UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
OFFICE OF EDUCATION
WILLIAM JOHN COOPER, Commissioner

BULLETIN, 1930, No. 11

EDUCATION OF CRIPPLED CHILDREN

By

ARCH O. HECK
ASSOCIATE PROFESSOR OF SCHOOL ADMINISTRATION
OHIO STATE UNIVERSITY

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON: 1930

For sale by the Superintendent of Documents, Washington, D. C. . . . . Price 20 cents

CONTENTS

LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
OFFICE OF EDUCATION,
Washington, D. C., September 16, 1930.

SIR: The importance of education to the successful operation of a democratic government was fully realized by the Fathers of the Republic. Franklin and Jefferson were particularly active in the promotion of education. All of the early Presidents of the Nation expressed themselves without equivocation on the subject. Yet the movements which promised to translate these hopes into reality are not a century old. In fact, it is quite customary to cite the establishment of a State board of education by Massachusetts and the selection of Horace Mann as its secretary as marking the beginning of a real American public-school system.

Within the century education has become America's largest single business. But it is only within the last two decades that society's obligations to certain underprivileged groups of children have been recognized. This is true of those commonly termed cripples. There has always been morbid interest in, and a certain amount of speculation about, those who were born deformed or who acquired deformities as a result of disease in early childhood. To-day everyone recognizes the man-made dangers for children which result from traffic conditions in modern cities, and the increasing mechanization of the home. The popularization of scientific findings, especially in the field of medicine, has made understandable the crippling which results from such epidemics as poliomyelitis. Consequently, the average business man has now joined the philanthropist in demanding that these handicapped children be given a chance to develop to the full both their mental capacities and whatever physical facilities are not impaired as well as remedying in so far as is humanly possible the muscular and nervous handicaps under which these children work.

It is not uncommon that the city superintendent of schools finds himself confronted with a situation comparatively new in school procedure. He wants to know just how many crippled children there are in his jurisdiction; what sort of buildings and equipment would be required for their proper care and education; what types of teachers and other workers are necessary; how the work for such children can be best administered and supervised; and last, but not

least, how much it is likely to cost. Dr. Arch O. Heck, associate professor of education, Ohio State University, has brought together the results of current experience in the United States in this particular field. This manuscript presents a picture to which every city superintendent of schools and every other person interested in this problem should have access. In printed form it would answer inquiries from the field now requiring much correspondence. I recommend, therefore, that it be published as a bulletin of this office.

Respectfully submitted.

WM. JOHN COOPER,
Commissioner.

The SECRETARY OF THE INTERIOR.

EDUCATION OF CRIPPLED CHILDREN

I Introduction

Definitions

The school code of Illinois defines a crippled child as "* * * any child between the ages of 5 and 21 years who is deformed in body or in limb, and who can not profitably or safely be educated in the regular classes: *Provided,* That children defective in hearing, speech, or sight shall not be considered as crippled."[1] This definition sets several limits horizontally; the vertical limits are very indefinite. By the horizontal limits, the seat of injury is restricted to gross structures rather than to special organs of sense; the vertical limits refer to the degree of damage to the nervous system, muscles, or joints.

The Oregon school code says that a crippled child is "* * * a person between the ages of 6 and 18 years who has not already acquired the ordinary branches of learning taught in the first eight grades of the public schools of the State of Oregon and who is physically incapacitated as to be unable to leave his or her home or place of residence and where said incapacity shall have been continuous and extending over a period of at least six months."[2] This definition is much more inclusive than the Illinois definition; it includes any type of physical incapacity extreme enough to prevent the child leaving his home, providing the incapacity is of long enough duration. Such a definition is even less definite and more subjective than the one used in Illinois; moreover it eliminates many children from consideration who are customarily accepted in schools for cripples. Any child who demands crutches, braces, or casts, but who would benefit by treatment at the school would not be considered a cripple in Oregon provided he was able to leave his own home and attend a local school.

In Ohio "any person of sound mind who, by reason of * * * being so crippled as to be physically unable to properly care for himself without assistance, can not properly be educated in the public schools as other children, shall be considered * * * crippled."[3] For the purpose of forming special classes, crippled children over 5 years of age may be included. This definition allows much leeway for a wide interpretation of the term crippled children.

[1] School Law of Illinois, 1925, p. 140, par. 7.
[2] Oregon School Laws, 1925, p. 51, sec. 137.
[3] School Laws of Ohio, 1928, p. 394, sec. 7760.

Number of Cripples

A large proportion of the crippling of children is caused by poliomyelitis (infantile paralysis), a communicable disease which may occur in local epidemics. For this reason the number of crippled children may vary considerably according to locality. Five city surveys and one State survey show an average of about 2.5 juvenile cripples (under 16) per 1,000 of the general population. In the Cleveland survey the estimation was 1.3 per 1,000 and in the New York City survey, 3.6 per 1,000. A very high percentage of such children are already maimed for life before school age.

Why educate the cripples?—We may provide the best of physical care and treatment for these children but if we neglect their education, one of three things happens: (*a*) They may be so rehabilitated physically that they are able to move about as normal persons, and yet due to the lack of an education they are cast adrift as adults with meager chances of making a livelihood and face a life situation which is all the more disheartening after the solicitous care showed them during childhood. (*b*) They may be rehabilitated and may be trained in some trade, but in a trade that does not appeal to their superior intelligence; yet due to lack of opportunity they may be forced to spend the remainder of their life at a trade in which they are dissatisfied and unhappy. (*c*) If not so rehabilitated, if they must always be so crippled that they can not move about freely, they may find themselves either pauperized or forced to work at trades in which they neither find any pleasure nor in which they can compete with competitors who do not have this handicap. Probably no class of individuals is as much in need of an education as are the cripples and yet we have too often either denied them the opportunity or have forced upon them a type of education which they neither enjoyed nor from which they could greatly profit.

Legislation

Since the beginning of the twentieth century, considerable State legislation has been passed which attempts to make better provision for crippled children. A summary of the laws on this subject, prepared by W. W. Keesecker, was published by the Office of Education in 1929, and can be had from this source.

Censuses.—Massachusetts in 1905[1] and New York in 1924 made a State survey in order to determine how many crippled children lived within their State boundaries. Michigan requires an enumeration of all cripples; New York demands that the State advisory commission for physically handicapped persons keep a register of all crippled children of ages from birth to 18 years of age. The schoo

[1] Howett, Harry H. Legislating for crippled children. Welfare Magazine, May, 1928, pp. 624-625.

enumeration in Ohio must list separately all crippled children. In some States, physicians and midwives must report all children who are born with deformities; in other States public clinics are held, by districts, for the examination and diagnosis of cripples. Each State should enact legislation which would make available facts concerning the number of crippled children within the State, the extent to which physical care is needed, and the extent to which further education is necessary.

Providing for cripples in institutions.—Legislation relating to the physical care of crippled children has had several developments. These developments Howett says [5] took the following forms: "Special centralized hospitals owned and maintained at public expense in connection with State university hospitals; centralized institutions owned and operated by the State and under the management, directly or indirectly, of the State government; miscellaneous institutions receiving various types of State aid; and public and private local institutions which are paid out of public funds for their specific services to individual needy crippled patients." Michigan provided in 1913 for the free treatment of crippled children at the University Hospital at Ann Arbor; Minnesota had previously passed similar legislation as early as 1897.

In 1899, New York State provided a separate institution for the care of crippled and deformed children. Four other States have provided similar institutions; the one in North Carolina, established in 1922, being the most recent. Howett says: "From 1906 to 1919 Ohio legislators wrestled with the problem of building a State institution for crippled children * * * In spite of comparatively liberal appropriations * * * the institution was never built." [6] These State institutions gave primary attention to the physical care of the cripples, only secondarily was educational care provided. Massachusetts named her institution the hospital school.

Providing for cripples locally.—Many cripples not in these institutions were entirely unprovided for educationally. Ohio and New York [7] were the first States to pass legislation for these children. In 1917 they passed a law whereby classes for crippled children could be provided by boards of education; under specific conditions the State was to aid the local school district maintaining these classes. Under present legislation in Ohio a class must be organized if the parents of eight crippled children request it and if the State director of education gives his approval.

[5] *Ibid.*, p. 627.
[6] *Ibid.*, p. 630.
[7] *Ibid.*, p 632.

State Aid for the Education of Crippled Children

Current practices vary regarding the methods of giving State aid to local school districts which provide education for crippled children. Three general methods may be noted: (1) A specified sum may be granted to the local district for each crippled child enrolled; (2) a given sum may be paid for each teacher employed or a stated portion of each teacher's salary may be provided; and (3) the State may assume financial responsibility for the differential which exists between the average cost of educating crippled children and the average cost of educating normal children.

Minnesota [8] follows the first plan, and pays $250 per child for nine months of schooling. New Jersey,[9] Missouri,[10] Connecticut, and New York use the teacher as a basis for making the apportionment. In New Jersey each district is reimbursed to the extent of $500 per teacher per annum; Missouri grants $750 per teacher, if he is specially trained, provided this amount does not exceed two-thirds of the salary paid him by the local board; New York [11] agrees to pay one-half of the teacher's salary, provided the amount to be paid does not exceed $1,000 per year per teacher.

The third plan is in use in several States. Illinois [12] pays such excess provided it does not exceed $300 per annum; Ohio [13] grants not to exceed $300 for 9 months per pupil or a proportionate amount for more or less time; Michigan [14] pays the actual expense for teachers, special equipment, and special services, provided the total amount is not greater than the differential existing between the cost of educating crippled children and normal children and provided the total amount does not exceed $200 per child per year.

History of Education of Cripples

To Bavaria goes the credit for establishing the first institution to care for and educate crippled children;[15] it was established at Munich in 1832. The public schools did not assume the task of educating crippled children, however, until near the beginning of the twentieth century. McMurtrie says [16] that London was the first city to organize a special class for crippled children as a part for the public-school system; this class was formed in 1899. This was not, however, the

[8] Laws of Minnesota Relating to the Public-School System, 1927, sec. 250, p 73.
[9] New Jersey School Laws, 1925, sec. 271, p. 173.
[10] Rev. School Laws for the State of Missouri, 1927, sec. 11149, p. 29.
[11] Education Law, sec. 1020, p. 321. University of the State of New York Bulletin, 1925.
[12] School Laws of Illinois, 1925, sec. 6, p. 140.
[13] School Laws of the State of Ohio, 1928, sec. 7758, p. 394.
[14] General School Laws for State of Michigan, 1926, sec. 625, p. 261.
[15] McDonald, Robert A. F. Adjustment of school organization to various population groups. Teachers College Contribution No. 75, 1915, p. 58.
[16] McMurtrie, Douglas C. Home teaching for shut-in crippled children. New York Medical Journal, Apr. 19, 1919.

first attempt in England to educate crippled children; rather it represented the culmination of the efforts of a number of private individuals to have the crippled children cared for, since such work had been supported privately for several years before the London school authorities organized this class.

