESTIONNAIRE

Introduction

Among the many requests from people concerned with testing deaf children one of the most frequent is for tests for different levels of intelligence or achievement. Which tests are better for young children? Which tests are better for older children? Other requests are for tests reliable for the various placement purposes. Which test helps in homogenous grouping? Which test gives an index of intelligence reliable enough for admission or exclusion from school?

The great controversy (contention is the more apt word) over intelligence testing at present is whether the intelligence of the deaf is really lower than that of normally hearing children, or whether the tests used are inadequate. The McKane study (14) [1] brings out the surprising difference in scores which are made on different tests by the same children and the same examiner. The question of the adequacy of the various tests is still unanswered.

Drever and Collins (4), contrary to most of the testing done before theirs, found young deaf children making normal scores. This proposes the question whether or

1. Numbers refer to the books and articles listed in the bibliography.

not in testing the older deaf child we are testing his original, native intelligence, or the retardation imposed upon him by inadequate school and living environment. It is hoped that the data gathered in this instance and the small help it may be toward better testing may throw light on some of these questions so constantly under discussion among educators of the deaf.

This study attempts to collect more data on the question of the validity of intelligence testing for deaf children in the form of relation between the average scores made by deaf children and the norms established for normally hearing children; in the important purposes for which the schools find the deaf children's scores reliable; and in the examiners' opinions as to whether or not the deaf children really understand the directions of the tests. This study is not attempting to settle this question, nor any of the larger controversies. It merely presents the experience and opinion of people who have opinions backed by experience.

The study is a fair sampling of schools and other agencies actively engaged at the present time in testing deaf children.

It is honestly reported in every detail. It reports the facts as they appear; which tests people use; which ones they like; and why they say they like them. Even the disagreements are faithfully reported.

From these data the person testing, or intending to test, deaf children may profit by the experience of others, or he may draw different conclusions and decide to try out tests with which others failed and succeed with them himself.

No attempt is made to be dogmatic in evaluating the tests used. The users' opinions are stated. All pertinent information concerning the test is presented either in the text or in the appendix.

Obscure points are interpreted in the light of the author's experience in the education of the deaf and knowledge of the customs of the field and acquaintance with the literature on it.

The kind of test each is appears in the appendix. These are the most complete descriptions of tests for deaf children now in print.

The nature of testing deaf children in the sense of the difference between testing them and testing normally hearing children is brought out in detail in the discussion of the directions of tests and the verbal or non-verbal nature of the body of the tests. These are the only points of difference considered of enough significance to be included in this study.

The inadequacy of a test is usually shown by the examiner's judgment that the directions are not understood, by his refusal to use the resulting scores for any

important purpose, and by his finding that the deaf children's scores are consistently below the norms.

The number of children is of minor importance from the point of view chosen for this study, which is the opinion and practice of the people testing. Tables of frequency of use appear as one of the indications of an examiner's satisfaction or dissatisfaction with a test. Most of the tables show only one phase of the study each, for instance, Table 3 shows the number of people, or schools, acquainted with and using each intelligence test reported. It was given first place because it is relatively the most important from the point of view of this study. The number of children tested is relatively less important and appears in another table, Table 8.

Following the publishing of A Summary of Psychological Tests Applied to the Deaf ( ) in 1931 a number of requests for information have come to the present author from people wishing to carry out a testing program with deaf children. As very little of this information can be found in the literature on the deaf a brief questionnaire was sent to a selected sampling of schools and other agencies who handle deaf children.

The persons to whom the questionnaire was sent were carefully selected to give a sampling of all the types of school for the deaf, covering a wide geographical distribution. The sources from which they were drawn were, personal contact

with the author, persons who had answered a former questionnaire and were so known to the author, persons who wrote letters or sent information in response to requests from the Library of the University of Louisville, Members of the Council of Day School Teachers, or persons selected from the information in the annual directory of schools for the deaf published in the American Annals of the Deaf. In this way competent persons were selected.

The present study is a normative-survey. (8) It attempts to present the norm or average of practice among people who are choosing and administering tests to deaf children. It is made for the benefit of others engaged in such testing.

"As for the value of normative-survey data in affording a basis for inferences that may aid in solving practical problems, it may be said that this kind of data will probably be more highly regarded by the administrator in helping him solve practical problems than are the principles and laws growing out of experimentation in the laboratory. The reason is this: the data coming direct from the field represent field conditions; they tend to be practical because they grow out of practical situations; and they generally answer the questions of the man in the field because they are likely to be cast in the terms in which he thinks." (8)

The following Table shows the various types of school reporting and their geographical distribution.

Table 1

Geographical Location and Type of School Reporting

Section	Type of School					
	Small Day I	Large Day II	Private Day III	State Resid. IV	Private Resid. V	College for Deaf VI
North East	3			2	2	
East Central	3	1		1		1
South East				1		
North Central	2	3				
Central	1	1		3	2	
North West	1	2				
South West		1	1	1		
Foreign				1		
At Large[1].				1		

Type I, Small day school, 4 classes or less

Type II, Large day school, 5 classes or more

Type III, Private day school, small

Type IV, State residential school

Type V, Private residential school

Type VI, College for the deaf

1. One school sent the questionnaire to the author of a series of tests. His reply could not be localized but his tests are used most in state residential schools so could be entered in that column.

Replies came in from small day schools, large day schools, private day schools, private residential schools, state residential schools, foreign residential schools, and the college for the deaf. There were 34 replies. All types of schools and all sections of the country are represented in the study. The commonly used kinds of tests are all included: intelligence, mechanical ability and vocational aptitude, achievement, speech, lip reading, hearing, and vision. The data collected should be comprehensive enough to serve the purpose for which it is intended.

As the language of the directions of tests is frequently too intricate for deaf children the persons using each test were asked to report on that point. Can we find a test that consistently gives a normal distribution of scores, though the examiner, the age level of the children, and the school, all differ? To help answer this each person responding to the questionnaire was asked to compare the average of the deaf children's scores with the norms already established for hearing children.

To find out what training the examiner needs to administer each test the questionnaire asked what position the person holds who gives the examination. As an indication of the general satisfaction with a test the number of times it has been used was requested. Most of the same considerations are important in selecting achievement tests,

and tests of mechanical ability and vocational aptitude.

In all schools for the deaf there is need for efficient physical tests of hearing and vision, as well as for the special subjects in the education of the deaf, speech and lip reading. All these are included in the request for information as to current practices in the questionnaire.

About a hundred questions covering many aspects of all the abilities known to be tested at present among deaf children were combined or eliminated until the ten most significant were selected. The problems chosen to be incorporated in the study were:

1. What tests are being used with deaf children?
2. For which abilities are standardized tests available?
3. Which tests seem appropriate
    a. As to directions?
    b. As to the relation of the average for deaf children's scores compared to the norms for hearing children?
    c. As to the purpose for which the resulting scores are used?
4. Which tests are satisfactory for younger pupils and which for older pupils?
5. What training is necessary for the examiner who administers the test?

The foregoing points were considered:

1. To be pertinent to the choice of tests.
2. To present little overlapping with previously published information.
3. To be within the scope of a questionnaire study.
4. To be easily answered by the people actually engaged in such testing.

It was judged that the opinions of a number of people actually doing a piece of work are of value to others doing or planning the same kind of work. This seemed particularly true after reading instances in books

and magazines of reasoning from analogy. The apparent analogy between what deaf children do and what normal children do is often misleading. The person inexperienced in deaf children's responses can not safely judge by analogy alone. Therefore in this study experience was required first and opinion requested second.

All persons answering the questionnaire were assured that their replies would be treated as confidential. Only the most general description of the school is used for the same reason. There are so few schools for the deaf and the people in the special field know them all so well that a description is as informative as giving the name and address of the school.

Any question that might have offended the recipient was eliminated.

The technique of filling in the responses to the questionnaire was simplified as much as possible. A letter of explanation and of appreciation of the recipient's cooperation accompanied each questionnaire. Return postage was supplied.

All types of tests were included in the one sheet so that one person using several types would still have only one sheet to fill in. If several people tested different abilities in one school, the sheet was passed on from one to the others.

In general the questionnaire was made as simple to understand and to score as possible, both for ease in filling

it in and for ease of tabulating the results when collected.

The questionnaire in full is included here, as is also a copy of one of the actual letters sent with it.

The reports were combined and consolidated and the data tabulated for each test, and for all the tests of each type, as, all tests of intelligence. Similarities, points of agreement and disagreement, and comparable quantitative factors appeared in these tabulations to an even greater extent than was anticipated.

The criteria of value included in this study are that it is a fair sampling:

1. Because the responses came from all types of school and agency testing deaf children
2. Because the responses came from all sections of the United States and from one foreign country
3. Because the opinions of the people responding are of value since they are recognized as competent people from reputable schools.

215 South Hite Avenue
Louisville, Kentucky
June 4, 1940

Miss Ethel Thomas
710 Virginia Avenue
Norfolk, Virginia

My dear Miss Thomas:

As a part of a thesis requirement for a master's degree at the University of Louisville, I am attempting to determine the best practices in testing deaf children. I sincerely hope that it will be possible for you to assist by having the persons responsible for the special type of work covered in this questionnaire to fill out the same. (It is hoped that persons replying may have pertinent supplementary items.)

The term "non-language" is used in question three in the strict sense of no language being required of either the examiner or the child - spoken, read, lip read, signed, or spelled on the fingers.

In interpreting question seven, the following may be included as examples:

a. Scholastic placement, as in the grades or classes of a deaf school
b. Placement of an individual deaf child in a regular grade of a public school among normally hearing pupils
c. Placement of 16 to 18 year olds under the Civilian Vocational Rehabilitation training plan in industry, or in actual employment.

Very truly yours,

encs.

Mary D. Guilmartin

The questionnaire prepared by Miss Guilmartin, a graduate student in the University of Louisville, has my approval. It will be of help therefore to special education and to Miss Guilmartin if you will assist by checking the questionnaire as indicated.

Z. E. SCOTT, (Sponsor of study made by Miss Guilmartin) Professor of Education, University of Louisville

QUESTIONNAIRE CONCERNING PRACTICES
IN TESTING DEAF CHILDREN

	INTELLIGENCE TESTS	MECHANICAL ABILITY AND VOCATIONAL TESTS	ACHIEVEMENT TESTS	SPEECH	LIP READING	HEARING	VISION
1. Name of test used							
2. Name of publisher of test							
3. Is it strictly a non-language test?							
4. If language is used in administering, are directions a. given verbally by the examiner? b. read by the child from the printed page?							
5. Is the language of the directions so difficult as to invalidate the results? a. Yes b. No c. Uncertain							
6. For what age level do you consider this test most reliable?							
7. For what placement purposes do you find the test reliable?							
8. In groups examined in your school by this test, did the median or mean score fall a. more than a year below norms b. more than a year above norms c. within a year of norms							
9. By what person or agency is test usually administered?							
10. Have you used this test a. less than 20 times? b. between 20 and 100 times? c. more than 100 times?							

Chapter 2.

INTELLIGENCE TESTS

Twenty-four schools or persons reported using intelligence tests. Probably the most significant feature of the data gathered is that the twenty-four reported twenty-three different tests. This in itself would indicate that the movement for testing the intelligence of deaf children is still in the early experimental stage. Several letters accompanying returned questionnaires named additional tests used, and said in effect, "We can reach no conclusion about these tests yet."

The two most frequently reported intelligence tests are the Grace Arthur Point Scale of Performance Tests[1.] and the Ontario School Abilities Examination. Each was reported 6 times. Ten different schools reported the two tests. If the group of schools studied is a true sampling, as is hoped, that means that one in every three schools is using one or the other of these very excellent tests. This is a remarkable advance from 1931 when almost nothing better than "paper and pencil" tests were being used.

Two schools use both the Arthur and the Ontario tests. This is probably a good combination

1. All tests mentioned are described in the appendix.

as the literature seems to indicate that they test different abilities, the Ontario giving a better prognosis for scholastic success and the Arthur for mechanical or trades ability.

The following table shows the number of schools reporting each test:

Table 3

Number of Schools Reporting Each Test

Tests	Schools
Arthur Point Scale of Performance	6
Ontario School Abilities Examination	6
Pintner Non-Language Mental Tests	3
Pintner Non-Language Primary Mental Test	2
Pintner-Paterson Performance Test	2
Otis Quick Scoring Mental Ability Tests	2
Kuhlmann-Anderson Intelligence Tests	2
Stanford Revision of the Binet-Simon Test	2
Revised Stanford-Binet Scale	1
Merrill-Palmer Scale of Mental Tests	1
Chicago Non-Verbal Examination	1
Henmon-Nelson Tests of Mental Ability	1
California (Short Form) Test of Mental Maturity	1
Healy Picture Completion Test	1
"Performance Tests"	1
Randall's Island Performance Series	1
"Advanced Performance Series"	1
American Council Psy.Exam.for College Freshmen	1
Terman Group Test of Mental Ability	1
Cornell-Coxe Performance Ability Scale	1
Leiter International Performance Scale	1

The fact that a single performance test, the Healy Picture Completion Test, is reported and that one school reported simply "Performance Tests" seems to indicate that examiners are selecting the various individual performance tests and arranging

their own series rather freely. This should not invalidate the results when carried out by competent people. The answers to item 9 in the reports from the questionnaire indicate that the intelligence testing is in the hands of trained people almost without exception. These people are trained in testing techniques and so can be trusted to make only legitimate use of the tests. Judgment in administering the tests to deaf children and in interpreting the results can come only through experience. This rearranging of tests probably indicates a healthy growth in the whole experiment. Much overlapping is found in the pre-arranged series, as was shown by McKane's (14) use of the Grace Arthur, Drever-Collins, and Pintner-Paterson Series. The single tests in the Ontario Series are selected from several sources, Binet, Gesell, Kohs, Knox, and Drever-Collins.

In classifying intelligence tests for use with deaf children one cannot rely upon the title of the test nor even upon the description in the publisher's catalog. Some tests are called "non-verbal" because the child's response is in a form other than speech, reading, or writing. The directions in these tests may be given in dozens of sentences spoken by the examiner. This is a definite language obstacle to the deaf child. The Chicago Non-Verbal Examination is of this type. If one wishes to give it to deaf children one must order specially adapted pantomime directions from the authors. This is one of the few tests so adapted. The authors are in a city

where there are large day schools and necessity probably urged them into it.

Three other "paper and pencil" tests with doubt thrown, by the present data, upon their being administered non-verbally are the California Short Form Test of Mental Maturity, the Otis Quick Scoring Mental Ability Tests, and the Pintner Non-Language Mental Tests. The California test has two parts: a verbal and a non-verbal. The Otis test does not claim to be non-language; one school gives it verbally and the other verbally or by signs and finger spelling. This Pintner test is listed by the publisher as non-language but the school using it reported that some of the directions were "given verbally by the examiner".

Even the performance tests usually include many oral directions from the examiner. To be a non-language test to the deaf child a test must be administered without the child's dependence on hearing, reading, or lip reading in understanding the directions as well as the body of the test. Some tests can be given this way.

In giving the Ontario series of performance tests the examiner gives a demonstration of what the child is to do. He then says, "Do that". This does not constitute a language handicap as the child is dependent upon the demonstration for what he is to do, not upon the words.

Of the tests reported, the following can be given as non-language tests and are so reported:

Arthur Point Scale of Performance Tests
Ontario School Abilities Examination
Pintner Non-Language Mental Tests
Pintner Non-Language Primary Mental Test
Chicago Non-Verbal Intelligence Examination
Healy Picture Completion Test
Randall's Island Performance Series
"Advanced Performance Series"
Pintner-Paterson Performance Test

The Arthur test can, apparently, be given either way, according to the children's language and lip reading ability, as two day schools reported giving the directions verbally, and seemed equally well satisfied with the test. However they do not give it below the ages of 9 or 10, while the other schools give it to children as young as 5 years. One state school reports giving the directions for that test "verbally, or by signs and finger spelling".

Of the non-language tests reported several are "paper and pencil" tests:

Pintner Non-Language Mental Tests
Pintner Non-Language Primary Mental Test
Chicago Non-Verbal Examination

The directions for this type of test seem more difficult to convey to the deaf child than those which may be shown by manipulating objects. The strongest proof of this brought out by the replies to the questionnaire is that all three of these tests show mean scores for the deaf "more than a year" below the norms for hearing children, while six other tests show means for deaf children "within a year of the norms". This consistently low average for the deaf on these tests may be due to their inability to understand the directions.

It may be due in part to lack of relation between the deaf child's life experience and the content of the tests.

The only test in which the directions are considered by those reporting to be too difficult is the Binet, both forms: the Stanford Revision of the Binet-Simon Test made by Terman, and the Revised Stanford-Binet made by Terman and Merrill. Three schools reported having used the Binet Test a few times each. Two of them said that they considered the language of the directions "so difficult as to invalidate the results", and the other was uncertain.

One school was uncertain about the difficulty of the directions for the Arthur test but the three others who reported this item were satisfied with them. Two tests had each one negative and one positive report on the difficulty of the directions: the Otis Quick Scoring Mental Ability Tests, and the Kuhlmann-Anderson Intelligence Tests. This frequent disagreement on various items is another indication that the whole movement of testing the intelligence of deaf children is still struggling through the experimental stage.

The following tables give two groups of intelligence tests, one made up of those that will reach the older children, and the other of those that can be used for the younger children. The name of each test is followed by the ages or grades for which the several schools use it and consider it reliable. Some of the tests could not be included in these tables because the items of age and grade were not reported.

The age range overlaps, and some of the tests have such a wide range that they are included in both lists. The data were gathered from Item 6 on the questionnaire.

The intelligence tests used for older children are:

Intelligence Tests for Older Pupils

Table 4

Test	Ages
Arthur Point Scale of Performance	above 10 9 - 15 5 - 18 7 - 12
Terman Group Test of Mental Ability	12 - 17
Binet	under 12 upper ages 8 - 12
Pintner Non-Language Mental Tests	6 - 18 14 - 16 10 up
Pintner-Paterson Performance Test	7 - 16 all ages
Ontario School Abilities Exam.	6 - 14 5 - 12 10 - 20
Otis Quick Scoring Mental Abil. T.	all grades
"Advanced Performance Series"	6 - 15

The intelligence tests used for younger children are:

Table 5

Intelligence Tests Used for Young Children

Test	Ages
Randall's Island Performance Series	2 - 5
Merrill-Palmer Scale of Mental Tests	below 5
Pintner Non-Language Primary Men. T.	5 - 7
Chicago Non-Verbal Examination	7 - up
Otis Quick Scoring Men. Ability T.	all grades
Kuhlmann-Anderson Intelligence Tests	below 12
Henmon-Nelson Tests of Mental Abil.	lower grades
California Short Form T. of Men. Mat.	Primary to grade 12
"Advanced Performance Series"	6 - 15
Cornell-Coxe	7 - 12

The purposes for which the results are used, Table 6, are stated in somewhat ambiguous terms in some instances. "School placement" may mean that the child of very low mentality is placed in a manual class, or the child who does better on a performance test than on a more abstract intelligence test is placed in the vocational department. It may mean the decision as to which type of school, day school or residential school, will be best for the child,

as the Upshall study showed the day schools select, in some way, the children of higher intelligence. Or it may mean in which class in the school the child is to be placed.

"Level of work" probably means level of ability to do school work as shown by the child's mental age as the test under discussion is an intelligence and not an achievement test. "Level of intelligence" probably has the same meaning. "Scholastic I. Q." and the two just quoted expressions seem to be an attempt to compare the child's mental age and his actual progress in school and thereby reach his educational quotient, E. Q., as it is commonly abbreviated. These three are combined in the table which follows because of this apparent identity of meaning.

"Rehabilitation training plan", mentioned by one day school, is the cooperative plan by which the school for the deaf and the Vocational Rehabilitation Division of the state department of education work together to obtain training in suitable vocations for the older boys and girls, and finally place them in actual jobs.

"Check on ability" is given only on the college level and therefore means ability to do college work. It is combined with "college entrance" as meaning the same. The purposes for which the tests are used appear in this table.

Table 6

Number of Schools Reporting Each Test and Purposes for Which the Tests Are Used

Test	Purpose for which it is used: "Level of work" "Level of intelligence" "Scholastic I. Q." (E. Q.)	"Check on ability" "College entrance"	"Admission" (to school)	"Homogenous grouping"	"Supplement teacher judgement"	"Rehabilitation training"	"Manual ability"	"School placement"	"Primary placement"	"Grading"
Ontario	1		1					1		2
Pintner Non-L. P.	1									
Pintner Non-L. M.	1									
Binet						1				1
Merril Palmer								1		
Arthur			1		1		1	1	1	1
Otis										1
Kuhlmann-Anderson	1									
Henmon-Nelson	1									
Cal. Men. Matur.										1
Advanced P. Series				1						
Randall's Island				1						
Terman Group Int.						1				
College Board		1								
Psy. Exam. Col. Fr.		1								

Probably the greatest point of disagreement in recent studies of deaf children is on the subject of measuring their intelligence. The present study shows the same varied results. There were twelve answers to the item comparing the scores of deaf children with those of normally hearing children. Of the twelve, three day schools found the median or mean for their deaf children to be within a year of the established norms for hearing children. The tests used were:

Pintner-Paterson Performance Test
Arthur Point Scale of Intelligence
California Test of Mental Maturity

One private residential school, using its own "Advanced Performance Series" for the older children and the Randall's Island Performance Series for its 2-5 year olds, found their mean score more than a year above the norms standardized for normally hearing children.

All the state schools and one day school reported their deaf children's mean scores more than a year below the norms for normally hearing children. The tests used were:

Pintner Non-Language Primary Mental Test
Pintner Non-Language Mental Tests
Arthur Point Scale of Performance Tests
Otis Quick Scoring Mental Ability Test
Chicago Non-Verbal Intelligence Test

One state school used three tests and found their pupils' scores below the norms on all three.

The Ontario test, being standardized on deaf children, can not be included in this comparison.

The type of school, the test used, and the relation of the average score to the established norms appear in the following table.

Table 7

Results from Using the Tests with Deaf Children Compared with the Norms for Hearing Children

Type of School	Comparison with norms		
	Below norms	Above norms	Within year of norms
State S.[1]	P.Non-L.Pri.[2]		
State S.	P.Non-L.Men.		
Day S.			P.-P.Perf.
Day S.	Arthur		
Day S.			Arthur
State S.	Arthur		
State S.	Arthur		
	Otis Chicago		
Day S.			Calif.M.M.
Private Res.S.		"Adv.Perf.S." Randall's Is.	

1. Abbreviations mean State school, Day School, and Private Residential School.

2. Full titles of tests can be found from the abbreviations by looking in the alphabetically arranged appendix.

The popularity of the Ontario and Arthur tests was shown by their being reported by more schools than any other tests. It is further emphasized by their being used a greater number of times than any others. Three schools appear to use the Ontario routinely, as they reported using it over 100 times. One of these is a day school. Two schools have used it between 20 and 100 times, which indicates routine use as both are day schools and therefore have smaller numbers of pupils to test. Three small day schools have given it less than 20 times. The Arthur test seems to be used routinely by one day school as it was reported used more than 100 times there. Two day schools and a state school have given it between 20 and 100 times, and one small day school has given it less than 20 times.

All the tests used more than 100 times by even one school are included in the following list.

Ontario School Abilities Examination
Arthur Point Scale of Performance Tests
Pintner Non-Language Mental Tests
Pintner-Paterson Performance Test
Binet
Pintner Non-Language Primary Mental Test
Otis Quick Scoring Mental Ability Tests
California Short Form of Mental Maturity
Advanced Performance Series
Randall's Island Performance Series

The following table shows the number of schools reporting each test, and the number of times the school used the test. This item was requested in the multiple-answer form, thus:

10. Have you used this test
    a. less than 20 times?
    b. between 20 and 100 times?
    c. more than 100 times?

Therefore the answer "a" means that the test has been used less than 20 times, and so on.

Table 8

Frequency of Use[1].

Test	Number of schools reporting frequency of use		
	a less than 20	b 20-100	c more than 100
Ontario	3	2	3
Arthur	1	3	1
Pintner Non-L. Men.T.	1		2
Pintner-Paterson P.T.	1		1
Binet		1	1
Otis	1		1
California S.F.T.Men.Mat.	1		1
Advanced Performance S.			1
Randall's Island			1
Terman Group T.Men.Abil.		1	
Merril-Palmer S.		1	
Kuhlmann-Anderson	2		
Henmon-Nelson	1		
Chicago Non-Verbal	1		
Pintner Non-L.Pri.T.			1

1. Frequency of use is shown by the number of schools reporting the number of times they used the test; as, the Ontario Test was used by three schools less than 20 times, by two schools between 20 and 100 times, and by three schools more than 100 times each.

The two most popular tests are the Arthur Point Scale of Performance Tests and the Ontario School Abilities Examination. They were used by more schools and used more times within the schools than any of the other tests. They give satisfactory scores. The Ontario is standardized for the deaf. The Arthur gave scores for the deaf within a year of the norms in a day school, but scores below the norms in 2 state schools and a day school. The directions are satisfactory. The Ontario is practically a non-language test and the Arthur can be given that way. The age range is inclusive of the ages usually found in a school for the deaf, that is from 5 to 20 years. The purposes for which the results can be used are important ones, admission to school and school placement in both cases, and manual ability for the Arthur. This is shown in the following table.

