

CHILDREN *with*
SPEECH *and* HEARING
IMPAIRMENT:

*Preparing To Work With Them
in the Schools*

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FOREWORD

THIS BULLETIN is about the inspiring opportunities for rewarding service to be found in meeting the urgent educational needs of children with impaired speech and hearing. If these children are not to carry serious economic and social disadvantages into their adult years, more remedial speech and hearing teachers must be trained to serve them. Moreover, if these teachers are to be prepared as effectively as possible and if their services are to be of greatest value, comprehensive and intensive research must be devoted to children's speech and hearing problems. Finally, if the approximately 1.5 million school-age speech and hearing handicapped children are to be reached with the necessary services, school programs must be more extensive.

These are the needs and the opportunities with which this bulletin is concerned. It is addressed to young men and women who are seeking vocations and ways of life that will challenge and inspire them and to school administrators, college and university instructors, guidance directors, vocational counselors, and others interested in the problem of impaired speech and hearing.

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This publication, by Dr. Wendell Johnson, is one of a number of reports from the Section on Exceptional Children and Youth concerning problems of speech and hearing among children. The emphasis here is on these problems as they relate to the children's educational needs and as they can be remedied through school services. It is gratifying to make Dr. Johnson's contribution available.

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THE PROBLEM OF IMPAIRED SPEECH AND HEARING

TO BE HUMAN is to speak, and man is, therefore, the only creature to suffer impairment of the capacity to speak or to comprehend language. This is the most distinctively human of all handicaps.

Indeed, many of man's other misfortunes owe their major significance to their effects on language and speech. Of two children otherwise equally affected by cerebral palsy, the more seriously handicapped is the one whose speech is the more severely impaired. Persons who suffer brain damage may react more profoundly to any resultant difficulty in expressing their thoughts and feelings and in understanding what others say to them than to the physical symptoms of their condition. In mental and emotional disturbance, as well, it is the breakdown in the individual's ability to communicate effectively with other people that most clearly complicates and deepens his maladjustment.

Impairment of the capacity to speak or comprehend language tends to affect adversely the growth and expression of intelligence and personality. To the degree that it does so, it restricts the individual in his pursuit of happiness and limits the possibilities of his benefiting from education, making a living, raising a family, and exercising the rights and obligations of citizenship.

Impairment of the capacity to speak or comprehend language is one of man's most common handicaps. According to conservative estimate approximately 4 percent of the Nation's school children have seriously impaired speech or hearing. The total number seriously affected is somewhat more than 1.5 million, enough boys and girls to fill a city larger than the Nation's capital—and of these, scarcely 1 out of 5 is being provided with needed remedial instruction. The number of adults with major speech and hearing handicaps is estimated to be also at least 1.5 million, thus making a national total

of 3,000,000 or more; and the number is increasing in proportion to the general population increase. The figures given here are conservative estimates, based on the limited statistical data available; more comprehensive and systematic studies of prevalence are needed in this field.

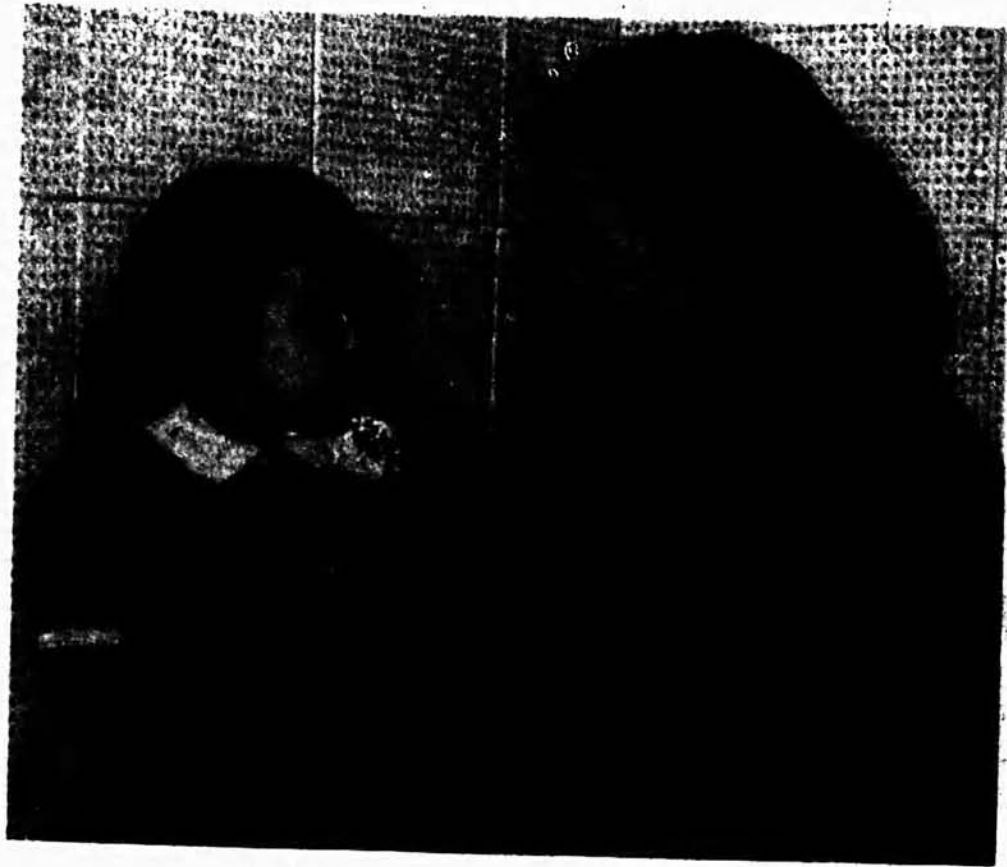
A fully effective program of services, particularly in the elementary schools, would be beneficial to practically all of those affected and should bring about a substantial reduction in the number of our citizens handicapped in speech and hearing. The consequent economic gains in increased earning power of the individuals benefited and in decreased costs of public services for this large group, over the years, would be expected to outweigh the expenditures required for a constructive program of remedial instruction in the schools. The gains in better living for all those concerned would be incalculable.

Problems of speech and hearing occur throughout the entire range of intelligence and ability. The gifted, as well as those of average and below average mental capacity, are plagued by stuttering. Damage to the ear can be visited upon a child who is a potential civic leader as readily as upon a child who may come to fill the humblest of roles. On the basis of general clinical experience, it can be assumed that a large number of children and youths with speech and hearing handicaps will drop out of school, or decide not to enter college, or discontinue their college education. Such handicaps are particularly unfortunate as reasons for school "drop-outs," because they affect so many who are otherwise fully able to benefit from continued school experience.

Whatever is done for handicapped children contributes to the achievement of our educational objectives for all children. First, by surmounting obstacles to learning posed by communication disorders we develop improved insights and methods that influence the entire educational program, making it better for the children who have normal hearing and speech. Second, by helping those children who have special problems, our schools set a morally uplifting example.

