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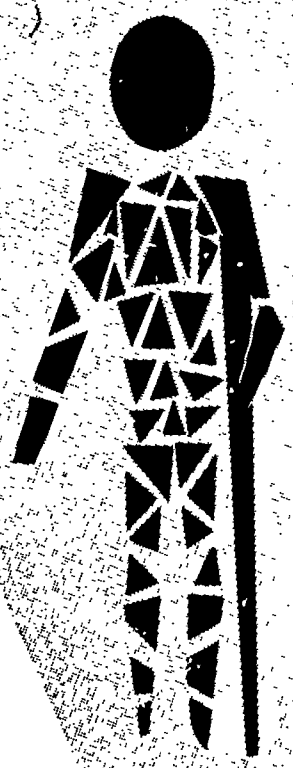
The historical development of programs for orthopedically handicapped children, class units and hospital classes approved during 1967-68, and the number of therapy units established are presented. Tables give data on program population: enrollment for years 1962-68, percent of handicaps enrolled, and IQ distributions. Aspects of occupational therapy described are self help skills, communication problems, muscle strength, coordination, social and emotional development, and special equipment; aspects of physical therapy are physical evaluation, alleviation of pain, range of motion, strength, coordination, functional training, and special equipment. The team approach, the administration and organization of a program, educational needs, and home and telephone instruction services are discussed. Appendixes give a glossary of diagnostic terms, standards for special education units, for transportation, and for boarding homes, and bibliographies on learning disorders, cerebral palsy, and muscular dystrophy. (RP)

Programs for ORTHOPEDICALLY HANDICAPPED CHILDREN

in Ohio



State Department of Education
Columbus, Ohio
June 1968

ORTHOPEDICALLY HANDICAPPED CHILDREN IN OHIO PUBLIC SCHOOLS

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FOREWORD

The program for Orthopedically Handicapped Children has been in existence in the State of Ohio for over fifty years. During this time, the program has expanded and developed to meet the ever changing needs of the handicapped child. Changing concepts in medicine, education, and habilitation have created the need for new approaches in the classroom. Ancillary services such as occupational therapy and physical therapy are now included in the daily school program. Psychological testing and parent counseling have provided a better understanding of the problems of the physically handicapped child.

This bulletin has been prepared to provide information relative to Ohio's program for the Orthopedically Handicapped.

S. J. BONHAM, JR., Director
Division of Special Education

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CHAPTER I

HISTORICAL DEVELOPMENT OF OHIO'S ORTHOPEDIC PROGRAM

Shortly after the turn of the century, a group of young people in Cleveland, Ohio organized a kindergarten for crippled children. Later, the first program was expanded to include classes for those of school age. In 1910, the Board of Education in Cleveland took over the operation of the school with 63 children enrolled. The purpose of the school was not only to educate, but also to furnish opportunities for corrective treatments, necessary exercise, and proper rest periods. The program of special classes for handicapped children in the State of Ohio was thus officially started.

In 1918, the Cleveland Board of Education employed an orthopedic director to handle the public school program for crippled children in that city. The orthopedic director had a physical education major, special training in corrective gymnastics and experience in teaching. This could probably be considered the beginning of physical therapy in the public schools.

In 1917, Dayton opened a special school for crippled children, and in 1919, Cincinnati opened a similar school.

Interest in the problems of the handicapped child was growing throughout the state. On May 8, 1919, the Ohio Society for Crippled Children was founded in Elyria. The society grew rapidly and exercised a watchful eye over crippled children.

Prior to 1919, no legislation was provided for the crippled child. The first law for handicapped children was enacted in 1919. It provided for a broader program for deaf and blind children and added provisions for crippled children. This legislation established a new type of state financial aid for these programs, and included provisions for home instruction for children who could not attend school. This legislation committed Ohio to recognize and financially support programs for handicapped children.

The Division of Special Education had its beginning in 1924 when a supervisor was appointed in the Department of Education to administer the special education program.

Crippled children services were well established in Ohio by the early 1930's. Laws governing detection, physical care, treat-

ment, and special education were in operation. Public school classes for crippled children were established in various parts of the state. Children needing the special placement could remain fairly close to their families. Special classes for crippled children were then a part of the local school system in which they were maintained.

PROGRAM STATUS

For the 1967-68 school year the Ohio Division of Special Education approved 100.5 special education classes for crippled children. The total enrollment for these approved units is 1,146 children and involves twenty different school districts. Table I indicates the school districts having educational day school programs for crippled children.

TABLE I

APPROVED ORTHOPEDIC CLASS UNITS
1967-1968

School District	Number of Units
Lake	
Painesville	1.0
Akron	7.0
Barberton	1.0
Canton	4.0
Chillicothe	.8
Cincinnati	14.7
Cleveland	18.0
Columbus	13.0
Dayton	8.0
Hamilton	1.0
Mansfield	3.0
Middletown	2.0
Newark	1.0
Parma	3.0
Springfield	1.0
Steubenville	1.0
Toledo	13.0
Warren	1.0
Youngstown	4.0
Zanesville	3.0
Total	100.5

The figures listed in Table I do not include the approved hospital units. The Ohio Division of Special Education approved 29 hospital units with a fluctuating enrollment of approximately 320 crippled children in seven school districts. The number of days each child spends in the hospital unit is determined by the physician, therefore, the total enrollment varies throughout the school year.

Table II shows the school districts having approved hospital units and the number of approved units for the 1967-68 school year.

TABLE II

SPECIAL EDUCATION PROGRAM FOR CRIPPLED—HOSPITAL CLASSES
1967-1968
UNITS

School District	Number of Units
Akron	2.0
Cincinnati	6.0
Cleveland	8.0
Columbus	7.0
South Euclid-Lyndhurst	3.0
Toledo	2.0
Youngstown	1.0
Total	29.0

THERAPY

A program for orthopedically handicapped children must provide services for each handicap created by the child's disabilities. In order to help the child improve physically and mentally and to adjust emotionally and socially, a comprehensive program must include physical and occupational therapy. These therapies should become a part of the regular school program for orthopedically handicapped children.

The two interrelated therapies, physical and occupational, are concerned with the same goal; to help the child gain the skills

which permit him to live as nearly a normal and active life as possible.

Realizing the importance of a comprehensive team approach to meeting the special needs of crippled children, twenty-one physical therapy units and nine occupational therapy units in eleven school districts have been established in accordance with State Board of Education Program Standards ED-b 215-03 (A) (2).

CHAPTER II

PROGRAM POPULATION

In the last two decades, we have witnessed many changes in the medical and scientific fields. The infant mortality rate has been reduced to the lowest point in our history. Miracle drugs and new medical procedures have saved the lives of thousands of children. The scientific achievements which have contributed to the survival rate of children, have also created new educational challenges. While we have observed a steady decline in the incidence of certain types of crippling conditions, we have also noticed an increase in total enrollment of orthopedically handicapped children with other types of disabilities.

The population enrolled in orthopedic classes has not steadily decreased as had been predicted several years ago. Table III shows the total enrollment fell to a low of 878 children in special classes and 125 children in hospitals during the 1963-64 school year. However, since that year enrollments have continued to increase in both the classroom and hospital programs. While both the Polio and Tuberculosis populations have steadily declined the enrollment of multi-handicapped children in orthopedic classes has increased. These increases may be examined in Table IV and V. The number of Cerebral Palsy children enrolled has steadily increased from 372 during the 1961-62 school year to a new high of 582 for the 1967-68 school year. Increases in other crippling conditions such as Spina Bifida and Muscular Dystrophy may also be noted. In addition, an examination of Table V would suggest that lower mental ability is a factor which must be increasingly taken into consideration when developing a program for orthopedically handicapped children.

TABLE III

TOTAL ENROLLMENT FOR YEARS 1962-1968

School Year	School	Hospital	T.B.
1962-1963	943	111	20
1963-1964	878	125	
1964-1965	1,080	198	
1965-1966	1,092	221	
1966-1967	1,111	265	
1967-1968	1,146	319	

Table IV shows a listing of the types of disabilities and the total number placed in classes for crippled children during the 1967-1968 school year.