Table 9

The Two Most Popular Intelligence Tests

Showing Reasons for the Popularity of the Two Tests

	Ontario	Arthur
Used by more schools	6 schools	6 schools
Used more times	Most frequently used	Next most frequently used
Fair scores	Standardized for the deaf	Normal in one school Below in 3 schools
Satisfactory directions	Practically non-language	Can be given non-language
Inclusive age range	5 to 20 years	5 to 20 years
Important purposes	Admission School placement	Admission School placement Manual ability

Chapter 3.

MECHANICAL ABILITY AND VOCATIONAL APTITUDE TESTS

There was surprisingly little use of mechanical ability and vocational aptitude tests reported. Only four schools reported any use of them. Three of these used only one test each. One of these was the Wiggly Block Test given by the teacher.

The Stenquist Mechanical Assembling Test was the only test reported more than once. The two schools using it said that the directions are spoken by the examiner, but that they are not too difficult for deaf children. They used it for deaf children 10 or 12 to 18 years old. The purpose for which it is used is vocational guidance. The test is administered by psychologists. Each of the schools has used the test less than 20 times. The small number of times is due to the fact that they are small day schools and do not have a large enrollment. They reported the Stenquist as their only vocational test.

The fourth school gives a really comprehensive battery of such tests. The answer to the questionnaire was sent in by the psychologist in the child study department of the city school system. The pupils of the public school classes for the deaf are sent to her for testing. She explained that the results of the tests are used in cooperation

with the Division of Vocational Rehabilitation or the State Department of Education. The actual training and work placement are arranged by the division of Rehabilitation.

The tests used are:

Minnesota Clerical Aptitude Test
Detroit Mechanical Aptitude Test
Minnesota Spatial Relations Test
Revised Minnesota Paper Form Board Test
Revised Minnesota Manual Dexterity Test
Meier-Seashore Art Aptitude Test

Of all the tests of mechanical ability and vocational aptitude used only 2 are non-language tests. These are the Wiggly Block Test and the Minnesota Spatial Relations Test. The latter has the directions given in pantomime, but the psychologist who gave it to deaf children still thought they probably were too difficult. She held the same opinion of the Paper Form Board Test.

The Meier-Seashore Art Aptitude Test she judged to be not reliable for any age deaf children, which accounts for its being used less than 20 times while she used other tests in the battery consistently between 20 and 100 times.

Throughout the study there is lack of agreement as to the ages for which the various tests are considered reliable. In the cases of vocational testing this is due in part to the general practice of beginning the vocational training of deaf children as early as possible. This is because it seems to the schools for the deaf relatively more important for the handicapped child to be prepared to make a

living than for the normal child.

One of the reasons for not giving this type of test is the difficulty of the directions. The schools want to start the deaf child's training early. The tests are prepared for children who have normal language and also are older than the deaf children being so trained. The deaf child is more capable of doing the industrial work than he is of understanding the test which would measure his ability to do the work.

Even where tests are used the early need and the late ability make for confusion in age of use. People who believe in testing in general are trying out many sorts of tests at whatever age their deaf pupils happen to be, in the hope of finding some tests that will be helpful. Other people, usually the ones handling large numbers of deaf children, give a try-out period instead of any test. This explains the fact that no vocational tests were reported from state residential schools. A letter accompanying a state school's answer to the questionnaire put the situation this way. The school has extensive equipment for teaching several trades. Each pupil is given a three month period of training in each trade beginning at a much earlier age than such training is given normal children in regular public schools. The people using this method reason that this period of actual practice under expert guidance is a better basis upon which to judge the child's aptitude for further training in that

work than any test would be. They also reason that it is useless to test to find that the child is capable of taking up a trade which the school is not equiped to teach him, as in the large state residential schools. On the other hand the most extensive testing is being done in day schools where there is an organized agency, such as the Vocational Rehabilitation Department, to arrange for training the handicapped child outside the school. This type of training is given in the actual industrial plant under real working conditions. Such is the case in the school reporting the largest number of different tests. The schools reporting vocational tests are all day schools.

In the following table all the tests reported are included even though they were considered unsuitable as to directions. There is so much disagreement over this point that another examiner may find a way to make the directions intelligible to deaf children and find the test satisfactory. Where two schools report different ages both are listed as given. This technique is repeated throughout the study, but in this instance there is only one test which was given more than once.

Table 10

Ages at which Mechanical Ability and Vocational Aptitude Tests are Used

Test	Ages
Stenquist Mechanical Assembling Test	12 to 18
	10 up
Minnesota Clerical Aptitude Test	18 to adult
Minnesota Mechanical Aptitude Test	14 to 18
Minnesota Spatial Relations Test	18 to adult (Directions unsuitable)
Revised Minnesota Paper Form Board Test	12 to 18 (Directions unsuitable)
Minnesota Manual Dexterity Test	18 to adult
Meier-Seashore Art Aptitude Test	("Not reliable for any age")
Wiggly Block Performance Test	10 up

Chapter 4.

ACHIEVEMENT TESTS

Achievement tests have come rapidly into use among all types of schools for deaf children. Only six answers to the questionnaire failed to report the use of these tests and four of these were made out by persons primarily concerned with intelligence testing and not in close enough contact with the everyday class work to know what achievement tests are used.

This wide use of achievement tests is in contrast to the reports on intelligence testing. Ten schools wrote "None" in the column for intelligence tests or left it blank while reporting fully in other columns. Besides this several letters came in with no answers to the questionnaire, vigorously protesting against the use of intelligence tests for deaf children. This is another indication that the movement is in the early experimental stage, whereas achievement testing was accepted as quite commonplace.

The achievement test most frequently reported is the New Stanford Achievement Test, reported 16 times. More schools have used it "more than 100 times" than have so reported on any other test. The two which follow it in frequency of use are the Metropolitan Achievement Test and the Gates Reading Tests, reported by 5 and 4 schools respectively. The other tests were reported by only 1 or 2 schools each.

The following table shows the number of schools reporting each test.

Table 11

Number of Schools Reporting Each Test

Name of Test	Number of Schools
New Stanford Achievement Test	16
Metropolitan Achievement Test	5
Gates Reading Tests	4
Pintner Non-Language Mental and Educational Survey Second half	2
New York State Regents, or College Board, Examination	2
Los Angeles Fundamentals of Arithmetic Test	1
Chicago Arithmetic Survey Test	1
Chicago Reading Tests	1
All elementary tests given in the public school	2
All high school and college level tests needed for college entrance and course finals	1

The fact that a test has been used in a school very few times may be due to several reasons: the school may have thought it unsatisfactory and discontinued its use; the school may have only begun using it; the school may have very few children to test. It is also true that a school may continue using a test because it does not know where to get a better one. But, on the whole, the assumption is that the tests used most often probably are the ones that give most satisfactory results. The following table must be given very broad interpretation with these considerations in mind. Item 10 in the questionnaire was designed to show frequency of use. Some of the schools

reported the name of a test in Item 1, but failed to fill in the times they had used it in Item 10. Therefore the number of schools in the table for Item 1. can not check as exactly the same number as that in the table showing frequency of use. This is necessarily true in a number of similar instances throughout the study.

Table 12

Frequency of Use

Item	New Stanford Ach. T.	Metropolitan	Gates Reading	New Stanford Reading	Pintner Ed. Survey	Progressive	L. A. Fund. of Arith.
10. Have you used this test							
a. less than 20 times?	3	3	2	-	1	1	-
b. between 20 and 100 times?	5	1	1	2	-	-	1
c. more than 100 times?	6	1	1	-	1	-	-

Test

Number of Schools Responding to Each Section of Item 10.

This table shows that 3 schools have used the New Stanford Achievement Test less than 20 times, 5 schools have used it between 20 and 100 times, and 6 schools have used it more than 100 times. This last probably indicates routine use of this test in each of these schools. The New Stanford is by far the most frequently used of the achievement tests.

The level at which the schools use each test was reported by some in terms of ages and by some in terms of grades. The entire range given by all schools is included in the record for each test. For instance, one school uses only the advanced Gates Reading Test and another uses both primary and advanced forms so both are reported, as grades 2 to 3 and grades 4 to 9.

Table 13

Age Level at which the Various Tests Are Considered Reliable

New Stanford		Metropolitan		Progressive		Pintner Ed. Survey		New Stanford Read.		L.A. Fund. of Arith.		Gates Reading	
Age	Grade	Age	Grade	Age	Grade	Age	Grade	Age	Grade	Age	Grade	Age	Grade
10 to 18	2-3 4-9	10 to 16	1 to 8	-	4 to 6	6 to 18	-	-	2 to 9	-	2 to 8	-	2-3 4-9

This gives what the schools consider reliable achievement testing throughout the usual school range.

The only college for deaf students also reported using standardized tests routinely. Its entrance examinations

are "mainly standardized tests". The instructors use such tests as course finals. Three tests were listed:

New Stanford Achievement Test, Advanced Form
Emporia State Teachers College Tests
National Cooperative Tests

The purposes for which the college uses achievement tests are "individual advice", "class regrouping", and "a check on curriculum". Directions are "read by the student from the printed page". As the students in the college for the deaf take so many achievement tests routinely it is assumed that the deaf students who go to regular colleges for hearing people should be able to take the ones given there with equal ease.

The New Stanford Achievement Test is reported from every type of school except the one private day school. The Metropolitan and Progressive Achievement Tests are reported by public day schools only. The Pintner Educational Survey is used by a state residential school and a small day school both in New York. Two large public day schools report the New Stanford Reading Test. One private and 3 state residential schools report using Gates Reading Tests. One private and two public day schools, all small, report that their pupils take "all tests used in the public schools where they are enrolled". Two large cities use tests made by their own research departments.

Only four persons thought the language of the directions of any of the achievement tests so difficult as to

invalidate the results. Twenty-one said the directions were not too difficult, but several qualified this by adding "if taught beforehand" or similar expressions. This is probably the result of the Davies study ( ) which was read at a convention of educators of the deaf recently. Many of the schools have apparently realized the necessity of teaching the meaning of the directions thoroughly before giving the children a test.

In 12 instances the classroom teachers give the achievement tests. One reading test is given by a reading supervisor. Teachers, specially trained in testing and called "teacher in charge of testing", "adjustment teacher", or "guidance counselor", give the tests in 6 instances. Six principals give them. Four psychologists, who give the intelligence tests, also give the achievement tests. The College Board Examinations are administered by the university to which the student is applying for entrance. Therefore the personnel administering achievement tests to deaf children is about the same as those who administer them in the regular classes for hearing children.

No test and no school showed a scholastic mean for deaf children that was within a year of the norms for hearing children of the same age. This is to be expected as the first years of the deaf child's schooling must be given to learning language before he can begin to take the regular scholarship given the hearing child. How much

of this retardation may be overcome by earlier entrance into school remains for the next few years to show us as the pre-school age groups grow up in the various schools now having them.

The placement purposes for which the schools use the results of achievement tests and the number of schools reporting each are given in the following table.

Table 14

Purposes for Which the Schools Use Achievement Tests

Purpose	Number of Schools
Grade placement within a school for the deaf	10
Grade placement, an individual deaf child going into regular grade of hearing children in public school	5
College entrance	3
"Educational guidance"[1]	2
Individual advice	1
"Actual achievement"[1]	1
High School entrance	1
Course finals	1
Class regrouping	1
Check on Curriculum	1
Measure for Rehabilitation Plan	1

Just as in the regular public school classes, grade placement is predominantly the purpose for which most achievement testing is done.

Considering how very recent is the spread of the practice of placing deaf children in the regular classes

1. Quotations are verbatim from the answers to the questionnaire.

with hearing children it is surprising how many instances were reported of the use of achievement tests for this purpose. Five were definitely so listed, two of the three instances listed as college entrance, and the one listed as high school entrance are for deaf children students going into high school and college with hearing students. Therefore 8 schools out of 33 are preparing their deaf pupils in scholarship on a par with hearing children to such an extent that they can and do measure their achievement in scholarship with the usual achievement tests prepared for normally hearing children. That is, the deaf child in a regular grade is a few years older than the hearing children in that grade, but his scholarship is as good within that grade as theirs.

Chapter 5.

LIP READING, AUDITORY, VISUAL, AND SPEECH TESTS

Lip Reading Tests

Seven schools reported using lip reading tests of their own devising. These are given to all ages of pupils. The only purposes expressed were to examine the term's achievement and to measure progress. These tests are given by the teacher in 4 schools, by the department head in 1, by the supervising teacher in another, and by the research department in the other. The test in the last school was in the form of a motion picture. It was used for children 8 or 10 up in age.

Auditory Tests

Twenty-one schools reported testing hearing. All of them used some type of electric instrument made for the purpose. The Western Electric Audiometers predominate. The most used types are the 6A and the 2A, 9 schools reporting each. The 4A, 4B, and the 3A types are also used. Three other audiometers were reported, Maico, Sonotone, and Radio Ear. This last is reported as a superficial screening test to find children who can profit by acoustic training on the accompanying teaching set.

Again the classification into language and non-language test is needed, here concerning the body of the

test more than the directions. If the testing technique includes words or numbers the deaf child has the double problem of hearing the sound and of interpreting it, which he may not be able to do until he has had considerable acoustic training. The directions for administering these tests are considered satisfactory except for very young children. This last report came from a pre-school age group.

The following instruments give a non-language hearing test in that they test the child's hearing with a pure tone, or a sound composed of several frequencies, but no words or numbers. The number of schools reporting each is indicated.

Table 15

Instrument	Schools
Western Electric 6A Audiometer	9
Western Electric 2A Audiometer	9
Maico Audiometer	3
Sonotone Audiometer	2
Western Electric 3A Audiometer (Complex tone)	1

A language type hearing test is made with the Western Electric 4A and 4B Audiometers. These use numbers spoken on a phonograph record. The loudness is calibrated exactly so that the loss of hearing may be measured in decibels just as is done with the non-language type. These two are the only group testing instruments reported.

The four schools using the 4A and 4B Audiometers are all day schools. This indicated that the instruments are used to test hard of hearing children. These children

already have acoustic interpretation and will know what the numbers are if they can hear them. The purpose for which these two instruments are reported to be used is for recommendation to lip reading classes. This labels them definitely for the hard of hearing, not the deaf. One of the same schools lists another audiometer of the non-language type also. This is the type used for deaf children.

The schools reporting them say they use the 6A and 2A for "all" pupils, or for those 6 years and over, which mean the same thing as this is the usual entrance age. The 4B is reported for ages 9 years and up, and the Sonotone for 10 years and up.

There are three purposes for which the schools test hearing:

1. For recommendation to medical clinic
2. For school placement
3. For recommendation to acoustic training

The tests were made by doctors, nurses, department heads, acoustic supervisors, and specially trained teachers. This indicates that administering these tests demands special training. All but one small day school reported testing hearing "more than 100 times" or routinely.

Visual Tests

Among the schools answering the questionnaire

the testing of vision does not receive as much attention as the testing of hearing. Sixteen schools reported. Eleven of those use only the Snellen Chart. One uses the E Symbol Chart. These two charts test for distant vision only, as in blackboard reading.

Eight schools have vision tested by "oculist" or "doctor" but did not indicate how the school selects the pupils to recommend to them.

Three schools report using the Betts Telebinocular, which tests various phases of vision as it is used in actual book reading. Two of these schools report giving this test with the help of the Guilmartin Non-Language Response Cards, for ages 4 years up. The other uses the E Symbol Chart for the very young. The same school uses the Snellen Chart, too.

The three purposes expressed for the use of tests of vision are:

1. Recommendation to oculist or clinic
2. Room placement
3. Recommendation for sight saving techniques

"Room placement" probably means giving the child with a visual defect the most advantageous place in the room as far as lighting is concerned.

In most of the schools vision is tested by the nurse or doctor, but three schools report having vision tested by teachers, one of them called a "special teacher". A psychologist does the testing in one school. The following

table shows the person testing vision and the number of schools reporting each.

Table 16

Persons Who Test Vision

Person	Schools
Doctor	8
Oculist	5
Nurse	2
Teacher	2
Special Teacher	1
Psychologist	1

In answer to the question, "Is this strictly a non-language test?", concerning the Snellen Chart some schools said, "Yes", and some said, "No". This lack of agreement among the people who test deaf children is noticeable throughout the study, often with no discernible reason for one of the answers. An instance of this is the report on the E Symbol Chart. It is checked as a language test. In it the child is required to point with three fingers of one hand in the direction the E Symbol is pointing. This is shown him by demonstration. It is specially recommended by the school for "very young" children, and very young deaf children have almost no language. The reason for judging it a language test does not appear.

The question differentiating between language and non-language tests brought forth a reasonable difference in report on the Betts Test. It is reported as a non-language test by the two schools using the Non-Language Response Cards,

and as a language test by the other school. While the Telebinocular is used in exactly the same way the children using the Non-Language Response Cards can show the examiner what they see without having to explain in words.

One of the schools giving the Betts test as a non-language test recommends it for children as young as 4 years.

Speech Tests

Nine schools reported using some sort of speech test. Five schools reported using an informal type of test which they all called tests of "Intelligibility". These are described as made up of sentences, composed afresh for each test, and read by the child to several people: teachers, supervisors, or outsiders. The listeners write what they think the child has said. These written sentences are checked with the actual sentences and the resulting score is considered the child's per cent of ability to speak intelligibly. One school reported two other parts of the same sort of test, accuracy and written principles of speech. This type of test was suggested by a speech teacher, Enfield Joiner, in her book, "Graded Lessons in Speech". (11)

One school uses its intelligibility test for children 8 years old and up and has given it over 100 times, or routinely. Another reports using its "always", and another "twice a year for all children".

Two schools use the Schoolfield Diagnostic Speech

Test from grades 3 to 8. (18) The purposes for which they use it are speech diagnosis and to measure progress. It had been given less than 20 times in one school and between 20 and 100 times in the other.

A day school reports using "recorded speech" for all pupils. The test is given by the teacher and has been used over 100 times. A private residential school uses recorded speech for testing but gave no other information about it.

Two schools have used the Kelley-Guilmartin Speech Test for Deaf Children. The pupils tested were from 8 to 14 years old. The lower age limit is set by the fact that the ability to read must be established before the child can take the test. There is no upper limit as it can be used to measure and diagnose the speech of adult deaf people. The purpose for which the schools said they used it was speech diagnosis. The "person or agence" administering the test was the supervising teacher in the state school, and the teacher in the day school. It was used less than 20 times in each school. This test is in the form of "recorded speech". It is not yet standardized and would have to be repeated to measure progress.

None of these tests is standardized for deaf children at the present writing. The Kelley-Guilmartin Speech Test for Deaf Children is in process of being standardized for deaf children. The Schoolfield Speech Test is standardized for hearing children.

Chapter 6.

CONCLUSIONS

The testing of deaf children has increased rapidly in the last decade. This is shown by a sequence of three summaries of the use of tests with deaf children.

1. A Summary of Psychological Tests Applied to the Deaf, by Mary Guilmartin, 1931. (44)
2. A Summary of Psychological Experiments with the Deaf, 1932-38, by Elizabeth Mary Cutler. (31)
3. Present Practices in Testing Deaf Children, by Mary Guilmartin, 1943

Replies from 34 schools or other agencies are included in the present study.

The data collected are considered more than a fair sampling because they come from all types of school for the deaf, and from widely dispersed geographical sections.

The information here reported is not available elsewhere.

The tests used by this representative group of people are listed in the appendix.

The tests included are easily found as they are alphabetically arranged.

The descriptions of the tests include: the exact title, the author, and publisher, the list of materials

needed with prices, a discussion of the difficulty of the directions, the age range, the qualifications necessary as examiner, satisfaction as shown by frequency of use, and the purposes for which the results are considered reliable.

Satisfactory tests are shown:

For intelligence at various age levels
For achievement in scholarship at various grade levels
For most of the school subjects
For mechanical abilities and vocational aptitudes
For the special subjects of speech and lip reading
For the physical tests of vision and hearing

A preference for non-language tests appeared.

Non-language tests are listed in the fields of:

Intelligence
Mechanical Ability and Vocational Aptitude
Hearing
Vision

Tests are listed for such important purposes as:

School admission
Grade placement
Rehabilitation training
Homogenous grouping
Acoustic training
Recommendation to oculist
Recommendation to otologist

The fields of testing the deaf which seem still in the early experimental stage, are not all fields mentioned really in the experimental stage:

Intelligence
Mechanical ability and vocational aptitude
Speech
Lip reading
Non-language testing of vision

The one field of testing which seems to have made satisfactory progress is achievement testing.

The fields in which standardized tests are used for deaf children are:

Intelligence
Achievement
Mechanical ability and vocational aptitude
Hearing

The fields in which there were no standardized tests reported are:

Speech
Lip reading

The data here compiled came from all types of school or agency testing deaf children over a wide geographical area. Therefore it is assumed to be a fair sampling of current practice and opinion concerning intelligence tests used with deaf children.

It seems the concensus of opinion that this type of testing must be done by competent and well-trained persons, as in every case the tests were reported to be given by such a person.

Twenty-three different intelligence tests were definitely reported in answers to the questionnaire, and several others were mentioned in accompanying letters.

Testing the intelligence of deaf children is still in the early experimental stage. Evidences of this are:

1. The large number of different tests being used.
2. The many items upon which examiners disagree.
3. The different ages and purposes for which they use the same test.
4. The violent opposition to any attempt to test the intelligence of deaf children expressed by some recipients of the questionnaire.

The form in which the directions are given is an important deciding factor in selecting an intelligence test for deaf children, the non-language type being the most used.

To be a non-language test for a deaf child the test must be administered without the child's dependence on hearing, reading, or lip reading in understanding the directions or the body of the test.

As to directions and also mean scores the non-language performance tests are the most satisfactory, with the exception of the non-language "paper and pencil" tests, which consistently gave scores for the deaf more than a year below the norms for the hearing.

All who filled out the questionnaire agreed that the verbal directions for all forms of the Binet Test were so difficult as to invalidate the results for deaf children.

There was disagreement among the examiners as to the difficulty of the directions of the other verbal tests.

The two most popular tests are the:

Arthur Point Scale of Performance Tests
Ontario School Abilities Examination

The points in their favor are:

1. They were used by more schools than any other test.
2. They were used more frequently than any other test.
3. The scores are satisfactory in that the Ontario is standardized for deaf children, and the Arthur gave normal scores in at least one school.
4. The directions are practically non-language.
5. The age range includes all but a pre-school group, being 5 years to 20.

6. The purposes for which the results can be used are important ones: Admission and school placement for both tests, and manual ability, or prognosis for vocational training for the Arthur Test.

The Ontario School Abilities Examination is the only intelligence test standardized on deaf children to appear in the study.

There was much overlapping of ages at which the tests were used.

The tests recommended for older children and checking as satisfactory as to directions and norms are:

Ontario School Abilities Examination
Arthur Point Scale of Performance
Pintner-Paterson Performance Test
Advanced Performance Series (Unpublished)
Performance Tests (Unpublished)

The two unpublished performance series are arranged by the research departments of two large private residential schools.

The fact that competent persons are arranging their own series of performance tests shows a healthy growth in the movement of intelligence testing for deaf children.

The Randall's Island Performance Series and an arrangement of advanced performance tests are the only tests which gave average scores for the deaf above the norms for hearing children.

The Arthur Point Scale of Performance Tests, the California Test of Mental Maturity and the Pintner-Paterson Performance Test are the only tests reported as giving average

scores for the deaf that are within a year of the norms.

Therefore the six intelligence tests which are satisfactory from the standpoint of allowing deaf children a chance to make normal scores are:

Ontario School Abilities Examination
Randall's Island
"Advanced Performance Series" (one school)
Arthur Point Scale of Performance Tests
California Test of Mental Maturity
Pintner-Paterson Performance Test

Only 4 of the 34 schools in this study reported using any mechanical ability or vocational aptitude tests. Three schools used only one test each.

The fourth school used a comprehensive battery of tests. The tests included in this battery are:

Minnesota Clerical Aptitude Test
Detroit Mechanical Aptitude Test
Minnesota Spatial Relations Test
Revised Minnesota Paper Form Board Test
Revised Minnesota Manual Dexterity Test
Meier-Seashore Art Aptitude Test

This battery of tests was given for the purpose of cooperating with the State Rehabilitation Department which gives vocational training and places the school's older pupils in actual jobs when trained.

Only day schools reported giving vocational tests.

The tests were given by trained persons in every instance.

The only test reported satisfactory as to directions and norms is the Stenquist Mechanical Assembling Test. It is also the only test reported more than once. It was

used by two schools.

The tests reported satisfactory as to directions are:

Stenquist Mechanical Assembling Test
Minnesota Clerical Aptitude Test
Minnesota Mechanical Aptitude Test
Minnesota Manual Dexterity Test
Wiggly Block Test

The lower limit at which the vocational tests are given varies from 10 year to 18. There is lack of agreement in reports on even the same tests. The tests are all given up to the age of 18 or adult age which are synonymous in this use.

The giving of vocational tests seems to be even more experimental and uncertain than is intelligence testing.

The schools reporting in this study make extensive use of achievement tests and find them satisfactory.