For those children who strive to gain an education and a good way of life against the odds imposed by awkward tongues and unresponsive ears, nothing else that our schools can provide is more important than the services that enable them to speak better and to use their limited hearing as effectively as possible. Deprived of these services, the children are shut off proportionately from all else that our schools are designed to make available. To enable them to make better use of their hearing and to speak more easily and more plainly is to improve the conditions essential to learning so far as these children are concerned.

The most important ways in which we can extend and improve services for this large group of handicapped children are by increasing the number of well trained personnel and by adding, through research, to the store of scientific knowledge upon which to base the continuous development and improvement of the necessary principles and methods.



Children enjoy sounds they can hear readily.

Detroit Public Schools

PREVALENCE AND DEFINITION OF TYPES OF IMPAIRED SPEECH AND HEARING

THE MAGNITUDE of the problem is reflected in the estimates, shown in table 1, of the prevalence of speech and hearing impairments among school-age children. The figures in table 1, lower than nearly all the estimates previously published, should be taken as minimal. They represent only children whose speech and hearing handicaps are of such severe grade that they are certain to go through life at a serious disadvantage vocationally, socially, and in intimately personal ways if not given appropriate corrective attention. It is important, therefore, to recognize that the number of school-age children with somewhat less severe speech and hearing problems is at least as large as the number shown in table 1, which means that the total number who would benefit from remedial speech and hearing services is approximately double the number shown in table 1. (See footnote to table 1.)

This particular handicapped group is one for whom a very great deal can be done, a fact which makes neglect of their problem, when this occurs, all the more regrettable. The great majority of the children represented in table 1 are physically normal, with the same range and average mental capacity as that of other children and with good personality potential. They are fully capable, therefore, of living normal lives if only they are relieved of the handicap of impaired hearing or speech—and they can be relieved of this handicap to a heartening degree.

Even those children who cannot be enabled to hear normally can be helped to hear *better* and to make better use of the hearing acuity they have; or they can be taught to *speak better* and to make the most of the best speech they can acquire—and they can be taught to live more productively and more graciously with the best they can do.

6 CHILDREN WITH SPEECH AND HEARING IMPAIRMENT

It is important to keep in focus the basic fact that remedial work with children having impaired speech and hearing pays great dividends.

Table 1.—Estimated Number per 1,000 and Percent of School-Age Children with Each Type of Speech and Hearing Impairment (Includes Only Those Children With Severe Handicaps).¹

Note: Prevalence figures presented here are those of the author.

Type of impairment	Number per 1,000	Percent	Number per 40,000,000 ²
Articulation problems.....	25	2.5	1,000,000
Voice problems.....	1	0.1	40,000
Fluency and rate problems.....	0.5	0.05	20,000
Stuttering.....	7	0.7	280,000
Hearing problems of communicative and educational significance.....	5	0.5	200,000
Speech problems associated with cleft palate and lip....	0.5	0.05	20,000
Retarded speech development.....	0.5	0.05	20,000
Speech problems associated with cerebral palsy and other types of neuromuscular impairment.....	0.5	0.05	20,000
Total.....	40	4.00	1,600,000

¹ The figures for the different categories are non-overlapping. The estimates have been made conservative in view of the fact that prevalence data currently available are not adequate to support precise estimates and that, under this circumstance, it seems better to risk error on the side of underestimating the magnitude of the problem. The estimates are based on examination and evaluation of the relevant literature, summaries of which are to be found in Robert L. Milisen, "The Incidence of Speech Disorders," Chapter 7 of *Handbook of Speech Pathology*, edited by Lee Edward Travis (New York: Appleton-Century-Crofts, 1957), p. 246-266; American Speech and Hearing Association Committee on the Mid-century White House Conference, "Speech Disorders and Speech Correction," *Journal of Speech and Hearing Disorders*, 17: 129-137, September 1942; S. Richard Silverman, "Clinical and Educational Procedures for the Hard of Hearing," Chapter 11 in *Handbook of Speech Pathology, op. cit.*, 426-435; Wendell Johnson and Warren Gardner, "The Auditorially and Speech Handicapped," *Review of Educational Research*, 14: 241-248, June 1944; Mabel C. Rice and Arthur S. Hill, *Statistics of Special Education for Exceptional Children 1952-53*, Chapter 5 (a separate bulletin), *Biennial Survey of Education in the United States, 1952-54*, Washington: U. S. Government Printing Office, 1954.

² The 40,000,000 figure is the total estimated number of school-age children (5-17 years inclusive) in the United States as of October 1957.

General Description of Speech and Hearing Impairment¹

All cases of impaired speech involve problems of articulation, voice, fluency, or rate, singly or in some combination, simply or with complications, and with some degree of severity.

As table 1 indicates, a practical distinction is made between cases in which the problems are associated with hearing loss, cleft palate and lip, retarded speech development, and cerebral palsy or other types of neuromuscular impairment, and cases in which the problems exist in the absence of those conditions. Table 1 also makes a distinction between cases of unusual fluency or rate characteristics, as such, and cases of stuttering, in which the disturbances of rate and fluency are significantly associated with effort and tension and related feelings of uneasiness or anxiety about the tension and the distress experienced in speaking.

Types of Speech and Hearing Impairment

The following brief descriptions of the various types of impairment are intended to add meaning to the figures in table 1.

Problems of articulation involve (1) omission of sounds, as in *pay* for *play*; (2) distortion of sounds, such as the "whistling" or "mushed" *s*; (3) substitution of one sound for another, as in *wun* for *run* or *thihter* for *sister*. More than half of all cases of impaired speech among school children involve faulty articulation. Errors in articulation may be associated with, although not necessarily caused by, such organic conditions as missing or misarranged teeth, a high and narrow hard palate, or a tongue that is sluggish or too large, in addition to the last three conditions shown in table 1.

The same errors in the articulation of speech sounds occur more commonly, however, in the absence of any such organic irregularities. Most articulatory speech difficulties in school children have resulted from faulty speech learning that has occurred for a variety of reasons in the early years. The great majority of these children cannot be helped sufficiently, if at all, as regards their speech simply by referring them to dentists or physicians. Every child should have adequate dental and medical care, but that is a consideration quite apart from the

¹ Certain parts of this section contain adaptations of material in ch. 1 of Johnson, W., Brown, S. F., Curtis, J. F., Edney, C. W., and Keaster, J., *Speech Handicapped School Children* (New York: Harper and Bros., 3d ed., 1956). The permission of the publisher is gratefully acknowledged.

specific speech needs of the children under discussion. They need speech correction. About 25 per thousand elementary school children have problems in articulation.

Problems of voice of severe grade are found in at least 1 out of every 1,000 school children, not counting temporary voice difficulties associated with the common cold and other childhood diseases or the vocal disturbances represented by the last three items of table 1. Vocal pitch may be too high, too low, or monotonous. The voice may be too loud, too weak, or monotonous with respect to loudness. The chief quality deviations are nasality, hoarseness, harshness, and breathiness. These may or may not be associated with enlarged tonsils or adenoids, infected sinuses, or chronic upper respiratory infections. The so-called change of voice occasions some difficulty at, roughly, the junior high school level and beyond.