Other authorities say that similar classes were organized in the United States in 1899. Sollenberger,[17] in a report on Public School Classes for Crippled Children, says that the first public-school classes for cripples in the United States were organized in Chicago in 1899. This fact is confirmed by McDonald [18] who says "a second phase of nonresidential care (for cripples) is in special classes conducted under the direction of the city school board. In solving this problem the city of Chicago has led the way, the first class being opened in 1899." These facts show how recent is the effort to make the "care and education of crippled children" a function of the public schools. The movement is undoubtedly in the right direction. The earlier movement to care for cripples emphasized the physical care that children should receive. This was important, but it tended unfortunately to minimize the education of the crippled child.

Significant Features of the Education of Crippled Children

The management of a school for crippled children differs in many particulars from the management of a regular day school. Many of these differences, of course, are just as true of schools for other types of exceptional children as for the crippled child. For example, transportation problems are met whenever children have to be assembled from large areas; when so assembled problems of properly providing a good lunch also arise. There are, however, other problems which are so peculiar to the education of cripples that they may be referred to as special features in the education of crippled children.

The school building.—Constantly the architect must keep in mind the children for whom the building is being built. Cleveland provides a 1-story building so that children can avoid climbing stairs. Cincinnati has a 3-story building, but huge elevators have been installed for shifting the children from floor to floor. Chicago has a long winding runway connecting various floors. Children who can not use the stairs may use these runways. Provision should be made so that when the busses back up to the receiving entrance, the floor of the bus and the floor of the entrance will be flush. All thresholds should be eliminated. Toilets should be so arranged that children in various rooms will have a minimum of travel in order to reach

[17] Sollenberger, Edith Reeves. U. S. Bureau of Education Bulletin, No. 10, 1913, Public-School classes for crippled children.

[18] McDonald, Robert A. F. Adjustment of school organization to various population groups. Teachers College Contribution No. 75, p. 59.

them; some buildings provide a toilet adjacent to each classroom. General standards of construction which apply to other school buildings of course apply with equal force in the construction of a school building for crippled children.

The rest room.—A room equipped with sleeping cots is a feature of the school for cripples which should not be overlooked. Many of these children have long distances to travel; they often are not physically up to par; and sometimes their handicap is somewhat aggravated by the bus ride. A quiet rest for 15 minutes or half an hour once or twice during the school day will rejuvenate the children sufficiently so that they can get greater benefit from their class work.

Special attendants.—In addition to the classroom teachers, the school for crippled children will need several attendants whose chief duty will be that of helping the children move from one part of the building to another. At the Spaulding School in Chicago, these attendants accompany the busses both morning and evening. During the day these attendants help children move from classroom to classroom, from classroom to toilet, and from classroom to the clinic. The teacher is thus free to give all of her time to the work of instruction.

Special seating.—Sufficient attention is not always given to this problem. In some schools it would hardly seem to have been recognized as a problem at all. Obviously children with certain deformities can not be seated comfortably at the usual type of school desk. A very minor adjustment to a child's desk may give him complete relaxation instead of extreme discomfort. Such an adjustment may mean the difference between success and failure in his school work; it may mean the difference between an improved physical condition and one that is gradually getting worse. Grand Rapids, Mich., has been giving a great amount of attention to such adjustments. In some cases chairs have been specially built to meet the needs of a particular child.

II. Organization and Management of Schools for Crippled Children

In 1928 the Office of Education sent out a detailed questionnaire from which the following information with regard to the present organization, equipment, and management of schools and classes for crippled children was gleaned.

Extent of Organization

In some 85 cities provision has been made for the special education of crippled children. Of these cities, 24 have established 1 or more schools. St. Louis reports 5 schools, with a total enrollment of 252; Chicago, 4 schools, with a total enrollment of 1,624; Pittsburgh and

Columbus, Ohio, each 2 schools, with total enrollments of 58 and 88, respectively. The remaining 20 cities have a single school.

With seven exceptions, the cities which have organized schools for crippled children have not organized separate classes. Baltimore, Newark, N. J., Buffalo, New York City, Elyria, Ohio, Detroit, and Columbus, Ohio, make provision for the education of crippled children outside of their schools for cripples. This means that of the cities which reported that they were educating crippled children, 66 of them have organized a class for cripples in each of one or more schools in the city.

For a list of cities having schools and classes for cripples, with the enrollment, see the publication of this office entitled "Special Schools and Classes in Cities of 10,000 Population and More in the United States," Bulletin, 1930, No. 7.

Table 1 shows the cities, listed alphabetically by States, which forwarded data for this report. It is interesting to note that of the 27 cities reporting, 10 of them are in Ohio and 4 of them are in Michigan; thus 2 States account for 52 per cent of the cities reporting. Four other States, Massachusetts, New Jersey, Pennsylvania, and Wisconsin, have 2 cities each represented in this report. Five States, California, Connecticut, Indiana, Minnesota, and Rhode Island, have a single city each which reported. Thus, the entire report is based upon data from 27 cities all located in 11 of the 48 States. Of these 27 cities, 18 are in the North Central States, 4 in the Middle Atlantic, 4 in the New England group, and 1 in the West.

TABLE 1.—*Cities listed by States which returned data on schools and classes for crippled children*

Cities	Schools	Classes	Cities	Schools	Classes
1. San Francisco, Calif.	1		16. Elyria, Ohio		1
2. Bridgeport, Conn.		1	17. Lima, Ohio		1
3. Fort Wayne, Ind.	1		18. Massillon, Ohio		1
4. New Bedford, Mass.		1	19. Piqua, Ohio		1
5. South Dartmouth, Mass.		1	20. Springfield, Ohio		1
6. Grand Rapids, Mich.	1		21. Struthers, Ohio		1
7. Hamtramck, Mich.		1	22. Warren, Ohio		1
8. Highland Park, Mich.		1	23. Erie, Pa.	1	
9. Saginaw, Mich.		1	24. Philadelphia, Pa.	2	7
10. Duluth, Minn.		1	25. Providence, R. I.	1	1
11. Jersey City, N. J.			26. Kenosha, Wis.	1	
12. Newark, N. J.			27. Milwaukee, Wis.	1	
13. Barberton, Ohio		1			
14. Cleveland, Ohio	1		Total number of schools	13	
15. Dayton, Ohio	1		Total number of classes		23

Recency of establishment.—The movement to establish schools and classes for crippled children is quite recent as the facts in Table 2 show. In the 27 cities reporting for this study are 36 buildings in which schools or classes for crippled children are housed. Reports from 27 of these buildings, or from 75 per cent of the 36, show that classes and schools were first organized in them some time during the past nine years; 7

building reports fail to show the date of organization; and in 2 buildings classes for cripples were organized in 1914 and in 1915. Schools and classes organized in the public schools for crippled children before 1920 would probably be found to be few and far between even if we had reports from all cities in which such classes are organized.

TABLE 2.—*Dates at which schools and classes for crippled children were organized*

Dates	Number of buildings	Dates	Number of buildings
1914	1	1926	3
1915	1	1927	4
1921	2	1928	1
1922	1	1929	1
1923	4	No report	7
1924	4		
1925	7	Total number of buildings	36

Time Spent in School During the Year

Length of the school year.—Of the 27 cities reporting in this study, 20 state that their schools and classes for crippled children have the same length of school year as is had by their regular day schools. One city reports, as is shown in Table 3, a school year for crippled children of nine and one-half months but it fails to indicate the length of the regular school year. Newark, N. J., reports that its school year for crippled children is seven weeks longer than the regular school year. A note attached to the foregoing says that there is an all-year school for cripples. Five cities failed to report the length of their school year.

TABLE 3.—*The length of the school year for schools and classes for crippled children*

Length of school year	Number of cities
Same as the regular school year	20
9 months and 2 weeks	1
7 weeks more than regular school year	1
No report	5
Total number of cities	27

Length of school day.—The length of school day varies a great deal. One city reports only a 2-hour day. Three cities report a 6 hour and 30 minute day; one of these cities explains its 6 hour and 30 minute day by saying that the bus makes two trips so that one group of children arrives early and leaves early, and the other group arrives late and leaves late; each group is, therefore, actually in the classroom only four and one-half hours. Table 4, therefore, shows only two schools with a 6 hour and 30 minute day. In interpreting the data found in Table 4 one should recall that the directions stated that the noon hour was to be included in reporting the length of the school day.

Nine cities reported a 6-hour school day, with five cities reporting a 5-hour day. Six of the 27 cities failed to report. Table 4 shows the details concerning the length of the school day for cripples.

TABLE 4.—*The length of the school day for schools and classes for crippled children*

Length of the school day	Number of cities	Length of the school day	Number of cities
6 hours 30 minutes	2	4 hours 30 minutes	1
6 hours 14 minutes	1	2 hours	1
6 hours	9	No report	6
5 hours 30 minutes	2		
5 hours	5	Total number of cities	27

Care during the summer months.—In addition to the care given to crippled children during the regular school year, 8 cities make provision for continuing physical treatments during the summer vacation; 11 cities do not continue such treatments; 7 cities failed to report; and Philadelphia states that the only children whose treatments are continued through the months of July and August are those few who are able to secure private transportation.

The cost of this summer treatment is provided for in different ways. Saginaw (Mich.) reports that the Society for Crippled Children bears this expense; three cities report that the State does this; one reports that the hospitals do this summer work free; one reports that the city provides visiting nurses who continue the physical treatments; and the other two cities do not explain how such treatments are financed during the summer vacation.

Housing Facilities

The number and the type of buildings used.—Of the 27 cities reporting, one sent in a separate report for each of nine buildings in which classes or schools for crippled children were housed; another sent in reports for two buildings; and the remaining 25 cities sent in reports for only one building each. This provided reports from 36 buildings in which crippled children were housed. Table 1, on page 7, shows that 13 of these buildings house schools for cripples and that 23 of them house classes.

The Philadelphia report shows that three of the nine buildings of that city are hospitals, the Shriner's Hospital, the University of Pennsylvania Hospital, and the Orthopedic Hospital; the first houses a school and the other two house classes only. The Philadelphia report shows, also, that classes are housed in the Home of the Merciful Savior. The remaining five buildings are school buildings adapted to the use of crippled children. Erie (Pennsylvania) likewise reports that one of its two buildings which houses crippled children is a Shriner's Hospital.

Type of school building.—Table 5 shows that 14 of the school buildings which house crippled children are fireproof, 8 are semifireproof, and 3 are frame. There is no report for 11 of the 36 buildings.

TABLE 5.—*Type of school building in which crippled children are housed*

Type	Number of buildings
Frame	3
Semifireproof	8
Fireproof	14
No report	11
Total number of buildings	36

Quality of the building.—A further attempt was made to discover in what kind of a building crippled children are being housed by asking the principal of the school to rate his building. He was asked to indicate whether he would classify it among the best one-fourth of all school buildings in the city, among the middle 50 per cent, or among the lowest one-fourth.

Table 6 shows that 15 principals think very highly of their school plant and believe that the crippled children are being provided with a building which is better than the average of the regular school buildings for their city. Only three principals rank their buildings in the lowest quarter. Again 10 principals fail to answer this question.