TABLE IV

PERCENT OF HANDICAPS ENROLLED IN PROGRAM

Medical Diagnosis	1962-1963 Percent	1967-1968 Percent	1967-1968 Number
Cerebral Palsy	37.46	50	582
Spina Bifida and Paraplegia	6.65	11	129
Muscular Dystrophy	6.75	11	128
Abnormal Heart Condition	11.18	6	71
Polio	16.72	5	53
Meningocele	.70	3.5	43
Congenital Deformities	1.52	3.5	42
Hydrocephalus	1.00	2	25
Hemophelia	1.32	1	21
Legg-Perthes	2.63	1	17
Rheumatoid Arthritis	.90	1	14
Arthrogryposis	.70	1	13
Sickle Cell Anemia	1.22	1	12
Asthma	.80	1	8
Osteogenesis Imperfecta	.90	1	7
Achrondroplasia	.40	1	5
Scoliosis	.60	Less than 1%	4
Miscellaneous	6.75	Less than 1%	
TOTALS	100.00	100.00	1,146

TABLE V

ORTHOPEDICALLY HANDICAPPED SPECIAL EDUCATION PROGRAM INTELLIGENCE QUOTIENTS AS COMPARED WITH NORMAL DISTRIBUTION

I. Q.	Summary of I.Q. Distribution for Years 1961-1964 and 1966-1968		Classification	Normal Distribution
50-79	22.6%	35.4%	Educable Mentally Retarded	8.0%
80-89	24.5	23.0	Dull Normal	14.5
90-109	41.7	34.0	Average	46.5
110-149	11.2	7.6	Bright Plus	30.7
TOTALS	100.0%	100.0%		

Table V shows orthopedically handicapped special education program intelligence quotients as compared with normal distribution. The table indicates the percentages for each classification for the years 1961-1964 and 1966-1968.

CHAPTER III

OCCUPATIONAL AND PHYSICAL THERAPY

The whole child must be considered in planning any educational program. Because of physical disabilities such as cerebral palsy, arthritis, muscular dystrophy, poliomyelitis and congenital anomalies, some children require special services other than those provided by a regular school. It is an effective and efficient practice to have the service of occupational and physical therapy available in the same building as the classroom for crippled children. These services are an integral part of program planning. The children can receive the prescribed treatments with a minimum loss of time from their academic work.

The overall aims of occupational therapy and physical therapy are the same, to help the child gain the abilities which permit him to live as nearly a normal and active life as possible. The two therapies are interrelated. They both test and evaluate the physical ability of the child, strengthen specific muscle groups, improve coordination, teach activities of daily living and help to improvise necessary equipment.

OCCUPATIONAL THERAPY

Occupational therapy is a medical service using therapeutic activities, mental and physical, involving individual and group techniques, as well as evaluating procedures in treating children. Professionally trained occupational therapists administer their services under the direct prescription and guidance of a qualified physician.

The occupational therapy department in the public school operates on the same schedule as the classroom and is an integral part of the school program.

The same basic principles of education involved in teaching the academic subjects apply to the teaching of skills related to motor and perceptual development. Since motivation is basic to all aspects of education and treatment, careful planning is needed to elicit co-operation from the child and parents.

The therapist's ingenuity and initiative, knowledge of basic principles, and correlation of techniques with equipment are used

in planning and carrying out the prescribed treatment. Essential to the program is the therapist's awareness of research in the physical and behavioral sciences and the research guides that evaluate specific syndromes of dysfunction. This information is necessary for establishing realistic goals for the parent and the child and improving therapeutic procedures.

Activities are planned to develop self-help skills, to provide a means of communication, to increase muscle strength and range of motion, to encourage coordination and perceptual motor development, to aid in social and emotional development, and to evaluate vocational assets. Depending on the child's handicap, emphasis may be in one or more of these areas.

SELF-HELP SKILLS

The child must attain maximum independence in the area of self-help skills to realize optimum goals in physical and mental health. These skills are acquired through training and practice. Some examples of self-help skills are dressing, eating, toilet activities, and personal hygiene.

MEANS OF COMMUNICATION

The child with multiple handicaps may have poor or illegible writing. He may be unable to write because of poor coordination, lack of muscle power and perceptual difficulties, or he may write so slowly that writing is not a practical tool. The goal of the therapist is to provide for communicative development so that the child may participate in the classroom. Pointing or indicating comprehension, writing practice, developing a language board and typing are methods used to improve communications.

MUSCLE STRENGTH AND RANGE OF MOTION

The activity and equipment used by the therapist depend upon the muscles involved and the motion desired. The motivation for a desired motion comes from interest in the activity used. A few modalities are mentioned to give a general idea of how an occupational therapist used material, equipment, and activities.

Examples of therapeutic activities are ceramics, woodworking, weaving, braiding, and water play. Therapeutic devices which are commonly used are splints, ball bearing and resistine feeders, weights and built-up handles.

COORDINATION

Children with motor involvement may have perceptual and conceptual difficulties. Training is done with multi-sensory experiences (visual, auditory, tactile, and kinesthetic) in order to obtain simple and complex controlled muscle function. Finger painting, weaving and woodworking are excellent examples of activities involving gross coordination. Some examples of activities involving visual motor development are rhythms, play activities requiring body orientation in space, tracing, coloring, use of the chalkboard, and manipulating educational toys. Writing, needle craft, and model construction are activities the therapist may use to develop fine coordination.

SOCIAL AND EMOTIONAL DEVELOPMENT

Children with handicaps may not have the opportunity or physical capacity to participate in activities that lead to social and emotional development. The occupational therapist helps to provide these activities through organized and directed play, games and contests, and by encouraging the children to work in groups. Developing clubs and organizing class projects provide splendid opportunities for stimulating social growth.

Through the therapist's training in skills, self-care and work attitudes, the foundation is laid for future vocational guidance and job training. Good work habits, care and use of equipment and materials, speed and accuracy, responsibility and initiative, may all be developed as the child participates in the occupational therapy program.

SPECIAL EQUIPMENT

Equipment and facilities in a special education unit frequently have to be modified so that the child can perform at his maximum physical and mental ability. In this area, the occupational therapist must be ingenious and creative. This particular function may be carried on without a medical prescription, but the child's physical condition must be kept in mind when making any equipment modifications. Following are some examples of typical equipment which may require modification: Chairs and work surface, writing devices such as crayon and pencil holders; typing tools and typing dowels; reading equipment such as page turners and book racks; aids for dressing, undressing, eating, and personal hygiene.

PHYSICAL THERAPY

Physical therapy is a medical service administered by professionally trained personnel under the prescription and guidance of a qualified physician. It deals with the prevention, correction, and alleviation of disease and effects of injury. Through the use of physical agents such as heat, cold, light, water, electricity, massage and therapeutic exercise, the crippling effect of many diseases and injuries can be lessened or overcome.

The same basic principles of education which are involved in teaching an academic subject apply to the teaching of a motor activity. Motivation is basic to all aspects of treatment. This requires careful planning and the child needs help in developing a "will to do."

The therapist performs testing procedures used in evaluating muscle strength, range of joint motion and function, in developing exercise programs for improving strength and coordination, in giving training in activities of daily living, and shares in the responsibility for the proper fitting and maintenance of braces and other equipment used by the child.

The therapist's ingenuity and initiative, knowledge of basic principles, and correlation of techniques with equipment, are used in planning and carrying out the prescribed treatment.

PHYSICAL STATUS

Before a treatment program is planned, the child's physical activities and limitations are evaluated. On the basis of the diagnosis, the therapist selects the appropriate techniques and equipment. The tests and measurements used to evaluate the physical status include the manual muscle test, the joint range of motion test, the functional activity test, and the electrical test.

ALLEVIATION OF PAIN AND INCREASE IN CIRCULATION

Heat, in any form is applied to increase circulation to alleviate pain, and to make tissue more pliable. The physical therapist must know the indications and the contra-indications for all forms of heat. Some of the modalities used are infra red, diathermy, whirlpool, and moist heat pads.