Fluency or rate problems, as such, are found in about 1 out of every 2,000 school children. The normal range of rate and fluency of childhood speech is very great. The average normal child of 5 to 8 years is nonfluent in some form nearly 60 times every 1,000 spoken words, and the normal range extends to well over 100 nonfluencies per 1,000 words. These nonfluencies are mainly repetitions of sounds, words, or phrases (20 instances per 1,000 words) and the interjection of extra sounds or words such as "uh, uh," or "well, uh," (about 20 instances per 1,000 words).

Nonfluencies, in and of themselves, do not appear to be abnormal. They are, in fact, a rather prominent feature of the speech of normal children, and of normal adults as well. An occasional child will habitually speak too fast to be understood easily, and if such a child is also unusually nonfluent, his speech is likely to seem "cluttered." In this case, an examination should be made to discover whether he is distracted and over-excited because of emotional tensions, malnutrition, or other physical factors. This sort of problem involving nonfluency and rapid speaking rate, should not be confused with stuttering.

Stuttering (a synonym is "stammering") affects approximately 7 out of every 1,000 school-age children. The problem of stuttering arises usually and primarily in the over-concern of the parents who worry about the normal fumbings and hesitations of early childhood speech. By reacting to them as they do, the parents tend to make the child self-conscious about his speech. Children who in this way are classified as stutterers are not demonstrably different as a group from other children physically, or as regards basic emotional make-up, or intelligence.

Fully developed stuttering is not to be defined too simply. Although marked by pauses or hesitations, repeated or prolonged sounds, and

other kinds of nonfluency, it is definitely much more than these "surface noises." The hesitations and other nonfluencies are accompanied by more than ordinary muscular tension or effort and the stutterer feels not only tense but also apprehensive about speaking, particularly about what he takes to be his stuttering. The important fact is that the stutterer speaks in a blocked and disrupted manner, and that this places a barrier between him and his fellows. His communication with others in school and in his own family, and later in job situations and social relationships, is affected adversely. Moreover, his feelings of confidence and self-esteem tend to become weakened in some degree, and his ability to profit from the school program and to develop as a person is jeopardized accordingly.

Hearing problems having communicative and educational significance that are of severe grade affect at least 5 out of every 1,000 school-age children. This figure does not include the deaf. It is also to be pointed out that approximately 30 to 50 of every 1,000 children of school age have hearing losses that may or may not be associated with speech problems but that call for proper medical attention, and about half of these require special seating and related classroom adjustments.

The hard of hearing child tends to have a speech problem to the degree that he is unable to hear the speech of others well enough to imitate it accurately. Moreover, such a child may not hear his own voice sufficiently well to know that he is making particular errors in articulation or that he is not controlling his vocal inflections normally. The degree to which speech is affected depends generally upon the manner and degree to which hearing is impaired, and upon whether the impairment existed before, or occurred after, the age when speech is normally acquired.

The hearing-impaired children represented in table 1 are those of school age who are in unquestioned need of speech correction, lip-reading instruction, and auditory training, including instruction in the use of hearing aids. They may also need training in reading and writing and related language instruction over and above that which normally hearing children are given.

Speech problems associated with cleft palate and cleft lip are problems of imperfections in voice, articulation, and fluency or rate. In cleft palate the structures which normally form the roof of the mouth have failed to join properly. As a result, air passes too freely between the oral and nasal chambers. Moreover, the action of the tongue and the throat muscles is influenced in ways that affect speech. The speech tends to be nasalized and the articulation is affected. There is difficulty in building up breath pressure for the sounds of *p, b, t, d, k*, and *g*, often with a resulting plosive character of the nasal emission of air.

Other sounds, too, particularly those of *s* and *sh*, are commonly distorted.

The cleft may be slight or extensive. Although it may affect only the hard palate, it sometimes extends through the gum ridge at the front of the mouth and the lip may also be divided. In some cases the cleft extends back to the soft palate and velum; the soft palate may be short, divided, or absent.

Cleft lip is usually repaired by surgery soon after birth or in early infancy. Surgery is commonly used also to repair clefts of the hard and soft palates. When surgery is inadvisable, impractical, or unsuccessful, appliances called "obturators," roughly resembling false plates, are often used to shut off the nasal from the oral passage and to make possible more adequate tongue and throat action for speech. This means that school-age children with cleft palates may have (1) surgically repaired clefts, (2) unsuccessfully repaired clefts (with or without obturators), and (3) unrepaired clefts (with or without obturators).

Neither surgical repair nor an obturator is sufficient to bring about adequate speech, except in very rare cases; speech correction is nearly always necessary. Meanwhile, a cleft palate or lip tends to influence the child's personal and social adjustment, and the effects are often profound at the age of adolescence. The appearance of even a skillfully repaired cleft lip is, to many an adolescent girl or boy, and to the parents, more important than physicians, teachers, or associates are likely to appreciate. Roughly 1 in every 800 children is born with a cleft palate or lip; at least 1 in every 2,000 children requires speech correction during the school years because of this condition.

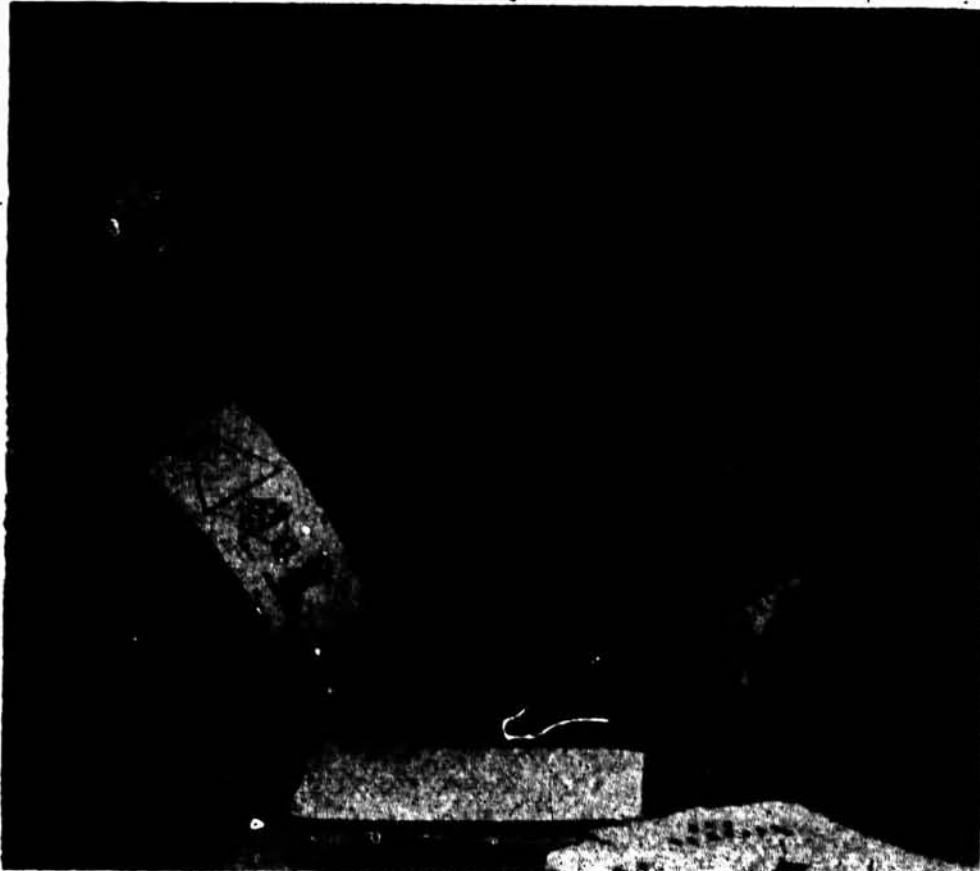
Retarded speech development characterizes 3 or more out of every 1,000 children, and persists as a problem requiring speech correction in about 1 out of every 2,000 school children. Retarded speech development may be evident in: (1) amount of vocalization and babbling during infancy, (2) age at which single words and sentences are first spoken, (3) articulation of speech sounds, (4) average length and complexity of speech response, (5) amount of speaking, and (6) vocabulary. Most normal children begin to say single words, for example, at about 12 to 15 months; a child who has not begun to do so by the age of 2 to 3 years warrants special attention. Age norms of speech development should not, however, be interpreted strictly: there are not only wide differences among children, but also great variations in the conditions or environments by which children are affected. A sufficiently unfavorable environment can retard the speech development of a definitely normal child.