The most popular achievement test is:

New Stanford Achievement Test

1. It was reported by 16 schools.
2. It is the most frequently used test.
3. It was reported by every type of school except the one private day school.
4. Eleven schools said the directions were not too difficult for deaf children. Two disagreed.
5. The grade range is from 2nd, and 4th through 9th.
6. The examiner need not be specially trained, as is shown by its being given by teachers or principals.

The second and third tests in frequency of use are:

Metropolitan Achievement Test
Gates Reading Tests

A wide variety of achievement tests was reported.

All the usual school subjects are included.

All levels from grade 1 through college are included.

Grade placement is the most common purpose for giving achievement tests. The two types of grade placement here considered are:

1. Placing a deaf child in a grade within a school for the deaf
2. Placing a deaf child in a regular grade of a public school with normally hearing children

The language of the directions of achievement tests is not considered so difficult as to invalidate the results with deaf children. No difficulty whatever is reported for the directions of these tests on the high school and college levels.

About the same type of school person cares for the achievement testing for deaf children as for that of the normally hearing children.

No school and no test showed a scholastic mean for deaf children that was within a year of the norms for hearing children. This is to be expected as the first years of a deaf child's schooling must be spent in learning speech and language before he can begin the usual curriculum of a hearing child.

Day schools closely associated with public schools report their deaf pupils "take all tests used in the public schools where they are enrolled".

About the same type of school person cares for the achievement testing for deaf children as for that of the normally hearing children.

There were no standardized tests of lip reading reported.

One informal test was in the form of a motion picture. It is not available for use by other schools.

All the testing of hearing reported was done with electric instruments.

The Western Electric Audiometers predominate. The most used types are the 6A and the 2A Western Electric Audiometers, 9 schools reporting each. Other types of Western Electric Audiometer reported are the 4A, 4B, and 3A.

Two other makes of audiometer listed were the Maico and the Sonotone.

The Radio Ear teaching amplifier also has an audiometer device used in a limited way in connection with it.

The purposes for which hearing is tested are:

1. For recommendation to medical clinic
2. For school placement
3. For recommendation to acoustic training

The non-language tests are used for deaf children.

The language type test, the 4A and 4B, Western Electric Audiometers, are used for hard of hearing children.

The non-language instruments are the:

Western Electric 6A, 2A, 3A
Maico
Sonotone

The ages for which reliable testing is reported are 6 or 7 years up.

The concensus of opinion is that this testing must be in the hands of trained people.

The schools test hearing routinely.

Twenty-one of the 34 schools in the study report testing the hearing of their pupils.

The testing of vision receives very little attention beyond the use of the Snellen or E Symbol Charts for distant vision.

Three schools used the Betts Telebinocular.

Two of these used the Guilmartin Non-Language Response Cards with the Telebinocular.

The last two school reported using this test for very young deaf children.

The three purposes expressed for the use of tests of vision are:

1. Recommendation to oculist
2. Room placement
3. Recommendation for sight saving techniques

Nine schools reported using speech tests.

Five of these schools used the Joiner type of "Intelligibility" tests. These intelligibility tests are the most common form of speech test. They are not standard-

ized. They are made up of sentences, composed afresh for each test, and read by the child to several auditors, who score them. The result is considered the child's per cent of ability to speak intelligibly.

The Schoolfield Diagnostic Speech Test was reported by two schools. It is a test made for hearing children with speech defects.

One school uses its own test in the form of recorded speech.

Two schools used the Kelley-Guilmartin Speech Test for Deaf Children which is of the recorded speech type.

Two of the recorded speech tests are made by the schools using them.

The purposes for which the schools test speech are:

Diagnosis
To measure progress

None of the speech tests reported are standardized for the deaf.

The Kelley-Guilmartin Test is in process of being standardized for deaf children.

The Schoolfield Test is standardized for hearing children.

A need for an objective speech test standardized for the deaf appears to exist. This is deduced from the

following facts:

1. The 34 schools in this study are all listed as teaching speech, according to the latest published report in the American Annals of the Deaf.

2. They measure achievement freely in their other subjects.

3. Nine of the schools are now testing speech.

4. Some schools are attempting to make their own tests.

5. It follows that there is a present need for a standardized speech test for deaf children.

PART II

THE KELLEY - GUILMARTIN SPEECH

TEST FOR DEAF CHILDREN

Chapter 7

CONSTRUCTION OF THE TEST

INTRODUCTION

In the survey of testing reported in Part I no standardized test of speech appeared. Neither is there mention of any such test in the literature canvassed. Letters to the best informed specialists in the field of the education of the deaf failed to discover any such test. It is concluded that there is no standardized speech test for deaf children.

Nine of the schools reporting in the above survey are testing the speech of their deaf pupils with whatever tests they can devise or adapt.

This indicates a desire to test speech. Considering the wide spread use of standardized tests of achievement in all the subjects for which such tests are available the time seems to be ripe for a speech test which can be standardized. The Kelley-Guilmartin Speech Test for Deaf Children is designed to fill this need.

Need

The need of a standardized speech test for deaf children has been expressed in the literature a number of times. One

instance was in Elizabeth Hughes Johnson's article, "Testing Results of Acoustic Training", in the May 1939, American Annals of the Deaf.(48) In speaking of speech among other results of acoustic training she says, "Analysis of the results shows that standardized tests along such lines are needed in order to place judgment of progress on a basis comprehensible to all members of the profession." Another instance is in the report of the first conference on problems of the deaf, based on the findings of the National Research Council's Survey of American Schools for the Deaf. ( ). It recommended that the Council appoint a committee. Among the duties of this proposed committee was this:

B. "We recommend for the careful consideration of the Committee, the following apparent needs:

2. The study and development of methods of measuring in the deaf .....

d. Ability to speak."

The Second Conference published pages of Recommendations for Research. Among them is this:

IV. Measures of Capacity and Achievement

"Many of the problems included in this report depend upon the use of adequate measures of capacity and achievement of auditorily deficient children and adults. It is recommended, therefore, that intensive efforts be made to

improve tests now available, and to develop adequate tests in lines where the present lack is a serious impediment.

C. Tests of Proficiency in Communication

It is....recommended:

3. That there be developed a method of measuring the intelligibility of speech. One technique would be the use of a scaled series of words, phrases, and sentences, well below the child's grade of reading ability, to be spoken by the child to a group of trained observers, who should rate the intelligibility of the child's speech. Another technique would be the mechanical recording of similar samples of the child's speech to be reproduced later and rated by trained observers. Such methods as wax recording or film recording or any other devices which might be invented should be thoroughly investigated as to their practicability."

In preparing the test the following people and the uses to which they need to put a speech test were particularly kept in mind. These are the people who are responsible for the education of deaf children. They have special needs for a measure of ability to speak. These needs were listed early in the planning of the test and the list was checked frequently to be sure that the test would meet them. The specific people and their needs considered are:

1. Heads of schools who wish to compare the speech of

their schools with that of the average of schools in general and with that of the schools producing the best results.

2. Supervisors of speech in schools for the deaf who wish to have an objective measure for speech, and a diagnostic chart on which to base remedial procedures.

3. Classroom teachers who wish a detailed and individual diagnosis of pupils' difficulties so that they may drill on the individual needs of each child and on the common needs of the class.

4. Public school research workers who are required to test deaf children in the special classes of the system and wish to secure resulting scores that may be used in their routine reports in the department and will also be meaningful and helpful to the special class.

5. Research workers in any situation who wish to measure the results in speech of different methods, and conditions of various sorts.

6. Public school supervisors who are required to direct and evaluate the work of special classes for the deaf but have no way of judging the speech work.

7. Teachers of special classes for the deaf in public schools who are without technical supervision in speech teaching and wish to evaluate the speech of their pupils and compare it with that of well organized schools.

It is hoped that the final form of the test is comprehen-

sive enough for the most exacting of these needs and yet objective and non-technical enough for general use. Each technique and procedure was retained or eliminated on the basis of its appropriateness to use by these people.

Origin of the Test

The first step in constructing a test is, of course, establishing goals. To measure a child's ability one must set forth in detail the factors which contribute to that total ability.

Selecting Objectives of Speech Training

The nucleus for this set of goals, or objectives, was the form used as a daily lesson plan for speech by one of the authors. This lesson plan was based on training in both Clarke School for the Deaf and Central Institute for the Deaf. The plan was worked out and put into operation in speech work with day school classes. The form was mimeographed so that a year's supply was on hand and speech lessons could be written in according to the present interest and subject matter of the children's daily work. The items on the form seemed comprehensive of the needs of the usual daily speech work. It did not include all the work for better speech, as for instance, breath control, and voice placement; but it did include the products

of articulation lessons, rhythm work, acoustic training and most of the speech improvement incidental to the day's language work such as phrasing and emphasis.

The original lesson plan form is here reproduced.

										SCORE
										ELEMENTS
										SYLLABLES
										FLUENCY
										ACCENT
										EMPHASIS
										PHRASING
										INFLECTION

Final Selection Of Goals

When the work of developing this nucleus into a comprehensive speech test began the present authors canvassed theory and practice in the literature on the education of the deaf for mention of qualities which contribute toward good speech among the deaf. Other goals were gleaned from discussions with residential school supervising principals and day school supervisors and teachers. Books, periodicals, and convention reports were canvassed for other goals suggested by respected speech teachers all over the country.

The final list of speech abilities, all of which are developed in deaf children in at least some schools, includes: elements, syllables, fluency, accent, emphasis, phrasing, inflection, and general intelligibility. The most frequently mentioned errors to be avoided were: substitutions, wrong production of consonant or vowel, omissions, nasal errors, and added syllables.

There exists at present no authority upon which the items might be weighted. Values were necessarily assigned to them on judgment resulting from years of teaching deaf children to talk. These values must either justify themselves in use or be changed.

The first seven items, which are, elements, syllables, fluency, accent, emphasis, phrasing, and inflection, were

given equal value in order that they might present a diagnostic profile. They measure primarily the child's progress in the most commonly taught speech exercises.

Intelligibility receives a great deal of attention in the present day courses inspected, so two such sections were included. One tests the child's speech of connected language and is scored primarily for intelligibility and is given added credit for the use of any of the first seven qualities. The second section is connected language scored for intelligibility and checked for the common errors which the deaf child can avoid. These errors subtract from his score on that section of the test.

These last two items on the test, paragraph reading and impromptu speech, are given equal value so as to give two different measures of continuous speech. The score in one case is intelligibility plus credit for good qualities; in the other, intelligibility with credit subtracted for errors in pronunciation.

Practicality

The Kelley-Guilmartin Speech Test for Deaf Children is designed to be practical. It is at present planned for cutting on records for phonograph play-back. If sound recording on film is developed to a practical degree the test will be just as applicable to that technique. Any of the usual school per-

sonnel engaged in testing can give this test. The material is available to all. It is so presented that it has a real appeal to deaf children and so induces sufficient response from them.

Mechanical Recording

Mechanical recording is becoming quite common in radio and school use.

Recording instruments are not difficult to obtain. They may be bought at a reasonable figure; they may be rented; or records may be made as the regular service of a local commercial house that handles recorders.

Neither is there any difficulty in cutting the records. Any intelligent person can be shown how to make the records. This particular test has been given with ease by a teacher as examiner and a radio man as operator to cut the records, by a psychologist as examiner and a teacher as operator, and by a supervising principal as examiner and a teacher as operator.

Many of the personnel of the schools for the deaf are already experienced in the technique of mechanical recording of deaf children's speech. More schools each year are adding a recorder which they attach to the teaching amplifier already in use.

Public schools often have recorders in their music or spoken English departments which can be loaned for occasional

use in the classes for deaf children. Music houses in most cities have recorders in their radio and phonograph departments and make records at small cost.

Two of the advantages of mechanical recording are that it is objective and that it is capable of measuring the most important factors of good speech.

Judging the speech of a deaf child is usually highly subjective. The special teacher's ear is trained by long practice to interpret the peculiar speech of the deaf child. She also knows what vocabulary he is apt to be using. Listening to a deaf child talk, she guesses much of what he says from factors other than the intelligibility of his speech, as, for instance, the aforementioned vocabulary, or his facial expression, his gestures, and the total situation. The greatest aid in attaining objectivity is eliminating the presence of the child himself; and this is done when we score from a record of his speech. Objectivity is also furthered by including opportunity for all the elements of intelligibility to appear and then scoring them definitely and separately.

Mechanical recording can and in the test under discussion does, include the factors which are considered most important in developing good speech among the deaf. Some schools begin with elements and work up to words; some begin with words and work down to elements; in either case both are tested. Fluency and phrasing are part of speech work from the very first language

when the article "a" is put before the noun, as "a car." Accent and emphasis are developed by rhythm class exercises and direct speech drills. Inflection is taught in acoustic work and only the profoundly deaf children are incapable of using it to a helpful extent in their speech. Intelligibility as a general criterion of good speech appears frequently in the literature and is the most often reported type of test of speech in the questionnaire study of Chapter I. Mechanical recording is a sufficient medium for testing all of these.

Ease of Administration

Any trained teacher of the deaf or any experienced examiner who is accustomed to following the directions of standardized tests can give this test by following the directions given with it. The examiner should, of course, have some experience with deaf children before attempting to get them to talk for him.

The procedure is exact but simple. There are only three directions in giving the test and these are virtually unnecessary after the child has been through the procedure with the pre-test. These directions are given verbally. The first is "Look at the picture," which the examiner says to the child when giving him the actual test picture. The spoken words are of little consequence as the act of giving the child a picture is enough to induce him to look at it.

The examiner does not speak while showing the child the objects in the picture which he will read about in the test.

The second direction is, "Read," which the examiner says on holding up the first printed strip at the microphone. The child will have read similar strips in the pre-test and almost every child will begin reading aloud as soon as he can see the printing.

The third direction is, "Tell me about the picture," or "Talk about the picture," which the examiner says to the child when showing him the picture for impromptu speech. The deaf child has had so many lessons from pictures that this is a familiar situation to him. The presentation of a picture makes him feel that he is expected to "talk about it." This he does on the test, using his own language level and what he says is scored as speech, not as language.

There must, of course, be a second person to operate the recording instrument. It is impossible for one person alone to present the material to the child and to operate the machine.

Psychological Appeal to Children

The most difficult, and probably the most important, part of the work of constructing the test was putting it into such form that it would induce deaf children to respond in the manner desired. To this end appealing pictures are selected and the speech centered around the child's interest in the pictures.

The pictures are bright and clear in color and outline and full of action. Keeping the child interested in the pictures heightens his cooperation and avoids self-consciousness.

The print is large and clear so that any child with even nearly normal vision is able to see it easily as it is held up to his eye level. The printing is mounted on stiff cardboard so that there is no buckling of the material to confuse his vision of it.

The usual left to right reading technique is employed throughout. The child is presenting different phases of good speech development but in doing it he reads straight across the strip and so is not confused as to which to say next.

Simple to advanced ideas and vocabulary are included so that each child will find something easy enough and something difficult enough to test his ability. In reading the strips and the paragraph the child finds the most difficult parts at the end and is not discouraged by them early in the test.

The last section, impromptu speech, is tested by one of the most common practices in schools for deaf children, that is, picture discussion. The deaf child has hundreds of pictures presented to him for all sorts of discussion. Presented with a new picture he will, from daily training, make an effort to talk about it. What he says will be on his language level and may present some recent language lesson, as a description of

what the people are wearing, or he may go into the present progressive tense and try to tell all the things the people are doing. Only the most advanced deaf students or recently deafened children try to tell a connected story about the picture. Whatever the child says is scored on speech alone so that the language used is unimportant. It may even be incorrect as good English and not detract from the child's speech score.

The continuity of thought throughout the exercises seem to have justified the original purpose in employing it. The children tested with the Kelley-Guilmartin Speech Test for Deaf Children considered that all the first two sections are just an interesting discussion of the ideas embodied in the first test picture. This seems to be of psychological value in that it secures continuous effort on a high level from the children.

The practice of giving a pre-test which is a consistent replica of the test sends the children to their actual recording with self-assurance based on familiarity. Many of them greeted the familiar looking material with a delighted, "I know! I know!" and were eager to begin.

The only difference in the pre-test is that it contains only three strips of print and consequently a shorter paragraph, whereas the test proper has ten strips and ten sentences in the

paragraph. The pictures and subject matter are, of course, different.

Other psychologically important features of the test are that the child has to talk only six minutes and has two rest periods. These prevent fatigue and help to get a sample of the child's best effort.

Validity

The factors of good speech included in the test all came out of practical classroom usage. They are developed in the deaf pupils of the demonstration classes of the two leading residential schools from which one author of the test was graduated. These same factors were developed in day schools so they are applicable to either and both types of school.

No item was failed by all and no item was done perfectly by all. The possible score is 120 and the scores made so far range from 16 to 82. Successive grades in a good school made successively reasonable improvement on the test. It measures what schools are trying to produce. The two techniques for measuring speech of connected language produce a close agreement in scores.

The test seems to set its lower limit at about eight or nine years, or at the point where reading is as well established as the child's speech. The children younger than this made scores of 0, 1, 3, and 5. This has practically no

significance as these children were well taught and were doing good speech work on the primary level. A test of the speech of very young children apparently needs to be constructed on an entirely different technique, probably imitation instead of reading and original conversation. There seemed to be no difficulty with reading for any of the older children and no evidence of it appears in the results.

Availability

Probably the most practical thing about the test is that it is published and available to all. In essential make-up it does not differ greatly from the informal testing of speech that is going on throughout the schools for the deaf. It is perhaps more comprehensive, more detailed, and more carefully constructed and reconstructed than a test picked at random from the many informal ones in use would be. But the real contribution of this test to the advancement and the study of the education of deaf children is that it is available to all and will in the end yield comparable results.

Materials

Sources of pictures were investigated and hundreds of pictures studied before the four used in the test were selected. A number of the best were tried out in various

groups of deaf children and their appeal to the children noted. The children showed their interest by animated facial expressions, by pointing to the objects they liked or knew about in the picture, by natural gestures describing or explaining the objects or meaning of the picture, by dramatizing the action implied in the picture, or by talking about it insofar as they had the language to express their thoughts about it. Finally four were selected, two for the pre-test and two for the test proper. It is considered wise to present only the pre-test material here as the test material would unavoidably produce some coaching in schools where the test is to be given. The three decisive factors in the final choice were, first, that the subject matter of the picture must appeal enough to call forth a lively response from the child; second, the pictures must be in good colors; third, the objects must be clear and distinct. The picture chosen for the main part of the test proper met all three requirements and also had the widest age range of appeal. The youngest and the oldest were all interested in it. The youngest missed the adventure theme but were excited over the animals and their relationships and activities. The older children appreciated the significance of the animals' actions as part of the adventure of the people concerned.

The largest and most showy picture is presented first in the pre-test. It is of a boy riding his pony across a meadow with his dog racing along beside him. It had such a strong appeal that several of the young children, on whom it had its try-out, spontaneously dramatized it by galloping about the room. The second pre-test picture is a child-life problem. Different aged children see different phases of the problem but all offer to tell what they see. To some the little boy's dog merely has sat down and refused to go with him. To city children the traffic signals are the main interest. This picture and the second one of the test proper are for the purpose of inducing the child to talk without any direction or help. All that is wanted is a sample of his everyday conversational speech, impromptu speech. So each child responds according to his own interest and language and the resulting speech is scored as speech alone.

Print

The print is twenty-four point, black on dull white paper. As it is held at little more than book-reading distance from the child's eyes there can be no difficulty about his seeing it if he has normal or near normal vision.

Mounting

The strips of print are mounted on stiff cardboard so that buckling will not occur to blur the child's vision as

his eye travels across the strip. The paragraphs and pictures are on the same firm mountings.

Recording Instruments

Apparently any but the very poorest recording instrument will make adequate records. The point of greatest importance is that the instrument will reproduce the high frequencies so that the breath consonants may be recorded. Only one of the several instruments tried failed to produce satisfactory records and that one was a home recorder almost in the toy class. Another home recorder from a reputable manufacturer gave as good results as the professional instrument used originally.

Blank Records

The cheap acetate records on cardboard base gave as accurate recording of the speech sounds as the most expensive records used. As the record is of no consequence once it has been scored the probability of the cardboard warping in time is of no importance.

Placing a couple of books as weights on the stack of records for the few days during which they are in use is sufficient precaution against warping. After the records are scored they are thrown away and only the detailed score sheet filed for reference.

Booklets of Directions

The directions for the various phases of the work are in separate booklets for several reasons. First the pre-test should be given by the classroom teacher. The pre-test materials and directions must be in her hands for her to study and present to the children. But, equally important, she should not know what the test proper is, and so the directions for that should not be included in her booklet.

Another reason for presenting the directions in separate booklets is that different people will have charge of the different phases of the test. Probably the small one-or two-teacher day schools will be the only ones where the teacher will do all three phases, pre-test, recording of test proper, and scoring. The subject of the test proper should be kept confidential until the moment of the child's recording. In cases where the teacher must give the test she should conscientiously guard against giving any of the material of the test proper to her pupils beforehand as that would destroy the meaning of the children's test results. Another reason for making separate booklets is that the one on scoring is needed at a different time from any of the others. It is presented separately and included in the package of check sheets with which it will be used.

Chapter 8

ADMINISTERING THE TEST

Procedure

The recording instrument is set up and one person is ready to operate it. The second person, the examiner, presents the material to the child. The first picture is given to the child and he is allowed to hold it and look at it. The examiner does not say anything more than, "Look at the picture," but shows the child the objects in the picture which will be discussed in the speech test. The list of the objects appears in the booklet, Directions for Administering the Test. The microphone is adjusted to the level of the child's mouth. The picture is taken out of the child's hands to relieve him of the strain of holding it while reading the speech about it. The child is then brought up to the microphone. His attention should not be called to either the microphone or the recording instrument. His interest should be kept on the picture as much as possible. The examiner tells the operator to start cutting the record, and then holds up the first speech strip for the child to read. It is held just above the microphone so as to direct the child's voice into the microphone without telling him to do that. The child has read a strip with the same sort of speech exercises, ele-

ments, syllables, accent of words, and phrasing and inflection in sentences, in the pre-test so he knows what is expected of him. There are ten strips. He reads one after the other as the examiner holds them up and the recording is continuous. The examiner tells the operator to stop cutting.

The next exercise is the reading of a paragraph. The card with the paragraph on it is held at the side of the microphone so that it will not have to be moved throughout the reading. The subject matter of the paragraph is the same as that of the picture and the strips just read. The child reads the paragraph and the examiner tells the operator when to start and stop cutting.

The third section of the recording is made of the child's free discussion of a second picture. This picture is put in his hands and he is allowed to look at it a few minutes. This pause served two purposes. It is a rest period from speaking. It is also a time for him to form some concepts of the meaning of the picture so that he will have something to say about it.

The recording is resumed and the child is asked to talk about the picture. The picture must be held up near the microphone in any easy manner that does not embarrass the child. If he still holds onto the picture, rather than take it away from him forcibly, the examiner

may help him hold it up so as to direct the child's voice into the microphone. When the child has finished talking about the picture, the cutting is stopped.

The child is then given a half-sheet of paper and asked to write what he has just said about the picture. The picture is left where he can see it to help him remember what he said.

While he is writing the record should be labeled with his name or merely with the school and pupil code numbers if the record is to be sent in to help toward standardizing the test. The identification should be written on the label on the center of the record. A record of each child's name with its code number should be kept so that scores and other data returned to the school may be decoded and assigned to the correct child. His paper is labeled and the child is dismissed. He should be praised for his effort and cooperation and should go out with a feeling of satisfaction so that if he has another such test he will come to it with pleasure and confidence.

At the conclusion of the test the child has talked for six minutes, and has had two short but sufficient rest periods. He has seen and discussed two pretty and interesting pictures. A matter-of-fact and pleasant presentation of the pre-test by his teacher in the classroom and of the test proper by the examiner should have kept it only a pleasant

occasion for the child.

The record now contains the child's rendition of all the vowels, all the consonants, and syllables made up of consonant and vowel or consonant blend, as "bl", and vowel. There are short groups of words which can and should be spoken smoothly to show his power of fluency. There are w ords to be accented with the proper place of accent indicated, and ranging from two-syllable words to quite long ones. There are ten sentences in which good phrasing is indicated, and the same sentences with good inflection indicated.

The second section of the record shows the child's ability to keep and use these good qualities in reading a paragraph of the same ten sentences with no marking to indicate where they should occur.

The third section contains the child's conversational speech with not even a printed sentence to guide him. He has just said what he thought about the objects in the picture. His written account of what he remembers saying is just a help to the person who scores the test and is referred to only after the first scoring for intelligibility.

Supplementary Data on Pupils

No objective test score can be interpreted fairly for a child except in relation to other characteristics of

that child. The person who knows the child best will make the best evaluation of his performance. Lacking a thorough knowledge of the whole personality of the child, the most significant features in relation to speech were chosen. This data was selected to stand on each child's record to assist all who try to evaluate his speech accomplishment.

The same data will eventually serve as a basis for standardizing the test.

A sample data sheet is here reproduced exactly as it came in with a set of records from a school cooperating in the standardization.