TABLE 6.—*Quality of the buildings used to house crippled children*

Quality or rating	Number of buildings
Among best fourth	15
Among middle half	8
Among worst fourth	3
No report	10
Total number of buildings	36

Use made of the building.—Table 7 shows that of the 36 school buildings used to house crippled children, 10 are for cripples only; 10 house children doing regular elementary school work as well as crippled children; 4 house junior high school pupils and crippled children (2 of the junior high schools also house elementary pupils); and 1 houses the cripples with senior high school pupils and with junior high school pupils. Data from 11 buildings fail to report the use to which the building is put.

TABLE 7.—*Use made of school buildings which house crippled children*

Use	Number of buildings
Used entirely for crippled children	10
Used partly for elementary	10
Used partly for junior high school	4
Used partly for senior high school	1
No report	11
Total	36

Size of buildings in terms of rooms.—Of the 36 buildings reporting, Table 8 shows that 10 are used exclusively for crippled children; this fact is indicated whenever the corresponding numbers in the two columns are identical. The largest building of this type has 20 rooms in it; Table 8 shows that these 20 rooms are all used for crippled children. No report of this kind is had from seven of the buildings. This leaves 19 buildings which house other groups of children besides cripples. In the first and third columns of Table 8 is reported the total number of classrooms in the building; in columns 2 and 4 is reported the number of classrooms used by children who are crippled. Some of the buildings which house only one to three classes of crippled children have as many as 62 to 68 rooms, others have as few as 4 to 6 rooms.

TABLE 8.—*The portion of each building which is used by crippled children*

Total number of rooms—		Total number of rooms—	
In the building	Used for cripples	In the building	Used for cripples
20	20	3	3
16	16	3	3
10	10	68	2
10	10	23	2
8	8	17	2
24	7	16	2
6	6	7	2
29	5	6	2
62	3	4	2
45	3	2	2
24	3	27	1
21	3	21	1
18	3	21	1
16	3	19	1
3	3	(1)	[2]7

[1] No report. [2] Buildings.

Total number of buildings, 36.

Location of rooms used for the cripples.—Of the 10 buildings used entirely for crippled children 3 house all children on the first floor; 2 house them all on the second floor; 1 houses them both in the basement and on the second floor; 1 houses them in the solarium and upon the first and second floors; and 3 did not report.

Of the 26 buildings used both for crippled children and for noncrippled children, 5 place the cripples in basement rooms, 17 place them on the first floor, and 1 places them on the second floor; 3 buildings did not report this item.

Of the 36 buildings, 5 locate the crippled children so that they must go from one floor to another. In only one building where this is necessary have elevators been omitted.

Types of rooms reported in use.—There are 23 types of rooms reported by the 32 buildings which returned these data. The types are listed in Table 9 and, for the most part, just as reported. A few terms, obviously identical, were combined. In many buildings kitchens and dining rooms are not had; the luncheon is prepared and served in the classroom; sometimes it is secured from the kitchen connected with the regular school and served in the classroom.

TABLE 9.—*Types of rooms used for crippled children*

Types of rooms	Number of rooms	Types of rooms	Number of rooms
1. Activity room	1	14. Loom room	1
2. Bathroom	1	15. Manual training	1
3. Classrooms	83	16. Music room	1
4. Clinic	1	17. Nurse's room	1
5. Dental room	1	18. Occupational therapy	1
6. Dining room	10	19. Office	1
7. Doctor's office	1	20. Physiotherapy	6
8. Domestic science	2	21. Rest rooms	10
9. Examining room	1	22. Toilets	4
10. Gymnasium	2	23. Treatments	2
11. Industrial arts	2		
12. Kitchen	1	Total	135
13. Library	1		

No reports from 4 buildings.

The list of types of rooms shown in Table 9 is of interest not because of its completeness but rather because it indicates so many possibilities. Rest rooms, physiotherapy rooms, dining rooms, and some space for the doctor, the dentist, and the nurse are necessary adjuncts to the care of crippled children. The number of rooms reported here differs from the number reported in Table 8. This is due to the fact that more buildings reported on this item than reported on the items shown in Table 8. The average number of rooms per school, as shown by Table 9, is 4.2 rooms.

Size of classrooms used by cripples.—The classrooms used by crippled children are on the average about the size of regular classrooms. This is what would perhaps be expected since so many of the classes are housed in regular school buildings. The numerous odd-sized rooms may indicate that in some cities the rooms used by crippled children are the extras; as already noted a few of the classes are housed in basement rooms.

The rest rooms which are reported are much smaller. Of the 10 rest rooms, the size is reported for only 7. Two of them are 10 by 12

feet; others are 12 by 15 feet, 16 by 17 feet, 16 by 22 feet, 19 by 25 feet, and 24 by 36 feet. The rooms used for physiotherapy are varied in size; the sizes of only four are reported; they are 6 by 9 feet, 19 by 33 feet, 22 by 40 feet, and 24 by 28 feet. The remaining types of rooms varied similarly in size.

Training of Teachers

Special training for teaching crippled children is specified by four cities, and additional training is required by two; this additional training, of course, may be adapted especially to the requirements of teachers of crippled children, but it is not demanded. Four cities emphasize the fact that the requirements are the same as for the regular schools; four more state that a 2-year normal course is all that is necessary; this undoubtedly means that the requirements are the same as for regular schools; the same is true also for the one city that requires graduation from a normal school. The requirements of "graduation from teachers college," or the holding of a "life certificate" perhaps represent additional requirements. If the above analysis is correct, of the 17 cities 9 make their requirements identical with those of regular teachers; 8 cities made additional requirements. Of the 8 making additional requirements, 4 demand special preparation for the task in hand.

Of the 27 cities, only 10 report the experience required of academic teachers of crippled children. Two cities require five years of successful teaching experience. One city demands no previous teaching experience. The fact that 17 cities fail to report such a simple item when they are reporting many other items may mean that they have no requirements and that they accept candidates without experience when such candidates are otherwise acceptable.

TABLE 10.—*Previous teaching experience required of academic teachers of crippled children*

Number of years	Number of cities	Number of years	Number of cities
5	2	0	1
3	1	No report from	17
2	4		
1	2	Total	27

The industrial instructor.—Of the 27 cities reporting, only four report industrial teachers. Some of the other cities report that the industrial work which is done is cared for by the teachers of academic subjects; in one school this work is done by the principal; and in another by the principal and by a high-school teacher who gives one-half a day per week to it.

Grand Rapids, Mich., one of the four cities to report, says that this teacher is an occupational therapist and that they have only the one.

His duty is to use toys and other devices to improve muscular coordination; he gives three hours per week to domestic science and shop work and 1½ hours to typewriting. He is selected cooperatively by the superintendent, the principal, and the supervisor of special classes; no special requirements are set and no salary schedule is had. The present teacher is paid $2,100. Erie, Pa., also has an instructor in occupational therapy; he is paid, however, by the Junior League of Erie; he receives $1,700.

The school at Newark, N. J., reports two teachers of industrial subjects, with salaries of $1,900 and $3,200. The salary schedule is $1,700 to $3,200 These teachers are always recommended by the superintendent; they must be graduates of a "professional or technical school," and approved by a board of examiners. The foregoing requirements are fixed by the local board of education.

Philadelphia reports five teachers of industrial subjects, at salaries varying from $1,500 to $3,000 per year. The teachers are selected upon the basis of competitive examinations; they must have 20 semester hours of special preparation in addition to 70 hours of teacher training.

Evidently the schools and classes now organized for crippled children are not doing much school work of an industrial nature other than that which can readily be taught by the teachers of academic subjects. This probably is to be expected, since the most of these schools and classes are for children of the elementary grades.

Caretakers

The nurse.—Of the 27 cities reporting, only 12 report nurses connected with their schools and classes for crippled children. Of the 12 so reporting, 10 have only one nurse each for this work; and 2 have two nurses each. In 4 of the 12 cities, the superintendent makes recommendations to this position; in 5 of these cities the health department through its director, commissioner, or head is responsible for selecting the nurse; in one city the Society for Crippled Children and the city health department do the employing; in one city the superintendent of schools and the commissioner of health employ the nurse; and one city failed to report. The nurse is generally responsible, therefore, to the local board of health.

Only nine cities report the range of salary schedules. The minimum ranges from $300 to $1,800 with a mid score of $1,450; the maximum ranges from $300 to $2,500, with a mid score of $1,700.

Six cities report that the nurses are on duty full time; four cities report them on duty less than half time. Nine of the cities report that only graduate nurses are employed; the remainder of the cities ignore the question. Only two cities report that the nurses are trained in physiotherapy; a third says that they are not so trained

except to some extent in "massage, corrective gymnastics, and muscle education."

Of the 36 reports from principals of school buildings in which cripples are taught, 20 state that nurses are provided. The actual salaries of the nurses are shown in Table 11 for 12 buildings. These salaries range from $1,320 to $1,800 per year, with one exception. Warren, Ohio, pays only $300. The report implies, however, that this is not an annual salary but is paid only for the part-time work which is done in this school; it is, therefore, omitted. The school at the Shriners' Hospital at Erie, Pa., pays its two nurses $1,680, and $1,320, respectively, as the table shows. Two nurses are employed at Saginaw, Mich., but they are hired and paid jointly by the Society for Crippled Children and by the city health department and their salaries are not reported. Only five of the salaries shown in Table 11 represent the salaries of nurses giving full time to crippled children; the remainder give part time to cripples and part time to the regular day schools.

Of the 20 buildings which have nurses, 13 report that their nurses are graduate nurses; 2 report that their nurses have had over two years of training; and 5 do not report. Only 2 report that their nurses have had training in physiotherapy.

TABLE 11.—*Salaries of nurses in schools for crippled children*

City	Salary	City	Salary
Fort Wayne, Ind	$1,800	Philadelphia (Lafayette), Pa	$1,560
Hamtramck, Mich	1,860	Philadelphia (Meade), Pa	1,530
Jersey City, N. J	1,600	Philadelphia (Horn), Pa	1,400
Cleveland, Ohio	1,440	Philadelphia (Revere), Pa	1,700
Dayton, Ohio	1,600	Erie, Pa	1,680
Warren, Ohio	300		1,320
Philadelphia (Brigy), Pa	1,400		

Total number of schools reporting, 12.

The physiotherapist.—Of the 27 cities reporting, 10 state that they have "physiotherapists" to give aid in caring for their crippled children. Newark, N. J., calls her physiotherapists "corrective gymnasium teachers." Dayton, Ohio, has a physiotherapist and is included among the 10 cities reported above; its financial support, however, comes from the local "community fund" plus private contributions, and not from the board of education.

Philadelphia reports that the board of education does not provide physiotherapists. Instead, "the plan is first to secure the consent of the parents and then take the children to orthopedic clinics in neighboring hospitals—those of the University of Pennsylvania, Jefferson Medical College, and Temple Medical College being regularly used. Those needing physiotherapy, either without operation or in conjunction with operation are given this at the hospital clinics, with

massage, corrective gymnastics, and muscle education given by school nurses at special schools in the intervals between visits to the hospital clinics and under direction of the hospital specialists." This statement of procedure in Philadelphia shows that physiotherapy is practiced in the local schools but that the nurses are trained to do it. Philadelphia, however, was not included in the 10 cities reported in the preceding paragraph.