Among the common factors which tend to make for delayed speech development are the following:

1. Mental subnormality.
2. Illness and physical impairment, such as brain damage or paralysis.
3. Lack of sufficient speech stimulation, as in homes where no one coos or babbles to the baby, or where the members of the family talk very little among themselves.
4. Impaired hearing.
5. Inadequate or disturbing or inconsistent rewards—even a certain amount of misplaced punishment—for the child's early attempts at speech.
6. A pattern of rewards and in general a relationship between the child and others of such a nature that he gets along so well without speaking that he lacks sufficient motivation for attempting to learn to speak.
7. Intense shock, fright, or shame, experienced over a sustained period or on one or more crucial occasions.

Speech problems associated with cerebral palsy and other types of neuromuscular impairment or brain damage are found in 1 out of every 2,000 children of school age. Many children with cerebral palsy and other types of brain damage do not attend public school, because of the nature or extent of their handicap or because of administrative decision or parental choice. Not all those whose physical condition permits them to attend school have problems of speech.

“Cerebral palsy” is a general term which covers a variety of conditions caused by damage to certain brain areas. In general, because of lack of muscle coordination, the speech of cerebral palsied children is labored, slow, and jerky, the voice tends to be monotonous and relatively uncontrolled, and the articulation is faulty. Speech is distorted by impaired muscle coordination, whether caused by cerebral palsy or other conditions. Impaired ability to learn language and to acquire meaningful speech occurs in some children who are, or appear to be, suffering from brain damage: diagnosis in such cases is complex and difficult, and the most careful study is needed to understand their problems and needs.



New York Public Schools

Child learns how to articulate "l" by looking and listening.

WHAT CAN BE DONE IN THE SCHOOLS FOR CHILDREN WITH IMPAIRED SPEECH AND HEARING?

SERVICES for school-age children with impaired speech and hearing have a humanitarian purpose to enable these children to enjoy happier and richer lives. From a strictly professional educational point of view, however, their basic purpose is to foster favorable learning conditions by removing or minimizing the barriers to communication and the erosions of ambition and motivation. The work of speech correctionists and teachers of the hard of hearing is therefore basic to the total educational program of the children concerned.

The special services for speech and hearing handicapped school children have been developed in response to a growing realization of the very large number of these children, the seriousness of their handicaps, and the degree to which they can be benefited.

Educational authorities have officially moved to exercise their responsibility in this field, and by 1953 certification requirements for teachers specific to the areas of impaired speech and hearing had been established by 30 State departments of education.¹ In the United States probably 90 percent or so of the speech correction, the lip reading instruction, and the auditory training for school-age children is carried on in the elementary and secondary schools.

In general, programs for public school children with impaired speech and hearing are provided by speech correctionists. A speech correctionist examines and evaluates the speech, voice, language behavior,

¹ Mackle, Romahne P. and Dunn, Lloyd M. *State Certification Requirements for Teachers of Exceptional Children*. Washington: U. S. Government Printing Office, 1954. Bulletin 1954, No. 1, Office of Education. The State requirements as of 1954 are summarized and discussed in this bulletin. The various State departments of education are sources of more detailed and, in some instances, more up-to-date information.

and the capacity to hear and understand spoken language, of children who experience difficulty with these functions, and provides remedial instruction and counseling for them according to their respective needs. Some school systems employ audiologists to conduct audiometric hearing tests and discharge related responsibilities, and to recommend or assist in arranging for hard of hearing children, the medical and educational services they need, including lipreading instruction, speech correction, language instruction, and auditory training with or without amplification of sound.

Some schools also have day classes for children with seriously impaired hearing, or special classes in which a program of instruction is provided by teachers trained to conduct instruction for hard of hearing children, usually with the aid of sound amplification and in conjunction with lipreading instruction and speech correction.

The speech correction teacher in a school system works with individual children and in doing so he cooperates with others who are also concerned with these children. It is his responsibility to help identify, by suitable examination procedures, those pupils who have speech and hearing problems. When they are found, they are divided into groups according to type and severity of problem, amount and kind of instruction needed, and grade level.

The speech correction teacher may find some children whose problems, he believes, can be dealt with adequately by their classroom teachers. In accordance with his designated responsibility he confers with the teacher, clarifies the particular speech or hearing difficulty, explains and demonstrates the special procedures and policies indicated, pools his own information and judgment with the teacher's, and arranges for periodic review of the problem. To some of the children who require his personal attention he gives individual instruction and to others he gives instruction in small groups, according to similarities in age, grade level, and type of problem. A particular child may receive both individual and group instruction.

The speech correction teacher meets the children at regularly scheduled intervals, usually for 15 to 30 minutes each time, and he coordinates his schedule with the general school program and works in close cooperation with the children's classroom teachers. In most cases, in accordance with local school policy, he interviews and assists in counseling the parents and helps in securing for certain children the medical, dental, psychological, or other types of special attention which they require. He is alert to the special problems that each child encounters in the classroom and in his associations with the other children, is helpful with regard to these problems, and particularly at the secondary level he helps to provide, or arranges for,

counseling on the child's adjustment to adolescence and transition to adult life.

The speech correctionist, as authorized, properly carries responsibility also for his part of the public relations activities of the school system, informing the public in legitimate ways about speech and hearing handicaps, their significance in school and society, ways in which they may be prevented and corrected, services being provided by the school, and proposed or needed future developments.