RANGE OF MOTION

Children who are not able to perform normal motor activities or who show an imbalance of muscle strength, tend to develop contractures. To maintain or to increase range of joint motion, a therapist may use a variety of modalities and equipment such as: therapeutic exercise, stretching, neuro-muscular facilitation, pulleys and bicycling.

STRENGTH

When a muscle weakness or imbalance exists, a strengthening routine is indicated. In some cases particular attention must be given to isolate the weak muscle and to exercise it; in other cases muscles may be exercised in group patterns. There are many exercise rountines and modalities used to increase strength, but basically, exercises are classified as passive, active-assistive, active, or resistive.

COORDINATION

Children with motor involvement may have problems with coordination. It is essential to provide and to regulate harmonious action. The physical therapist is interested in controlled muscle function which leads to greater independence. This can be accomplished through reciprocal and contra-lateral exercise, therapeutic exercise, bicycling, suspension slings, rhythm activities, and games.

FUNCTIONAL TRAINING

Generally, functional training applies to activities which require balancing, standing, walking, and transfer activites. To strengthen and coordinate both the upper and lower extremities as well as the trunk, the therapist may use standing tables, parallel bars, skiis, stabilizers, crutches, walkers, stair climbing, and mat activities.

SPECIAL EQUIPMENT

Equipment and facilities in a special education unit frequently have to be modified so that the child can perform at his maximum physical and mental ability. The physical therapist must be ingenious and creative in work with special equipment. This particular

function may be carried on without a medical prescription, but the child's physical condition must be considered when making any modifications of equipment. Desks, standing tables with work surfaces, and wheelchairs are all examples of typical equipment which may require modification.

It must be emphasized that the primary purpose of the school is to give the child an education. The therapist who works with the handicapped child in the school situation meets a daily challenge of varied responsibilities. The therapist's ability to communicate the philosophy and techniques of education and rehabilitation plays an important part in the child's development. The therapist has a direct responsibility to the school, the child, the parent, the physician, the community, and the profession.

CHAPTER IV

OHIO'S ORTHOPEDIC PROGRAM

The program for orthopedically handicapped children has been in existence for over 50 years. During this time, the program has expanded and developed to meet the ever changing needs of the handicapped child. The severity of crippling conditions has changed rapidly during the last 15 years. Many of these children may never be physically able to attend regular school.

These problems have highlighted the need to develop continuous programs through the secondary level. The curriculum should include physical activities, recreation, life enrichment, and where necessary, work study programs adjusted to the limitations of the child, utilizing the teacher, occupational and physical therapist, available physical education personnel, work study coordinators, and community resources.

TEAM APPROACH

The goal of an educational program for orthopedically handicapped children is to provide the type of education from which each child can profit. This means giving consideration to developing a team approach designed to include speech, physical and occupational therapy, trained teachers, psychologists, and other education personnel concerned with the habilitation and rehabilitation of crippled children. The team approach presents a challenge to members of the team to understand and appreciate the contributions of their co-team members, Finally, if the team is to be complete, the family of the child must be involved.

THE ADMINISTRATION AND ORGANIZATION OF AN ORTHOPEDIC PROGRAM

Organization of classes has not been a major problem in the large metropolitan areas where there are a sufficient number of children to develop classes for orthopedically handicapped children. However, there is a need to explore ways of meeting the challenge

of crippled children residing in smaller school districts where the school's population is not sufficient to support traditional orthopedic programs.

A. Placement
   1. The superintendent of the school district of attendance (or his designated representative) is responsible for the assignment of pupils to approved special education units.
   2. A child must have a congenital or acquired physical disability which prevents successful functioning in a regular classroom.
   3. A child must be under the care of a qualified physican.
   4. A child of legal school age with an intelligence quotient above 50 as indicated by an individual psychological examination by a qualified psychologist may be assigned to the special unit if it is determined that they are capable of profiting from a formal educational program.
   5. Criterion for placement in a special class should include the need for:
      a. Special building facilities and equipment.
      b. Protective care which could not be provided in the regular class.
      c. Physical or occupational therapy.

B. Special Equipment, Furnishings and Materials. Appropriate furnishings, tables, chairs, instructional and treatment material and equipment shall be available.
   1. The building entrance shall be at ground level or equipped with an appropriate ramp.
   2. All rooms, including rest areas, shall be located on the first floor of the building unless elevators are available.
   3. Necessary safety grab bars should be provided in the toilet rooms.
   4. Toilet rooms and drinking fountains shall be appropriately equipped for crippled children.
   5. At least one stall in the toilet rooms should be designed to accommodate a wheel chair.
   6. Floors should be of a non-skid nature and free of excessive wax.

..cation Program

Educational objectives for ..hopedically handicapped children are the same as the objectives for all children; however, the means for their attainment will vary with each individual's limitations, physically, mentally, and emotionally.

The responsibility of a school involves more than providing academic instruction for the crippled child. The emphasis may change from instruction to treatment, then back to instruction. Generally, an educational program has the following objectives:

1. To help the individual to make a better life adjustment.
2. To help the child develop to his academic potential.
3. To help the child learn to use leisure time well.
4. To develop individual ability to earn according to his capabilities.
5. To help the child develop into an individual who accepts responsibility and contributes to his social group.

A good program for the crippled child must accomplish all of these. In addition, the program must be adjusted to each child's special problems, his abilities, and his limitations. These objectives are not necessarily all achieved in the classroom for crippled children.

Programs for crippled children must not be static and unchanging. As previously discussed the types of crippling conditions have changed in recent years and many more severely involved children are being admitted to school programs. In many instances children with relatively mild involvements are now fortunately being included in the regular classroom. Consequently, the special education classroom for orthopedically handicapped children is composed of severely handicapped children who present both physical and mental problems.

The following observations represent current trends and issues in orthopedic program development:

____ 1. The orthopedic program should include:

a. Academic instruction.
b. Adaptive physical education.
c. Activities of Daily Living.
d. Life enrichment activities.

e. Speech therapy.
f. Work study program.
g. Physical therapy.
h. Occupational therapy.

____ 2. Due to the lower mental ability of many children now being placed in orthopedic classes there is a need for the development of programs specifically designed for educable mentally retarded children.

____ 3. Special education programs for crippled children should provide continuing instructional programs and services from kindergarten through the secondary levels.

____ 4. The curriculum should include adapted physical activities and games which foster the development of a positive self-concept, sound maturity and independence.

____ 5. Activities of daily living such as self-care, personal hygiene, eating procedures, etc., should be incorporated into the daily curriculum.

____ 6. The development of life enrichment activities including recreational and leisure time activities which have positive value in post school adult adjustment should be explored.

____ 7. It should be realized that traditional instructional approaches do not adequately meet the needs of multi-handicapped children. Greater emphasis must be placed upon developing a more individualized "diagnostic teaching" approach. This "diagnostic" approach makes imperative a careful evaluation of mental ability, physical limitations and skill development, and an accurate description of achievement.

____ 8. Consideration must be given to the greater utilization of a work study coordinator, available work study programs, and other community resources.

____ 9. In consideration of a high incidence of learning disorders related to neurological handicaps, more consideration should be given to effective physical organization of the classroom. In general, the classroom should be highly structured, neat, orderly,

conducive to an individualized program. This includes provisions for the reduction of extraneous visual and auditory stimulation. The following space utilization factors should be considered:

a. Individualized study area.

b. Small group work area.

c. Supervised physical activities and play area within classroom. A large physical activity area should be provided elsewhere in the school building, such as a gym.

d. A small section of the room may be developed for display of the children's work and key visual aides. In general, group visual aids should not be conspiciously displayed except as they are in immediate use.

e. Adequate storage for materials, supplies, and children's projects and personal belongings should be available. Individual children's desks should not be used for storage; individual work folders (finished, unfinished, and future) should be available in a separate part of the room.

f. A group and individual auditory training center should be incorporated into the room (earphones for tape recorders, language master or phonic mirror, etc.).