KELLEY-GUILMARTIN SPEECH TEST

Supplementary Data on Pupils

School No._____(Code number)

Pupil No.	Boy or Girl	C.A.	L.A. or I.Q.	School Grade	Years in School	Age of Onset	Resid. Hear.	Achievement Test	Time in Regular Class	Speech Test Scores
1	G	14.7		V	5	1yr.	IV C	3.6		
3	B	12.8		V	7	Birth	IV C	3.3		
4	G	13		V	7	Birth	IV C	3.7		
5	G	12.9		V	7	1½yr.	IV C	4.4		
6	B	12.7		V	7	2yr.	IV C	4.4		
7	B	14.1		V	1	11yr.	II C	5.5		
8	G	16.2		IV a	6	6yr.	I B	3.5		
9	G	11.6		IV a	6	6yr.	I B	3.8		
10	B	13.7		IV a	6	6yr.	IV B	4.1		
11	G	12.6		IV b	6	Birth	IV C	2.8		

Scoring

Probably the strongest point of objectivity in this test is the exact and detailed score sheets. By their means the scorer listens for and checks one sound, or other element of good speech, at one particular place in the record. For instance, there was a properly given sound of "m" at the place it occurs on the check sheet or there was not. There is little margin for error in scoring. The scorer's view of the check sheet coincides with his hearing of the record. That is, the scorer is looking at the sounds on the sheet which he is to check in the first sentence at the exact moment that the record is repeating the child's speech of that sentence. He has only one thing to listen for and judge whether or not it was there. When the scorer is listening for phrasing he is not responsible for anything else but phrasing, and the check sheet before him indicates where that phrasing should occur and exactly what it should be.

The Booklet of Directions for Scoring contains instructions for checking errors as the record is played, for computing scores, and for tabulating and interpreting the scores.

Individual Scores

To the teacher and pupil the most significant results of the test are the individual diagnostic features.

These are the list of the child's defective elements, the list of errors he makes in impromptu speech, and his individual diagnostic profile chart

The list of defective elements is compiled from the element check sheets. The list of errors in conversational speech is compiled from the error check on the child's free discussion of the second picture. The two lists form a remedial teaching guide for those errors.

The Diagnostic Profile

The profile is a definitely revealing result of the whole study of the child's speech.

The diagnostic profile chart is here reproduced to facilitate a detailed discussion of it.

Kelly-Guilmartin Speech Test

Child's Name - Diagnostic Profile

Measured Factors:	Possible Score	Child's Score	Percentage of Total Possible Score 0 10 20 30 40 50 60 70 80 90 100
ELEMENTS	10	X10	
SYLLABLES	10	X10	
FLUENCY	10	X10	
ACCENT	10	X10	
EMPHASIS	10	X10	
PHRASING	10	X10	
INFLECTION	10	X10	
PARAGRAPH READING	20	X 5	
IMPROMPTU SPEECH	20	X 5	
TOTAL POINT SCORE	110	X.9	

speech exercises being 10 each, the percent of possible

score is obtained by multiplying the raw score by 10. This is then indicated at the proper point on the chart. In the two sections on speech of connected language it seemed necessary to have more items to give a fair average of ability. The possible score on each is 20. The score on each of these sections is converted into per cent of possible score by multiplying the raw score by 5. The total raw score multiplied by .9 gives the per cent of total possible score.

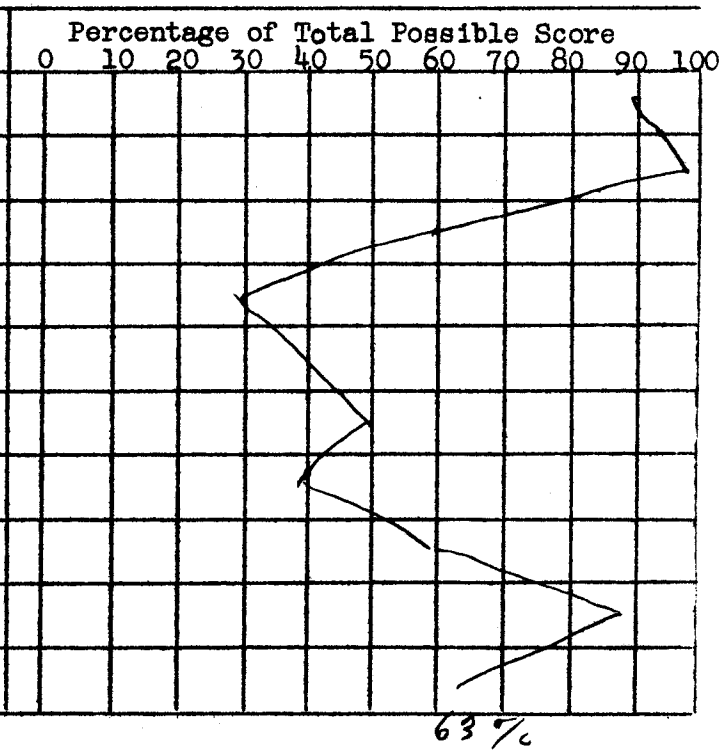
An actual profile chart of one pupil tested is here reproduced. He made 63% of the possible score.

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	9 X10
SYLLABLES	10	11X10
FLUENCY	10	6 X10
ACCENT	10	3 X10
EMPHASIS	10	4 X10
PHRASING	10	5 X10
INFLECTION	10	4 X10
PARAGRAPH READING	20	12 X 5
IMPROMPTU SPEECH	20	18 X 5
TOTAL POINT SCORE	110	71 X.9



Each child's test scores give his pattern of development in speech. The profile chart reveals graphically the child's accomplishments and difficulties. From it the teacher and supervisor can plan the needed remedial measures. It supplies an impersonal frame of reference for conferences on speech needs.

A Progress Chart

A progress chart made on the same form should follow remedial work and a second test. Progress charts in other fields covered by objective testing have proved themselves of much inspiration to pupils and teachers alike. Progress on this speech test should show both in a higher total score and in a more level profile, or one more nearly approaching the normal curve for deaf children as it will develop later.

Chapter 9

PROPOSED FORM OF STANDARDIZATION

Proposed Curve of Normal Progress

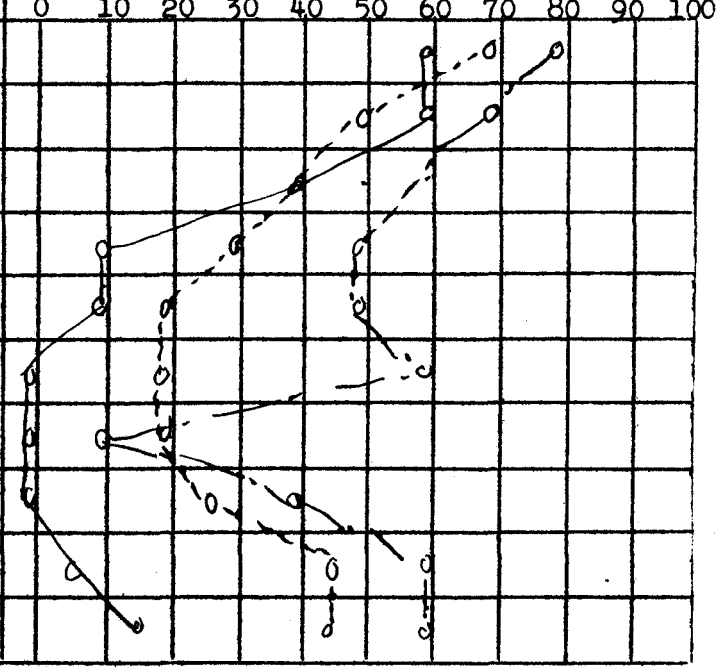
Another probable use for the profile is as one possible basis for standardization. A curve of normal progress seems one reasonable way that the test may be standardized. Among the scores on record at present the curve progresses with advancing age and grade. The successive curves are fairly parallel. But none of them is level.

The following curves are made from the average scores of the pupils in three successive grades in a large school. They indicate a method of developing curves of normal progress. The basis may be by ages or by grades, or by years in school, whichever proves to be most consistent after large numbers of scores are in.

Kelly-Guilmartin Speech Test

Child's Name - Diagnostic Profile

Measured Factors:	Possible Score	Child's Score	Percentage of Total Possible Score 0 10 20 30 40 50 60 70 80 90 100
ELEMENTS	10	X10	
SYLLABLES	10	X10	
FLUENCY	10	X10	
ACCENT	10	X10	
EMPHASIS	10	X10	
PHRASING	10	X10	
INFLECTION	10	X10	
PARAGRAPH READING	20	X 5	
IMPROMPTU SPEECH	20	X 5	
TOTAL POINT SCORE	110	X.9	



At present the relationship of age to score is not very consistent but records indicate that it may be more so as larger numbers of children are tested. The coefficient of correlation of age with high scores on the test is only .69 for the small number of children on record now. In the cases of greatest difference some definite cause appears in almost every case.

Of the three children who made the greatest drop from age rank to speech rank, with respective differences of 11, 12 and 14, two may be accounted for. The small amount of data on the other child fail to reveal any cause for his drop. The first child was kept hidden from census taker and truant officer until after his tenth birthday, and then a court order brought him into school. The other child, with a loss of 14 places in rank, shows a physical history of badly infected tonsils and abcessed teech over a period of three school years. The child was probably in too much pain to profit by the speech exercises of the school.

Three young children stepped up in speech rank with differences of 6, 13, and 9. The first child has so much hearing that the ear specialist who tried to treat him reported that his hearing probably could be restored to nearly the normal level if the child would submit to treatment. The one who went up 13 places had only recently lost her hearing through a severe illness and so retained much of

her normal speech. The third, with a rise of 9 places, is a child for whom three teachers had recommended a transfer from the deaf class to the corrective speech class as they judged his speech difficulty was not due to deafness. Whether these causes operate to skew the age scores more than similar ones do for test scores for normal children is, of course, not yet known.

Proposed Point Scale

A point scale is in process of standardization as schools send their records in to the authors of the test. This seems the best method of acquiring enough records from varied sources. The number of cases on record is too small for any conclusions to be reached but they do seem to indicate trends that will be followed as scores accumulate, as the aforementioned curve of normal progress.

A point scale for total score is an almost certain development of standardization. Whether the basis will be age, grade, years in school or some other consistent factor can not be predicted yet. The influence of intelligence quotient, age of onset of deafness before or after aquisition of normal speech, and the amount of residual hearing will have to be studied.

At present age appears to be the most consistent item on which to base rate of progress. The average for all

thirteen year-olds is 36 points raw score, or 32 per cent of possible score. The average for fourteen-year-olds is 70 points, or 63 per cent. The average for all pupils who had been in school 6 years was 43, or 38 per cent. For those in school 7 years the average was 50, or 45 per cent. The jump in score from 32 to 63 per cent for only one year more of age is evidently far too great for general performance. The rise of 38 to 45 per cent for one more year of schooling seems more probably. Only a large number of cases can give a fair average.

School Placement

As soon as the test is standardized it should serve as a basis of promotion either within a large school for the deaf or for deaf children going out of the small day school classes into regular classes for part of their scholarship.

Promotion is usually based on accomplishment in the several subjects taught in each grade. Surely speech deserves recognition as one factor toward promotion in a deaf group. One residential school tested showed clearly that speech had been so used in grading. Each successively higher grade made a higher score on the speech test. The only item on which this improvement is inconsistent in excess of a few points is inflection for the fifth grade.

That is because that group was composed of profoundly deaf children weeded out of the acoustic classes in a large school. Inflection would, of course, be more difficult for them because of their lack of residual hearing and therefore of acoustic training. In day schools the child's level on the scale of good speech should help make the difficult decision as to when each deaf child is ready for part or whole time admission to the regular classes of normally hearing children to which his scholarship entitles him.

Chapter 10

PRESENTATION OF THE TESTING TECHNIQUE

General Description

The Kelley-Guilmartin Speech Test for Deaf Children is an objective test covering the abilities usually developed by schools for the deaf in the speech of their pupils. The technique, in general, is to make a record of the child's speech of the carefully controlled material. The child's attention is kept centered on the attractive pictures and reading matter to avoid self-consciousness.

The pictures and speech exercises of the test proper are not reproduced here in for two reasons. It is definitely of the tests that should be kept confidential and be delivered only to the qualified persons who are to be responsible for its professional use. Also the copyright is still pending and the test is withheld as a temporary protection.

As the pre-test is in exactly the same form as the test proper and is reproduced and it is considered sufficient to make clear all points concerning the entire test. All booklets of directions and all score sheets are presented.

THE TEST

The use of the Kelley-Guilmartin Speech Test for Deaf Children presupposes the availability of a recording instrument.

The test is in three parts:

1. The pre-test for accustoming the child to the material and establishing the responses he is to make.
2. The test proper which consists of recording the child's speech responses to material similar to that of the pre-test.
3. Scoring the record and interpreting the scores.

On the following pages are reproductions of the test material. The large pieces are reproduced in reduced form and are so labeled. The booklets of directions are included in their exact form, as are the score sheets. The test proper is not included as it is in no way necessary to a complete understanding of the method and technique, and its publication might endanger the validity of the results.

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

COMPLETE LIST OF TESTING MATERIALS

PRE-TEST

1. Manual No. 2., Directions for presenting the Pre-Test
2. Pre-Test Picture No. 1., boy riding his pony
3. Three Pre-Test speech strips about boy and pony
4. Paragraph of three sentences, on a card
5. Pre-Test Picture No. 2., children crossing street

TEST

1. Letter to schools participating in the standardization
2. Manual No. 3., Instructions for filling in Data Sheet, and the Data Sheet
3. Manual No. 4., Directions for Recording Test
4. Test Picture No. 1.
5. Ten speech strips about Picture No. 1.
6. Paragraph of ten sentences, on a card
7. Test Picture No. 2.
8. Half-sheets of paper labeled, "Write the same that you said about the picture".

SCORING

1. Manual No. 5., Directions for Scoring
2. Check sheets
3. Class record sheet
4. Profile charts

(The use of the test presupposes the availability of a recording instrument and blank records.)

Kelley-Guilmartin Speech Test for

Deaf Children

Pre-Test

Picture to illustrate speech strips

and paragraph of the pre-test

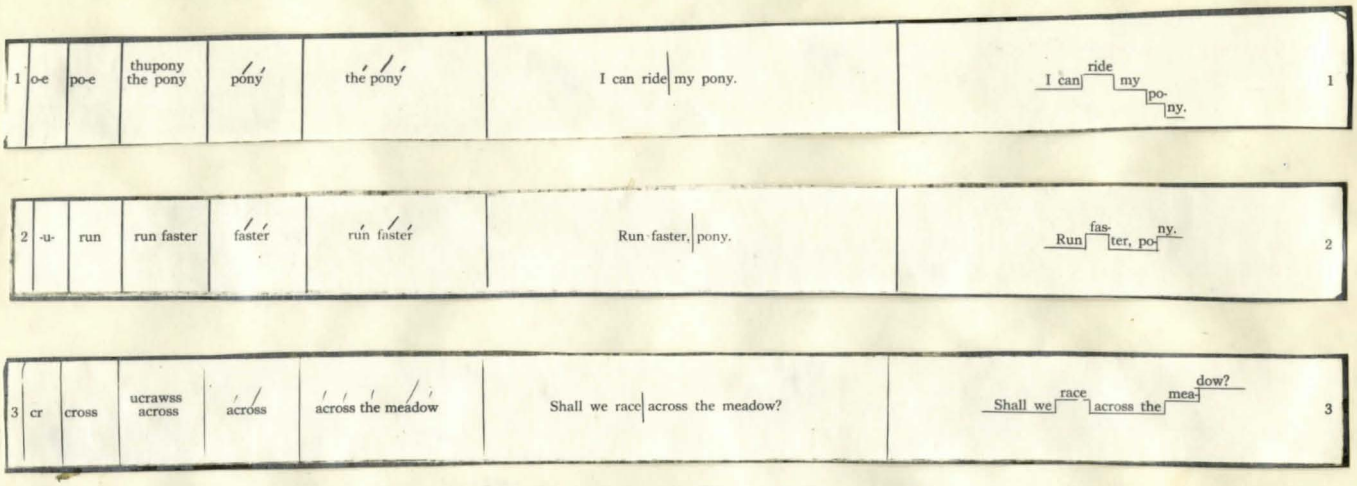
The original is 12 by 16 inches and in clear bright colors.

Pre-Test

Picture for impromptu speech

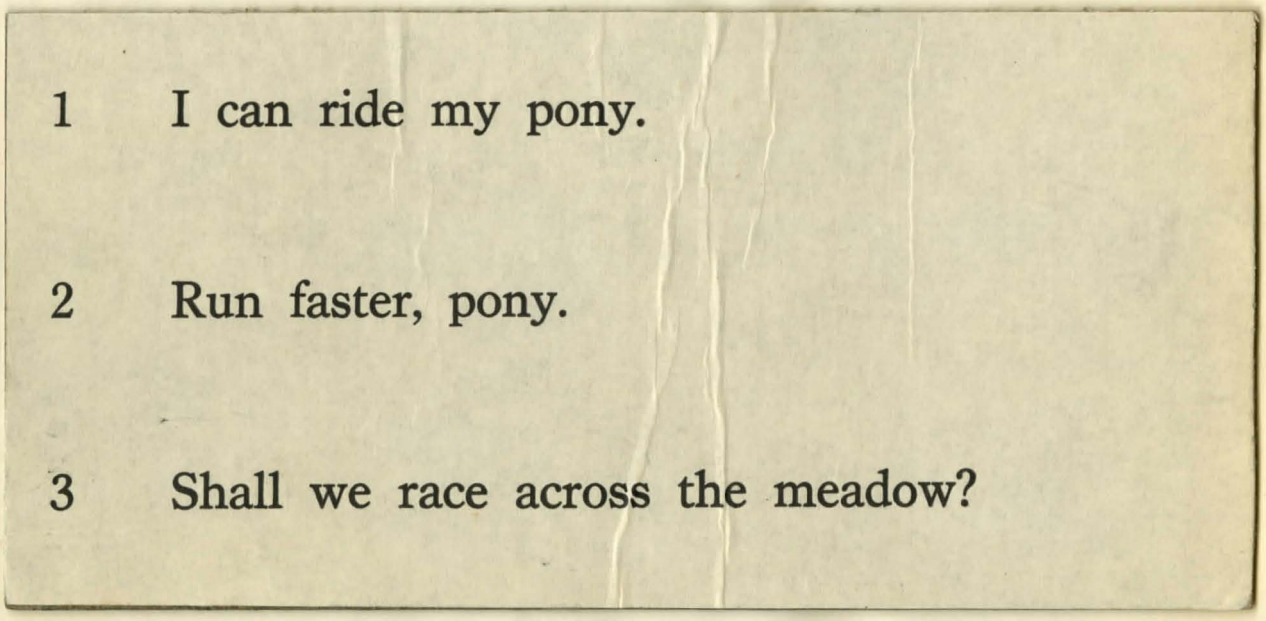
The original is 8 by 11 inches and in clear bright colors.

Pre-Test



Speech strips about the boy and his pony

Each strip is 24 inches long and 2 inches high. The print is 24 point, on dull white paper, and mounted on stiff cardboard.



Paragraph about the boy and his pony

The print is 24 point, on dull white paper, and mounted on stiff cardboard.

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

Manual No. 1

GENERAL PLAN OF THE TEST

GENERAL PLAN

The Kelley-Guilmartin Speech Test for Deaf Children is an objective test covering the abilities usually developed by schools for the deaf in the speech of their pupils.

The technique, in general, is to make a sound recording of the child's speech of the carefully controlled material. The child's attention is kept centered on the attractive pictures and reading matter to avoid self-consciousness. The speech material is so constructed that it includes all the elements of good speech.

Any good sound recording instrument that reproduces the high frequencies of consonants is suitable for cutting the records. Any good acetate or aluminum record is suitable. Even the acetate on cardboard base type is satisfactory if the scoring from them is finished promptly so that they do not have time to warp. A few days use of the records is all that is necessary. They are then discarded. The class record sheet and the individual diagnostic profile charts are filed for reference.

The speech test is equally appropriate for sound recording on film.

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

Manual No. 2

DIRECTIONS FOR PRESENTING THE PRE-TEST

This booklet and the pre-test material are for the use of the speech teacher. The pre-test is to be presented to the children in their regular classroom speech work for several days before the recording of the test proper.

The materials necessary for presenting the pre-test are:

1. This manual
2. Pre-Test Picture No. 1., Boy Riding His Pony
3. Three Pre-Test speech strips about boy and pony
4. Paragraph of three sentences, on a card
5. Pre-Test Picture No. 2., children crossing street

TEACHING GUIDE FOR PRE-TEST

NUMBER	ELE-MENTS	SYLLABLES	FLUENCY	ACCENT	EMPHASIS	PHRASING	INFLECTION
1.	o-e	po-e	thupony the pony	pony	the pony	I can ride | my pony.	I can ride my po- ny.
2.	-u-	run	run faster	faster	run faster	Run faster, | pony.	Run fas- ter, po- ny.
3.	cr	cross	ucrawss across	across	across the meadow	Shall we race | across the meadow?	Shall we race across the mea- dow?

DIRECTIONS FOR USING THE PRE-TEST MATERIAL

PURPOSE

The purpose of the pre-test is to familiarize the child with the directions of the test.

PROCEDURE

The children should have the pre-test repeated briefly on several days before the records are to be made. It seems preferable that this should be presented to them by their own teacher in their classroom just as if it were their regular speech lesson.

The large picture of the boy riding his pony is put up before the class and the children allowed to enjoy it. It remains in view through parts one and two.

The teacher should study the teaching guide and compare it with the three cardboard strips so as to be sure of the purpose of each part of the lesson. The child should recite from the strip, not from the teaching guide nor the blackboard, as one of the chief ends to be sought is to get him used to reciting from such a strip. The strip should be held at or above the child's eye level, as, in the test proper the microphone will be in front of his mouth, and he must look over it to read the strip.

PART ONE

The teacher holds up the first strip, numbered 1 at each end. She shows the children that they are to say everything on it, beginning at the left and going to the right. She may go into as much detail and explanation as she finds necessary to insure the child's understanding of the directions. Do not let the child say the number at either end of the strip.

The first column on each strip has a single element, either a consonant or a vowel, for the child to say the best he can. It is perfectly legitimate for the teacher to insist on the child's best rendition of the sound. We want to impress on the child the fact that we will expect his very best effort on the test.

The second column has consonants and vowels which he is expected to combine into a syllable. This is in some cases a word. The child should understand that he is expected to keep the feature of good speech developed in each exercise and carry it over into the succeeding exercises.

The third column is written phonetically, according to the Northampton Charts, to suggest to the child the smoothest way in which to say it, as a test of fluency. He should realize that he is striving for a continuous stream of voice or breath.

The fourth column has marked accents. The child should be told that he is to speak the vowel with the long mark pointing to it the loudest. The same holds true in the next column which is for emphasis within the phrase.

Phrasing is indicated in the next column by a vertical line separating the phrases. The child should practice saying all the words of a phrase smoothly together, and then pausing definitely before beginning the next phrase. Fluency within the phrase will be scored as well as the pause between phrases.

The last column is for inflection. Whatever form of marking he is used to in his inflection lessons may be translated into this form for him, so that he knows that the same thing is expected of him. The raised lines mean raised inflection; The lowered lines mean, each, a lower tone in inflection.

Use all three strips for practice. They may be given repeatedly. This practice will not constitute coaching on the test as the subjects, pictures, and language of the test proper will be entirely different. The pre-test has no other purpose than to get the child used to responding to the directions as they will be given in the test proper. Parts two and three contain no teaching and are given only because that is the way those parts of the test proper will be given.

PART TWO

Hold the card with the three sentences on it beside the imaginary/microphone so that it will not have to be moved up behind the microphone. Say simply, "Read", and allow the child to read the three sentences without interruption and without comment.

PART THREE

Show the smaller picture, of the boy trying to get his dog to cross the street. Say, "Talk about the picture". The aim is to get the child to talk freely about the picture or about something that the picture suggests to him. Every encouragement should be given him to keep talking, and no discouragement should be set up in the form of language standards. This is a test of speech only. We particularly suggest that he not be told to talk in whole sentences. Let him choose his own subject matter and his own words. The only suggestion that should be urged is that he keep talking. In the test he will be making a record and there will not be time for him to pause between remarks. He should not be told that he will make a record. He should be told only that he will say another lesson like this one.

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

Manual No. 3

SUPPLEMENTARY DATA

DIRECTIONS FOR FILLING IN DATA SHEET

The information herein requested is primarily for use in standardizing the test. Schools participating in the standardization by sending in their records are asked to send in a copy of the data sheet also. This information is equally necessary for a school's own interpretation of its pupils' scores.

Kelley-Guilmartin Speech Test for Deaf Children

DIRECTIONS FOR FILLING IN DATA SHEET

Each school is given a code number. Yours is No._____ This code is confidential and will not be divulged under any circumstance without your approval.

Please keep your own code of the children's names, and send us the number for each one only. You can de-code your scores when we send them to you. Please number the children consecutively regardless of whether they are boys or girls. To save talking time on the record the fact of this being a girl or boy will be mentioned first, then the number and the school, as Boy 1, school 4, or Girl 2, school 4. On the data sheet this appears in the normal manner, School No. 4, Pupil No. 1, a boy.

Please give the chronological age (C.A.) at the time of the test, present school grade, years in school including the present year. If you have not given this class an achievement test this year, or you think it was too early in the year to be true now, you may use the New Stanford Achievement Tests enclosed with the test material, or any other achievement test you wish. You may send the test booklets to us and we will score them and send you the result.