Local school programs for children with impaired speech and hearing vary in size and in organizational pattern. Most speech correctionists and hearing specialists work on an itinerant basis, whether in city school systems or in rural programs covering one or more counties or a number of independent school districts.² Any sufficiently developed program is likely to have a speech correction supervisor; in small or one-man programs the speech correctionist works as a rule under a local director or supervisor of special education. In most States local speech correctionists work in some relationship to State directors of special education or State supervisors of speech correction. Titles are not wholly uniform, and in some States the title State Speech and Hearing Consultant is used. Speech correctionists are required to possess appropriate State and local certification in order to work in the schools.³ As stated earlier in this chapter, at least 30 States have provisions for the certification of special teachers in this field.⁴

² For a detailed and comprehensive discussion of the varieties of organization and administrative pattern in remedial speech programs in the schools, see "The Public School Remedial Speech Program," by Clarence W. Edney, in Johnson, W., Brown, S. F., Curtis, J. F., Edney, C. W., and Keaster, J., *Speech Handicapped School Children*. New York: Harper & Bros., rev. ed., 1956, ch. 9, p. 408-510.

³ The American Speech and Hearing Association, provides Basic and Advanced Certification in Speech and Hearing, respectively, for those of its members who are duly qualified. These forms of certification are not comparable to, and do not serve the functions of, State certification of teachers. The requirements for the ASHA grades and types of certification do, however, constitute a widely acknowledged definition of standards of professional training in this field. A statement of the ASHA requirements, as published in the *Journal of Speech and Hearing Disorders*, 17:249-254, June 1952, may be obtained from the Executive Secretary of the American Speech and Hearing Association, 1001 Connecticut Ave. NW., Washington 6, D. C.

⁴ Mackie, Romaine P. and Dunn, Lloyd M., *op. cit.*



Games stimulate the use of new sounds.

Chicago Public Schools

AN URGENT NEED: AN INSPIRING OPPORTUNITY

IF the Nation's speech and hearing handicapped children of school age are to be helped, more and more young men and women must be well trained to give them the remedial instruction they require. Here, as elsewhere, an urgent need for help creates an inspiring opportunity for service.

At present, scarcely more than 1 in 5 of school-age children who need the attention of a speech correctionist or hearing specialist are receiving it. According to estimates, not more than 4,000 speech correctionists and hearing specialists are working in the Nation's schools. Many of these are not so fully qualified as they should be for the relatively demanding nature of their responsibilities for understanding complex handicaps, assisting with the counseling of parents and classroom teachers, and working in cooperation with physicians, psychologists, and other professional personnel. Furthermore, the average case load appears to be excessive and conducive to less intensive and effective remedial instruction and counseling than would otherwise be possible.¹

Approximately 20,000 speech correctionists and hearing specialists, five times the number currently available, would be needed to staff a fully developed remedial program in our Nation's schools.² Meanwhile, the training centers are trying to reduce the shortage of speech correctionists and teachers of the hard of hearing who work directly

¹ Rice, Mabel C. and Hill, Arthur S., in *Statistics of Special Education for Exceptional Children, 1952-53*, Chapter 5 (a separate bulletin), *Biennial Survey of Education in the United States, 1952-53* (Washington: U. S. Government Printing Office, 1954) reported that in 1952-53 a total of 306,747 speech handicapped school children were being served by 2,266 speech correctionists. These figures indicate an average case load of 136.

² This statement is based on the following assumptions: (1) With a fully functioning program there would be a more or less stable rate of improvement and of elimination of the problem in individual cases; (2) the average case load would be 75; and (3) school enrollment would increase in accordance with current estimates of the Office of Education.

with school children. The number of degrees, particularly at the graduate level, granted by colleges and universities to students preparing to work with speech and hearing handicapped school children appears to be little more than the number required to maintain the current working force.³ At the same time, an estimated 10 to 12 percent of the speech and hearing specialists working in the schools are lost to the field each year because of death, retirement, marriage, family circumstances, transfer to jobs outside the schools in hospitals and clinics, change of occupation because of salary considerations, or other reasons. In view of all these circumstances, the opportunity for young men and women to make careers for themselves in this field of rewarding professional and humanitarian service continues to be impressive.

To those who are attracted and challenged by this opportunity certain facts and considerations may prove interesting and useful. They will want to know that remedial work with the speech and hearing impaired is an art, or craft, requiring a distinctive professional preparation.

As indicated previously, the profession has grown as a result of contributions made jointly by several scholarly and scientific disciplines—phonetics, physiology, anatomy, psychology, semantics, psychoacoustics, communication research and theory, education, experimental design, and statistical analysis. For example, the courses making up one of the larger professional training programs in this field have been drawn over the years from 12 to 15 different departments. The orientation of teachers of speech and hearing, as regards their distinctive knowledge and methodology, is interdisciplinary.

The specific training courses are of two kinds, those concerned with knowledge and skill essential to the diagnosis and treatment of speech and hearing disorders, *per se*, and those which prepare the student to apply this knowledge and skill to specific purposes and in particular settings. These purposes are, most fundamentally, research, teaching, and clinical; and the settings are mainly of two types, educational and medical. This means that there are two major consumers of remedial services for persons with impaired speech and hearing: the schools and the hospitals or other medically oriented clinical agencies, with the schools being the larger. Because of these basic facts, professional training programs in speech and hearing have tended to develop according to the demands of their two major markets, and the trend towards a systematic clarification and recognition of the

³ For relevant information see Mackie, Romaine P. and Dunn, Lloyd M., *College and University Programs for the Preparation of Teachers of Exceptional Children* (Office of Education Bulletin 1964, No. 13), p. 44 and Appendix B. (Washington: U. S. Government Printing Office, 1964.) For further information concerning professional training resources see Appendix A, this bulletin.

differences between the demands of these two markets is growing.

Training in this field is carried on at the levels of the bachelor's, master's, and doctor's degrees.⁴ Certain beginning or introductory courses in phonetics, semantics, psychology, anatomy, speech pathology, and audiology are taken by all students preparing to work with speech and hearing impairments. Most training programs also have certain background courses required of all students; these may include introductory courses in zoology, sociology, anthropology, physics, or mathematics, in addition to speech and English. Moreover, any college program has various required and elective courses aside from those in the major sequence.

Beyond the common core of courses, students preparing to work in educational settings and those preparing to work in medically oriented settings tend to diverge more or less as they proceed with their professional training. Students vary in the degree to which they favor the one or the other orientation, and some express no clear-cut preference. Some favor a comprehensive plan of training without marked specialization, and many leaders in the field favor the view that all speech correctionists and hearing specialists need to have broad preparation and a good knowledge and understanding of all types of speech and hearing problems, at all age levels and as dealt with in the various kinds of settings. Generally, however, professional training in this field tends toward a pattern in which, superimposed on a common core of courses, are specialized and advanced courses, seminars, and research and clinical activities. These activities reflect a divergence of interest and need regarding job preparation as between those students who prefer to work in educationally oriented, and those who prefer to work in medically oriented, institutions or agencies.