HOME INSTRUCTION

Home instruction is an educational service provided by the local public school system for physically handicapped children who must be confined to the home for instructional purposes and cannot attend school even with the aid of transportation. These children may be considered for home instruction providing the child is capable of profiting from a formal education program and is recommended for such service by a physician. Partial reimbursement for home instruction can only be approved by the Division of Special Education in accordance with State Board of Education Program Standards EDb-215-10 (A). Table VI depicts the variety of disabilities served by home instruction.

TABLE VI

HOME INSTRUCTION
1965-1966

Types of Handicaps:

There were one hundred fifty different physical disabilities approved for service. The following are major categories:

Handicap	No. of Pupils	Handicap	No. of Pupils
Fractures	566	Scoliosis	62
Rheumatic Fever	320	Deformities	57
Post Operative	132	Tuberculosis	55
Cerebral Palsy	122	Cardiac	49
Epilepsy with Uncontrollable Seizures	100	Slipped Epiphysis	48
Muscular Dystrophy	87	Legg Perthes	47
Kidney Diseases	77	Tumors	46
Arthritis	65	Paralysis	44
Infectious Mononucleosis	64	Asthma	36
Polio	64	Burns	34

Note:

In 1965-1966 there were 150 different physical disabilities approved for home instruction service. The above are major categories which represent approximately 71 per cent of the total group.

The cost of this instruction is shared by the local school district in the State of Ohio. The Division of Special Education will reimburse $1.50 per hour on home instruction at a rate of not less than $3.00 per hour and one half of the actual cost in excess of $3.00 not to exceed $6.00 per hour nor five hours per week. Payment is not made for students receiving less than 20 hours of instruction during the school year. The purpose of the reimbursement is to assist the local school district to meet their legal responsibilities of providing an educational program for all educable children of legal school age residing in their school district who cannot be maintained in a school building because of physical limitations.

Section 3323.01 R. C. indicates that the State Board of Education may approve special education classes and special instructional services for children whose learning is retarded, interrupted, or impaired by physical or mental handicaps. Home instruction is considered to be a special instructional service for physically handicapped children. Other sections of Ohio School Law which provide legal basis for home instruction are as follows:

1. 3313.48 R.C.—Assigns the responsibility of providing free education to the board of education of each school district.
2. 3313.64 R.C.—Schools shall be free and open to all school residents six to twenty-one years of age.
3. 3321.01 R.C.—Outlines compulsory education and attendance.

TELEPHONE INSTRUCTION

Telephone instruction is a two-way system from the school to the home. Not only can the student hear everything his teacher or instructor says, but he can also recite, ask questions, even participate in group discussions. The entire class can hear him clearly and distinctly just as if he were at his own desk.

Telephone instruction as described in State Board of Education Program Standards 215-10 (A) (1) (d) may be considered under the following conditions:

1. Applications for this service should be submitted on regular Home Instruction Forms SE 10 (A). The phrase "Telephone Service" should be written across the top of each request.
2. It has been our experience that mature students of at least average ability tend to benefit a great deal from this ser-

vice. Telephone instruction should rarely be considered below the fifth or sixth grades.

3. The expected period of disability should be long enough to warrant the installation of equipment.
4. The Division of Special Education will reimburse as follows for telephone instruction.
   a. Half the cost of installing the telephone.
   b. Half the monthly service charge.
   c. Half the cost of one hour (at a rate of $3.00 per hour) per week tutoring by a teacher to guide the child.

APPENDIX A

GLOSSARY AND SYMBOLS

GLOSSARY OF DIAGNOSTIC TERMS

ABDUCTION—The limb is moved away from the midline of the body.

ACHRONDROPLASIA—A condition of abnormal osteogenesis resulting in the typical congenital dwarf. The pathologic process begins early in intrauterine life as disordered chondrification and ossification of the ends of the long bones; the membrane bones develop normally.

A.D.L.—Activities of daily living.

ADDUCTION—The limb is moved toward the midline of the body.

ANKYLOSIS—Abnormal immobility and consolidation of a joint.

ANOXIA—Lack of oxygen.

APHASIA—Defect or loss of the power of expression by speech, writing, or signs.

APLASIA—Defective formation or development—lack of development.

ARTHRODESIS—Surgical fixation of a joint.

ARTHROGRYPOSIS—Permanent fixture of a joint; anklosis; permanent idiopathic contracture of a joint.

ASEPTIC—Free from septic material.

ASSYMETRY—Lack or absence of symetry.

ASTHMA—Paroxysmal dyspnea. Commonly, however, it refers to allergic asthma, characterized by dyspnea, cough, wheezing, mucoid sputum, and a sense of constriction of the chest. Pathologic changes consist of bronchiolar spasm, edema of mucosa, hypertrophy of glandular elements, and secretion of mucinlike substance. It is usually due to hypersensitiveness to inhaled or ingested substances, or bacteria. In allergic asthma, the name may include the etiologic factor.

ATAXIA—Failure of muscular coordination—lack of balance.

ATHETOSIS—Affection marked by continuous movements — involuntary movements.

ATROPHY—A wasting or diminution of size—Shrinkage of cells or fibers.

BENIGN—Not malignant.

BILATERAL—Having two sides—pertaining to both sides.

CALCANEOUS—Referring to the heel bone.

CALUS—The bony material by which union between ends of a fractured bone is effected.

CARDIAC—Referring to the heart.

CEREBRAL PALSY—Cerebral palsy has been described as a loss of ability to control motion, because of disease or injury which has damaged the motor center of the brain. The person who has it may not be able to walk or talk or use his hands. Many cerebral palsied have more than one disability—multihandicapped.

CEREBROSPINAL—Pertaining to the brain and spinal cord.

CHONDRIFICATION—Converting into cartilage; becoming cartilogenous.

CONGENITAL—Existing at or before birth.

CONTRACTION—Shortening of a muscle.

CONTRACTURE—Shortening of a muscle in distortion — a permanent condition.

CYANOSIS—A blueness of the skin due to lack of oxygen in the blood.

DIPLEGIA—Paralysis of like parts.

DORSIFLEXION—The act of bending a part backward.

EDEMA—Localized fluid in the tissue.

ELECTROCARDIOGRAM—A graphic picture of the electrical charges caused by the contraction of the heart muscle.

ELECTROENCEPHALOGRAM—Record of brain waves.

EMBOLUS—A clot or plug that obstructs the blood vessel.

EPILEPSY—A nervous disease marked by seizures with convulsions and loss of consciousness.

EPIPHYSIS—The growing end of the bone.

ERB'S PALSY—Paralysis due to degenerative changes in the spinal cord.

ERYTHROCYTES—Red blood cells.

ETIOLOGY—Scientific view of causes of disease.

EXTENSION—Straightening out a joint.

EXTERNAL ROTATION—Rotation away from midline of the body.

FLACCID—A type of paralysis—weak, lax, and soft.

FLEXION—Bending a joint.

FRACTURES—Breaks in the bones.

a. Compound—Fractures with external wound leading into the bone.
b. Greenstick—Fracture in which one side of bone is broken and other side being bent.
c. Comminuted—Fracture in which bone is crushed or splintered.
d. Compression—Fracture in which joint is jammed together.
e. Impacted—Fracture in which one fragment is firmly driven into the other.

FRIEDREICH'S ATAXIA—Hereditary ataxia, progressive.

GENU—Knee-articulation of femur with lower leg bone.

HEMIPLEGIA—Paralysis of one side of the body, either right or left.

HEMOPHILIA—Strong hereditary tendency to bleeding due to a defect in the coagulating power of the blood.

HODGKIN'S DISEASE—Disease of the blood—Pseudoleukemia.

HYDROCEPHALUS—An increase in the volume of cerebrospinal fluid within the skull. The term is commonly applied to distentions of the ventricular system by cerebrospinal fluid which cannot escape into the subarachnoid space, is blocked in the subarachoid pathways, or cannot be absorbed into the venous system.

HYPER—Prefix meaning excess.

HYPEREXTENSION—Extension of a limb began neutral anatomical position.