At Lima, Ohio, a local doctor assumes the duties of the physiotherapist; his work is volunteer and is done under the supervision of the Rotary Club. At San Francisco, Calif., the assistant director of physical education assumes these duties and is directly responsible to the deputy superintendent in charge of special education.

The physiotherapist is recommended for appointment in several ways, as is shown by Table 12. Seemingly the work of the physiotherapist is not generally accepted as a function of the public schools; three cities allow this work to be provided by organizations not controlled by the board of education.

TABLE 12.—*Officials responsible for recommending the physiotherapist for appointment*

Officials	Number of cities	Officials	Number of cities
Superintendent	3	Barney Center, which is supported by the community fund and by private donations	1
Superintendent and principal	1	Supervisor of special classes	1
Superintendent and orthopedic surgeon	1	Visiting nurses' association	1
Superintendent, supervisor of special classes, and principal	1	Total	10
Society for Crippled Children	1		

The salaries of physiotherapists are reported by only five of the 10 cities which provide them. They are $800, $1,830, $1,900, $1,920, and $1,975 as minimums. Maximums are given in two instances as $2,070 and $2,200. Duluth, Minn., states that its maximum depends upon training and experience.

Seven of the 10 cities providing physiotherapists report that they serve under the direct supervision of the physician in charge of the case; in two cities they work under the direction of the school physician; and in the other city the physiotherapist is independent. The number of children treated ranges from 14 in one city to 50 in another; the mid score is 32. The number of hours spent in work with pupils varies from four hours to six hours daily; the mid score is five hours.

The cook and others.—Table 13 shows that of the 36 schools reporting, 10 report that attendants are provided. Six of these schools have but 1 attendant each, one has 2, two have 3, and the other school has 7 attendants. The salaries of these attendants vary from $350 (for bus attendants) to $1,000; the mid salary is $360. The duties of these attendants vary. Three schools have bus attend-

ants who merely ride in the busses to and from school and help the drivers when the children enter and leave the busses; in another school these attendants also help the pupils reach the lavatory. The attendant at Providence, R. I., is employed all day, accompanies the children to the clinic, and takes charge of serving lunch.

TABLE 13.—*Additional helpers reported by schools for crippled children*

Type of helpers	Number of schools	Type of helpers	Number of schools
Attendants	10	Luncheon manager	1
Bus drivers	6	Maids	3
Cooks	14	Matrons	12
Custodians	1	Porter	1
Janitors	4	Total	52

The Grand Rapids, Mich., report states that the attendant cares for helpless pupils in the toilet; dresses and undresses pupils for treatments when they need assistance; airs out and folds up blankets in the rest room; serves milk and orange juice to pupils when they arrive in the morning and helps prepare the same; and helps serve noon lunch which is served in the classrooms on the pupils' desks. It is of interest to note that Grand Rapids pays its attendant $1,000.

Only 6 of the 36 schools report bus drivers. Very few duties are reported, it being assumed, doubtless, that the duties are obvious. Grand Rapids reports that its drivers transport pupils to and from home and care for and repair busses except when the repairs needed are so extensive that they must be made by a garage. The salaries of bus drivers are reported by only three schools. The driver at the Lafayette School in Philadelphia receives $1,200; the driver at Duluth, Minn., receives $1,049, and the drivers at Grand Rapids, Mich., receive from $32.50 to $35 per week.

Fourteen of the 36 schools report cooks. This does not mean that lunch is not served in any of the other schools; it does mean that a particular individual is not designated as cook in many schools. The smaller schools will frequently have lunch served by the matron, by an attendant, or by a maid. The duties of the various helpers listed in Table 13 overlap considerably. The salaries range from $200 to $1,200; the midsalary is $750. One salary, not included above is reported as $1,600; that however is the salary of a teacher of retarded girls who is charged with preparing lunch for the crippled children. The salary is not comparable, therefore, with the other cooks' salaries. The cooks' duties vary. Grand Rapids, Mich., reports that the cook uses menus made out by the domestic science teacher, orders food, and checks all bills before turning them into the clerk.

Cleveland is the only city to report a lunch-room manager; her duties and salary are not stated; she must have had training in home economics but the amount is not specified.

Three schools report maids; the two maids reported by Elyria, Ohio, clean the floors and woodwork, and help serve the trays; the two reported by Jersey City are cleaners; the Shriners' Hospital School at Erie, Pa., reports two maids but does not specify their duties; Jersey City pays $1,020 and Erie pays $560 to $720.

Twelve schools report matrons; at Highland Park, Mich., she helps plan the meals and supervises them; at Elyria, Ohio, she cares for and maintains the linen supply, cares for the children's clothing, sees that the building is clean, and supervises the work of the maids and of the janitor; at Piqua, Ohio, she acts as bus attendant to and from school, prepares the hot lunch, and assists children who need help in getting around the room at school. At the Horn School in Philadelphia, the matron attends to all the physical wants of the pupils during the school session and helps serve lunch.

At Milwaukee, Wis., the matron has charge of the busses, assists cripples on arrival at school and at leaving school, serves breakfast to those on the fifth bus, cares for children in the halls, assists at recess time on the playgrounds, prepares cots for sleeping, puts away blankets and cots after the rest periods, aids the nurse, helps to get pupils to the tables for dinner, and prepares and serves lunch at the rest period in the afternoon. At the Lafayette School in Philadelphia, the matron attends to the physical needs of the pupils, distributes lunches, supervises the lunch room, and prepares the lunches. The salaries of matrons are reported by only seven schools. The range is from $400 to $1,200; the midsalary is $750.

The duties of these special helpers clearly overlap. The functions of the jobs listed in Table 13 are not mutually exclusive. A function such as serving lunch is probably provided in all these schools, but the preparing, cooking, and serving of this lunch is done by helpers who respond to different titles in the various schools.

Medical Aspects of the Education of Cripples

It is no fault of the crippled child that he is a cripple, and it is usually no fault of the parent that the crippled child does not have the physical or mental care he deserves. The chief causes of crippling (infantile paralysis and injuries to the nervous system occurring before or at birth) have been unpreventable and the community is responsible for the distressing products of its collective ignorance. Facilities for adequate treatment of the crippled child are wholly lacking in most communities, and if such treatment were to be had its cost by private practice would be prohibitive to most parents. It is not only a matter of public philanthropy but of public economy that the crippled child receive as complete mental and physical education as is possible, and not only mentally but physically a great deal can be done to render him a happier and more useful member

of society. As a principal of a special school remarks, "Crippling either makes or breaks a child," and whether he is made or unmade depends very much on what is done or not done for him at school age.

Physically, the care of the crippled child devolves upon the department of medical inspection. He should be looked after immediately by a paid or volunteer physician informed in orthopedics. Operative procedures are, of course, out of place in a public school for cripples, and a child who needs such treatment should be cared for elsewhere until he is ambulant and sufficiently recovered to profit fully by his school work. Aside from the cost of therapeutic equipment and treatment, the chief financial need arises in connection with the supply of supporting braces. While parents should be asked to pay what they can for such appliances, the expense must often be met in part from special funds supplied by the school or by an outside agency.

In some cities the children are sent from school to a dispensary or hospital for massage and other forms of treatment. While this involves extra transportation and sometimes attendance, it may be the most economical arrangement. Where there is no dispensary or hospital affording adequate treatment or where there are some 40 or more pupils, it would seem much better to employ one or more persons trained in physiotherapy and furnish the treatments in the school. Whether these persons should receive their initial training as a nurse or in physical education does not matter save as their services may be needed in part in connection with school nursing work or in looking after the general physical activities of the pupils. The results of treatment will be in proportion to the intelligence and skill displayed by these workers and those results can be very great indeed even years after the crippling occurred. Children should be given all possible aid throughout their entire school life and followed up later.

III. Administrative Problems of the Pupil Personnel

Conditions Leading to Enrollment in Schools for Cripples

Assignment to schools or classes.—Of the 27 cities reporting, 16 specify that an orthopedist shall have a part in deciding whether or not a child shall be admitted to the school for cripples; 3 cities give him the sole power of deciding. The statistics are shown in Table 14.

TABLE 14.—*Recommendation for admission to the class for cripples rests upon the following persons*

Those responsible for recommending admission	Number of cities	Those responsible for recommending admission	Number of cities
Orthopedist	3	School officials and parents	4
Orthopedist and school officials	4	Hospital authorities	1
Orthopedist, school officials, and parents	7	No report	5
Orthopedist and parents	2		
School officials	1	Total	27

In only six cities reporting is the orthopedist omitted; in one of these the hospital authorities are reported as being responsible for placing children in the school for cripples; in two others a footnote is inserted stating that all children admitted must be examined by a physician; the implications are, surely, that his decision will at least have great weight in deciding whether or not a given child can enter the school or class for cripples. At Warren, Ohio, where the orthopedist and the school authorities admit, a further limitation is specified in the report; children admitted must have an I. Q. of 70. The recommendations of the orthopedist or school authorities are compulsory in 8 cities; they are not binding in 12 cities; and 7 cities did not report.

How are cripples discovered?—Of the 27 cities 15 report that they make a complete survey of all children in the district in order to discover those who should be in a school or class for cripples; 2 cities state that this was done when their schools were first opened. Seventeen cities state that various organizations and individuals report children who should attend such schools or classes; 14 of these cities report that teachers send in this information. Nine, or 33⅓ per cent of the cities reporting, utilize all three procedures. Bridgeport, Conn., utilizes the yearly census to discover crippled children; at Hamtramck, Mich., the clinics of the city make reports; Dayton, Ohio, uses the school enumeration; Philadelphia, Pa., has reports from attendance officials; and four cities report that the school nurses and the school physician discover a great many.

Official provisions governing assignments.—These provisions are far from uniform. Of the 27 cities only 12 report such provisions. Duluth, Minn., states that children admitted must be normal in mind, without defective sight, hearing, or speech and yet unable to profitably and safely be educated in regular classes. Newark, N. J., admits children of school age who are physically crippled or possess bodily deformities to such an extent that they can not be properly accommodated and instructed in the classrooms usually provided. Springfield, Ohio, demands that the child have an I. Q. above 70. Lima, Ohio, requires a mentality of 70 and a child so crippled that attendance at the regular school would be dangerous Cleveland, Ohio, states that the child must be normal mentally and so crippled that he can not be educated in the regular schools.

Only five cities report the dates at which their rules were put into operation; the earliest of these dates is 1921. These provisions are reported as State provisions by eight cities; they are local provisions in four cities; and joint provisions, agreed to by the State and the locality, in two cities.

Philadelphia admits orthopedic cases who are not able to walk to the regular schools and those who can walk but who are unable to climb stairs or to move about without grave danger of accident. Certain cases of heart disease are admitted in some schools for cripples.

Are cripples who are able to walk to a regular school admitted?—Thirty-three and one-third per cent, or 9, of the 27 cities reporting, do admit such cripples. Eleven do not admit such children. Seven ignored the question. Of the nine cities which do admit, four qualify the affirmative answer by saying they are admitted if it is felt they could be benefited. One of the negative answers is qualified by exempting those who live too far from the regular school to walk.