The school as a consumer of speech and hearing services influences the training center to emphasize, in its common core of courses concerned with speech and hearing functions and their disorders, those problems that are most prominent among children in the school situation, chiefly problems of articulation, voice, stuttering, and speech impairments associated with hearing loss. The hospital, or rehabilitation center, on the other hand, also as a consumer of these services, tends to encourage the training center to place some degree of stress in its common core courses on the speech and voice disorders associated with cerebral palsy and cleft palate, the aphasic disturbances

⁴ Roughly two-thirds of the 1967 members of the American Speech and Hearing Association possessed graduate degrees, 13 percent of them having the doctorate, according to the Association's list of members in *The Journal of Speech and Hearing Disorders*, 22:467-508, October 1967. Comparable information about professional workers in the field who are not members of this organization is neither available nor readily obtainable.

related to cerebrovascular accident or other types of brain damage, language and speech disturbances of brain-injured children, stuttering at all age levels, and hearing impairments, especially as dealt with by the audiologist.

Furthermore, the school as a consumer requires that its speech and hearing specialists must have taken certain courses in education and must have had practice teaching in a school situation or, in some cases, classroom teaching as a supplement to the common core courses in speech pathology and audiology. A recent survey conducted by the Office of Education revealed that more than two-thirds of the school speech correctionists questioned expressed the belief that they should possess, in addition to special certification in the areas of impaired speech and hearing, a regular teaching credential.⁴

On the other hand, the medically oriented agency usually does not require teaching experience but tends to stress supplementary courses in physiology, neuro-anatomy, and the like, and practical experience in a hospital or clinical setting. As the student advances toward the master's or doctor's level, the program of preparation is both broadened and deepened. An important part of the training at these levels centers around research.

In summary, the field of teaching speech and hearing handicapped children has a need for well-balanced professional training. The most adequate college and university programs provide the kind of comprehensive training that helps prepare all students to be reasonably adaptable to the varied settings in which they may work during a career in this field. Moreover, the well-developed programs enable these educationally oriented students to prepare themselves for work in the schools, while at the same time making it possible for students inclined to work in medically oriented settings to be trained appropriately for work in hospitals, rehabilitation centers, and clinics. It is therefore important that students have the benefit of a properly balanced corps of instructors representing both the educational and the clinical aspects of professional service and research.

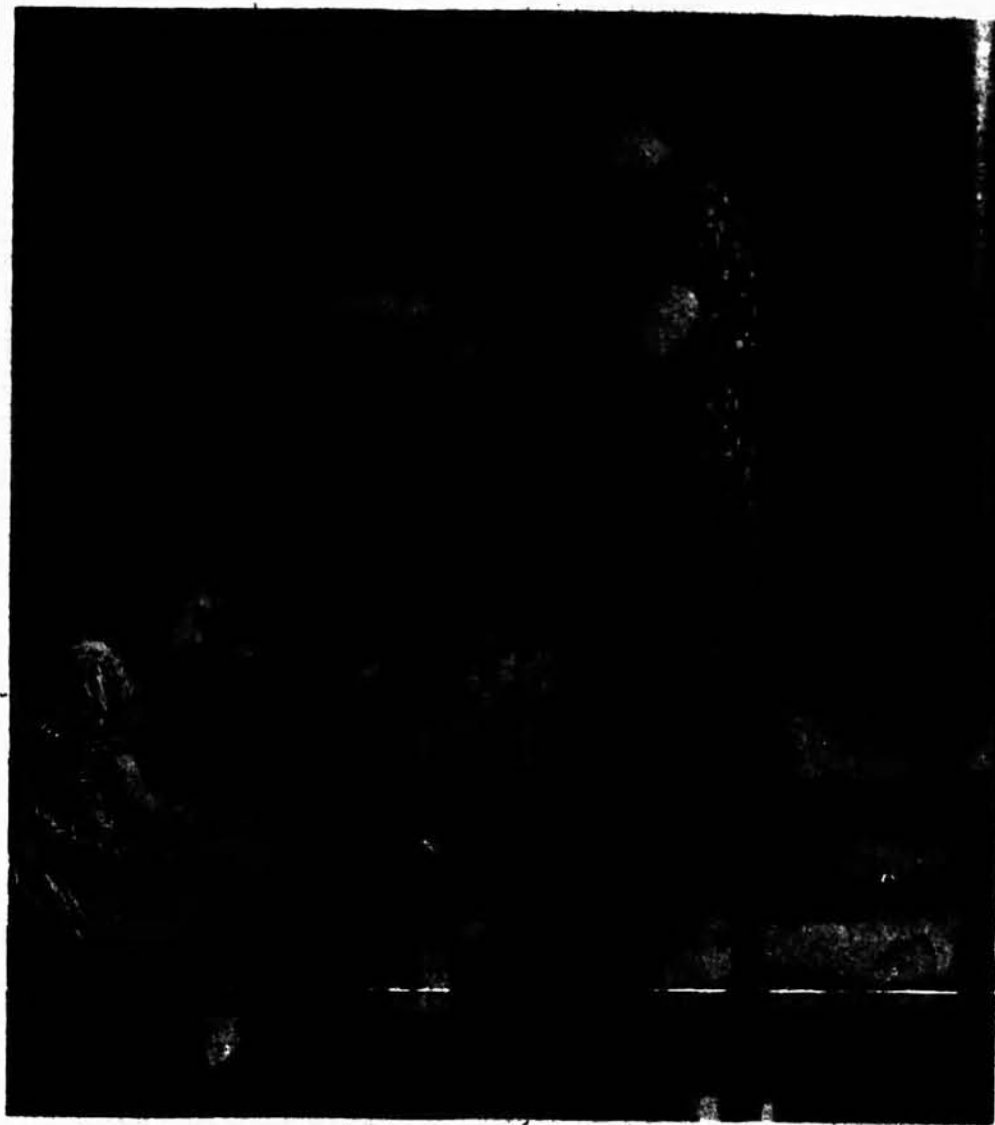
A need exists also for a well-rounded program of services for the speech and hearing handicapped at all age levels and in all parts of the Nation, a program in which the role of the schools is duly stressed. The inspiring opportunity for service through an adequate school program is seen in a particularly bright light when it is recognized

⁴ Mackie, Romaine P. and Dunn, Lloyd M., in *State Certification Requirements for Teachers of Exceptional Children* (Office of Education Bulletin 1964, No. 1—Washington: U. S. Government Printing Office, 1964) give essential descriptions of the certification requirements. The standards are not uniform among the States. For information concerning specific certification requirements write to individual State departments of education.

that effective programs for handicapped children in their early years greatly reduce the need for and the cost of medical care and rehabilitation for them in their adult years. Generally speaking, the best time to provide remedial speech and hearing services for children who can benefit from them is during the early school years and in some cases even at the nursery school or kindergarden level. Preventive measures are best applied, of course, during infancy and early childhood.