HYPOPLASIA—Failure of a cell to develop freely.

IDIOPATHIC—Unknown cause.

INTERNAL ROTATION—Rotation toward the midline of the body.

ISCHAEMIA—Deficiency of blood supply to a part.

ITIS—Suffix meaning inflammation of.

KINESIOLOGY—Scientific study of movements of muscles.

LESION—Any hurt, wound. or local degeneration.

LITTLE'S DISEASE—Type of cerebral palsy.

LORDOSIS—An increase in the normal curvature of the lumbar area of the spine.

MALIGNANT—Virulent and tending to go from bad to worse.

MALNUTRITION—Imperfect assimilation and nutrition.

MENINGOCELE—A protrusion of the cerebral or spinal meninges through a defect in the cranium or vertebral column. It forms a cyst filled with cerebospinal fluid.

METASTASIS—Transfer of disease from one organ to another.

MUSCULAR DYSTROPHY—Faulty state of nutrition to the voluntary muscles. A progressive degenerative disease of the voluntary muscles.

MYOSITIS—Inflammation of a muscle.

NECROSIS—Local death of a tissue.

NEPHRITIS—Inflammation of the kidney.

NEUROGENIC BLADDER—One in which the nerve supply has been damaged.

NOXIOUS—Harmful.

OPPENHEIM'S DISEASE—Congenital myatonia or spasm of muscles.

OSGOOD-SCHLATTER'S—Inflammation of bone and cartilage at upper portion of the tibia.

OSLER'S DISEASE—Chronic blueness with enlarged spleen and an excess of red corpuscles in the blood.

OSSIFICATION—The formation of bone; the conversion of tissue into bone.

OSTEO—Bone.

OSTEOGENESIS IMPERFECTA—A defect of bone formation and calcification of unknown cause but often hereditary, characterized by bone fragility, blue scleras, and sometimes deafness. Multiple fractures may occur before birth, in infancy, or later in childhood.

OSTEOMYELITIS—Inflammation of the bone marrow.

PARAPLEGIA—The legs alone are involved in the neuromuscular dysfunction or paralysis of the lower limbs.

PARKINSON'S DISEASE — Paralysis Agitans — shaking palsy. Disease of late life.

PERIARTICULAR—About a joint.

PERIPHERAL—That which is on the boundary — in regard to nerves, those outside the central nervous system.

PLANTER FLEXION—Pointing the ankle downward.

P.N.E.—Proprioceptive neuro-muscular facilitation.

PNEUMOENCEPHALOGRAM—A record of shadows of brain following injection or air or other gas into brain through spinal column.

POLIOMYELITIS—Infantile paralysis.

POLYDACTYLY—Excessive number of digits.

PROGNOSIS—Prediction of probable result of attack of disease.

PRONATION—Turning down.

PRONE—Lying with face down.

PROSTHESES—Artificial appliances, such as arm, leg, etc.

PYEMIA—Pus in the blood stream.

PYOGENIC—Pus forming.

PSEUDOHYPERTROPHY—Increase of size with loss of function.

QUADRAPLEGIA—Paralysis of all extremities.

RECIPROCATION—Bicycle motion of legs and arms.

REFLUX—Backward flow—usually referring to urine.

RIGIDITY—Tenseness on movement of part.

RESIDUAL—Remaining; left behind

RHEUMATOID ARTHRITIS—A chronic arthritis of unknown etiology; affects multiple joints, producing constitutional effects such as debility, weakness, and loss of weight. The specific lesion is a proliferation of granulation or connective tissue in synovial and periarticular tissues over the joint surface and in subchondral spaces. There is pain, limitation of motion, deformity, and sometimes bony ankylosis.

R.O.M.—Range of motion.

SCOLIOSIS—Lateral curvature of the spine, named according to location and direction of the convexity, as right thoracic. Usually there are two curves, the original and a compensatory curve, as an original right thoracic with a compensating left lumbar curve.

SEPTIC—Produced by putrification.

SIBLINGS—Brothers and sisters.

SICKLE CELL ANEMIA—Loss of normal balance between the productive and the destructive blood processes, due to diminuition of the normal blood volume as after hemorrhage; or a deficiency in the number of red cells, hemoglobin

or both and is usually hereditary. It is characterized by the crescentic form assumed by the erythrocytes after their removal from the circulation.

SLIPPED EPIPHYSIS—Slipping of the growing part of the bone.

SPASTICITY—State in which muscle is contracting continuously.

SPINA BIFIDA—Congenital cleft of the vertebral column with protrusion of the membraneous part of the cord.

SPINA BIFIDA AND PARAPLEGIA—A congenital defect in the closure of the spinal canal with hermal protrusion of the meninges of the spinal cord. The hermal sac contains cerebrospinal fluid and sometimes nervous tissue. Most common in the lumbrosacral region. The contents of the spinal canal may protrude. Generally the rehabilitation facets of spina bifida are the same as with traumatic paraplegia.

SPRAIN—Temporary dislocation of a joint.

STILL'S DISEASE—Inflammation of several joints together with enlarged spleen and lymph glands.

STOMA—Artificial opening in the abdomen for the surgical ureteroileostomy procedure.

STRAIN—Overstretching or over exertion.

SUBARACHNOID—Beneath the arachnoid membrane, as the subarachnoid space.

SUBCHONDRAL—Relating to cartilage.

SUBLUXATION—Partial dislocation of a joint.

SUPINATION—Turning up.

SUPINE—Lying on back.

SYNOVIAL—The clear fluid which is normally present in joint cavities.

TALIPES—A type of club foot.

TENOTOMY—Cutting of a tendon.

THROMBI—A plug in a vessel found at the point of its formation.

TORTICOLLIS—Wry neck.

TRAUMA—Wound or injury.

TREMOR—Involuntary trembling or quivering.

TUMOR—A swelling—morbid growth of a tissue.

ULCERATION—An open sore other than wound.

UNILATERAL—Referring to one side.

VALGUS—Away from the median line.

VARUS—Toward the median line.
VENTRICLES OF BRAIN—Five cavities filled with cerebrospinal fluid.
VENTRICULAR SYSTEM—Of, relating to, or being a ventricle.
VIRUS—An animal poison—infiltrable.

SYMBOLS

a.c.	before meals
bid	twice a day
CHD	congenital heart defect
CVA	cardiac vascular accident
hs	at bedtime
c̄	with
OD	right eye
OS	left eye
OU	both eyes
p.c.	after meals
prn	when needed
qd	once a day
qid	four times a day
qod	every other day
RH	heart disease followed by a rheumatic heart disease
s̄	without
SOB	short of breath
tid	three times a day
VSD	ventricular septal defect

APPENDIX B

PROGRAM STANDARDS

Ohio
State Board of Education

EDb-215-03 PROGRAM STANDARDS FOR SPECIAL EDUCATION UNITS FOR CRIPPLED CHILDREN

(Adopted August, 1966)

(A) General

(1) A special education unit or fractional unit for crippled children may be approved only within these standards.

(2) A special education unit or fractional unit for occupational therapy or physical therapy may be approved only within these standards.

(3) A special education unit or fractional unit may be approved for an experimental or research unit designed to provide a new or different approach to educational techniques and/or methodology related to crippled children.

(4) A special education unit for supervision of a program including classes for crippled children may be approved where there are ten or more units.

(5) A special education unit or fractional unit for crippled children may be approved for instruction in hospitals.

(6) The superintendent of the school district of attendance (or his designated representative) is responsible for the assignment of pupils to approved special education units.

(7) All children enrolled in an approved special education unit for crippled children shall meet the standards listed below.

(B) Eligibility

(1) A child who has a congenital or acquired physical disability which prevents successful functioning in a

regular classroom may be placed in a special education unit for crippled children upon evidence of:

(a) Current medical report of a qualified physician presently treating the crippling condition.

(b) The physical and mental readiness to benefit from instruction.