Termination of assignment.—Table 15 shows the numerous individuals who are responsible for terminating a child's attendance in a school or class for cripples. An orthopedist has a part in this responsibility in 15 of the 27 cities; in 4 other cities a physician is in part responsible; 1 city puts all the responsibility upon the school authorities; and 7 did not report.

TABLE 15.—*Those responsible for terminating the child's stay in the school for cripples*

Those responsible	Number of cities	Those responsible	Number of cities
Orthopedist	5	School physician	1
Orthopedist and family physician	2	School physician and family physician	1
Orthopedist and parents	2	School physician, family physician, parents, and school nurse.	1
Orthopedist, school physician, and superintendent	1	Family physician, parents, and school authorities.	1
Orthopedist, principal, and physiotherapist	1	School authorities	1
Orthopedist, city nurse, and State authorities.	1	No report	7
Orthopedist, school physician, family physician, parents, and nurse.	1	Total	27
Orthopedist, school physician, family physician, parents, and principal.	2		

Of the 20 cities reporting in the preceding paragraph 15 do not terminate the period of attendance at a school for cripples until the child is cured sufficiently to enter the regular schools or to go to work. This generalization is qualified somewhat since they require the completion of the eighth grade before the pupil can be released, or the completion of the grades taught in the school for cripples; change of residence also will release them, or if they are so physically handicapped that more individual attention is required they can be released.

Table 16 shows for 1,500 children enrolled in the schools reporting, the causes and conditions for which they were admitted. (Of the 1,571 pupils reported, 71 had cardiac defects.) Infantile paralysis heads the list; tuberculosis of bones and joints ranks second; and spastic paraplegia is third.

TABLE 16.—*Conditions leading to enrollment in schools for cripples (exclusive of heart lesions)*

Causes	Number of pupils	Causes	Number of pupils
Poliomyelitis (infantile paralysis)	629	Congenital abnormalities of arms or hands	4
Tuberculosis of bones and joints	213	Congenital anomaly of the pelvis	1
Tuberculosis of spine (so reported)	80	Club feet	25
Osteomyelitis	74	Spina bifida	3
Arthritis	18	Congenital deformity (unspecified)	33
Anklylosis	3	Results of rickets	12
Spastic paraplegia	150	Achondroplasia	2
Spastic hemplegia	4	Legg's disease	1
Wry neck	3	Chrondromata	1
Spastic conditions (unspecified)	15	Bone tumor	1
Paralysis (cause and nature not given)	20	Still's disease	1
Post encephalitis (spastic paralysis)	3	Flat foot	3
Transverse myelitis	2	Injury (nature unspecified)	112
Ataxia (cause not given)	4	Amputation	10
Muscular dystrophies	21	Miscellaneous	32
Congenital dislocations of the hip	20		

Roughly 45 per cent of children for whom special provision must be made in schools for cripples are there because of acute infection affecting the brain or spinal cord—chiefly poliomyelitis. Twenty per cent have been damaged by tuberculosis of the bones or joints; 5 per cent by other infections of bone; 15 per cent had injuries of the nervous system at birth; 6 per cent have congenital deformities the causes of which are not known; 8 per cent received mechanical injury from accidents after birth. About 1 per cent have been crippled by rickets.

Length of time the children now enrolled have been enrolled.—Table 17 shows the length of time each child, who is now enrolled, has been a member of a class or school for crippled children. The median for the 1,571 registrations is 2 years and 0.24 of a month; the first quartile point is 8.6 months; and the third quartile point is 3 years and 9.72 months. Twenty-five per cent of the children enrolled have attended their respective schools for nearly four years or more; on the other hand, there are 25 per cent who have been on the roll for less than nine months.

TABLE 17.—*The length of time that crippled children now enrolled have been enrolled*

Period of membership	Number of pupils	Period of membership	Number of pupils
1 month	69	3 years 6 months	55
2 months	59	4 years	88
3 months	66	4 years 6 months	31
4 months	59	5 years	78
5 months	65	5 years 6 months	29
6 months	29	6 years	47
7 months	26	6 years 6 months	35
8 months	33	7 years	37
9 months	59	7 years 6 months	7
10 months	178	8 years	15
1 year 3 months	42	8 years 6 months	2
1 year 6 months	100	9 years	2
2 years	143	10 years	0
2 years 6 months	77	11 years	1
3 years	144		

Total number of pupils enrolled, 1,571.

The Program in School

The purpose of this section is to report somewhat in detail what is done for the child after he enters the school or class for cripples. What is the general nature of the course of study; how extensively is the child studied physically, mentally, and socially; and what special provisions, such as lunches, dinners, and rest periods, are arranged?

Provisions made for the child mentally.—Of the 27 cities reporting, 17 report that children are not admitted to the school or class for cripples until the child has been given a mental examination; 3 others state that an examination is given sometimes; 1 of the 3 states that the mental test is given in all doubtful cases. Of these 20 cities only 15 report that the I. Q. is used as a basis for admission; 4 give the examination but imply by their reply that a child of very low mentality may be admitted to the school; 1 states that it "depends upon the case" but that to date they have taken none below 70 I. Q.

TABLE 18.—*Cities which give mental examinations to the child before admitting him*

Use of the mental examination	Number of cities
Gives mental test before admission	17
Gives mental test in some cases	3
Does not give mental test	1
No report	6
Total	27

Of the 15 who base admission upon the I. Q., 14 report definite limits under which children are not admitted; 1 of the 15 neglected to report this fact. Table 19 shows what these limits are. Most of the cities set the limit at 70 I. Q.; 1 goes as low as 60; and 2 cities refuse to accept children with an I. Q. below 80. Of the 14 cities that set definite limits below which children are refused admission to schools for cripples, 3 report that such children remain at home, 3 report that they remain at home or are sent to some other school, 2 report that they remain at home or are sent to an institution, and 1 states that such children are advised to go to an institution. Nine of the 14 cities do not make it definitely possible for such children to have any care other than that which the home may give; only 4 cities report that such children are sent to some other school or to an institution. Table 20 shows these details.

TABLE 19.—*I. Q. below which children are not admitted to schools for cripples*

I. Q.	Number of cities
60	1
70	8
75	3
80	2
Total	14

Grands Rapids, Mich., reports that I. Q. is not a basis for admission; it does report, however, that "subnormals are not admitted." The "special class tester" decides whether or not a child is fit for admission; many children are admitted on trial. Hamtramck, Mich., does not use I. Q. as a basis for admission; it adjusts the school work to the ability of the children admitted.

TABLE 20.—*What children do who are refused admission because of low I. Q.*

What is done	Number of cities	What is done	Number of cities
Remain at home	3	Advised to go to institution	1
Sent to institution	1	No report	1
At home or institution	2		
Sent to some other school	3	Total	14
At home or other school	3		

Provisions made for the child educationally.—The regular course of study is required of all children who are normal mentally, according to the report of every city which answered this question; five cities neglected to answer. Springfield, Ohio, states that it requires hand work in addition to the regular course. The length of the school day for academic work is shown in Table 21 for 18 cities; 9 cities failed to report. Twelve of the 18 cities report that five to six hours are spent daily on academic work.

TABLE 21.—*Length of the school day for academic work*

Length of day	Number of cities	Length of day	Number of cities
3	1	5½	2
3½	2	6	3
4	2	No report	9
4½	1		
5	7	Total	27

Twenty cities report that crippled children who are normal mentally "keep pace" with pupils in the regular day schools; only two state that they do not; five cities failed to report. Fort Wayne, Ind., states that crippled children who are normal mentally accomplish from 7 to 9 months of school work in 10 months' time; Saginaw, Mich., states that it accomplishes 6 months' work in 10 months' time.

Provisions made for the child industrially.—Of the 36 schools reporting, 13 report no industrial work. The remaining 23 schools report the types of industrial work shown in Table 22. There are 19 types. Basketry, sewing, weaving, and woodwork are the most common; 11 types are found in only one to three schools.

TABLE 22.—*Industrial work which is given in schools for crippled children*

Type of work	Number of schools	Type of work	Number of schools
Basketing	12	Needlework	3
Chair caning	1	Painting	2
Clay modeling	2	Rug making	2
Domestic science	4	Sewing	12
Drawing	3	Therapy	4
Embroidery	3	Toy making	4
Industrial arts	7	Typing	1
Knot tying	1	Weaving	13
Leather work	3	Woodwork	11
Manual training	3	No report at all	13

Table 23 shows that one school reports as many as 9 of the types of industrial work shown in Table 22; 1 school reports 8 types; and 2 report 7. On the other hand, 4 schools report a single type only and 5 schools report only 2 types.

This industrial work is mostly of an elementary school grade level and is rarely given any credit on high-school courses according to the reports received. Only five cities report that their secondary schools (junior high or senior high) grant credit for the industrial work given in the schools for crippled children.

TABLE 23.—*Number of schools having one or more types of industrial work*

Number of types had—	Number of schools	Number of types had—	Number of schools
1	5	7	2
2	3	8	1
3	3	9	1
4	3	No report	13
5	1	Total	36
6			

Provisions made for the child physically.—Four schools report that the physician makes daily visits; 7 report that he makes weekly visits; 5 indicate that visits are irregular; and 14 schools did not report this item; details are shown in Table 24.

TABLE 24.—*Frequency of physicians' visits*

Frequency	Number of schools	Frequency	Number of schools
Daily	4	Irregular intervals	5
Weekly	7	When needed	2
Monthly	4	No report	14
Weekly at first of term	1		
Daily at first of term	1	Total	36

Sixteen schools report that physical examinations are made at regular intervals; eight schools state that examinations are made upon request. As suggested in the reports, the presumption is that even though examinations are made at regular intervals, special exam-

inations will be made at any time upon request. Twelve schools failed to reply to this item.

Eleven of the 16 schools, that reported examinations at regular intervals, indicate the length of interval; 1 says this is done weekly; 3 say it is done 3 times a year; 2 do it biennially; 3 do it at the beginning of each term; 1 does it monthly; and 1 does it annually.

The request for the examination, as reported by the eight schools which only examine upon request, comes in one case from the teacher, in another case from the clinic, in three cases from the nurse, in another case from parents, and in two cases from the parent upon the advice of the nurse or the teacher.

Eighteen schools, or 50 per cent of the schools sending in reports, state that recreation or play is arranged for the pupils. The other 18 schools omitted the question; no school definitely states that it does not arrange for recreation for its cripples.

Lunches arranged for the pupils.—Of the 36 schools, 20 provide all the lunch for the children; in 3 schools the hospital authorities provide it; in 7, the schools and the home combine in providing it; and 6 did not report this item. Of the 27 schools that provide a part or all of the lunch for the cripples, 14 report that the board of education pays the entire cost of all that it provides; 3 divide the cost between the child and the school; 6 charge the pupil for the lunch; 3 do not report who paid for the lunches provided; and Elyria, Ohio, reports that the "children pay 15 cents, the board of education supplies the milk and pays the overhead, and the Elks pay the entire cost for some 30 or 40 poor children."

TABLE 25.—*Method of providing lunches*

Method	Number of schools	Method	Number of schools
Entirely by the school	20	No report	6
Partially by the school	7		
Entirely by the home	0	Total	36
Entirely by the hospital	3		

Of the 27 schools which report that they provide some lunch for their pupils, six make the home economics department responsible for the menus. Table 26 shows the various individuals who are responsible for arranging the menus in some one or more schools.