If you have audiograms please fill in the column on residual hearing (Resid. Hear.). We hope to use the Guilder and Hopkins classification. If your records are in that form, please use it. If not, we should like to have copies of your audiograms, in order that we may so classify them. If nothing but percentages is available, please give those. If you have no audiograms, please give teachers' estimates and so state.

Please give the age at which the child became deaf. (Age of Onset).

If you have mental age scores (M.A.) or intelligence quotients (I.Q.) please put them in.

Please state Time in Regular Class as minutes or hours per week spent by the deaf child in actually doing class work in a regular class of normally hearing children.

All scores for your school will be sent you including a diagnostic profile for each child.

KELLEY-GUILMARTIN SPEECH TEST

Supplementary Data on Pupils

School No._____(Code number)

Pupil No.	Boy or Girl	C.A.	M.A. or I.Q.	School Grade	Years in School	Age of Onset	Resid. Hear.	Achievement Test	Time in Regular Class	Speech Test Scores

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

LETTER TO SCHOOLS PARTICIPATING IN STANDARDIZATION

Letter to Schools Participating in a Tentative Standardization of The Kelley-Guilmartin Speech Test for Deaf Children

We are asking each school to send records of about twenty children's speech. If it is convenient for you to send only a smaller number than twenty we shall appreciate any number you will send.

TO PUBLIC DAY SCHOOLS:

We particularly want records of some deaf children who have been in special classes but are now enrolled in regular grades or high school classes, doing the scholastic work of those grades, even if these children are a year or two over sixteen.

If your pupils are not graded in the usual sense please select those who rank together on achievement tests. If your pupils are graded together on speech ability primarily please so state.

TO ALL SCHOOLS:

Please choose whole classes. We like best to have, from each school, one young class whose youngest pupil is eight or nine years old; one older class whose oldest pupil is fourteen, fifteen, or sixteen; and one intermediate class. Do not try to include all ages. There will be enough overlap among classes in the various schools.

We are still experimenting to find which is the most consistent basis for standardization, years in school, school grade, achievement test rank, or age, and what influence on speech some other factors have. Please fill out the data sheet as completely as possible. Without the accompaning data the test scores can not be standardized.

If you use the Guilder-Hopkins classification of audiograms please prevent coaching by keeping the test proper confidential.

The teachers should be given the pre-test but should not be told what the language, or even the subject, is for the test proper. The teachers do their full share when they teach the directions by using the pre-test as directed. Any knowledge on their part of the actual test material will almost certainly result in coaching to some degree even though unintended.

Mail the completed records to:

Miss Mary D. Guilmartin
~~514 Grand Boulevard~~ 23 Mulberry St.
~~Greenwood, Mississippi~~ St. Augustine, Fla.

Mail statements of money needed and money spent to:

Dr. Noble H. Kelley
Department of Psychology
University of Louisville
Louisville, Kentucky

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

Manual No. 4

DIRECTIONS FOR RECORDING THE TEST

Two people are necessary for this part of the test, one to present the material to the child, and one to operate the recording instrument as it cuts the record. The material for their use includes:

1. Manual No. 4., Directions for Recording Test
2. Test Picture No. 1
3. Ten speech strips about Picture No. 1
4. Paragraph of ten sentences, on a card
5. Test Picture No. 2
6. Half-sheets of paper labeled, "Write the same that you said about the picture".
7. Recording instrument
8. Blank records, 12 inches or larger

The actual subject of the speech test should always be kept in strict confidence to prevent unintentional coaching. The teacher is given the pre-test material but not the test proper. The pupils of a class should, if possible, be tested one immediately after the other with no opportunity to discuss the language with any other pupil before he appears for his test recording.

DIRECTIONS FOR RECORDING TEST

Use a room that is really quiet for recording. Have only the one child who is recording in the room.

PART ONE

Give the picture of the bears to the child to hold and enjoy. He may talk about it if he wishes, but the examiner must not say anything about it beyond, "Look at the picture." Be sure the child has noticed the essential features of the picture which will be used in the test. Point (without speaking) to these objects in the picture:

canoe tent fish net creel bear cubs tree

While the child is looking at the picture arrange the microphone to the height of his mouth. Lay the ten strips face up just behind the microphone from the child. Have them in consecutive order with number 1 on top, and facing the child so that it has merely to be raised to a vertical position and lifted to the child's eye-level. Watch the child's eyes as they travel along the strip to be sure they go to the extreme end. The second strip should be in hand before he finishes reading the one being held up, so that there will be as little waste of the record as possible between strips. The succeeding strip each time should be brought up in front of the one just finished, so that the child may begin reading it while the examiner is laying the finished one down. A little practice in handling the strips before giving the test will make this maneuver automatic.

Take the picture from the child and bring him up to within about six or eight inches of the microphone. As soon as the recording begins the examiner says the code number for the child and the school, as Boy 1, School 4, or Girl 2, School 4. Immediately hold up the first strip and say to the child, "Read." If the child does not begin readily point to the left end of the strip and across to the right. If it seems certain that the child does not know what to do, stop the recording and repeat the pre-test with him. Then begin the recording again.

When the child has begun reading the strips he should go straight through all ten without pause or interruption. When the tenth strip is finished the examiner says "Cut," or"Stop," to the person operating the recording instrument.

DIRECTIONS FOR RECORDING TEST

It is best to begin the recording of the ten strips on a new side of a record as it often takes a whole side, and the scoring would be much more difficult if the record had to be turned or changed to hear all of that section. The shorter parts may be recorded as is most economical of space on the records. Each of them is recorded as a unit and the code numbers spoken on each one will always identify it. The school and pupil code numbers should be written on the center label of each record to facilitate the assembling of the three sections of a child's test when scoring.

PART TWO

Skip a small band on the record or turn to a new side. Say the code numbers of the child and school again. Hold the card with the paragraph of ten sentences on it at the side of the microphone so that it will not have to be moved while the child is reading it. Say, "Read", to the child. Let him read to the end without interruption. Say to the operator, "Cut".

PART THREE

Skip a small band on the record. Repeat the code numbers of child and school. Hold the picture of the boy lifting his dog up to the drinking fountain at the side of the microphone. Say to the child, "Talk about the picture," or "Tell me about the picture." Urge him to "Hurry up," if he waits too long between remarks. Let him talk about as long as he did in the recording of the paragraph. If he is inclined to stop too soon say,"One more."

AFTER RECORDING

As soon as the child has finished recording, give him the half sheet of paper labeled:

Write the same that you said about the picture.

Write his code number on it. Show him the picture of the boy holding his dog so that the child will write about the right picture. This part was purposely omitted from the pretest and the child should not know that he is to write anything until he has finished talking. The next child should not see that the one before him had to write anything.

Pupil No.___ School No.___

Write the same that you said about the picture.

Pupil No.___ School No.___

Write the same that you said about the picture.

KELLEY-GUILMARTIN SPEECH TEST FOR DEAF CHILDREN

Manual No. 5

DIRECTIONS FOR SCORING

This booklet contains directions for:

1. Checking errors as the record is being played
2. Computing scores
3. Tabulating and interpreting scores

The materials necessary for this are:

1. A phonograph play-back with amplification
2. The records made of the children's speech of the test
3. Check sheets
4. Class record sheet
5. Profile charts

CONSONANT CHECK SHEET

STRIP NO.	ELEMENTS	SYLLABLES	FLUENCY	ACCENT	EMPHASIS	PHRASING	INFLECTION	SCORE
1	m	sum 1 s		camping ng				
2		canoe n	They had h		red -d			
3	w-		one day d-		fish f		fish sh	
4	l th					up p		
5	b-				came along l	cubs 2 s		
6	2 th							
7		creel cr						
8	-b	cub c		chubby ch	climbed cl			
9	v					investigated g		
10					great gr			

Number Correct = _____ Score

VOWEL CHECK SHEET

SENT. NO.	ELEMENTS	SYLLABLES	FLUENCY	ACCENT	EMPHASIS	PHRASING	INFLECTION	SCORE
1		sum -u-				Some boys oi		
2	1 oo		they a-e			They had -a-		
3						caught aw		
4					the net -e-		down ou	
5					and her er			
6					fish -i-			
7	ee			opened o-e			took out 2 oo	
8						climbed i-e		
9								
10	u-e			curiosity -o-				

Sum of correct consonants and vowels ÷ 4 = score on elements

CHECK SHEET

STRIP NO.	ELEMENTS	SYLLABLES	FLUENCY	ACCENT	EMPHASIS	PHRASING	INFLECTION	SCORE
1	m	sum	sumboys some boys	camping	went camping	Some boys | went camping.	Some boys went camp- ing.	
2	1 oo	noo	2 tha-e hadu They had a	canoe canoe	red canoe	They had a | red canoe.	They had a red ca- noe	
3	w-	wun	wunday one day	away	a few fish	One day | they caught | a few fish.	One day they caught a few fish.	
4	1 th	threw	1 2 threwthu threw the	along	threw the net	They threw the net | down | and hung the creel | up.	The threw the net down, and hung the creel up.	
5	b-	be-	ubear a bear	bear	and her two cubs	A bear | and her two cubs | came along.	A bear and her two cubs came a- long.	
6	2 th	thu	2 2 thuruthu the mother	mother	smelled fish	The mother | smelled fish.	The mo- ther smelled fish.	
7	ee	creel	ufish a fish	o-e pend opened	and took out	She opened | the creel | and took out | a fish.	She opened the creel and took out a fish.	
8	ub	cub	chubby	chubby	one chubby cub	One chubby cub | climbed the tree.	One chubby cub climbed the tree.	
9	v	ves	a-e investigated	investigated	the other	The other | investigated the tent.	The o- ther investigated the tent.	
10	u-e	ku-e	curiosity	curiosity	have a great deal	Bears | have a great deal | of curiosity.	Bears have a great deal of curi- os- i- ty.	

CHECKING ERRORS

For checking the record the play-back instrument must have amplification. If possible put the instrument in such a position that the scorer can lift and lower the needle without leaving his writing position. The table surface should be large enough to hold two large sheets of paper before the scorer.

To begin checking a test assemble the three parts of one child's speech record. They may all be on one record but usually are on at least two.

Elements and Consonants

Place the complete Check Sheet for Speech Strips before you for reference. Place the Consonant Check Sheet nearest to you and parallel to the former so that the relative positions of the consonants to be checked to their places in the total spoken record is easily apparent by glancing from one check sheet to the other. Assure yourself that you know when to expect to hear the single sounds before you begin playing the record.

Play the record through the child's speech of the ten strips. Check each consonant right or wrong at the place indicated only; for instance "d" is checked as it appears in "red" in the repetition for emphasis; "sm" is checked as a consonant blend under emphasis on strip 6; etc.

Vowels

Place the Vowel Check Sheet before you and in the same position as the other was parallel to the Complete Check Sheet for Speech Strips. Re-play the record and check the vowels as indicated on the Vowel Check Sheet.

Syllables

Now check on the Complete Check Sheet itself. When first scoring, it is safest to check only one column at a time, but a little experience will enable a good scorer to combine like factors, such as syllables and fluency, or accent and emphasis.

Paragraph Reading

Lay out the Paragraph Reading Check Sheet. Play the part of the record showing the child's speech of the paragraph as a whole. Check for intelligibility alone the first time, that is listen to each sentence and put a check in the column marked Intelligibility if you knew what the child was saying. It is a good idea to cover the printed sentence until after the spoken version has been played then check yourself by looking at it.

Only the sentences checked for intelligibility are used in the rest of the scoring. Check each sentence for the errors listed in the columns at the right; that is, one child said, "A boy carry his dog into water," and did not nasalize the "n" in "into". That is entered as a nasal error and the consonant "n" is entered in the Consonant column. In listening to the record mark the error in the printed sentence as you hear it and enter it in the columns later. All errors are listed in the Consonant or Vowel column and a line drawn to the column for type of error. In this way they may later be entered in the diagnostic list of errors to be returned to the teacher for remedial work.

Re-play the record. Lift the needle at the end of each sentence to give yourself time to form a careful judgment as to whether you heard any or all of the good qualities listed. Check each good quality in the column marked for it; as, a check mark in the column for fluency and one in that for phrasing on the top line if you heard these two in the child's speech of sentence 1. "Some boys went camping."

Impromptu Speech

Lay out the Impromptu Speech Check Sheet. Play the part of the record showing the child's speech about the second picture. Write the sentences or word groups that you understand best on the lines at the left of the sheet. Choose the four that the child speaks best if there are more than four. Check the ones that you understand as a whole sentence each. Put the check marks in the column headed Intel. A child may not receive more than 4 checks in intelligibility. He may receive less if he gives only 3, 2, or 1 sentence well enough to be understood as a whole. He may, of course, fail the entire test and receive zero in intelligibility and therefore zero on the whole Impromptu Speech section.

If no sentence seems intelligible it may be because the language construction is so unusual that what you hear does not seem possible. One must be expecting the unexpected to understand some of the "sentences" a deaf child says. In that case look at the child's written sentences and replay the record. If you can now recognize a few sentences throughout give the child credit for them and proceed to score as usual.

COMPUTING SCORES

Arbitrary methods of weighting have been used because no better methods exist at present, there being no standardized statistics in speech for the deaf. This weighting automatically adjusts itself as the curve of normal progress develops with added numbers of cases tested.

Speech Strips

These include elements, syllables, fluency, accent, emphasis, phrasing, and inflection.

Elements

For the score on elements count the checks for correctness that have been marked on both the Consonant Chart and the Vowel Chart. The possible total number is 40. To give elements an equal rating of 10 points among the other parts of the test judged of approximately equal value divide the total number right by 4. Enter score at foot of Elements Column on Complete Check Sheet for Speech Strip.
Example: No. right ÷ 4 = Score

Complete Check Sheet for Speech Strips

Count the number checked as right in each column and enter the number at the foot of the column. A correctly checked and scored set of Consonant, Vowel, and Complete Check Sheets for the Speech strips follows. This is the actual score of one of the children tested.

Speech of the Paragraph

Possible score is 10 for intelligibility plus 10 points added credit for good qualities apparent in the speech. That is 20 as total possible score.

There are 50 possible points for added credit. An average of a larger number of opportunities seemed fairer than exact score on fewer opportunities. To reduce the 50 possible points, or the proportionate number the child earns, divide by 5

Example: Number correct on intelligibility plus (sum of other correct items divided by 5) equals score.

6 + (16 ÷ 5) 3 = 9

PARAGRAPH READING CHECK SHEET

STRIP NO.		Intelligibility	FLUENCY	ACCENT	EMPHASIS	PHRASING	INFLECTION
1	Some boys went camping.	✓	✓		✓	✓	
2	They had a red canoe.	✓		✓			
3	One day they caught a few fish.	✓	✓		✓		
4	They threw the net down, and hung the creel up.	✓		✓		✓	
5	A bear and her two cubs came along.	✓	✓	✓	✓	✓	✓
6	The mother smelled fish.						
7	She opened the creel and took out a fish.	✓	✓		✓	✓	
8	One chubby cub climbed the tree.						
9	The other investigated the tent.						
10	Bears have a great deal of curiosity.						

6 + (16 ÷ 8)3 = 9

Impromptu Speech

The total possible score is 20, in order to make it comparable with the score on the other test of the speech of connected language.

The possible score on intelligibility is 4. To raise this to 20 multiply by 5.

To raise the child's score to its proportionate part of 20 multiply it by 5. From the total Inte. Score subtract the actual number of errors.

Example: 5 x the sum of intelligibility scores minus the sum of consonant and vowel errors equals score.

5 x 4 = 20 - 8 = 12

If a child had spoken only 3 intelligible sentences he would have a score somewhat like this.

5 X 3 = 15 - 8 = 7

An Impromptu Speech Check Sheet follows.

IMPROMPTU SPEECH CHECK SHEET

IN THE SPACES BELOW WRITE THE 4 SENTENCES, OR GROUPS OF WORDS, ABOUT THE SECOND PICTURE, WHICH THE CHILD SPEAKS BEST.	Intelligibility	Substitutions	Consonant Errors	Vowel Errors	Omissions	Nasal Errors	Added Syllables
A boy carry his dog into water.	✓		n———			×	
The dog drink some water.	✓	w—r	ng——'		—o		
			s——'		—o		
The leaves are green.	✓	f—v w—r					
The grass is green.	✓	w—r					
			s——'		—o		

4

TABULATING AND INTERPRETING THE SCORES

Tabulating the Scores

Use the Class Record Sheet. Write the pupils' names in the spaces at the top. From the check sheets transcribe each child's raw scores in the vertical column below his name on the Class Record Sheet.

Compute each child's total score by adding the scores down his column. Total possible score is 110. Enter each child's total score in the lowest space of his column.

Compute the class score in each subject by adding all the scores in that subject across the horizontal row. Average these for the class score in each subject and enter the score in the right hand column headed Class Score.

Compute total class score from either the class scores in the vertical column at the right or from the pupils' total scores horizontally across the bottom of the chart. Average either of these for the class average score.

A Class Record Sheet correctly filled in follows.

ITEMS	POSSIBLE SCORE	Mary Liler	Joe Wells	Frank Bone	Lana Boyd	Billie Vaile	Wayne Osborn	Sue Carson	Mamie Norm	John Danner	Harold North		Total for class								Averages
		G	B	B	G	B	B	G	G	B	B										
		1	2	3	4	5	6	7	8	9	10	code	numbers								CLASS SCORE
ELEMENTS	10	8	7	8	9	10	8	7	9	9	9		84								8.4
SYLLABLES	10	9	6	8	8	9	7	7	8	9	8		79								7.9
FLUENCY	10	8	5	6	6	8	4	5	7	8	7		64								6.4
ACCENT	10	4	7	4	8	6	6	4	6	6	7		58								5.8
EMPHASIS	10	3	6	3	6	6	7	4	7	6	8		56								5.6
PHRASING	10	5	4	5	7	7	3	3	5	7	8		54								5.4
INFLECTION	10	5	2	3	6	4	5	2	7	5	9		55								5.5
PARAGRAPH	20	10	9	14	11	12	13	9	16	10	12		116								11.6
IMPROMPTU	20	8	8	11	14	16	11	7	12	13	15		115								11.5
Child's total score	110	70	54	59	69	78	60	48	77	73	83		681								68.1

(Total class score divided by the number of pupils.) Class average score 68

Individual Diagnostic Profile

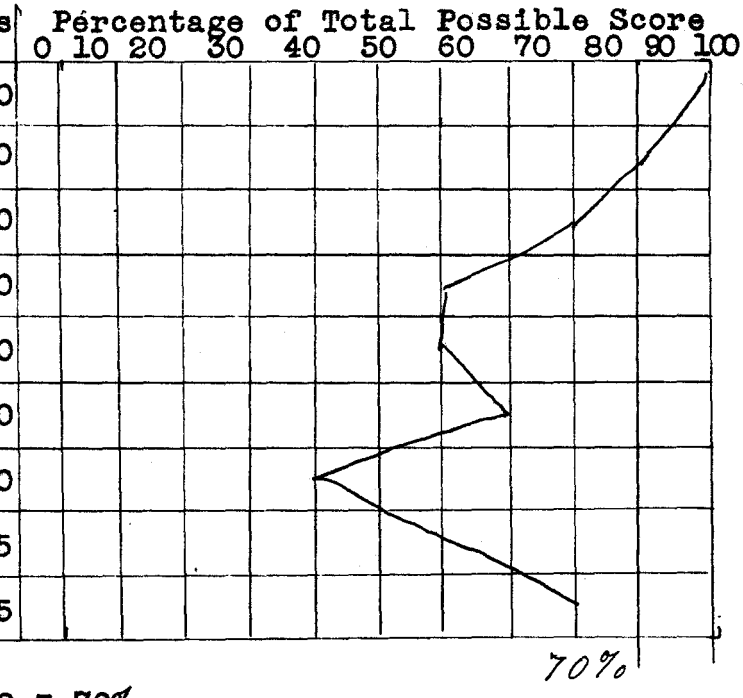
Use the Profile Chart. Enter the child's raw score in the left of the column headed Child's Score. Using the formula in that column compute the Percentage or Total Possible Score. Indicate each score by a dot in the corresponding position on the profile chart at the right. Draw a line connecting the dots to form the profile curve.

A properly filled in Individual Diagnostic Profile Chart follows.

Kelley-Guilmartin Speech Test

Child's Name-- Individual Diagnostic Profile Chart

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	10 X 10
SYLLABLES	10	9 X 10
FLUENCY	10	8 X 10
ACCENT	10	6 X 10
EMPHASIS	10	6 X 10
PHRASING	10	7 X 10
INFLECTION	10	4 X 10
PARAGRAPH READING	20	12 X 5
IMPROMPTU SPEECH	20	16 X 5
TOTAL POINT SCORE	110	78 X .9 = 70%



Chapter 11

VALUE OF THE TEST SCORES

Value to the Teacher

The main purpose, consistently held from the inception of the idea of this test throughout its construction and use, has been that it aids in teaching deaf children to talk better. The individual child is the center of emphasis. If anything in education is purely individual, certainly speech is. Each child presents a different combination of factors, good and bad. The only way to improve the speech of a school is to improve the speech of each child.

Evaluating Speech from Profiles

The use of the individual diagnostic charts will be apparent from the following examples.

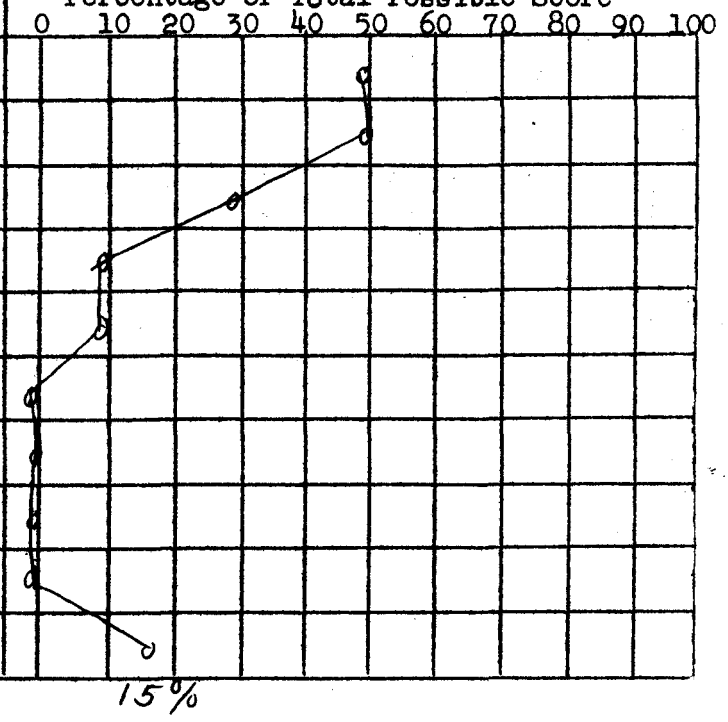
School No. 1
Girl No. 12

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	6 X10
SYLLABLES	10	6X10
FLUENCY	10	3 X10
ACCENT	10	1 X10
EMPHASIS	10	1 X10
PHRASING	10	0 X10
INFLECTION	10	0 X10
PARAGRAPH READING	20	0 X 5
IMPROMPTU SPEECH	20	0 X 5
TOTAL POINT SCORE	110	17X.9



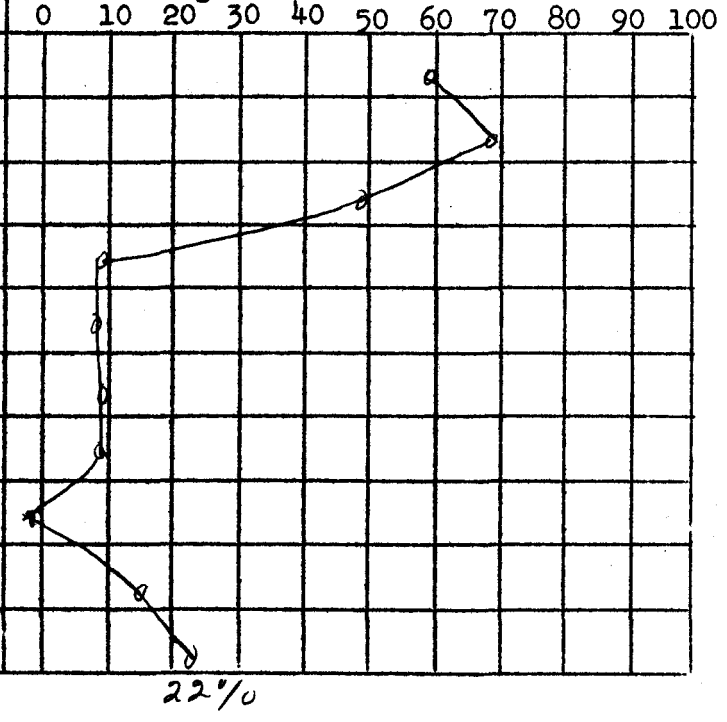
Kelly-Guilmartin Speech Test

School No. 1
Girl No. 11

Child's Name -

Diagnostic Profile

Measured Factors	Possible Score	Child's Score
ELEMENTS	10	6 X10
SYLLABLES	10	7 X10
FLUENCY	10	5 X10
ACCENT	10	1 X10
EMPHASIS	10	1 X10
PHRASING	10	1 X10
INFLECTION	10	1 X10
PARAGRAPH READING	20	0 X 5
IMPROMPTU SPEECH	20	3 X 5
TOTAL POINT SCORE	110	25 X.9



These two little girls in the same class need to get better than 60 per cent of their elements. No child made a good total score on speech who made less than 70 per cent on elements and syllables and most of the good total scores were made on 80 per cent or better in elements.