03 UNITS FOR CRIPPLED CHILDREN (Cont'd)

(2) Crippled children of legal school age with an intelligence quotient above 50, as indicated by an individual psychological examination by a qualified psychologist, may be placed in the special education unit if it is determined that they are capable of profiting from a formal educational program.

(3) Crippled children functioning within the slow learning range of mental ability (intelligence quotient 50-80) *should be placed in a special program for slow learning crippled children.*

(C) Class Size and Age Range

(1) The minimum number of pupils in a special education unit for crippled children shall be 8.

(2) Maximum class size shall be determined as follows:

(a) A primary or intermediate unit of children within an age range of 12 to 35 months shall not exceed an enrollment of 18.

(b) A primary or intermediate unit of children within an age range of 36 to 48 months shall not exceed an enrollment of 14.

(c) A junior or senior high school unit of children within a 12 to 35 months age range shall not exceed an enrollment of 18.

(d) A junior or senior high school unit of children within 36 to 48 months age range shall not exceed an enrollment of 16.

(3) A unit for slow learning crippled children (intelligence quotient 50-80) or any unit which includes slow learners shall have a minimum enrollment of 8 children and a maximum enrollment of 12 children.

(4) The chronological age range for a class of crippled children at any level of instruction shall not exceed 48 months.

(D) Housing and Equipment

(1) A special education unit for crippled children shall be housed in a classroom in a regular school building (or in a special public school) which meets the Standards adopted by the State Board of Education, with children of comparable chronological age.

03 UNITS FOR CRIPPLED CHILDREN (Cont'd)

(2) All necessary special equipment, furnishings and materials for the instruction, safety and treatment of crippled children shall be provided.

(a) The building entrance shall be at ground level or equipped with an appropriate ramp.

(b) Class, treatment, and cot rooms shall be located on the first floor of the building unless elevators are available.

(c) Toilet rooms and drinking fountains shall be appropriately equipped for crippled children, including necessary safety grab bars and at least one stall designed to accommodate a wheel chair.

(d) Floors should be of a nonskid nature and free of excessive wax.

(e) An adequate physical activities, recreational area shall be provided.

(f) Lunchroom facilities shall include furniture, eating utensils and equipment suitable to the individual needs of the children.

(E) Program

(1) A special education unit for crippled children may be approved when organized at the elementary and/or secondary level.

(2) Special education programs for crippled children should provide continuing instructional programs and services from kindergarten through the secondary levels.

(3) The educational program shall provide instruction and training appropriate to the mental ability and physical limitations of the children enrolled.

(4) The daily schedule for each child shall be based upon his physical condition, academic level and treatment routine.

(5) The curriculum shall include physical activities, recreation, life enrichment and, at the secondary level, a work-study program adjusted to the limitations of the child, utilizing the teacher, occupational and physical therapist, available physical education personnel, work-study coordinators and community resources.

03 UNITS FOR CRIPPLED CHILDREN (Cont'd)

(6) Crippled children may participate in the general school program and in certain cases may participate in selected regular class activities provided they evidence the ability to profit from such placement.

(7) Special education units for occupational and physical therapy shall provide treatments as prescribed in writing by a licensed physician.
   (a) individual prescriptions signed by the physicians shall be kept on file in these units.

(8) There shall be written policies for the selection and placement of children in a regular class on a full or part-time basis.

(9) There shall be evidence of periodic evaluation of the educational progress of all children placed in approved units for crippled children.

(F) Teacher Qualifications

(1) Teachers, occupational therapists, and physical therapists shall meet the requirements for certification established by the State Board of Education for their particular area of specialization.

Ohio
State Board of Education

EDb-215-11 PROGRAM STANDARDS FOR TRANSPORTATION OF HANDICAPPED CHILDREN

(Adopted August, 1966)

(A) Eligibility

(1) Transportation may be approved for physically handicapped children (State Board of Education Standards, Section 01-05) attending a special class program approved by the Division of Special Education.

(2) Transportation may be approved for physically handicapped children (State Board of Education Standards, Section 01-05) attending a regular class in public and/or parochial school.

(3) Transportation may be approved for emotionally handicapped children (State Board of Education Standards, Section 06) only when attending a *special class program for emotionally handicapped* approved by the Division of Special Education.

(4) Requests for transportation for less than two months duration shall not be approved by the Division of Special Education.

(5) The superintendent of schools (or his designated representative) shall sign all applications for transportation of handicapped children.

(B) Reimbursement

(1) Contract or Board-Owned Vehicles

(a) The Division of Special Education may approve for reimbursement the actual costs of transportation up to $2.00 per day per child in average daily membership and one half of the actual cost in excess of $2.00 per day.

(2) Other Reimbursable Costs

(a) The Division of Special Education may approve for reimbursement the actual costs of transportation on public transportation.

11 TRANSPORTATION OF HANDICAPPED CHILDREN (Cont'd)

(b) The Division of Special Education may approve for reimbursement the actual costs for guide service for visually handicapped children (State Board of Education Standards, Section 04), not to exceed $1.25 per day per child.

(C) Date to be Submitted

(1) Applications for transportation of physically handicapped children to regular school must be signed by a licensed physician and submitted annually in duplicate to the Division of Special Education.

(2) Applications for transportation of physically and/or emotionally handicapped children to special class programs approved by the Division of Special Education shall be submitted annually in duplicate by the school district transporting the child.

(3) Reimbursement claims for approved transportation shall be submitted by August 1 of each year on the designated claim forms to the Division of Special Education.

Ohio

State Board of Education

EDb-215-12 PROGRAM FOR BOARDING HOMES FOR PHYSICALLY HANDICAPPED CHILDREN

(Adopted August, 1966)

12 BOARDING HOMES FOR PHYSICALLY HANDICAPPED CHILDREN (Cont'd)

(A) Eligibility

(1) A physically handicapped child (State Board of Education Standards, Section 01-05) who resides in a school district that does not maintain a special education program to meet his needs *may* attend school in another school district where such a program is available.

(2) When a physically handicapped child attends a special education class in a school district other than that of his residence, he *may* be boarded (if the distance from one district to the other is too far for the child to be transported daily) and the cost of such board may be reimbursed if approved in advance by the Division of Special Education.

(3) The criteria for approval of children for boarding home placement shall be determined upon:

(a) The availability of appropriate special education programs.

(b) The travel distance involved.

(c) The physical, mental, and social readiness of the child to adjust to a boarding home.

(d) The availability of licensed boarding homes in the school district providing special education programs.

(B) General Information

(1) The superintendent of schools (or his designated representative) shall sign all applications for boarding homes.

(2) Applications for children being considered for boarding home placements must be submited by the superintendent of the school district in which the child legally resides or the superintendent of the district which maintains a special education program if this district advances payment for the boarding home.

(3) The responsibility for finding boarding homes shall not be assumed by school personnel nor by the parents. This responsibility is vested in the Ohio Department of Public Welfare.

(4) The placement of children in or the changing of children from one licensed boarding home to another shall be the responsibility of the Ohio Department of Public Welfare.

(C) Reimbursement

(1) The Division of Special Education may approve for reimbursement a rate of $15.00 for a five-day week

and a rate of $18.00 for a seven-day week in a licensed boarding home.

(D) Data to be Submitted

(1) The school district that advances payment for the boarding home shall:

(a) Complete Form SE 12-I in triplicate on all *initial* applications and submit them to the Division of Special Education.

(b) Complete Form SE 12-II in duplicate and submit them to the Division of Special Education.

(2) Reimbursement claims for all approved boarding homes shall be completed on the designated claim forms and submitted to the Division of Special Education not later than August 1 of each year.

APPENDIX C

BIBLIOGRAPHY

BIBLIOGRAPHY

Learning Disorders

Allen, Amy A. and Grover, Edward C. *A Demonstration Project for Brain Damaged Children in Ohio.* Columbus, Ohio: Ohio Department of Education, 1962.

Barbe, Walter E. *Educator's Guide to Personalized Reading Instruction.* (Gr. 1-6), Prentice Hall, 1961.

Barbe, Walter E. *Teaching Reading.* Selected Materials. New York: Oxford University Press, 1965.