TABLE 26.—*Who prepares the menus*

Who prepares the menus	Number of schools	Who prepares the menus	Number of schools
Home economics department	6	Home economics department and principal	1
Principal	2	Doctor	1
Cook	6	No report	4
Nurse	1		
Teacher	2		
Dietitian	2	Total number of schools serving lunches	27
Physiotherapist	1		
Home economics department and cook	1		

Ten of the 27 schools cause the pupils to help in the lunch room; 15 schools do not use the pupils; and 2 schools omitted the item. One school has the children help prepare the lunch; the children set the table in 1 school; they serve the lunch in 3 schools; they clear the tables in 2 schools; they serve and wash dishes in 1; they prepare hot dishes and wash dishes in 1; and do "very little" in the other.

Rest periods arranged for pupils.—Of the 36 schools reporting, 13 use canvas cots, 7 use iron cots, and 14 fail to report the item. Only 4 of these schools place the cots in special rooms; 11 place them in regular classrooms; 1 school uses both special rooms and regular classrooms; 1 uses a porch; 1 uses the physiotherapy room; and the remainder do not report the item.

TABLE 27.—*Type of cots used*

Type of cot	Number of schools
Iron	7
Canvas	13
Combination iron and canvas	1
Iron bed	1
No report	14
Total	36

Eight of the schools report that they provide one cot for each child; eight schools report one cot for every two pupils; one school reports five cots per class; and the remaining schools ignored the item.

The length of the rest periods is shown in Table 28. Eighteen schools did not report; the length of the period for the 18 reporting varies from 10 minutes to 100 minutes; 14 state a definite length of time for the period; 4 report that the periods vary. The latter allow more time for some pupils than they do for others. The physiotherapist fixes the time limit for the rest period in 2 schools; the physician does this in 9 schools; the teacher sets the limit in 5 schools; the physiotherapist and the physician set the limits in 2 schools; the noon hour only is used in 1 school; and 4 of the schools which report the length of their school rest periods do not report who determines the length. This makes a total of 23 schools which report this item or 5 more than reported the length of the rest period in Table 28. Undoubtedly, therefore, more schools have rest periods than is indicated by the report on the length of rest period.

TABLE 28.—*Length of rest periods*

Length of period	Number of schools	Length of period	Number of schools
10 minutes	1	60 minutes	1
15 minutes	1	60-90 minutes	1
15-30 minutes	1	100 minutes	1
30 minutes	6	No report	18
30-60 minutes	2		
45 minutes	3	Total	36
50 minutes	1		

The Program After the Child Leaves School

Steps taken to assure proper care.—Only nine schools state that definite steps are taken to assure the child of proper physical care, after he leaves the school. Fifteen state that no such steps are taken. Highland Park, Mich., one of the nine, states that the physiotherapist gives treatments in the high-school building to children who have been transferred. San Francisco says that the individual keeps in touch with the doctor, the clinic, and the school; the school nurse sees that this is done. Jersey City says that the nurse and the medical examiner of the school which the child has been attending are responsible for a close follow-up.

Elyria, Ohio, reports that the social service department of the hospital in which the school is located keeps in touch with the child after he is sent home; the county district nurse keeps the child under observation; the parents are instructed how to properly care for the child; directions concerning food and rest are made specific; the children are returned to the hospital for clinical examination at regular intervals; and this watchful care is often continued for several years. At Dayton, Ohio, the principal is responsible for the follow-up; the Barney Community Center follows up all children under its care. Cleveland, Ohio, reports that it has orthopedic field workers going into all schools in the city; these workers are responsible for the follow-up.

Grand Rapids, Mich., was unwilling to state whether or not definite steps were taken in a follow-up; it explained that the local rehabilitation office followed up those who finished the eighth grade; these as well as "others are looked after by the orthopedic clinic at Blodget Memorial Hospital, this city." Hamtramck, Mich., although stating that no definite steps are taken, suggests that the child is still under the care of the school; no specific suggestions are given as to how the school carries out this responsibility.

Newark, N. J., also reports that no definite steps are taken but states that 27 of the graduates of the crippled school are in high school; these 27 children are cared for by one of the physiotherapists at the school for crippled children. Lima, Ohio, another city reporting no definite steps taken, says that cases are under the supervision of the Red Cross and that they are examined regularly at a clinic.

Does the school system demand that the child report occasionally regarding his physical condition?—Eleven of the 27 cities say that no such report is required of the child; 6 cities state that such a report is required; and 10 cities omitted the item. Hamtramck, Mich., and Cleveland, Ohio, say that no fixed time for the report is set; Jersey City, N. J., states that such reports are required monthly of those who have been released from treatment.

Does the parent have to report?—Ten cities state that no such reports are required. Cleveland, Ohio, is the only city which reports that parents must report and here they report at "no fixed time." The remaining 16 cities omitted the item.

Does the school which the child enters report?—Nine cities say the school does not report; 15 ignored the question; and 3 state that the school must report. Fort Wayne, Ind., says that they must report each month; the other two schools do not state how frequently such a report is made.

Does the supervisor of classes for cripples visit released crippled children in their homes?—Eight cities state that no such visits are required; 14 cities omitted the question; 1 states that such a visit is made when necessary; and 4 cities report that the supervisor does make such visits. Philadelphia qualifies this latter statement by a note saying that the supervisor only makes such visits when requested to do so. It was not explained from what source the request must come.

Does the supervisor visit these children at the regular school?—Only 5 cities report that such visits are not made; 18 cities did not answer the question and 4 cities say that such visits are made. No fixed time is set for these visits by 3 of the 4 cities; the other city says nothing about the frequency of the visits.

Does the child report to the supervisor?—Eight cities report that the child does not need to report to the supervisor; 16 cities omitted answering the question; Fort Wayne, Ind., and Newark, N. J., say that the child must report; Hamtramck, Mich., says that some of the children report to the supervisors.

Does the child report to the teacher of the class for crippled children?—Eleven cities state that the child does not so report; 15 cities did not answer the question; and Providence, R. I., alone says that the child does report to his former teacher.

San Francisco, Calif., although omitting answers to all questions in this section, states in a footnote that "the school nurse follows up these cases and reports them to the school physician." Struthers, Ohio, although not answering many questions, states that the "follow-up work is done by the city nurse."

Conclusions.—The follow-up work which is done for children who are discharged from the classes for crippled children is for the most part incidental, irregular, and, due to these weaknesses, undoubtedly inefficient in most of the cities as the above data would seem to indicate. Inasmuch as large sums of money are being spent in attempting cures for these children, surely it would be a wise usage of money to put a goodly sum into the follow-up work in order to insure a continuance of the physical fitness which is attained by these children while in the school.

Equipment Used in Schools and Classes for Crippled Children

Types of pupils' school desks.—Of the 36 schools, 6 use standard school desks, 7 use uniform but especially constructed desks, and 10 use individual desks especially constructed. No report was had from 7 schools and the rest have miscellaneous types.

TABLE 29.—*Types of pupil desks used by crippled children*

Type of desk	Number of schools	Type of desk	Number of schools
Regular standard desk	6	Chairs and tables	1
Especially constructed but uniform	7	No desks (all in bed)	2
Movable desks	1	No report	7
Especially constructed individual	10		
Adjustable universal	2	Total	36

Special equipment used in schools for cripples.—Table 30 contains a list of all types of equipment that are reported as generally used in schools and classes for crippled children. A few of the types listed in the table, however, are very infrequently reported. When one takes into account the fact that only 31 of the 36 schools sending in reports listed the equipment they use, Table 30 takes on greater significance; wheel chairs, for example, are reported as part of the equipment of 27 of the 31 schools; looms are found in 16 of the 31 schools. In similar fashion one may interpret the remaining items listed in the table.

TABLE 30.—*Special equipment for schools and classes for crippled children*

Types	Number of schools	Types	Number of schools
Back stretcher	1	Mats	1
Baker	13	Pillows	3
Balance rail	10	Plinth	14
Bed linen	17	Sand table	21
Blankets	27	Sequin ladder	8
Canvas cots	4	Sewing machine	2
Dumb-waiter	5	Stall bars	17
Elevator	6	Stereoscope	13
Gymnasium	11	Thermolight	1
Head suspension frame	10	Typewriters	1
Iron cots	14	Ultraviolet outfit	12
Lockers	4	Victrola	11
Loom	1	Wheel chair	4
Maps	16	No report from	27
Massage table			5

Transportation of Crippled Children

Methods of transporting.—Of the 27 cities reporting, 7 provide their own facilities for transporting crippled children to school; 7 by contract with a private company arrange for such transportation; 4 make contracts with several individuals to do the transporting; one board of education transports the pupils partly with its own busses and partly by means of a private company; and one board has the assistance of the police in transporting the children. Seven cities do not report on this item. These details are shown in Table 31.

TABLE 31.—*Methods of transporting crippled children to school*

Methods	Number of cities	Methods	Number of cities
Board of education	7	Board of education and police	1
Private company	7	No report	7
Private individuals	4		
Board of education and private company	1	Total	27

Who pays for the transportation service?—Of the 27 cities, 14 report that the board of education pays for the transportation service; 5 cities report that the State department of education helps to defray the cost of transportation.

Length of time needed to make trips.—Each city was asked to report the time each bus used, expressed in minutes, to make a trip one way. This represents the extreme amount of time any child has to spend in making the trip. This is undoubtedly an important fact. If crippled children are forced to spend too much time on the bus each day in order to attend school, the help gained from attendance may be more than counterbalanced by the physical exhaustion resulting from the long hours in a bumpy bus. Table 32 shows the time each of the 44 busses spend on a one-way trip. One bus, the one used at Hamtramck, Mich., and which has a capacity of 18, has to spend only 20 minutes on the road. Four busses, the three at Grand Rapids, Mich., and one at Highland Park, Mich., spend 2 hours each on a one-way trip. This is six times as long a period as is used at Hamtramck. Again, Philadelphia overweights the group with 23 busses which use 75 minutes; aside from Philadelphia the median length of time is 97 minutes. One hour and a half would seem to be too long a time to ask any child to spend on a bus. How injurious trips of different length are to children afflicted as are the children who are enrolled in schools for cripples can only be determined by very careful experimentation.

TABLE 32.—*Time in minutes spent by cars on the 1-way trip*

Time spent	Number of cars	Time spent	Number of cars
20	1	95	4
30–45	1	100	1
60	1	110	3
65	1	120	4
75	23		
90	5	Total	44

Salary of the bus driver.—The salaries of bus drivers vary from $621.63 paid at Duluth, Minn., to $1,800 paid at Hamtramck, Mich. Table 33 shows the salaries of bus drivers for the cities reporting this item, but the amount of time they are employed is not given. All cities report the annual salaries except Cleveland; bus drivers in

this city receive $125 per month. Only two cities report a maximum as high as $1,800 per year; salaries of from $1,200 to $1,500 are much more common.