This may be the product of the type of prejudiced signing deaf home that sends its child to school determined to resist learning to speak. The history of these two girls (from the data sheet) shows that they were both born deaf. The school would know if the home conditions are as suggested. They show only 15 and 22 per cent good speech respectively.

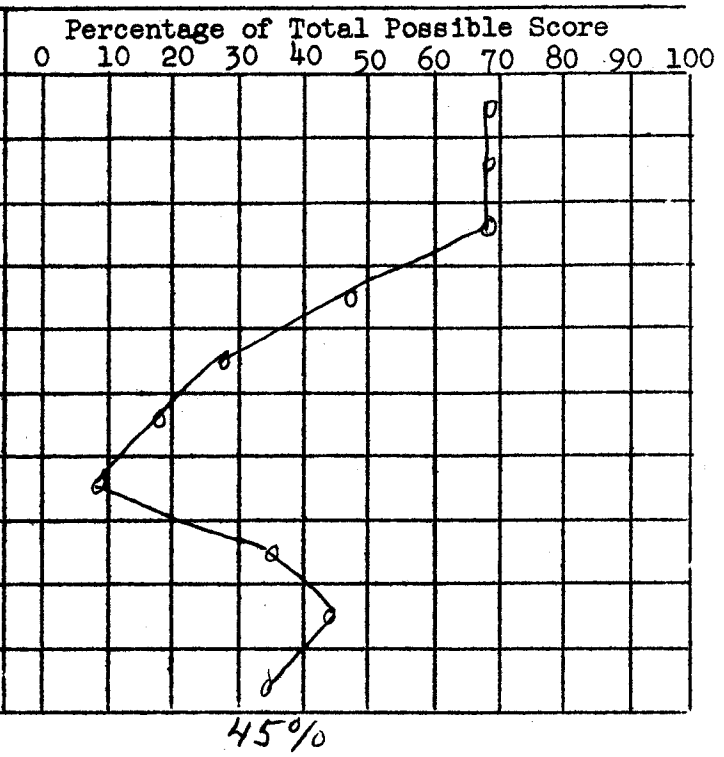
School No. 1
Girl No. 4

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors	Possible Score	Child's Score
ELEMENTS	10	7 X10
SYLLABLES	10	7 X10
FLUENCY	10	7 X10
ACCENT	10	5 X10
EMPHASIS	10	3 X10
PHRASING	10	2 X10
INFLECTION	10	1 X10
PARAGRAPH READING	20	7 X 5
IMPROMPTU SPEECH	20	11 X 5
TOTAL POINT SCORE	110	50 X.9



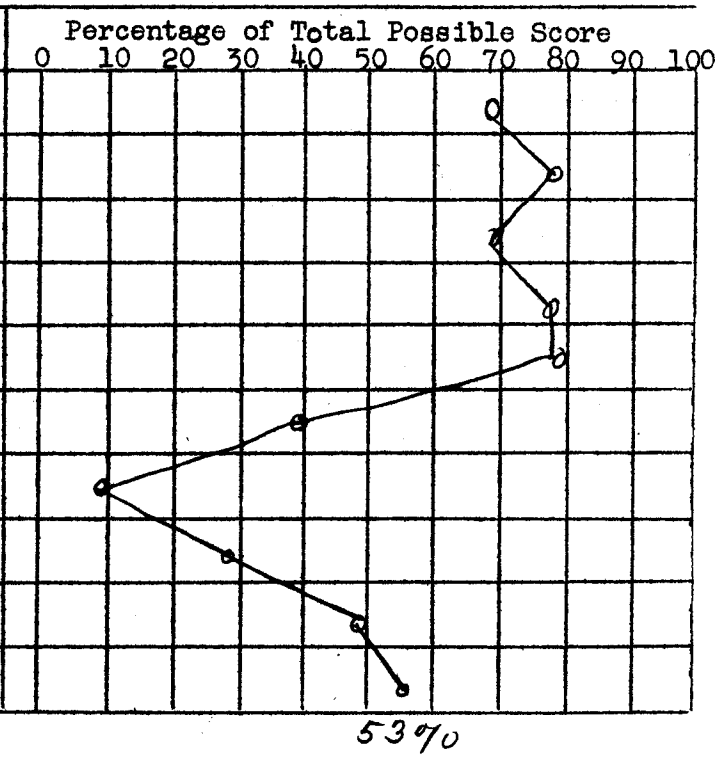
School No. 2
Boy No. 3

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	7 X10
SYLLABLES	10	8 X10
FLUENCY	10	7 X10
ACCENT	10	8 X10
EMPHASIS	10	8 X10
PHRASING	10	4 X10
INFLECTION	10	1 X10
PARAGRAPH READING	20	6 X 5
IMPROMPTU SPEECH	20	10 X 5
TOTAL POINT SCORE	110	59 X.9



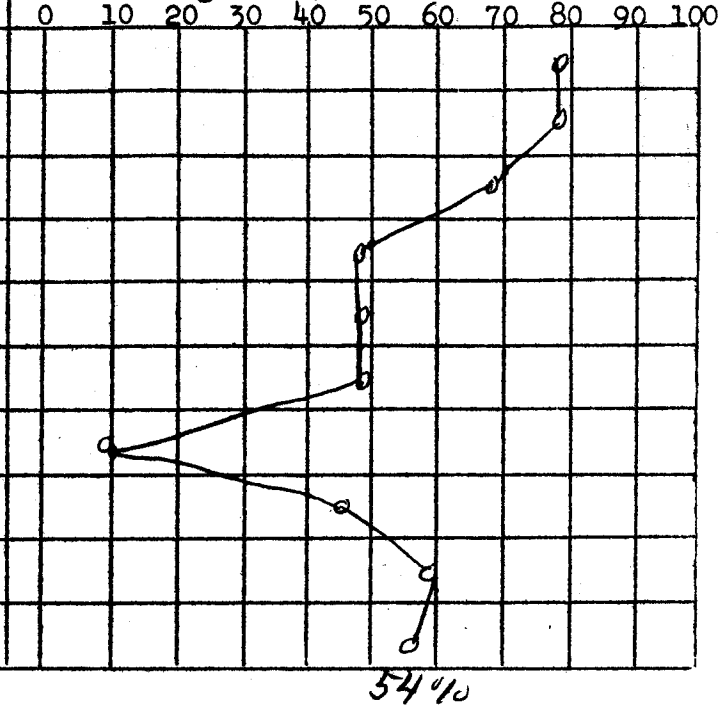
School No. 1
Boy No. 3

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	8 X10
SYLLABLES	10	8 X10
FLUENCY	10	7 X10
ACCENT	10	5 X10
EMPHASIS	10	5 X10
PHRASING	10	5 X10
INFLECTION	10	1 X10
PARAGRAPH READING	20	9 X 5
IMPROMPTU SPEECH	20	12 X 5
TOTAL POINT SCORE	110	60 X.9



These three profiles seem to be typical of the children who are born profoundly deaf. If they have good elements and the ability to combine them fluently and some ability to accent, emphasize and phrase, they may have intelligible speech even though they fail to inflect.

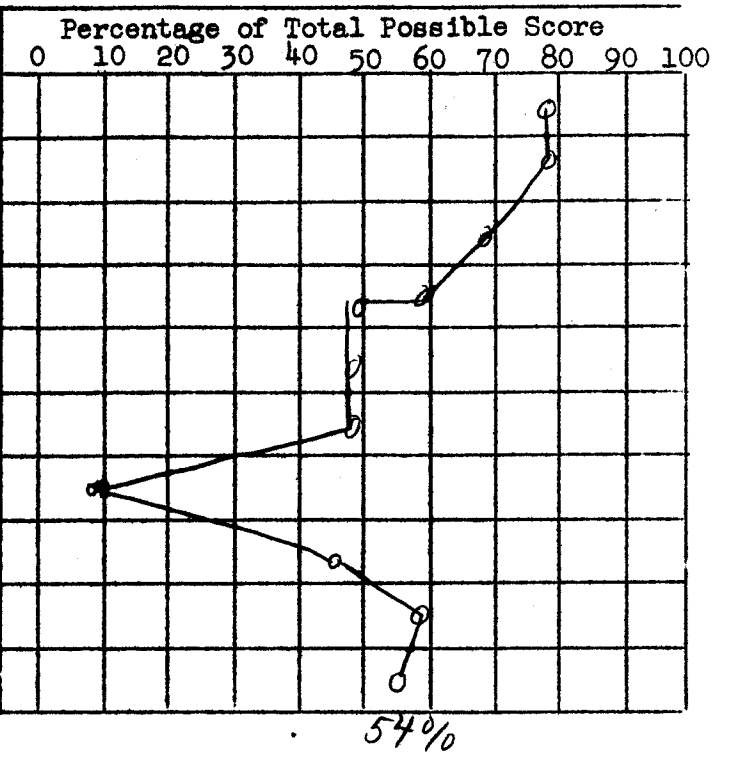
School No. 1
Boy No. 3

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors	Possible Score	Child's Score
ELEMENTS	10	8X10
SYLLABLES	10	8X10
FLUENCY	10	7X10
ACCENT	10	5X10
EMPHASIS	10	5X10
PHRASING	10	5X10
INFLECTION	10	1X10
PARAGRAPH READING	20	9X 5
IMPROMPTU SPEECH	20	12X 5
TOTAL POINT SCORE	110	60X.9



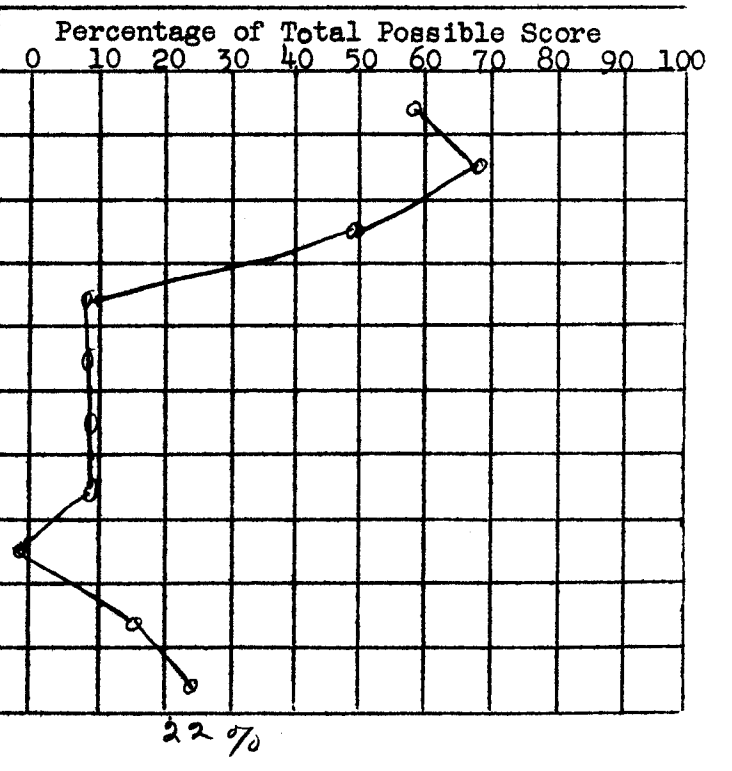
School No. 1
Girl No. 11

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	6X10
SYLLABLES	10	7X10
FLUENCY	10	5X10
ACCENT	10	1X10
EMPHASIS	10	1X10
PHRASING	10	1X10
INFLECTION	10	1X10
PARAGRAPH READING	20	0X 5
IMPROMPTU SPEECH	20	3X 5
TOTAL POINT SCORE	110	25X.9



These two pupils are almost the same age, the boy 12.8 and the girl 12.6. Both were born profoundly deaf. The boy has been in school only one year longer than the girl, 7 years to her 6. Yet the boy has done well in all phases of speech work except inflection while the girl gives only a poor performance in the simple elements, syllables, and fluency and fails on all the sustained speech. The boy was able to make four intelligible statements about the picture while the girl received only 3 points out of a possible 20 on that section. His total point score is 60 while hers is only 25.

School No. 2
Girl No. 4

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score	Percentage of Total Possible Score 0 10 20 30 40 50 60 70 80 90 100
ELEMENTS	10	7X10	
SYLLABLES	10	7X10	
FLUENCY	10	2X10	
ACCENT	10	6X10	
EMPHASIS	10	3X10	
PHRASING	10	4X10	
INFLECTION	10	0X10	
PARAGRAPH READING	20	9X 5	
IMPROMPTU SPEECH	20	6X 5	
TOTAL POINT SCORE	110	44X.9	39%

This profile shows extreme unevenness of speech development. Even the closely related processes like ability to give smooth syllables and ability to carry that fluency through a phrase are not equally developed. Accent and emphasis show the same lack of relationship.

The development of inflection shows (In the cases studied so far) no correlation with amount of hearing, some profoundly deaf children producing more reasonable sounding inflections than do other children who have enough hearing to reproduce normal inflections at an acoustic amplifies. Of course it is possible that no effort has been made to develop inflection in these particular pupils.

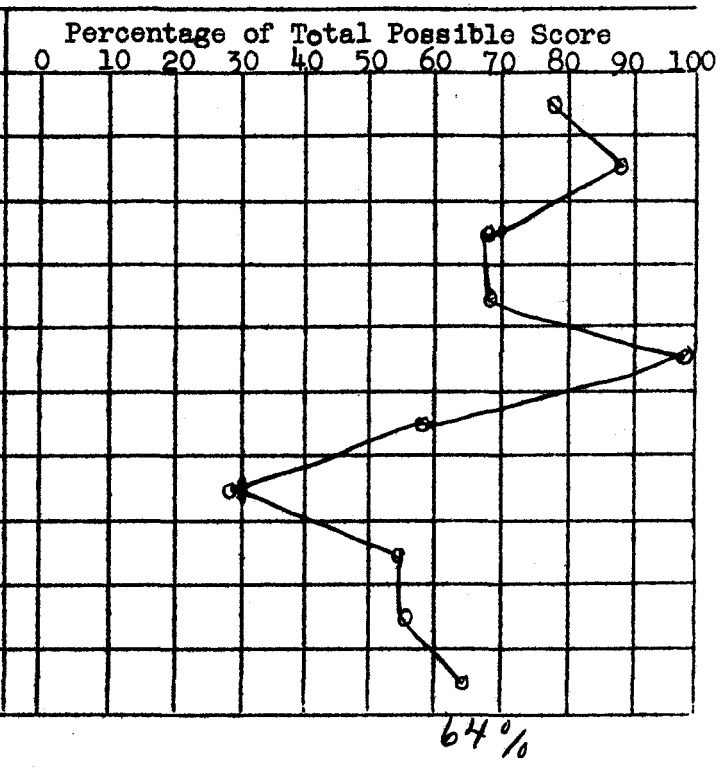
School No. 2
Girl No-15

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	8 X10
SYLLABLES	10	9 X10
FLUENCY	10	7X10
ACCENT	10	7X10
EMPHASIS	10	10X10
PHRASING	10	6X10
INFLECTION	10	3X10
PARAGRAPH READING	20	11 X 5
IMPROMPTU SPEECH	20	11X 5
TOTAL POINT SCORE	110	72X.9



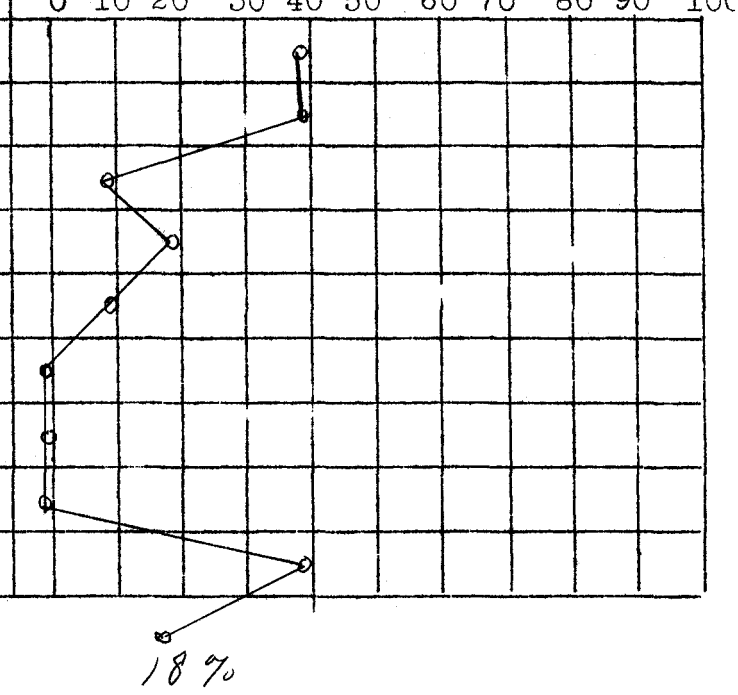
The unevenness of this child's profile could be straightened out with definite training. Fluency and accent could be improved as is shown by the girl's much better score on their two related processes, syllables and emphasis. She needs drill in the principles of phrasing and inflection which she could improve through acoustic training as she has some residual hearing.

School No. 2
Girl No. 2
Child's Name--

Kelley-Guilmartin Speech Test

Individual Diagnostic Profile Chart
~~Class Diagnostic Profile Sheet~~

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	4X10
SYLLABLES	10	4X10
FLUENCY	10	1X10
ACCENT	10	2X10
EMPHASIS	10	1X10
PHRASING	10	0X10
INFLECTION	10	0X10
PARAGRAPH READING	20	0X 5
IMPROMPTU SPEECH	20	8X 5
TOTAL POINT SCORE	110	20X.9



This child has such poor elements that there is no foundation on which to build speech.

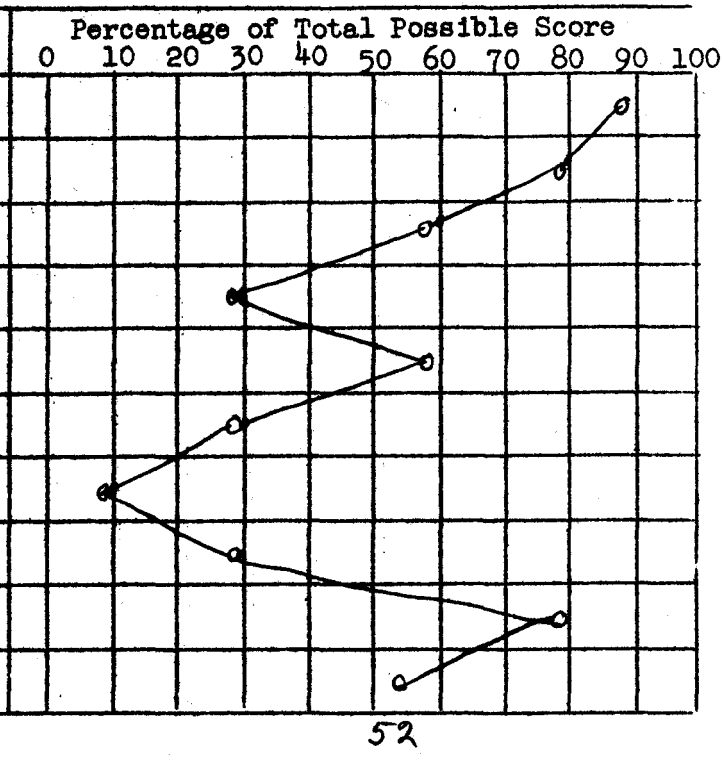
School No. 2
Boy No. 8

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors	Possible Score	Child's Score
ELEMENTS	10	9 X10
SYLLABLES	10	8 X10
FLUENCY	10	6 X10
ACCENT	10	3 X10
EMPHASIS	10	6 X10
PHRASING	10	3 X10
INFLECTION	10	1 X10
PARAGRAPH READING	20	6 X 5
IMPROMPTU SPEECH	20	16 X 5
TOTAL POINT SCORE	110	58 X.9



This day school boy needs acoustic training. He has worked hard enough to develop 90 per cent of the elements and the ability to put them together into syllables, 80 per cent correct. If he can produce smooth syllables, the amount of residual hearing he has should make it quite easy to develop fluency which is the same type of control as syllables. He used emphasis but not accent though they are the same technique. Acoustic training should soon teach him to use the proper accent to the extent of his vocabulary. Inflection should definitely improve with acoustic training. These factors should all contribute to better oral reading and speech in general.

Complete Individual Study

When the test is scored the teacher should have the complete diagnostic data on each child as a basis for remedial work. It consists of three parts, the list of defective elements, the list of conversational speech errors, and the relative success or failure in all the factors as shown by the profile. An example follows.

List of Defective Elements

-b	(final b)
l s	(whispered sound)
2 s	(voiced sound)
cr	(consonant blend)
-d	(final d)
ch	
cl	(consonant blend)
-o-	(short o)

List of Errors in Conversation

k	substituted for g
l	substituted for d
g	omitted
oi	glide exaggerated

These are the errors recorded on the back of the individual diagnostic profile chart for Girl No. 9, School No. 1. Her profile follows.

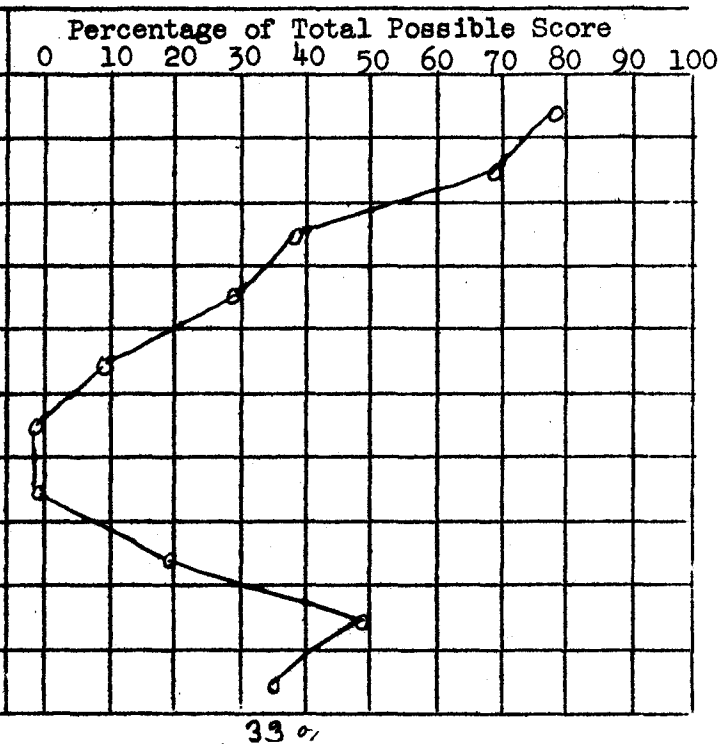
School No. 1
Girl No. 9

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors	Possible Score	Child's Score
ELEMENTS	10	8 X10
SYLLABLES	10	7 X10
FLUENCY	10	4 X10
ACCENT	10	3 X10
EMPHASIS	10	1 X10
PHRASING	10	0 X10
INFLECTION	10	0 X10
PARAGRAPH READING	20	4 X 5
IMPROMPTU SPEECH	20	10 X 5
TOTAL POINT SCORE	110	37 X.9



According to the data sheet this little girl is now 11 years and 6 months of age. She became deaf at the age of 6 years. Therefore she had normal speech well established before losing her hearing. Her audiogram is in class 1B so she has servicable hearing for acoustic training.

She has lost her s sounds because she no longer hears them. Selective amplification should amplify the

high frequencies until she can hear the s enough to re-establish it in her speech. Her hearing goes across the speech range including the high frequencies. The same procedure should develop the ch. Direct drill should develop the combinations of r and l with hard c and the final hard d. She has a good l because she gave it in the test on elements and she gave it as a substitute for d in conversation.

Her habitual speech errors in conversation are mostly carelessness. She substitutes the easy whispered sound of k for the more difficult voiced sound of g. She substitutes the lax position of l for the closed tongue position of d. She omits g and h. Direct drill on these errors should clear them all up.

If this child can be given some simple sort of progress chart with her speech needs written on it and credit added to it for every speech exercise she does successfully on each she should be able to improve her speech.

Her profile indicates need of acoustic training. Having heard until she was six years old she originally had fluency, accent, emphasis, phrasing, and inflection. She has lost the last two and has kept very little of the first three. She has enough hearing to be reached for all of them.

Certainly she should be able to give a performance better than 33 per cent of good speech. A boy in the same school had lost his hearing 3 years before and made 73 per cent on the test. His hearing loss was much greater than the little girl's. His profile follows for comparison, with the gir'ls superimposed upon it.