For those who will later require it, moreover, early remedial instruction makes subsequent correction and training more effective. The greatest possible dividends from our national investment of personnel, resources, and money in health and rehabilitation programs for adults result from a coordinated investment in many of the same human lives, but early during childhood to nip a possible disability in the bud. Good attitudes and habits can best be established during the childhood years and, by virtue of them, those who must go through life with some degree of limitation will be able to make the most of later opportunities for further training and self-realization.

For all children whose tongues are hesitant or whose ears are not wholly responsive to the wonder of sound, the teacher professionally qualified to bring to them the gifts of clear and easy speech and better use of hearing is a Good Samaritan.



Even the shy child responds to puppets.

Chinese Public Schools

THE HIGH ADVENTURE OF RESEARCH

THE FRONTIERS of knowledge lie open to all who love the adventure of new learning. When to the drive of curiosity is added the will to serve others who need to be understood and instructed in uncommon ways, the lure of adventure becomes transformed into firm determination to find new facts and explore unexplained relationships in order to gain the more substantial knowledge and insight required for more effective service. Research, seen in this light, is the common interest and preoccupation of all who are intent on making a better world for themselves and for others—including those who labor under the disadvantage of impaired speech and hearing.

The past record and the current situation regarding research in this field may be summarized in three very general statements:

Substantial progress has been made in areas basic to the investigation of speech and hearing impairments, such as psychology, psychoacoustics, phonetics, semantics, communication and information theory, anatomy, neurology, and physiology.

Progress has been somewhat uneven in the scientific study of speech and hearing impairments, as such. Considerable investigation has been made of certain problems—of stuttering, for example—and relatively less of others, such as the more common articulatory difficulties of elementary school children.

There is an acute need for more research, particularly comprehensive and long-term studies, in order to strengthen professional training programs and to improve remedial services for individual children through more reliable and detailed knowledge and improved diagnostic and remedial procedures.

When all is said and done, research is fundamentally a state of mind, a habit of viewing the commonplace as though one had never really seen it before. With a research attitude, the individual looks at the world about him as though he had just come out of a tunnel. In a research frame of mind, the student reads what the author of his textbook has written—or listens to what his teacher says—asking all the while the questions that scientific thinkers ask:

What do you mean? What are you talking about that you or I could observe at first hand?

How do you know? What evidence do you have that what you say is true?

What difference does it make? If what you say is true, what else must also be true, and what had best be done about it?

These are questions that any student can ask in response to anything he reads or is told, and by learning to ask them in specific ways—clear and to the point, courteous and considerate, and constructive and forward-looking—he is certain to broaden his horizons. At the same time he will be cultivating a scientific attitude and increasing his capacity for learning. And by doing this, he will be adding to his ability to help others deal effectively with their problems, including problems of impaired speech and hearing.

The fact of greatest importance is that opportunities for research in this field are great—because the need for ever more adequate knowledge and for increasingly effective methods is compelling. In this field, as in most fields, there is incomplete knowledge, of even the most basic matters. Differences of opinion and of theory exist even among those who are most fully informed and practice varies accordingly.

One of the most pressing needs in this field is for studies that will lead to better and more nearly uniform diagnostic principles and methods. These are essential in order to achieve more dependable estimates of the prevalence of speech and hearing problems. These estimates, in turn, are important to all aspects of program planning for more effective speech and hearing services for children. Moreover, problems must be identified and well understood if the ways and means of helpful service are to be effectively marshalled in individual instances.

A fundamental question is the need for remedial instruction at early, as compared with more advanced, grade levels. It is possible that certain children with particular types of problems would, in a given set of circumstances, develop satisfactory speech without speech correction, while other children with similar or other kinds or degrees of speech impairment would not. Identifying those problems which tend to become more severe if not attended to is especially important. The effects on school progress and personal adjustment of non-permanent speech impairments also need to be appraised, in view of the possibility that temporary communication difficulties may have undesirable effects while they last and that certain of these effects may themselves be more or less enduring.

An opportunity is at hand to develop more adequate information than now available concerning the educational significance of impaired

speech and hearing. Speech and hearing impairments are important, but more detailed data are needed regarding their consequences as represented by scholastic progress, drop-outs, grades earned, attitudes toward school, self-attitudes, acceptance by other children and by teachers, participation in school activities, subsequent college attendance and college grades, major areas of study in college, and vocational experiences and outcomes. More adequate information will encourage a more soundly based and comprehensive appraisal of the schools' responsibility in dealing with speech and hearing difficulties, and will encourage the development of increasingly effective policies and procedures for discharging this responsibility.

Research is still to be done in evaluating the effectiveness of remedial speech and hearing services. Intensive case studies of successful and unsuccessful work with individual children are needed. Investigation should be made in specific cases of the detailed nature of the speech problem, the variables of age, sex, intelligence, personality characteristics, and emotional patterns, types of remedial instruction, family relationships, school policies, and other factors of possible significance. Research in this sense is primarily a disciplined and conscientious attempt to learn as much as possible from experience. Some of the greatest gains in the years ahead will surely come from studies of this kind—and these are studies that can often be made by the teacher working directly with individual children. To the extent that the studies are made on the job, the teaching itself tends to become more effective.

These few examples are meant to call attention to some of the opportunities for research in the broad field under consideration. Throughout the years ahead valuable findings will come, not only from the work of highly specialized laboratory scientists, but also from research initiated by speech correction teachers and hearing specialists in close touch with the problems that arise from the frustrations and challenges of day-to-day work with school-age speech and hearing handicapped children.

The future of children handicapped in speech and hearing will be brightened by the young men and women who make ready to serve them through good use of what is already known and through an endless quest for better knowledge and deeper understanding.

APPENDIX A—PROFESSIONAL TRAINING RESOURCES

PROFESSIONAL TRAINING is available in many colleges and universities for students preparing to work as teachers of children with impaired speech and hearing. A study conducted by the Office of Education indicated that in 1953-54 there were 115 institutions of higher learning in the United States offering varying amounts of training for speech correctionists and teachers of the hard of hearing.¹ Many of the programs, however, were relatively limited; only 12 of the 115 institutions granted one or more Ph. D. degrees and 53 granted one or more master's degrees in 1953-54. About half were providing training only at the undergraduate or B. A. level. As the authors state:²

A number of these programs are in small colleges with an emphasis on undergraduate programs . . . it appears that many prospective speech correctionists attend institutions where the whole special education program is in the hands of one or two staff members.³ Many of the positions occupied by speech and hearing specialists seem to call for skills which can be gained only in a rich and varied curriculum.

Additional information about professional training resources in the United States in the field of speech pathology and audiology is presented in table 2. This table shows the number of members of the American Speech and Hearing Association, as of July 1, 1957, who had received their highest graduate degrees from universities offering graduate degrees in this field.³ Each of the 34 universities listed in

¹ Mackie, Romanie P. and Dunn, Lloyd M., *College and University Programs for the Preparation of Teachers of Exceptional Children* (Office of Education Bulletin 1964, No. 13). See especially table B, p. 69-87.