Barsch, Ray H. *Counseling the Parent of the Brain Damaged Child.* Chicago 12, Illinois: National Society for Crippled Children and Adults, 2023 W. Ogden Avenue.

Berkowitz, Pearl H. and Rothman, Esther P. *The Disturbed Child.* New York University Press, 1960.

Birch, Herbert G. *Brain Damage in Children.* Biological and Social Aspects. Baltimore 2, Maryland: Williams and Wilkins, 428 East Preston, 1964. $5.95.

Clements, Sam D. *Children with Minimal Brain Injury.* National Society for Crippled Children. $ .50.

Cruickshank, William. *The Teacher of Brain-Injured Children.* Syracuse 10, New York: Syracuse University Press. $5.00.

Cruickshank, William. *A Teaching Method for Brain-Injured and Hyperactive Children.* Syracuse 10, New York: Syracuse University Press, Box 87, University Station. $7.95.

Delacato, Carl H. *The Diagnosis and Treatment of Speech and Reading Problems.* Springfield, Illinois: C. C. Thomas, 301 East Lawrence Avenue. $6.75.

Doyle, P. J. *The Organic Hyperkinetic Syndrome.* National Society for Crippled Children and Adults. $ .07.

Dunbar, Flanders. *Your Child's Mind and Body.* Vintage Books, A Division of Random House Publishers. $1.95.

Easter Seal Research Foundation and the Office of Vocational Rehabilitation. *Conference on Children with Minimal Brain Impairment.*

Epheron, B. K. *Emotional Difficulties in Reading.* A Psychoanalytical Approach. New York: Julian Press, 1953.

Frostig. *Developmental Test of Visual Perception.* Individual Student Set and Guides. Chicago, Illinois: Follett Publishing Company, 1010 West Washington Boulevard. Individual Student Set $9.60 and Guides $3.00.

Fund for Perpetually Handicapped Children. *Perceptual-Motor Problems of Children.* Evanston, Illinois: Box 656.

Gallagher, J. J. *The Tutoring of Brain-Injured Mentally Retarded Children.* An Experimental Study. Springfield, Illinois: Thomas, 1960.

Gesell, Arnold and Amatruda, Catherine S. *Developmental Diagnosis.* 2nd Ed. New York 16, New York: Hoeber Medical Division of Harper and Row Brothers Publishers, Inc., 49 East 33rd Street, 1949. $8.50.

Gesell, Arnold. *The Behavioral Bases of Perception.* New Haven, Connecticut: Yale Press, 149 York Street. $9.00.

Gillingham and Stillman. *Remedial Training for Children with Specific Disability in Reading, Spelling and Penmanship.* Educa., 1960.

Godfrey, Barbara B. *Development of a Motor Therapy Laboratory.* Department of Physical Education. Columbia, Missouri: University of Missouri.

Haring and Phillips. *Educating Emotionally Disturbed Children.* McGraw-Hill Book Company, Inc., New York, New York: 330 West 42nd Street. $6.95.

Hellmuth, Jerome. *Educational Therapy,* Volume I. Special Child Publications, Seattle, Washington: 71 Columbia Street, Room 320, 1965. $10.00.

Hellmuth, Jerome. *Learning Disorders,* Volume I. Special Child Publications, Seattle, Washington: 71 Columbia Street, Room 320, 1965. $10.00.

Hellmuth, Jerome. *Learning Disorders,* Volume II. Seattle, Washington: Special Child Publications, March, 1966. $10.00.

Hellmuth, Jerome. *The Special Child in Century 21.* Seattle, Washington: Special Child Publications, 1964. $10.00.

Hester, Kathleen. Teaching Every Child to Read. Harper-Rowe, 1964.

Kanner. *Emotional Interference with Intellectual Functioning.* 1952.

Kephart, Newell C. *Aids to Motoric and Perceptual Training.* Considerations for the Parent and Teacher of the Non-Intact Child. Livingston Publishing Company.

Kephart, Newell C. *The Brain Injured Child in the Classroom.* National Society for Crippled Children and Adults. $ .35.

Kephart, Newell C. *Aids to Motoric and Perceptual Training:* Educational Problems of the Brain-Injured Child. Madison, Wisconsin; State Department of Public Instruction.

Kephart, Newell C. *The Slow Learner in the Classroom.* Columbus, Ohio: Charles E. Merrill Books, Inc., 1300 Alum Creek Drive. $5.95.

Kephart, Newell C. Understanding Children with Learning Disorders in *Aids to Motoric and Perceptual Training.* Livingston Publishing Company.

Kottmeyer, W. *Teacher's Guide for Remedial Reading.* McGraw-Hill, 1959.

Lewis, Richard S. *The Brain Injured Child.* National Scciety for Crippled Children and Adults. $ .25.

Lewis, Richard S. and Strauss, Alfred A., Lehtinen, Laura E. *The Other Child.* Second Edition. New York, and London: Grune and Stratton, Inc., 1960.

Lippman, H. S. Second Edition. *Treatment of the Child in Emotional Conflict.* 1962.

Merrill, Charles E. *Book A for Grade 1 or 2 and Annotated Teacher's Edition for Book A, Annotated Teacher's Edition for Book B, Annotated Teacher's Edition for Book C,* and *Annotated Teacher's Edition for Book D.* Columbus, Ohio: 1300 Alum Creek Drive.

Merrill, Charles E. *Discovering Mathematics* (Workbook). Columbus, Ohio: $ .95.

Michal-Smith, Harold. *The Special Child.* Seattle, Washington: Special Child Publications, 71 Columbia Street, 1962. $5.85.

Morgan, C. T. *Introduction to Psychology.* Relationship of Visual to Delayed Audition. Second Edition. New York: McGraw-Hill. 1961.

Myklebust, Helmer R. *Development and Disorders of Written Language.* Test Pictures, New York 16, New York: Grune and Stratton, 381 Fourth Avenue. $7.75 for Book and $1.50 for Test Pictures.

Myklebust, Helmer R. *Rehabilitation Literature*. National Society for Crippled Children. $ .25.

Myklebust, Helmer R. and Johnson, Doris. *Learning Disabilities, Educational Principles and Practices*. New York: Grune and Stratton, 1967.

National Society for Crippled Children and Adults Library. *Brain Injury and Related Disorders in Children.*

Office of the County Superintendent of Schools, Sonoma County, California. *Growth and Development Through the Grades.* $ .10.

Pasamanich, B. and Kani, G. *Pre and Paranatal Factors in Development of Childhood Reading Disorders* (Monograph by Soc. for Res. in Child Development) 1959.

Patterson, Ruth M. *Teaching Devices for Children with Impaired Learning*. Columbus, Ohio: Parents Volunteer Association of the Columbus State School, 1601 West Broad Street, $1.75.

Phillips, E. L. and Wiener, Donil, and Haring, Norris: *Discipline, Achievement, and Mental Health*. Prentice-Hall. 1960.

Reppeport, Sheldon R. *Childhood Aphasia and Brain Damage*. Volume II. Differential Diagnosis. Narberth, Pennsylvania: Livingston Public Company and the Pathway School, 1965.

Reppeport, Sheldon R. *Childhood Aphasia and Brain Damage*. A Definition. Narberth, Pennsylvania: Livingston Public Company and the Pathway School, 1964.

Rimland, Bernard. *Infantile Antism*. 1962-Appleton-Century-Croft. Ch. 11. The Consequences of Variations in Reticular Function.

Siegel, Ernest, M. A. *Helping the Brain Injured Child*. New York, New York: New York Association for Brain Injured Children, 305 Broadway, 1961. $3.50.

Smith, Nila B. *Graded Selections for Informal Reading Diagnosis*. Prentice Hall, Englewood Cliffs, New Jersey, 07632.

Spache, George D. *Good Reading for Poor Readers*. Champaign, Illinois: Garr 1964.

State Department of Education. *Aids to Motoric and Perceptual Training*. Madison, Wisconsin.

Strauss, A. A. and Lahtineu, L. E. *Psychopathology and Education of The Brain-Injured Child*. New York: Grune and Stratton, 1947.