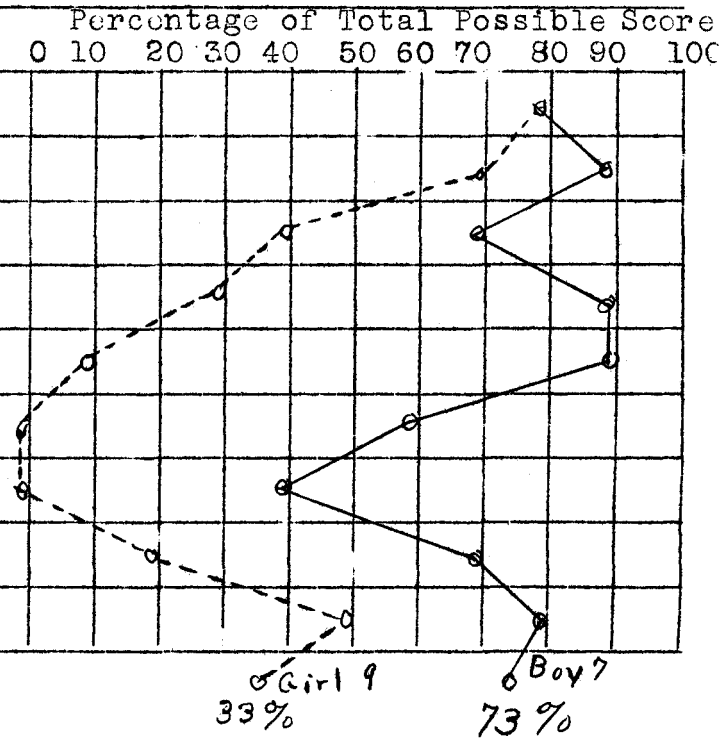
School No. 1
Boy No. 7

Kelley-Guilmartin Speech Test

Child's Name--

Individual Diagnostic Profile Chart
~~Class Diagnostic Profile Sheet~~

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	8 X10
SYLLABLES	10	9 X10
FLUENCY	10	7X10
ACCENT	10	9X10
EMPHASIS	10	9X10
PHRASING	10	6X10
INFLECTION	10	4X10
PARAGRAPH READING	20	14X 5
IMPROMPTU SPEECH	20	16X 5
TOTAL POINT SCORE	110	82 X.9



Class Profiles

The averages of a class on each of the speech factors tested give a class diagnostic profile.

The following two profiles are of a fifth grade in a state school and a young day school class. The fifth grade's average age is 13 years and 3 months. Their audiograms are all of the C type; that is, they are all profoundly deaf. They have been in school for about 6 or 7 years. Only one of them was deafened after speech was established. They have good elements and syllables and fluency through the short phrases on the test, but they are less proficient on sustained speech through emphasis, phrasing, inflection and the two examples of connected language of paragraph length. It is probable that they are not thinking in speech.

The young day school class have not established their elements yet. They are having a little acoustic training. They have accepted the idea of accent and of emphasis. They still do not use inflection in their speech away from the amplifier. Their paragraph reading is poor. They make their best score on impromptu speech. This is a day school class. Their average age is 9 years and 4 months. They need a great deal of individual remedial work and consistent acoustic training. They should then be able to speak distinctly enough to be understood in the regular grades of the public school where

they are. They seem to be thinking in speech. Their speech training is badly in need of better direction.

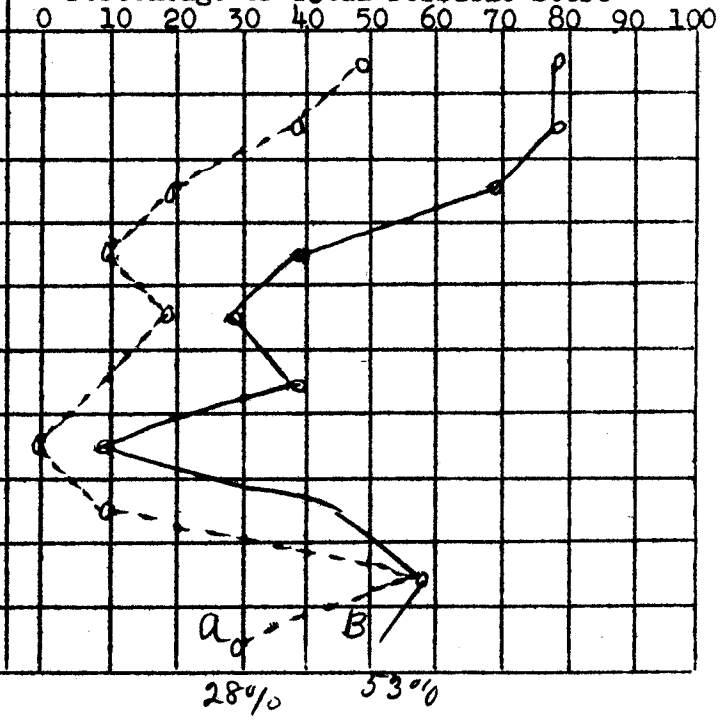
A. Young day school class
B. Grade V. state school

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	X10
SYLLABLES	10	X10
FLUENCY	10	X10
ACCENT	10	X10
EMPHASIS	10	X10
PHRASING	10	X10
INFLECTION	10	X10
PARAGRAPH READING	20	X 5
IMPROMPTU SPEECH	20	X 5
TOTAL POINT SCORE	110	X.9



Class Progress Chart

At present there are no records of the same class on subsequent tests. The only comparison possible is that between classes within a school. The same features will appear in tests of the same class after more teaching, or time and opportunity for more teaching.

The following profile shows two successive grades in one school.

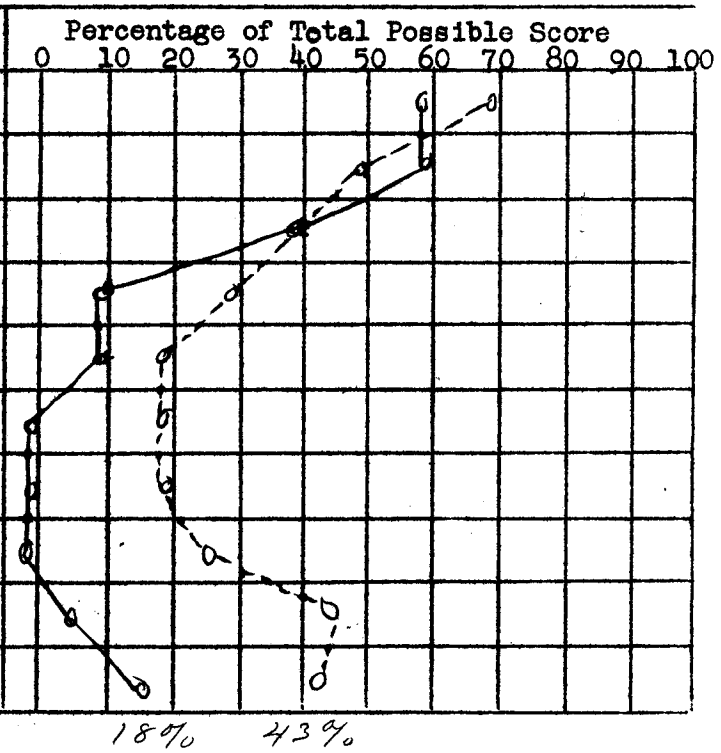
School No. 1
Class scores

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Class Profile

Measured Factors:	Possible Score	Child's Score
ELEMENTS	10	X10
SYLLABLES	10	X10
FLUENCY	10	X10
ACCENT	10	X10
EMPHASIS	10	X10
PHRASING	10	X10
INFLECTION	10	X10
PARAGRAPH READING	20	X 5
IMPROMPTU SPEECH	20	X 5
TOTAL POINT SCORE	110	X.9



These curves are from a low fourth, a high fourth, and a fifth grade. The average 11.7, 13.9, and 13.3 years old respectively. The high fourth grade averages six months older than the next grade but they have been in school one year less. The three classes average 18, 43, and 53 per cent of good speech. This is an improvement of 25 per cent from the lowest class to the next, and an improvement of 10 per cent from the middle class to the highest. The improvement of the highest class is held back by the fact that they are all profoundly deaf and so failed on inflection. There was excellent supervision in speech in this school. There was some acoustic work for the children in the middle grade. They all have B type audiograms and so can profit by acoustic training. This shows in the fact that they made such a large gain over the class below them and that the gain is greatest in the factors most dependent on acoustic training, emphasis, phrasing, inflection, paragraph reading, and impromptu speech. The class below them had been in school the same number of years.

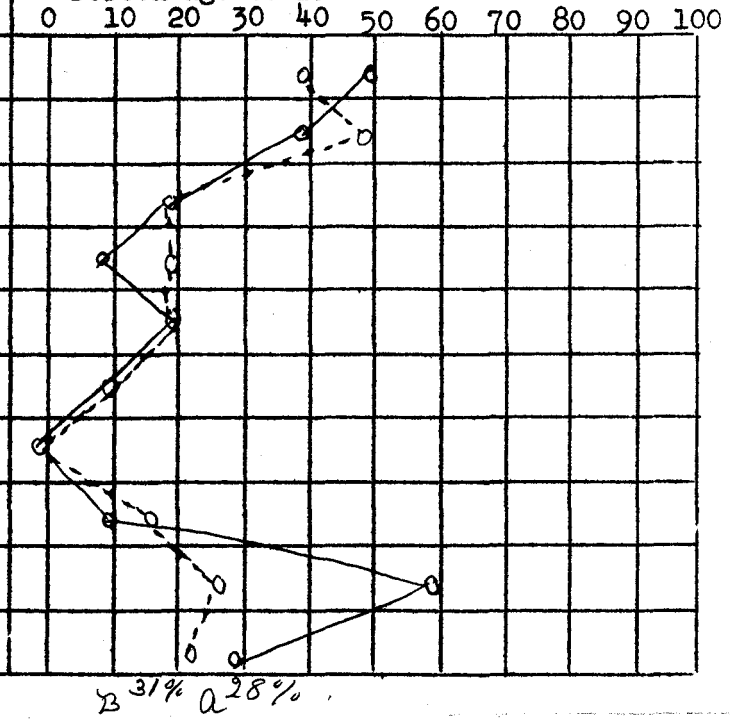
The next two profiles are from two ungraded day school classes.

Kelly-Guilmartin Speech Test

Child's Name -

Diagnostic Profile

Measured Factors	Possible Score	Child's Score
ELEMENTS	10	5 X10
SYLLABLES	10	4 X10
FLUENCY	10	2 X10
ACCENT	10	1 X10
EMPHASIS	10	2 X10
PHRASING	10	1 X10
INFLECTION	10	0 X10
PARAGRAPH READING	20	2 X 5
IMPROMPTU SPEECH	20	12 X 5
TOTAL POINT SCORE	110	X.9



The improvement from one class to the next is only 2 per cent. This school had no supervision in speech.

Value to Supervisor

These class estimates are definitely in the supervisory field. The supervisor well-trained in methods of teaching speech to deaf children will find such a class study an objective method of presenting her direction of speech teaching to the teacher. He may graphically present the difficulties most common in the class, as elements failed by all or many of the children, or habitual errors revealed by the impromptu speech test, and the total score of the class and its relative high and low points.

For the supervisor in public schools having deaf classes this test should be a great aid. He has to measure the product of the classes under his direction. He can measure achievement of the usual subject matter with the standardized tests which are used in the rest of the school system. But speech, for which he is especially responsible, he can judge in only the most casual and subjective way. He can not direct improvement without a good knowledge of the special methods involved. Almost no public school principals or grade supervisors possess this highly specialized training. Any attempt on the part of an untrained person to direct the teaching of a teacher trained in the specialty is foredoomed to produce only trouble. But with a test as objective and thorough and specialized as this one the public school

supervisor and special teacher should find a common meeting ground for discussion and improvement.

In either situation the supervisory person should expect an uneven class profile to be improved on its weakest points. He should expect improved scores from children of successive grades and ages. On repeated tests he should expect the same two evidences of good speech teaching.

The supervisor should also find help in the individual profile for re-grouping children for fundamental drill on elements. Perhaps one teacher is more skillful in that type of work and her skill can be utilized to better advantage. The need for acoustic work may be indicated by the child's audiogram and his profile. The form which the acoustic work should take is also indicated by the profile, as the instance of the child with fair residual hearing and no inflection nor emphasis in his speech. Homogeneous grouping for the profoundly deaf children who lack accent, emphasis, and phrasing, into rhythm classes is another point for the supervisor to work out.

The test seems best suited to the children between the ages of eight and sixteen. It is between these ages that most deaf children in public school classes need their speech appraised and the difficulties diagnosed and remedied so that they may be admitted to the regular grade or high school classes to which their scholarship entitles them.

The supervisor can also better plan and revise her own speech curriculum when she has an objective measure of the whole school. She can compare class with class, and see where certain phases of work are most needed. As soon as the test is standarized the supervisor will have a point scale and normal curve of progress by which to measure the speech product of her own school.

For the supervisor in public school who has no technical training in teaching speech to deaf children but is held responsible for the successful conduct of these classes this supervisory help should be welcome.

The trained supervisor in a school for the deaf will find the test comprehensive of most of her aims. The only factors consciously omitted are those that can not be judged well from mechanical recording, as proper voice placement for the individual child, breath control, and speed. All the other most commonly taught phases of speech work are included.

Value to the Administrator

From the scores on the test the supervisor and the superintendent can compare the accomplishment of classes, of teachers, of pupils, and of their school with other schools classes and pupils. Just as Gates Reading

Tests surprisingly revealed schools that were not teaching children to read directions, so this test will probably reveal schools that are not teaching deaf children to phrase their sentences, for instance, or to accent words.

Instances of this appear in the profiles presented. A striking example of this is Girl 15, School 2, page 153. She had closely related abilities and evidently not equal training. A deaf child who can combine consonants and vowels in fluent syllables can be taught to carry that same speech technique into fluency of phrase and sentence. Emphasis within a phrase or sentence is more difficult than accent within a word, yet this child made a perfect score on emphasis, and only 70% of the possible score on accent, which indicates that she had not been taught to accent words.

Another striking instance is the class score in inflection for Grade IV-A and Grade V. Grade IV-A had acoustic training which included inflection. Grade V was a picked class of profoundly deaf children not capable of taking acoustic training. Grade IV made 20% on inflection which was exactly level with their score on emphasis and phrasing, and about level with two other items. Grade V fell 30, 40, and 45 per cent below their nearest other scores. They also made 10% less on inflection than the

younger class. Grade IV-A had been taught, and had learned inflection. It may also reveal needs in the way of equipment, as an amplifier and ear phones for the class of children with residual hearing who still do not inflect their speech.

With profile charts of this sort before him a superintendent or head of a school for deaf children can, in an hour's study, know more about the speech work in his school than he could learn in days of visiting classrooms or holding conferences.

He can soon find which are his best speech teachers and place them where they are most needed. He can compare classes and help better in homogeneous grouping. Common weaknesses in speech throughout the school will be revealed. He may compare the speech of his school with that of others as soon as the point scale is released. He can watch rate of improvement from class to class, and from year to year. He can measure the rate of improvement of the school as a while in speech. He will have an objective and therefore more convincing argument on which to base a request to his school board for needed equipment such as, element charts, acoustic equipment, or rhythm instruments.

Value to Research

Even the very small number of cases on record

now indicate the possibilities of the use of the test as a research technique, for instance the importance of elements to the total speech product. It is consistently true throughtout the cases on record that the children who made high total scores had elements that were 70 or 80 per cent correct. A carefully planned study along those lines should have much weight in curriculum planning in the field of speech.

Another fact worth investigating is that one school with expert speech supervision showed a much better rate of improvement than another school which lacked such supervision.

In other subjects a normal child "learns faster when he enters school older." Deaf teachers believe this is not true of the deaf child and speech. An investigation of the influence of late entrance on success in speech should be revealing. So would one on the influence of very early entrance, such as the pre-school age groups. There are numbers of factors which people have been saying influence speech. Now they have the opportunity of finding out how important that influence is.

Chapter 12

CONCLUSIONS

The need for a standardized speech test for deaf children is shown by:

1. Requests in the literature on the deaf
2. The rapid increase in the use in schools for the deaf of achievement tests in all school subjects
3. The fact that the schools are testing speech with
   a. informal intelligibility tests
   b. a test developed for hearing children
   c. recorded speech tests of their own
   d. the Kelley-Guilmartin Speech Test for Deaf Children

This test is based on approved goals.

The technique is practical. Mechanical recording is available to most schools. The test is easy to administer. Its attractive and simple form has a psychological appeal to children. It is available to all schools. It tests what the schools are trying to teach as shown by the better score made by successively more advanced classes.

The supplementary data sheet gives pertinent facts in the study of a child which help interpret his speech score.

The standardization of the test will probably take two forms:

1. A curve of normal progress based on age or years in school

2. A point scale

These should help in school placement.

The speech profile, resulting from the test scores, indicates the remedial work needed by class and pupil.

The complete speech study of a child includes a profile of his score on the several factors of good speech, a list of his defective elements, a list of his habitual errors in impromptu conversation, and his rank in total score.

The class profile and class progress chart indicate need of remedial work and measure progress.

The test lends itself well as a tool of supervision.

It may be administered by the research department in a public school and the results used by the administrative personnel even though they are not trained in the special methods of teaching the deaf.

It covers the needs of the special supervisor of speech in the special school.

The objective form of the results give the head of a school the information he needs.

The value of an objective and standardized speech test to research can hardly be estimated at this time of doubt and discussion.

Preliminary use of the test has given very practical results. Among them are:

1. Persons other than the authors have given the test by the directions in the manuals
2. Schools could and did supply recording instruments and blank records
3. Teachers gave the pre-test by the directions in the manual
4. The Supplementary Data sheets were filled with apparent ease and accuracy
5. The individual diagnostic profiles and lists of errors checked with the teacher's estimate in later discussions
6. The profiles do indicate the remedial work needed
7. Class profiles and class progress charts developed with use of scores
8. The profile, in actual use, indicated a method of weighting the various items. There was no previous criteria. The standardized profile will provide a normal curve of performance on the various items.
9. Actual well graded classes show successively more advanced profiles.
10. Well graded classes show higher total point scores.
11. Higher point scores also agree with age with reasonable exceptions.
12. On the whole the test results are as good, and in some instances better than was anticipated.

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APPENDIX

Descriptions of All Tests Used

Explanation of the Form Used in the Appendix

Title: The exact title of the test

Type: The kind of test, according to the abilities it purports to measure. Classification into individual test, meaning a test that can be administered to only one child at a time, or group test, meaning a test that can be used to test a group of children together.

Author: The name of the author of the test

Publisher: The firm or person from whom the test materials may be bought

Materials: Equipment for administering the test, printed directions and score sheets, etc., and prices

Directions: Type of directions and their difficulty, derived from the answers to the questionnaire and from interviews and correspondence with publishers and examiners.

Age range: Obtained from the questionnaire (in quotation-marks) or from the printed directions for the test, or the publisher

Examiner: The type of person reported as giving the test

Use: Frequency of use, as shown by the number of times the test was used within the schools and the number of different schools using it

Purpose: This item was requested in the form of, "For what purposes do you consider this test reliable?" and so includes the examiner's judgment as to whether the test is satisfactory or not. Usually when a school considered a test unsatisfactory no purpose was stated. All quotations are verbatim from the answers to the questionnaire.

American Council on Education Psychological Examination for College Freshmen

Type: Intelligence (Individual or Group)

Authors: L. L. and T. G. Thurstone

Publishers: American Council on Education, 744 Jackson Place, Washington, D. C. or Test Division, Psychological Corp., 522 Fifth Avenue, N. Y. C.

Material: Sold only to professionally qualified users. New forms each year. $7.00 for 100. Specimen set, $ .35

Directions: No difficulty with directions at the college level. These are given verbally by the examiner and read by the student

Age: College level

Examiner: "Dean"

Use: Less than 20 times for one college

Purpose: "Check on ability"

##########

Arthur Point Scale of Performance Tests

Type: Intelligence Test (Individual)

Author: Grace Arthur

Publisher: The Commonwealth Fund, Division of Publications, N. Y. C. and Stoelting, Chicago, Ill.

Materials: Book, Arthur Point Scale of Performance Tests, from The Commonwealth Fund
Testing materials from Stoelting, $62.50

Directions: Reported given as a non-language test in 4 schools, by speech, signs, and finger spelling in a state school, and verbally in three day schools.

Age range: "Above 10", "9-15", "5-18", "6", "7-12" "all grades"

Examiner: Given invariably by a psychologist

Use: One of the two most frequently reported tests. Used second to the greatest number of times.

Purpose: Q. "School admission", "grade placement", and "manual ability"

****

California Short Form Test of Mental Maturity

Type: Intelligence test (Group or individual)
"Paper and pencil" test

Authors: E. T. Sullivan, W. W. Clark, and E. W. Tiegs

Publisher: California Test Bureau, 3636 Beverly Blvd., Los Angeles, Calif.

Materials:

Tests	Grades	
Pre-Primary	Kgn.-1	$.90 for 25
Primary	1-3	.90
Elementary	4-8	.90
Intermediate	7-10	.90
Advanced	9-Adult	.OP

Manual of directions, $.10
Scoring Key, $.02

Directions: The school reporting it says the directions are given "verbally by the examiner". The publisher's catalog says, "They provide both Language and Non-Language mental Age and I. Q. data and are particularly helpful in educational diagnosis.... The Short-Form tests are a

one-period edition, made up of three each of the Language and Non-Language Tests." The school giving them did not consider the directions too difficult for deaf children.

Age: "Primary to grade 12", Kindergarten to adult

Examiner: "Guidance counselor" The publisher's catalog says, "This test is so devised that it may be administered by any person capable of exercising tact and reasonable discretion who will carefully follow the Manual of Directions"

Use: More than 100 times in one day school

Purpose: "Grade placement"

****

Chicago Arithmetic Survey Tests

Type: Achievement test in arithmetic

Author: J. T. Johnson

Publishers: E. M. Hale and Compant, Educational Publishers, Chicago, Ill, or Milwaukee, Wis.

Materials: Tests
Several forms
Grades 7, 8

Directions: "Given verbally by the examiner".

Age: Grades 7, 8

Examiner: "Adjustment teacher"

Use: Between 20 and 100 times in one day school

Purpose: High School placement

****

Chicago Non-Verbal Examination

Type: Intelligence test (Group)

Author: Andrew W. Brown

Publisher: Illinois Institute of Juvenile Research, Chicago, Ill.

Materials: "Paper and pencil" test
Printed test sheets, $1.50 for 25, $5.00 for 100
Specimen set, $ .35
Order pantomime directions for the deaf

Directions: Non-language, pantomime

Age: 7 years to adult

Examiner: Research psychologist

Use: Less than 20 times by one school

****

Chicago Reading Test

Type: Achievement test in reading

Author: Max D. Englehart, and Thelma G. Thurston

Publisher: E. M. Hale and Company, Educational Publishers, Chicago, Ill. or Milwaukee, Wis.

Materials: Tests
Several forms
Grades 6, 7, 8

Directions: "Given verbally by the examiner."

Age: Grades 6, 7, 8

Examiner: "Adjustment teacher"

Use: Between 20 and 100 times in one day school

Purpose: High school placement

****

Cornell-Coxe Performance Ability Scale

Type: Intelligence test (Individual)

Author: Ethel L. Corness, Warren W. Cox

Publisher: Psychological Corporation,
522 Fifth Ave., N. Y. C.

Material: Manual, $1.50
Individual record blanks, $ .90 for 25
Complete test material, $26.95
(A selected series of the usual performance tests: Manikin and profile, Block Design, Digit-Symbol, Memory for Design, Picture Arrangement, and Cube Construction tests)

Directions: "Verbally or by pantomime"

Age: "7-12" years

Examiner: Psychologist

Use: "Less than 20 times" by one school

Purpose: "Not considered satisfactory" by the one school using it

****

Detroit Mechanical Aptitudes Examination

Type: Mechanical ability test consisting of tool knowledge, motor skill, and visual acuity

Authors: Baker-Crockett

Publisher: Public School Publishing Co., or
Psychological Corporation, 522 Fifth Ave., N. Y. C.

Materials: Tests, $ .04 each
$3.00 for 100
Analysis of Results Charts, $1.50 for 100
Specimen sets, $ .15

Directions: "Read by the student from the printed page"
"Uncertain" about the directions being too difficult for deaf children

Age: "14-18"

Examiner: Psychologist

Use: "Between 20 and 100 times" in one day school

Purpose: To cooperate with Rehabilitation Department

****

E Symbol Chart, or Visual Acuity Test

Type: Test of vision

Author: Cohn

Publisher: C. H. Stoelting Co., 424 North Homan Avenue,
Chicago, Ill.

Materials: Cardboard chart with a symbol resembling
a capital E printed on it in various positions
and sizes, as a test of vision
Price: $.55

Directions: Non-language. Pantomime. The examiner points
with three fingers in the direction the legs of
the symbol are pointing, and the child does the
same.

Age: "Very young"

Examiner: Psychologist

Use: "Between 20 and 100 times"

Purpose: "Recommendation to clinic", "room placement"

****

Gates Silent Reading Tests

Type: Achievement test in reading

Author: Arthur I. Gates

Publisher: Psychological Corporation, 522 Fifth Ave., N. Y. C.