² *Ibid.*, p. 30.

³ The data in table 2 were derived from information about members of the Association in *The Journal of Speech and Hearing Disorders*, 22: 467-508, October 1957. These data may or may not be representative of persons working in this professional field who are not members of the Association.

the table had granted the doctorate to one or more members of the American Speech and Hearing Association since 1950 and had awarded a total of 469 doctorate degrees, or over 93 percent of all such degrees held by Association members. They had granted 1,278 masters' degrees, or 69 percent of all degrees of this type reported. Approximately half of all doctorates represented in the table were granted by only 5 universities, slightly over three-fourths by 12 different universities. Approximately half of all masters' degrees were granted by 13 different universities. In 1957, of the 3,860 members of the American Speech and Hearing Association, 2,369 or 61 percent, held the master's degree and 503, or 13 percent, held the doctor's degree.

Table 2.—Institutions from Which 3,860 Members of the American Speech and Hearing Association, as of July 1, 1957, Received Their Highest Graduate Degrees ¹

Institution ²	Master's degrees	Doctor's degrees	Total degrees
1	2	3	4
University of Iowa.....	149	83	232
Northwestern University.....	163	61	223
Columbia University.....	131	20	151
University of Michigan.....	71	29	100
University of Southern California.....	63	34	97
University of Wisconsin.....	52	43	95
Ohio State University.....	42	29	71
Pennsylvania State University.....	52	10	62
Denver University.....	48	13	61
University of Illinois.....	38	18	56
New York University.....	36	16	52
Western Reserve University.....	48	3	51
Purdue University.....	25	21	46
Wayne State University.....	40	2	42
Syracuse University.....	35	6	41
University of Pittsburgh.....	35	5	40
Stanford University.....	26	13	39
Boston University.....	35	4	39
Indiana University.....	32	2	34
Louisiana State University.....	13	11	24

See footnotes at end of table.

TABLE 2.—Institutions From Which 3,680 Members of the American Speech and Hearing Association, as of July 1, 1957, Received Their Highest Graduate Degrees—Continued

Institution	Master's degrees	Doctor's degrees	Total degrees
1	2	3	4
University of Washington	20	2	22
University of Minnesota	13	8	21
University of Florida	18	3	21
Washington University	16	2	18
University of Pennsylvania	14	3	17
Marquette University	10	7	17
University of Missouri	12	4	16
University of Texas	15	1	16
Ohio University	8	3	11
University of Oklahoma	10	1	11
University of California at L. A.	7	3	10
University of Houston	7	2	9
University of Chicago	4	5	9
Harvard University	5	3	8
Total, these universities	1,278	469	1,747
All others	578	34	612
Grand total	1,856	503	2,359

¹ See footnote 3, p. 27.

² Listed in order of total number of graduate degrees awarded.

APPENDIX B—SOURCES OF ADDITIONAL INFORMATION

READERS of this bulletin who wish to do additional reading will find basic information and leads to a wide variety of further references in the following textbooks, journals, and Office of Education bulletins.

Textbooks

- ANDERSON, VIRGIL A. *Improving the Child's Speech*. New York: Oxford University Press, 1953.
- BACKUS, O. L. *Speech in Education*. New York: Longmans, Green, 1943.
- BERRY, M. and EISENSON, J. *Speech Disorders*. New York: Appleton-Century-Crofts, 1956.
- JOHNSON, WENDELL; BROWN, S. F.; CURTIS, J. F.; EDNEY, C. W.; and KEASTER, J. *Speech Handicapped School Children*. New York: Harper & Bros., 2d ed., 1956.
- TRAVIS, L. E. (editor). *Handbook of Speech Pathology*. New York: Appleton-Century-Crofts, 1957.
- VAN RIFER, CHARLES. *Speech Correction*. New York: Prentice-Hall, 3d ed., 1954.
- WEST, ROBERT; ANSBERRY, M.; and CARR, A. *The Rehabilitation of Speech*. New York: Harper & Bros., 3d ed., 1957.

Journals

- The Journal of Speech and Hearing Disorders*, *The Journal of Speech and Hearing Research*, and *Monograph Supplements* are published by the American Speech and Hearing Association, 1001 Connecticut Ave., NW., Washington 6, D. C.
- Exceptional Children* is published by the Council for Exceptional Children, 1201 16th St., NW., Washington 6, D. C.

Office of Education Bulletins

- MACKIE, ROMAINE P. and JOHNSON, WENDELL. *Speech Correctionists: The Competencies They Need for the Work They Do* (Office of Education Bulletin 1957, No. 19) Washington: U. S. Government Printing Office, 1957.
- and DUNN, LLOYD M. *State Certification Requirements for Teachers of Exceptional Children* (Office of Education Bulletin 1954, No. 1). Washington: U. S. Government Printing Office, 1954.
- *College and University Programs for the Preparation of Teachers of Exceptional Children* (Office of Education Bulletin 1954, No. 13). Washington: U. S. Government Printing Office, 1954.
- and SNYDER, WALTER E., *Special Education Personnel in State Departments of Education* (Office of Education Bulletin 1956, No. 6). Washington: U. S. Government Printing Office, 1957.
- and ENGEL, ANNA M., *Directors and Supervisors of Special Education in Local School Systems* (Office of Education Bulletin 1955, No. 13). Washington: U. S. Government Printing Office, 1956.

Other Sources

Other sources of information include colleges and universities and State departments of education. A directory, *Special Education Personnel in State Education Departments*, is prepared annually by the Office of Education, Washington 25, D. C. Federal agencies in the Department of Health, Education, and Welfare, in addition to the Office of Education, that are concerned with speech and hearing problems are the Children's Bureau, the Office of Vocational Rehabilitation, and the Public Health Service.

The following organizations carry on programs of public education which include not only the publication of journals previously referred to but also the dissemination of relevant information in various other forms, such as pamphlets, periodicals, posters, books, and films:

- American Hearing Society, 1800 H St., NW., Washington 6, D. C.
- American Medical Association, 535 Dearborn St., Chicago 10, Ill.
- American Psychological Association, 1333 16th St., NW., Washington 6, D. C.
- American Speech and Hearing Association, 1001 Connecticut Ave., NW., Washington 6, D. C.
- Council for Exceptional Children, 1201 16th St., NW., Washington 6, D. C.
- National Education Association, 1201 16th St., NW., Washington 6, D. C.
- National Rehabilitation Association, 1025 Vermont Ave., NW., Washington 5, D. C.
- National Society for Crippled Children and Adults, 2023 Ogden Ave., Chicago, 12, Ill.
- Speech Association of America, Louisiana State University (Office of Association Executive Secretary), Baton Rouge 3, La.
- United Cerebral Palsy Association, 309 Lexington Ave., New York 19, N. Y.