Strauss, A. A. *Psychopathology and Education of the Brain-Injured Child.* Vol. II New York 36, New York: Grune and Stratton, 330 West 42nd Street, 1955. $7.00.

Strong, Ruth. *Diagnostic Teaching of Reading.* McGraw-Hill, Inc. 1964.

Strother, Charles R. *Discovering, Evaluating, Programming for Neurologically Handicapped Child with Special Attention to the Child with Minimal Brain Damage.* National Society for Crippled Children. $ .35.

Symposium at Conference of NSCCA. *The Brain Damaged Child.* National Society for Crippled Children and Adults. Chicago 12, Illinois: 2023 West Ogden Avenue, $ .25.

Thompson, Margaret M. *Development of Motor Patterns for the Handicapped Pupil.* Columbia, Missouri. Department of Physical Education for Women, University of Missouri.

Thompson, Margaret M. *Movement Patterns and Their Basic Elements—Types of Activities, Effects of Movement on the Total Development of Children and Youth.* Department of Physical Education, University of Missouri.

Vernon, M. O. *Backwardness in Reading.* New York: Cambridge University Press, 1957.

Walliser, Blair. *The What's That Book.* New York 10, New York: Grosset and Dunlap, 1107 Broadway. $1.95.

Walliser, Blair. *The When's That Book.* Grosset and Dunlap. $1.95.

Walliser, Blair. *The Where's That Book.* Grosset and Dunlap. $1.95.

Walliser, Blair. *The Why's That Book.* Grosset and Dunlap. $1.95.

Wood, Nancy E. *Language Disorders in Children.* National Society for Crippled Children. $ .50.

BIBLIOGRAPHY

Cerebral Palsy

Gesell, Arnold and Amatruda, Catherine, S. *Developmental Diagnosis*. New York City: Harper and Brothers, 1946.

Gesell, Arnold. *The First Five Years of Life*. New York City: Harper and Brothers, 1946.

Gesell, Arnold and Ilg., Frances. *The Child from Five to Ten*. New York City: Harper and Brothers, 1947.

Cruickshank, Wm., Bice, H. V. and Waller, N. E. *Perception and Cerebral Palsy*. Syracuse, Syracuse University Press, 1957.

Cruickshank, Wm. and Raus, G. M., Editors. *Cerebral Palsy: Its Individual and Community Problems*. Syracuse, Syracuse University Press, 1955.

Keats, Sidney. *Cerebral Palsy*. Springfield, Illinois: Charles C. Thomas. 1965.

Cardwell, Viola E. *Cerebral Palsy, Advances in Understanding and Care*. Association for the aid of Crippled Children. New York: The North River Press, Inc., 1956.

Denhoff, E. and Robinault, L. *Cerebral Palsy and Related Disorders*. New York City, McGraw-Hill Company, 1960.

Levitt, S. *Physiotherapy in Cerebral Palsy*. Springfield, Illinois: Charles C. Thomas, 1962.

Strauss, A. A. and Lehtinen, L. *Psychopathy and Education of the Brain-Injured Child*. New York City: Grune and Stratton, 1947.

Illingsworth, R. S. *Recent Advances in Cerebral Palsy*. Boston, Little Brown, 1958.

Crothers, B. and Paine, R. S. *The Natural History of Cerebral Palsy*. Cambridge, Harvard University Press, 1959.

Deaver, George G. *Cerebral Palsy-Methods of Evaluation and Treatment. Rehabilitation Monograph LX*. New York: Institute of Physical Medicine and Rehabilitation, 1955.

Mysak, Edward D. *Principles of a Reflex Therapy Approach to Cerebral Palsy*. New York: Teachers College, Columbia University, 1963.

BIBLIOGRAPHY

Muscular Dystrophy

Austin, Elizabeth. *Participation of the Family and Patient in a Program of Rehabilitation.* Proceedings Third Medical Conference, October, 1954.

Bernstein, Herbert and Moiter, Sidney. *A Social Survey of Muscular Dystrophy.* Muscular Dystrophy Association of America, Inc.

Canter, Gerald J. *Neuromotor Pathologies of Speech.* Am. J. Phys. Med. 46: 660, 1967.

Danowski, T. S. *Basic Research in Muscular Dystrophy.* Presented at the Chapter Representative Meeting MDDA, Inc., June 21, 1958.

Greene, Justin L. *Emotional Factors in Children with Muscular Dystrophy.* Proceedings First and Second Medical Conference MDAA, Inc.

Hoberman, Morton. *Physical Medicine and Rehabilitation: Its Value and Limitations in Progressive Muscular Dystrophy.* Am. J. Med., February, 1955.

Milhorat, Ade T. *The Diagnosis of Muscular Dystrophy.* Am. J. Phys. Med., 34: No. 1, February, 1955.

Milhorat, Ade T. *Therapy in Muscular Dystrophy.* Med. Annals. Dist. of Columbia, XXIII: 15-22, 1954.

Morrow, Robert S. and Cohen, Jacob. *The Psycho-Social Factors in Muscular Dystrophy.* J. Child Psychiatry 3: No. 1, April, 1954.

Ogg, Elizabeth. *Out of the Shadows.* Public Affairs Pamphlet, No. 271.

Paul, W. D. *Medical Management of Contractures in Muscular Dystrophy.* Third Medical Conference MDAA, Inc., October 8 and 9, 1954.

Pearson, Carl M. *Muscular Dystrophy.* Am. J. Med. 35: 632-645, 1963.

Schoelly, Marie Louise and Fraxer, Alan W. *Emotional Reactions in Muscular Dystrophy.* Am. J. Phys. Med. 34: No. 1, February, 1955.

Small, S. Mouchly. *Emotional Reactions to Muscular Dystrophy.* Proceedings First and Second Medical Conferences of MDAA, Inc., 1951-52.

Truitt, Cleon Johnson. *Personal and Special Adjustments of Children with Muscular Dystrophy.* Proceedings Third Medical Conference, October, 1954.

Tyler, Frank H. *The Inheritance of Progressive Muscular Dystrophy.* Proceedings First and Second Medical Conference of the MDAA, Inc., 1951-52: Vol. 1, 46-57.

Vignos, P. J., Jr. and Archibald, K. C. *Maintenance of Ambulation in Childhood Muscular Dystrophy.* J. Chronic Diseases 12: 273-290, 1960.

Vignos, P. J. Jr., Spencer, Geo., E. Jr., and Archibald, Kenneth C. *Management of Progressive Muscular Dystrophy of Childhood.* J. Am. Med. Assoc. 184: 89-96, 1963.

Vignos, P. J., Jr., and Watkins, Mary P. *The Effects of Exercise in Muscular Dystrophy.* J. Am. Med. Assoc. 197: 843-848, 1966.

Walton, John N. *Amyotonia Congenita.* The Lancet: June 30, 1956, pp. 1023-1028.

Walton, John N. *Progressive Muscular Dystrophy.* Post-graduate Medicine 35: 102-110, 1964.

Walton, John N. *The Limp Child.* J. Neurology, Neurosurgery and Psychiatry 20: 144-154, 1957.

Welsh, Jack D., Lynn, Thomas N., Jr., and Haase, Gunter R. *Cardiac Findings in 73 Patients with Muscular Dystrophy.* Arch. Int. Med. 112: 199-206, 1963.

Worden, Don K. and Vignos, P. J., Jr., *Intellectual Function in Childhood Progressive Muscular Dystrophy.* Pediatrics 29: 968-971, 1962.

Wratney, Martha J. *Physical Therapy for Muscular Dystrophy Children.* Phys. Therapy Review 38: 26-32.

"Muscular Dystrophy", *Medical News Magazine.* Vol. 7, No. 2, February, 1963.

"The Muscular Dystrophies", MDAA, Inc.

Swinyard, Chester A., Deaver, Geo. G. and Greenspan, Leon. *Progressive Muscular Dystrophy: Diagnosis and Problems of Rehabilitation.* MDAA, Inc., 1958.