No one in the system has as great a responsibility for the physical safety of children as does the bus driver. Great care should be exercised in the selection of the school's bus drivers. Accidents continually occur and recur in which numbers of children on their way to and from school lose their lives because of the carelessness or the ignorance of bus drivers. The point can not be emphasized too much. Good bus drivers are absolutely necessary for a good transportation system. This point is perhaps commonly accepted without debate; it does not seem to be so clearly recognized, however, that good drivers will not generally be secured with meager salaries.

Bus drivers are expected to carry some of the children to and from the bus unless special attendants are provided, which is sometimes the case.

TABLE 33.—*Salaries paid bus driver*

City	Salaries to drivers	City	Salaries to drivers
Cleveland, Ohio	$125 per month.	Highland Park, Mich.	No report.
Dayton, Ohio	$1,440 yearly.	Newark, N. J.	$1,380 to $1,800.
Duluth, Minn.	$621.63 to $1,049 yearly.	Philadelphia, Pa.	$1,200 to $1,500.
Grand Rapids, Mich.	$1,200 to $1,400 (40 weeks).	Springfield, Ohio	$1,600 yearly.
Hamtramck, Mich.	$1,800 yearly.		

Time spent by each child transported in reaching school.—Table 34 gives a distribution of the time taken by 1,222 pupils who are transported by school busses to reach school. The ride is one of 10 minutes for 109 pupils, and it is only 15 minutes for 143 more. On the other hand, 7 of the 1,222 pupils spend over 2 hours going to school. It depends, to be sure, a great deal upon the physical condition of the child as to how fatigued such long rides will cause him to become; but even for the best conditioned child a 2-hour ride in the morning and again in the afternoon will doubtless weary him considerably.

The 274 pupils reported as not transported are enrolled, for the most part, in hospital schools, where they reside 24 hours per day. Elyria, Ohio, reports 47 such; Philadelphia, Pa., reports 106 at the Shriner's Hospital, 23 at the Home of the Merciful Savior, 14 at the University of Pennsylvania Hospital, and 9 at the Northwest Hospital; and Kenosha, Wis., reports 38. This makes 237 of those not transported accounted for. The remaining 37 are scattered among several schools; only a few (1 to 6) are reported from a single school except at Struthers, Ohio, where none of the 18 enrolled are transported. The 75 for whom data are not given attend school at Grand Rapids, Mich.; the report merely states that the pupils spend from 5 minutes to an hour and 30 minutes in reaching school.

TABLE 34.—*Time spent by each child who is transported in reaching school*

Time spent	Number of pupils	Time spent	Number of pupils
10 minutes	109	120 minutes	14
15 minutes	143	More than 120 minutes	7
20 minutes	149		
30 minutes	270	Number transported	1,222
45 minutes	207	Number not transported	274
60 minutes	206	Data not given	75
90 minutes	115		
100 minutes	2	Total	1,571

The Cost of Educating Crippled Children

Total and per pupil costs.—Each city, in this study, was asked to report either the estimated or the actual costs of educating and caring for crippled children in the special schools which had been organized by each city. In order that certain items of cost might not be overlooked, they were asked to report the cost of the following items: (*a*) General administration; (*b*) instruction; (*c*) transportation; (*d*) maintenance; (*e*) operation; (*f*) medical aid; (*g*) new equipment; (*h*) food (total expense); (*i*) miscellaneous; (*j*) grand total. This called attention, for example, to the fact that there is usually a certain amount of overhead in the general administration of such schools that is easily overlooked in determining the total costs. The total costs as reported by the cities which answered this item ought, therefore, to be reasonably accurate.

Table 35 lists, alphabetically by States, the cities reporting total costs; it shows the total cost for each city, the roll for each, and the per pupil cost based upon these two figures. These per pupil costs vary from $211.31 at Warren, Ohio, to $593.50 at Fort Wayne, Ind. The median for these per pupil costs as reported by 16 cities is $276.29 or it is the midpoint between the per pupil costs at Lima, Ohio, and at Hamtramck, Mich. In comparing the foregoing figures it must be taken into account that the expense of maintaining a special building or "school" is very much higher than for a class in a building used for usual school purposes; the cost of preparing meals may be more in one case. The number of meals served and the distance of travel also vary in different communities.

TABLE 35.—*Total and per pupil costs in 20 cities*

City	Costs [1]	Roll [2]	Per pupil costs	City	Costs [1]	Roll [2]	Per pupil costs
San Francisco, Calif.	$28,448.07	65	$437.66	Newark, N. J.	$72,343.81	155	$466.73
Bridgeport, Conn.	4,475.00	17	263.23	Barberton, Ohio	3,177.35	.....	.....
Fort Wayne, Ind.	5,935.00	10	593.50	Cleveland, Ohio	.....	152	.....
New Bedford, Mass.	4,275.00	.....	.....	Springfield, Ohio	6,444.93	.....	.....
Grand Rapids, Mich.	25,670.86	75	342.28	Lima, Ohio	5,562.49	20	278.12
Hamtramck, Mich.	15,370.48	56	274.47	Piqua, Ohio	2,902.91	11	263.91
Highland Park, Mich.	9,509.70	21	452.84	Dayton, Ohio	11,677.76	53	220.33
Saginaw, Mich.	5,308.28	25	212.33	Struthers, Ohio	5,060.12	18	281.12
Duluth, Minn.	7,167.59	29	247.16	Warren, Ohio	3,803.68	18	211.31
Jersey City, N. J.	56,347.20	138	408.31	Philadelphia, Pa.	120,203.67	542	221.78

[1] These data were reported by the superintendent's office.
[2] These data were reported by the school or schools themselves, and represent the membership at the close the school year.

Amount spent for food.—According to Table 36 the per pupil costs for food for crippled children vary over a long range. This does not mean that one city is paying too much and another too little. In all of these statements of cost the proportion of pupils fed, and the number of meals furnished to each child per day must be taken into account. The low cost in Philadelphia is partially due to the fact that some of the pupils included in the roll of 542 are in hospital schools, and it is undoubtedly true that the city school system does not provide the meals for all of these children. The median per pupil cost for food for the 13 cities for which per pupil costs could be figured is $28.53.

TABLE 36.—*The total and per pupil costs for food*

City	Food costs [1]	Roll [2]	Per pupil costs	City	Food costs [1]	Roll [2]	Per pupil costs
Bridgeport, Conn	$485.00	17	$28.53	Newark, N. J	$1,200.47	155	$7.74
Fort Wayne, Ind	300.00	10	30.00	Barberton, Ohio	236.15	.....	.....
Grand Rapids, Mich	2,687.21	75	35.83	Lima, Ohio	697.14	20	34.85
Hamtramck, Mich	3,188.88	56	56.94	Piqua, Ohio	405.26	11	36.84
Highland Park, Mich	350.00	21	16.67	Springfield, Ohio	314.99	.....	.....
Saginaw, Mich	205.05	25	8.20	Warren, Ohio	487.42	18	27.08
Duluth, Minn	773.51	29	26.67	Philadelphia, Pa	1,350.00	542	2.49
Jersey City, N. J	4,177.30	138	30.27				

[1] Reported by the superintendent's office.
[2] Reported by the school or schools themselves, and represent the membership at the close of the school year.

Amount spent for instruction.—Table 37 shows the total costs for instructional service as reported by 19 cities. The per pupil costs could be calculated for only 16 cities since three of the group did not report enrollment data. The per pupil costs for instruction range from $50 at Duluth, Minn., to $245.60 at Newark, N. J. The high cost at Newark may be partly accounted for by the fact that the instructional costs reported by Newark include the costs of general administration. Inasmuch as the cost for general administration for the few cities reporting it was relatively a small item, the per pupil cost for Newark would probably not have been lowered very much even if general administration had been deducted. The median per pupil cost of instruction for the 16 cities is $126.06.

TABLE 37.—*The total and the per pupil cost of instruction*

City	Instructional costs [1]	Roll [2]	Per pupil costs	City	Instructional costs [1]	Roll [2]	Per pupil costs
San Francisco, Calif	$9,956.89	65	$153.18	Newark, N. J	$38,068.97	155	$245.60
Bridgeport, Conn	2,200.00	17	129.41	Barberton, Ohio	1,600.00	.....	.....
Fort Wayne, Ind	1,900.00	10	190.00	Dayton, Ohio	4,602.00	53	86.83
New Bedford, Mass	4,200.00	.....	.....	Lima, Ohio	3,085.50	20	154.27
Grand Rapids, Mich	8,100.00	75	180.00	Piqua, Ohio	1,350.00	11	122.72
Hamtramck, Mich	6,810.00	56	121.61	Springfield, Ohio	1,600.00	.....	.....
Highland Park, Mich	4,947.00	21	235.57	Struthers, Ohio	1,900.00	18	105.55
Saginaw, Mich	3,400.00	25	136.00	Warren, Ohio	1,644.00	18	91.33
Duluth, Minn	1,450.00	29	50.00	Philadelphia, Pa	53,734.50	542	99.14
Jersey City, N. J	29,295.26	138	212.28				

[1] Reported by the superintendent's office.
[2] Reported by the school or schools themselves and represent the membership at the close of the school year.

Amount spent for transportation.—The per pupil cost for transportation in one city is more than four times the cost for another when based upon membership in the school at the close of the school year. But the cost is largely dependent on the size of the city and distance to be traveled. Upon this basis the per pupil costs in Jersey City, N. J., are highest; the figure is $126.16. Highland Park, Mich., has the lowest costs—$30.71. The median per pupil cost upon this basis is $83.55.

When the per pupil costs are figured upon the number of pupils being transported at the close of the year, changes in these costs appear for four cities. The per pupil cost in San Francisco is $108.89 instead of $103.86; the cost at Highland Park, Mich., is $35.83 instead of $30.71: the cost at Lima, Ohio, is $98.29 instead of $83.35; and the cost at Philadelphia is $129.64 instead of $93.05. This change in basis for figuring the per pupil costs does not affect the other cities. The four changes shift slightly the extremes and the median. The lowest cost is now $33.30 at Hamtramck, Mich.; the highest is $129.64 at Philadelphia; and the median per pupil cost is $84 instead of $83.55. The change in per pupil costs was quite marked only in the case of Philadelphia. The latter figure, $129.64, more nearly represents Philadelphia's actual costs since many of the pupils of that city are resident at hospitals and no transportation service is required.

TABLE 38.—*The total and the per pupil cost of transportation*

City	Transportation costs [1]	Roll [2]	Per pupil costs	City	Transportation costs [1]	Roll [2]	Per pupil costs
San Francisco, Calif.	$6,751.05	65	$103.86	Newark, N. J.	$18,640.17	155	$120.26
Bridgeport, Conn.	1,790.00	17	105.29	Barberton, Ohio	1,330.00	.....	.....
Fort, Wayne, Ind.	840.00	10	84.00	Dayton, Ohio	3,236.20	53	61.06
Grand Rapids, Mich.	5,428.18	75	72.37	Lima, Ohio	1,671.00	20	83.55
Hamtramck, Mich.	1,864.86	56	33.30	Piqua, Ohio	720.00	11	65.45
Highland Park, Mich.	645.00	21	30.71	Springfield, Ohio	2,611.41	.....	.....
Saginaw, Mich.	1,666.88	25	66.67	Warren, Ohio	1,545.55	18	85.86
Duluth, Minn.	2,202.38	29	75.94	Philadelphia, Pa.	50,431.91	542	93.05
Jersey City, N. J.	17,410.40	138	126.16				

[1] Reported by the superintendent's office.
[2] Reported by the school or schools themselves and represent the membership at the close of the school year.