Materials: Primary Grades 1, 2, 3
Type I, Word Recognition, $2.10 for 100
Type II, Sentence Reading, $2.10 for 100
Type III, Paragraph Reading, $2.10 for 100
Grades 3-8 Series
Type A, General significance, $2.10 for 100
Type B, To predict outcome, $2.10 for 100
Type C, Directions, $2.10 for 100
Type D, Details, $2.10 for 100
Specimen set $ .25
Manual, key, and norms, $ .15

Directions: "Given verbally by the examiner" and "Read by the child from the printed page".

Age: Grades 1-8

Examiner: "Principal", "Reading supervisor", and "Teacher"

Use: Reported from 4 large residential schools. Used less than 20 times in 2 schools, between 20 and 100 times in one, and more than 100 in the other.

Purpose: "Grade placement", and "Public school grade placement"

****

Healy Picture Completion Test

Type: A single intelligence test usually combined with others in a series such as the Cornell-Coxe Performance Ability Scale. It is an alternate test in this series.

Publisher: C. H. Stoelting Co., 424 North Homan Avenue, Chicago, Ill.

Materials: This test is included in the Cornell-Coxe series, and others.

A brightly colored picture with insets to complete the meaning of the picture. $13.25

****

Henmon-Nelson Tests of Mental Ability

Type: Intelligence Test (Group)

Authors: V. A. C. Henmon and M. J. Nelson

Publisher: Houghton-Mifflin, Atlanta, Ga.

Materials: Paper and pencil test
Test booklets $.75 for 25
Forms A, B, C
Scoring key
Specimen set $.15

Directions: "Spoken by the examiner and read by the child from the printed sheet"
Example of directions: "Example: 1. Boys like to play: 1. ball, 2. state, 3. dust, 4. never, 5. blue.....1 2 3 4 5"
For a deaf child this seems much more of a test of language ability than of intelligence. The school reporting the test enrolls hard of hearing children as well as deaf, and may use this test for them as this form of direction would offer no especial difficulty to them.

Age: "Lower grades"

Examiner: "Head teacher"

Use: One school less than 20 times

****

Intelligibility Tests for Speech

Type: Not standardized. Informal tests to measure a deaf child's ability to speak so that others can understand his speech.

Author: Each school composes its own sentences anew for each test. The plan was suggested by Miss Enfield Joiner

Publisher:

Materials: Graded Lessons in Speech (Book)

Directions: "Read", is the only necessary direction

Age: "Grade 3 up"

Examiner: "Research Department", "supervising teacher", "speech teacher", and "teacher"

Use: 5 schools use this type of test routinely

Purpose: To diagnose speech defects, and to measure progress

****

Kelley-Guilmartin Speech Test for Deaf Children

Type: An objective speech test to diagnose defects and measure progress

Authors: Noble H. Kelley, Ph. D., and Mary D. Guilmartin, M. A.

Publisher: Order from: Dr. Noble H. Kelley,
Department of Psychology
University of Louisville
Louisville, Kentucky

Materials: Test package includes: Illustrations, Printed speech exercises, Manuals of directions, Score sheets

Diagnostic charts, Blank records, Any reliable electric sound recording instrument

Directions: The only directions are: "Read", and "Tell me about the picture". These are given verbally by the examiner

Age: About 8 years up

Examiner: "Supervising teacher", "teacher", or psychologist

Use: In 2 schools, one day school and one state residential school, less than 20 times in each

****

Keystone Telebinocular Tests of Visual Efficiency

Telebinocular

Type: An instrument for testing two-eyed vision are book-reading distance

Author: Emmett A. Betts

Publisher: Keystone View Company, Meadville, Penna.

Materials: Keystone Visual Survey:

Telebinocular instrument
Revised slides
Score sheets, and manual, complete set $97.50

Directions: Language. The child must be able to tell what objects he sees and in what spatial relations they are to each other. The language thus required is quite intricate for young deaf children. The pictures on the new score sheets are helpful with older deaf children but seem too small for the younger ones.

Age: "All"

Examiner: Psychologist

Use: One school between 20 and 100 times

Purpose: "Recommendation to clinic, room placement"

****

Keystone Telebinocular Tests of Visual Efficiency

Telebinocular, with Non-Language Response Cards

Type: A non-language test of vision. The usual instrument and technique plus a set of model cards showing the possible images the child may get from the test so that no language is required by either the examiner or the child.
(Instrument) Keystone Visual Survey Telebinocular

Authors: Telebinocular, Emmet Betts
Non-Language Response Cards,
Mary D. Guilmartin

Publisher: Telebinocular, Keystone View Co., Meadville, Pa.
Non-Language Response Cards, from Mary Guilmartin,
St. Augustine, Florida

Materials: Telebinocular instrument
Revised slides, of 50, $.40
Score sheets, manual, complete set $97.50
Non-Language Response Cards, $10.00

Directions: Non-language. The child is shown by demonstration that he is to select the card that is like what he sees in the instrument.

Age: "4 years up", "all"

Examiner: "Specially trained teacher"

Use: Reported from 2 schools, used less than 20 times in each

Purpose: "To recommend to oculist"

****

Kuhlmann-Anderson Intelligence Test

Type: A "paper and pencil" intelligence test (Group)

Authors: Frederick Kuhlmann, Rose G. Anderson

Publisher: Educational Test Bureau, 3433 Walnut St., Philadelphia, Penna.

Materials: Separate test booklets for each of the following grades:

Grade I (First Semester)	Grade V
Grade I (Second Semester)	Grade VI
Grade II	Grades VII-VIII
Grade III	Grade IX-Maturity
Grade IV	

Booklets, $1.25 for 25
In unassembled form, $.15 for pad of 25
Manual for all grades, $.40
Specimen set, $.50

Directions: The school reporting was uncertain about the difficulty of the directions for deaf children. Example: "At the top of this page are the numbers 1, 2, 3, and so on. Under each number is a letter. The letter A is under 1, E is under 2, U is under 3, and so on. Look at the examples.

The first one is 1-6-2. Pause long enough for them to find it. Now these numbers 1-6-2 stand for a word. We will find the word and write it on the line after these numbers. The first letter under 1, at the top of the page. So the first letter is? Pause. A. Write A on the line after these numbers. 1-6-2. The second letter in the word is the letter under 6, so the second letter is? Pause. 'E'. Then write E after the A. The third letter is..."

This seems to be extremely difficult language for deaf children, besides the usual difficulty of giving the directions verbally.

Age: "Below 12" by the school using it, but designed for all grades

Examiner: Psychologist

Use: Used less than 20 times by one school

****

Leiter International Performance Scale

Type: An Intelligence Test (Individual)

Author: Russell G. Leiter

Publisher: Santa Barbara State College Press, Santa Barbara, Calif.

Material: A new type of performance test
Sets of pictured blocks, cabinet, manual and 100 record booklets, $68.00

Directions: This is a true non-language test, as no language is used by either the examiner or the child.

Age: 2 years to adult

Examiner: Psychologist

Use: One public school research department reported having just bought this test with the intention of using it with their day school deaf children.

****

Los Angeles Fundamentals of Arithmetic

Type: A diagnostic achievement test in arithmetic

Author: Caroline Armstrong and Willis W. Clark

Publisher: Los Angeles Tests Bureau, Los Angeles, Calif.

Materials: Tests:

Forms 1 2 3 4
Grades 3, 4-6, 7-9, 9-13
$.90 for 25
Add transportation

Directions: "Given verbally by the examiner", and read by the child from the printed page.

Age: "Grades 2-8", grades 3-13

Examiner: Teacher

Use: In one day school, between 20 and 100 times

Purpose: Grade placement

****

Maico Audiometer

Type: D-6, the only type named, is a single tone individual testing instrument for hearing

Makers: Maico Company, Inc., 83 South Ninth Street, Minneapolis, Minn.

Sales agency: Order from the makers or any local distributing agency

Materials: An electric instrument which must be plugged into ordinary house current to operate.
Audiograms (cardboard charts)

Directions: Practically non-language and is appropriate for use with deaf children.

Age: "All"

Examiner: "Head of department", "Acoustic director"

Use: Used by 3 schools, routinely in 2 of them

Purpose: To recommend to clinic
Room placement
To recommend to acoustic class

****

Meier-Seashore Art Judgement Test

Type: Vocational aptitude in art (Group)

Publisher: Psychological Corporation, 522 Fifth Ave.,N.Y.C.

Materials: Records sheets, $ .02½ each
$2.00 for 100

Directions: "Read by the student from the printed page".

Age: Considered "not reliable" for any age

Examiner: Psychologist

Use: "Less than 20 times in one day school".

****

Merrill-Palmer Scale of Mental Tests

Type: Intelligence (Individual)

Author: R. Stutsman

Publisher: Test materials, C. H. Stoelting, Chicago, Ill.
Book, The Psychological Corporation, 522 Fifth Ave., New York, N. Y.

Material: Manual included in "Mental Measurement of Pre-school Children", Rachel Stutsman, $2.20
Test blanks $1.25 for 25. $4.50 for 100

Directions: The directions are given verbally by the examiner and the school reporting was uncertain about their being too difficult for deaf children

Age: 1. "Below 5 years"

Examiner: Psychologist

Use: Between 20 and 100 times by one small day school

Purpose: "School placement"

****

Metropolitan Achievement Test

Type: Battery type of achievement tests in most of the elementary school subjects

Authors: R. D. Allen. H. H. Bixler, W. L. Connor, F. B. Graham, G. H. Hildreth, and J. S. Orleans

Publisher: World Book Company

Materials: Primary I Battery, for grade 1
3 forms, A, B, C, $1.15 for 25
Specimen set, $ .20
Primary II Battery, for grades 2-3
3 forms, A, B, C, $1.25 for 25

Specimen set, $ .20
Intermediate Battery Complete, for grades 4-6
4 forms, A, B, C, D, $2.00 for 25
Specimen set, $ .25
Supervisor's manual, $ .25

Directions: "Given verbally by the examiner", and "Read by the child from the printed page"

Age: Grades 1-6

Examiner: "Teacher", "research assistant", "supervisor of special education", "adjustment teacher", guidance counselor"

Use: Reported from 5 schools, and used less than 20 times in 3 schools, between 20 and 100 in one school, and more than 100 times in the other

Purpose: "Grade placement", "public school grade placement", "high school placement"

****

Minnesota Clerical Test for Clerical Workers

Type: Vocational ability test, for file clerks and general clerical workers. Tests speed and accuracy.

Author: Arranged by Dorothy M. Andrew under the direction of Dr. Donald Paterson and Howard P. Longstaff

Publisher: The Psychological Corporation,
522 Fifth Ave., N. Y. C.

Materials: Tests, $ .04 each, $3.00 for 100,
$3.00 for 100, including manual, key and norms
Specimen set, $ .25

Directions: "Read by the student from the printed page"

Age: "18 - adult"

Examiner: Psychologist

Use: "Between 20 and 100 times" in one day school

Purpose:

****

Minnesota Manual Dexterity Test

Type: Vocational Guidance Test

Author: W. A. Ziegler (Of the Minnesota Rate of Manipulation Test)

Publisher: Educational Tests Bureau, Minneapolis, Minn.
720 Washington Avenue, S. E.

Materials: 58-hole peg board, Manual Dexterity
60-hole board, Minnesota Rate of Manipulation Test, which has superseded the Manual Dexterity Test

Either board including directions, and record sheets, $ 9.75

Directions: Pantomime or demonstration

Age: "18 up"

Examiner: Psychologist

Use: Between 20 and 100 times on one day school

Purpose: "To cooperate with Rehabilitation Department"

****

Minnesota Spacial Relations Test

Type: Mechanical ability test (Individual)

Author: M. R. Trabue, Donald Paterson, and others

Educational Tests Bureau, 720 Washington Avenue, Minneapolis, Minn., or Psychological Corporation, 522 Fifth Avenue, N. Y. C.

Materials: Form 1, consisting of Boards A and B, blocks, case, and directions, $18.00
Form 2, consisting of Boards C and D, blocks, case, and directions, $18.00
Form 1 and 2, $36.00

Age: "18 up", junior and senior high school, and adults

Examiner: Psychologist

Use: Between 20 and 100 times in one day school

Purpose: Vocational guidance

****

New Stanford Achievement Test

Type: Battery of achievement tests in most of the elementary school subjects

Authors: Truman L. Kelley, Lewis M. Terman, Giles M. Ruch

Publisher: World Book Company, Yonkers, N. Y. or Chicago

Materials: 5 Forms: V, W, X, Y, Z, Now, Forms: D, E, F, G, H
Primary, Grades 2, 3, $1.10 for 25, Specimen set $ .20
Advanced Grades 4-9, $2.00 for 25, Specimen set $ .30
Guide for interpreting $ .15
School summary record $ .20

Directions: "Given verbally by the examiner" and "read by the child from the printed page"

Age: Grades 2-9

Examiner: Principals, teachers, psychologists, and a dean

Use: Reported by 16 schools, and used much more frequently than any other achievement test

Purpose: "Grade placement", "public school grade placement", "High school placement", "cooperation with Rehabilitation Department"

****

New Stanford Reading Test

Type: Achievement test in reading

Author: T. L. Kelley, L. M. Terman, and G. M. Ruch

Publisher: World Book Company, Yonkers, N. Y.

Materials: Tests
Primary, Forms D to F, $1.00 for 25
Intermediate, Forms D to G, $1.00 for 25
Advanced, Forms D to G, $1.00 for 25

Directions: "Given verbally by the examiner", or read by the child from the printed page.

Age: Grades "2-9", "6-8"

Examiner: "Teacher", "adjustment teacher"

Use: Reported by 2 schools, and used between 20 and 100 times in each

Purpose: "Grade placement", "high school placement"

****

New York State Regents, or College Board, Examination

Type: College entrance achievement test for all students

applying for entrance to New York State Colleges

Authors: New York State Board of Regents

Publishers: Unpublished (Given only by the college the student wishes to enter)

Materials: Not available

Directions: "Read by the student from the printed page"

Age: College entrance level

Examiner: Member of the college staff only

Use: Reported by 2 New York State schools whose high school graduates occasionally go to New York State colleges

Purpose: College entrance

****

Ontario School Abilities Examination

Type: Intelligence Test (Individual) prepared for deaf children

Author: Harry Amoss

Publisher: Ryerson Press, Toronto, Canada

Materials: Manual and tests, $2.50
Manual, $ .90
Tests, $1.75
Forms (package of 50), $ .75
Postage extra

Directions: Non-language, as the child is dependent on the demonstration and not on the two words spoken. The test was made for deaf children originally.

Age: "6-14", "5-12", "10-20"

Examiner: A greater variety of people gave this test than gave any other of the intelligence tests. "Clinical psychologist, research assistant, student under direction of psychologist, superintendent, and teacher" (in a day school)

Use: One of the two most frequently reported tests and used the most times of all intelligence tests

Purpose: The original purpose of the author was to give a basis for admission to or exclusion from school. "Level of intelligence, admission, grading, school placement"

****

Otis Quick Scoring Mental Ability Tests

Type: Intelligence Test (Group)

Author: Arthur S. Otis

Publisher: World Book Company, Yonkers, N. Y. C.

Materials: "Paper and pencil tests"
Alpha Tests, Grades 1-4, 2 forms, A, B
$1.15 for 25. Specimen set $ .25

Beta Tests, Grades 4-9, 2 forms, A, B
$ .85 for 25. Specimen set $ .20

Gamma Test, High school and college, 2 forms, A, B
$ .90 for 25. Specimen set $ .15

Directions: Uncertain. One school reported being uncertain about the difficulty of the language of the directions, and the other gave them through signs and finger spelling. (This is the only school reporting the directions given by signs or finger spelling.)

Age: "All grades"

Examiner: "Testing teacher", research psychologist

Use: 2 schools, less than 20 times on one and more than 100 in the other.

##########

Pintner Non-Language Mental Test and Educational Survey Test

Type: Intelligence test: First Half, Non-Language Mental Test (Group)

Author: Rudolph Pintner

Publisher: College Book Store, Columbus, Ohio

Material: "Paper and pencil" test
Order number of test booklets needed
Manual of directions
Scoring Key

Directions: Doubtful. Test is listed by the publisher as "non-language" and is so reported on the answers to the questionnaire, but one school also says that some directions are "given verbally by the examiner". There are such directions printed in the manual itself as, "Hold sheet up before the class...explaining that they must copy in the numbers", and "Ask what is missing". These are verbal directions. The test was originally devised for young or foreign speaking children and was therefore considered equally appropriate for deaf children, which does not necessarily follow. An indication that it is inappropriate for the deaf is that a school using it more than 100 times found that it gave scores for the deaf more than a year below the norms for the hearing.

Age: "6-18", "14-16", "10-up", "7-16", "all ages"
Author's statement: Grades 3 to 8

Examiner: "Head teacher", "Guidance director"

Use: Reported by 3 schools, used in one less than 20 times and in the other 2 more than 100 times. This is one of the oldest tests and some of this use probably not "current" in the sense of this study being approximately within the last ten years. It was used in the 1925 national survey.

****

Pintner Non-Language Primary Mental Test

Type: Intelligence test

Author: Rudolph Pintner

Publisher: Bureau of Publications, Teachers College, Columbia University, N. Y. C.

Material: Tests, 25 for $1.60
Specimen set, $ .25

Directions: "Non-language"

Age: "6-18", "5-7"

Examiner: "Head teacher", "Guidance director"

Use: Used by two schools, less than 20 times in one and more than 100 times in the other

****

Pintner-Paterson Performance Test

Type: Intelligence test (Individual)

Authors: Rudolph Pintner and Donald Paterson

Publisher: D. Appleton-Century Publishing Co., N.Y.C., or C. H. Stoelting, Chicago, Ill.

Material: Book of Directions, A scale of Performance Tests, by Rudolph Pintner and Donald Paterson, from D. Appleton-Century Co.

Test materials from Stoelting

(Modification of Healy Mare and Foal Picture Board, Sequin Form Board, Five Figure Form Board, Two Figure Board, Casuist Form Board, Gwyn's Triangle Test, Kempf's do Diagonal Test, Healy Puzzle "A", Manikin, Knox-Kempf Feature Profile Test, Gluck's Ship Test, Completion Test, Modification of Woodworth-Wells Substitution Test, Modification of Goddard's Adaptation Board, Modification of Knox Cube Imitation Test.)

Directions: "Non-language"

Age: "7-16", "all ages"

Examiner: "Head teacher"

Use: Reported by 2 schools, between 20 and 100 times in one and over 100 times in the other

Prices: Complete set of tests for the "Short Scale", $72.75

Complete set of tests for the "Long Scale", $87.35

****

Progressive Achievement Tests

Type: Battery of diagnostic tests in reading, arithmetic, and language

Authors: Ernest W. Tiegs and Willis W. Clark

Publisher: Psychological Corporation, 522 Fifth Ave., N. Y. C.

Materials: Primary Battery, Grades 1-3
3 forms, A, B, C, 25 for $1.00
Specimen set, $ .25

Elementary Battery, Grades 4-6
3 forms, A, B, C, 25 for $1.25
Specimen set, $ .25
Intermediate Battery, Grades 7-9
3 forms, A, B, C, 25 for $1.25
Specimen set, $ .25
Advanced Battery, High school
2 forms, A, B, 25 for $1.50
Specimen set, $ .25

Directions: "Given verbally by the examiner", and "read by the child from the printed page"

Age: Grades 1 through high school

Examiner: "Teacher"

Use: By one day school less than 20 times

Purpose: "Public school grade placement"

****

Randall's Island Performance Series

Type: An Intelligence Test (Individual)

Author: Louise E. Poull, Ada S. Bristol, Helen B. King, and Lillie B. Peatman

Publisher: Columbia University Press, Columbia U., N. Y. C.

Materials: Set of tests, $63.10
Booklet of Directions, $1.00
Report sheets, 20 for $ .75

Directions: Reported, unqualified, as a non-language test.

Age: "2 to 5 years"

Examiner: Research psychologist

Use: Over 100 times on 1 school

Purpose: "Homogenous grouping"

****

Revised Minnesota Paper Form Board Test

Type: Mechanical ability test (Individual)

Publisher: Psychological Corporation, 522 Fifth Ave., N. Y. C.

Materials: Series AA and BB (second revision)
Tests, $ .04 each
$3.50 for 100
Specimen set, $ .15

Directions: "Read by the student from the printed page", but not considered too difficult for deaf pupils.

Age: "12-18"

Examiner: Psychologist

Use: Between 20 and 100 times in one day school

Purpose: "To cooperate with the Rehabilitation Department

Revised Stanford-Binet Scale

Type: Intelligence (Individual)

Authors: L. M. Terman, M. A. Merrill 1937

Publisher: Psychological Corporation, 522 Fifth Avenue, N. Y. C.

Materials: 2 forms, L, M
Manual "Measuring Intelligence", $2.60
Record booklet, either form, 25 for $2.20
Record form, 25 for $ .65
Printed card material, $1.90
Test material, either form, included printed card material, $9.00

Directions: The directions are given verbally by the examiner. The school reporting says, "Yes, and

no", to the question of their being too difficult for deaf children, which at least expresses a doubt.

Age: "8-12"

Examiner: Psychologist

Use: Between 20 and 100 times in one school

****

Schoolfield Diagnostic Speech Test

Type: Test of a child's ability to speak intelligibly

Author: Lucille D. Schoolfield

Publisher: Expression Company, Boston, Mass.

Materials: Speech Diagnostic Chart included in book:
Test included in book:
Better Speech and Better Reading

Directions: "Given verbally by the examiner"

Age: "Grades 3-8"

Examiner: "Teacher, speech teacher"

Use: Reported used in 2 schools, one between 20 and 100 times in a day school, and an unreported number of times in a state residential school

Purpose: Diagnosis of speech defects, and to measure progress

****

Snellen Chart

Type: Test of vision at a distance of 20 feet

Publisher: American Optical Company, Southbridge, Mass.

Materials: Cardboard chart,
Directions

Directions: A language test in that the deaf child must name all the letters that he is able to see

Age: "5 years up", "10 years up", "all"

Examiner: "Doctor", "nurse", "psychologist", "principal", "special teacher"

Use: Reported by 11 schools, used more than 100 times in 4 schools, between 20 and 100 times in 2 schools

Purpose: "Sight conservation", "vision correction", "room placement"

****

Stanford Revision of the Binet-Simon Test

Type: Intelligence test (Individual)

Author: Of the revision, Lewis M. Terman 1916

Publisher: The Psychological Corporation, 522 Fifth Avenue, N. Y. C.

Materials: Test materials, $1.10
Condensed guide, $1.10
Record booklets, 25 for $2.25
New Terman record form, 25 for $ .70

Directions: Unsatisfactory. The directions are given verbally by the examiner. One school thought the directions were so difficult as to invalidate the results, and the other school was uncertain about their difficulty.

Age: "Under 12"

Examiner: Psychologist

Use: One school had used the test less than 20 times
The other did not answer this item.

****

Stenquist Mechanical Assembling Test

Type: Mechanical ability test

Author: John L. Stenquist

Publisher: C. H. Stoelting, 424 North Homan Ave.,
Chicago, Illinois

Materials: Series I and II, parallel forms for
Grades 5-8, high school and adults
Series III, for grades 3-6
Any series $13.75
Scoring blanks, $.80 for 100
Manual, $.40

Directions: "Given verbally by the examiner," but not
considered too difficult for deaf children.

Age: "12-18", 10 up"

Examiner: Clinical psychologist

Use: Less than 20 times in each of two day schools.
This is the only mechanical abilities test reported by more than one school.

Purpose: "Vocational guidance"

****

Terman Group Test of Mental Ability

Type: Intelligence test (Group)

Author: Lewis M. Terman

Publisher: World Book Company

Materials: Tests, 25 for $1.20
Specimen set, $ .20

Directions: No difficulty at the high school and college level. Directions are read by the student from the printed page. The school reporting did not think them too difficult for deaf pupils.

Age: Grades 7-12 and college freshmen

Examiner: Psychologist

Use: Between 20 and 100 times in one day school

Purpose: Used in cooperation with the Vocational Rehabilitation Division of the state department of education in planning vocational training for the older deaf students in a day school.

****

Western Electric Audiometers

Types: 2A, 6A, single tone, individual test of hearing
3A, complex tone, individual test
4A, 4B, phonograph recordings of numbers, group test

Makers: Western Electric Company

Sales Agency: Graybar Co., Graybar Bldg., N. Y. C., or Any Graybar distribution agency

Materials: An electric instrument which must be plugged into ordinary house current to operate. Audiograms.
Present model single tone, individual, 6B, $300.00
Present model phonograph, 4C, $180.00, with 10 receivers

Directions: The 2A, 6A, and 3A, types are practically non-language tests and are appropriate for use with deaf children; as is the new 6B

The 4A and 4B types have numbers to be heard and written and are appropriate for use with hard of hearing children. Being group tests they can be used to test whole public school classes at once. They are not appropriate for use with deaf children.

Age: 6 years up, for deaf children, using the single tone type. Grades 2 or 3 up for hard of hearing children, using the phonograph type.

Examiner: Doctor, nurse, department head, acoustic supervisor, and specially trained teacher

Use: 17 schools reported using the single tone types.
1 of the same schools used the complex individual type
3 of the same schools use the phonograph type
2 other schools also use the phonograph type
19 schools in all use one or more of the Western Electric Audiometers

Purposes: For recommendation to medical clinic
For school placement
For recommendation to acoustic training