Per cent of cost borne by the State.—Three cities report that the State gives no aid to schools and classes for crippled children. These cities are located in Connecticut, Massachusetts, and New Jersey. Every city that reports that the State paid over 50 per cent of the cost of maintaining classes for crippled children is located either in Michigan or in Ohio. It would be interesting to know to what extent a division in the State department of education in charge of any type of special class causes that type to be organized extensively throughout the State. Of the 19 cities reporting this item, 8 are in Ohio. The per cent of State aid received by these 8 cities varies from 49 per cent at Dayton to 80 per cent at Piqua.

TABLE 39.—*Per cent of cost borne by the State*

Per cent	Number of cities	Per cent	Number of cities
0	3	73	1
6	1	74	1
14	1	75	1
40	1	77	1
49	1	80	2
50	1	86	1
51	1	No report.	8
54	1		
64	1	Total.	27
69	1		

Per capita cost on basis of arerage daily attendance.—The per capita cost of providing schools for crippled children is much greater than the per capita cost of the regular school. The increased cost is by no means uniform; at Fort Wayne, Ind., the per capita for cripples is 6.45 times the cost for the regular elementary school; at Dayton, Ohio, the cost for cripples is only 2.92 times the cost for the regular elementary schools; the reports from all the other cities vary between these two extremes. The median ratio is 3.8. The regular elementary schools vary in per capita costs from $47.06 to $112.60; the median costs for the group reporting is $76.84.

The entire cost of schooling for the entire system varies from $68.40 at Barberton, Ohio, to $157.48 at Highland Park, Mich.; the median cost is $105.60. The lowest reported cost for schools for crippled children is $186.88 at Barberton, Ohio, and the highest cost is $593.50 at Fort Wayne, Ind.; the median cost is $292.76.

TABLE 40.—*Per capita costs for crippled children compared with similar costs for regular day schools*

[Based on average daily attendance]

City	Elementary schools	Entire system	Schools for cripples	Ratio elementary to schools for cripples
San Francisco, Calif.	$112.60	$128.46	$354.85	3.1
Fort Wayne, Ind.	92.00	105.60	593.50	6.4
Grand Rapids, Mich.	103.75	104.46	388.36	3.7
Hamtramck, Mich.	79.90	106.31	274.47	3.4
Highland Park, Mich.		157.48	452.85	
Saginaw, Mich.	103.07	126.62	319.13	3.1
Jersey City, N. J.	96.00	120.00	368.46	3.8
Newark, N. J.	77.67	129.37	431.01	5.5
Barberton, Ohio	47.06	68.40	186.88	3.9
Cleveland, Ohio	91.49		428.88	4.6
Dayton, Ohio	75.04	92.08	220.33	2.9
Lima, Ohio	76.00	89.50	292.76	3.8
Piqua, Ohio	48.96		259.00	5.2
Springfield, Ohio	66.32		268.54	4.0
Struthers, Ohio	75.18		281.14	3.7
Warren, Ohio	57.00	71.83	190.18	3.3
Philadelphia, Pa.	72.40	90.61	275.73	3.8
Smallest amount	47.06	68.40	186.88	2.9
Largest amount	112.60	157.48	593.50	6.4
Median amount	76.84	105.60	292.76	3.8

These per capita costs will be more in a special school than in a class maintained in a building partly given over to normal pupils.

Gifts from miscellaneous sources.—Bridgeport, Conn., receives $100 yearly from the Shriners; Duluth, Minn., receives $135 from the Tuberculosis Society and $100 from the orthopedic physician; Barberton, Ohio, reports $200 from Rotary and $50 from Kiwanis; and Warren, Ohio, reports $210 from Rotary, $30 from individuals, and $5 from the Red Cross. The other cities, although asked to report special gifts, reported nothing. If these 27 cities reported all special aid received, and if this group is representative of all cities having classes for crippled children, then the amount of aid received from special sources for schools for crippled children is very meager indeed.

Home Instruction

Extent of home instruction.—Of the 27 cities, only 7 state that instructors are employed to teach crippled children at home; 13 state definitely that no such instruction is provided and 7 cities omitted the question. Six of the seven cities providing home instruction state that this is done at the request of the parents and upon the advice of a physician; one city states that such instruction is provided at the request of the State.

Three cities report only one teacher doing home instruction; 1 reports 4 part-time teachers; one reports 6 part-time teachers; Milwaukee (Wisconsin) reports 4 teachers; and 1 of the 7 cities did not report this fact.

Two cities report only one child each receiving home instruction; one reports 9, one 15, and one 22 children; and 2 cities did not report this fact. The hours of home instruction per child reported varies from 1 hour to 4 hours per week.

Type of home instruction.—Four cities of the 7 reporting home instruction state that this instruction is 100 per cent academic; only 2 cities report other types. Dayton, Ohio, says that 5 per cent is hygiene and 95 per cent is academic. San Francisco says that 60 per cent, only, is academic instruction, 20 per cent is hygiene, and 20 per cent is instruction in music and art; all of this work is based upon the course of study for elementary schools which requires the above types of instruction. In the academic work, the minimum requirements of the regular course are mastered.

Cost of home instruction.—Only five cities report the cost of home instruction. Springfield, Ohio, reports $100.50 as the total cost; Cleveland, Ohio, reports $416.25; and San Francisco reports $1,230. In each of the above cases the total cost is merely the salaries of the instructors. Barberton, Ohio, reports $36, and Dayton reports $3,823 as the total cost of home instruction; they did not report the cost of instruction as represented by the salaries of instructors.

Reasons for home instruction.—Only four of the seven cities state reasons for giving home instruction when they are providing schools

or classes for crippled children; these reasons are uniform in stating that only those pupils are allowed home instruction "who are confined to the home by physical disability." Some of these cases are heart cases.

Selection of home instructors.—Of the seven cities, the superintendent of schools is responsible for selecting the instructors in three cities; in two cities the superintendent and the supervisor of special classes assume this responsiblility; in one city the supervisor selects the teachers; and in the other city the assistant superintendent and the supervisor make the selections.

The home instructors are supervised by the supervisor of classes for crippled children in four cities, by a school principal in one, and the superintendent in another; one city did not report this item. Six cities state that the home instructors are certificated in just the same way as the regular teachers are certificated. One city failed to report. Only one city uses regular classroom teachers for this special instructional work; Cleveland, Ohio, hires regular teachers to go to the homes and teach the cripples after school hours.

Hospital Instruction

The extent of hospital instruction.—Of the 27 cities, 7 state that hospital instruction is provided; 10 state definitely that such instruction is not provided; 1 states that it is provided when necessary; and the remaining 9 neglected to answer the question. There are six teachers for crippled children in the hospitals of one city and only one teacher for each of two other cities, according to Table 41. This makes 19 such teachers reported by the seven cities; all but two of these teachers work full time.

TABLE 41.—*The number of cities reporting varying numbers of teachers in hospitals*

Number of teachers	Number of cities
1	2
2	3
5	1
6	1
Total	7

Enrollment for hospital instruction.—The enrollments for the seven cities as of the close of the school year 1928 are shown in Table 42. These range from 17 to 208. The enrollment for all seven cities at the close of the year was 442. The total enrollments for the entire school year 1928–29 are greater in every case except one. These total enrollments are shown in Table 43. These enrollments range from 32 to 404. The city having 17 at the end of the year had 32 as a total enrollment for the year; the city with 208 still had 208 as a total enrollment; but the city with 123 enrolled at the close

of the year had 404 as a total enrollment for the entire year. The total enrollment for all seven cities is 998.

TABLE 42.—*Enrollment for hospital instruction at the close of the school year 1928*

Enrollment	Number of cities	Enrollment	Number of cities
17	1	123	1
19	1	208	1
21	1		
27	2	Total	7

TABLE 43.—*Total enrollments for hospital instruction for the school year September 1, 1927, to June 1, 1928*

Enrollment	Number of cities	Enrollment	Number of cities
32	1	208	1
45	1	404	1
68	1		
72	1	Total	7
169	1		

Hours of instruction per week.—Only four cities report the number of hours of instruction each pupil receives per week. Milwaukee, Wis., reports 2 hours; Dayton, Ohio, says the average is 2 hours; Philadelphia, Pa., reports the time as from 2½ to 5 hours per week; and San Francisco, Calif., reports 5 hours per week.

Length of time pupils are enrolled.—Table 44 shows, when the enrollment column is added, that there were 998 children enrolled for instruction in hospital classes at some time during the school year 1927–28. Table 44 shows the length of time these 998 children spent in the hospital classes. Fourteen per cent, or 141 of these children, were enrolled less than one month; 30 per cent, or 305, were enrolled less than three months; and 70 per cent were enrolled less than six months during the year. No report is made for 15 per cent of these children and the remaining 15 per cent were enrolled for six months or more.

Hospital instruction is not very extensive; only a few cities report it. Those that do, report only a few hours per week; they also report that the children remain for such instruction for relatively short periods.

TABLE 44.—*Length of time children in hospitals are enrolled for instruction*

Length of time enrolled	Number enrolled	Per cent enrolled
Less than 1 month	141	14
1 to 2.99 months	164	16
3 to 5.99 months	393	40
6 months and over	151	15
No report	149	15
Total	998	100

High-School Instruction

The extent.—Only 4 cities of the 27 report that crippled children are being cared for in special high-school classes. Highland Park, Mich., reports that 3 children are provided for; Barberton, Ohio, states that they have one room which cares for 16 children; Warren, Ohio, reports that 2 are provided for in junior high school; and Milwaukee, Wis., says "we have all the facilities for training in higher education in this city." They transport 14 to vocational schools; they have 8 girls at technical high, 1 boy in a junior high, and 2 girls in the prevocational ninth grade.

The need.—Eleven of the 27 cities state that they had crippled children complete the eighth grade during the school year of 1927–28 who should be in high school, and who would be, if special provision were made for them in high school. The number of such graduates, however, is not large for these cities. Table 45 shows the number. Philadelphia, Pa., reports the largest number of eighth-grade graduates. The total number of such graduates as reported in Table 45 is 60. Fort Wayne, Ind., states that no child in its school for cripples "has sufficient mentality to get into high school." Newark, N. J., reports six graduates and states that, although no special provision is made for them at high school, those who are physically fit are transported to high school and are enrolled in high-school classes.

TABLE 45.—*Number of cities having certain numbers of eighth-grade graduates*

Number of graduates	Number of cities	Number of graduates	Number of cities
1	2	10	1
2	1	22	1
3	4		
6	2	Total	11

IV. Special Facilities in the Education of Crippled Children

Libraries

Highland Park, Mich., says that it has "a well-equipped department library besides having access to the building library." Grand Rapids, Mich., says that the "library branch is in the building on the first floor." Each class spends 30 minutes per week in this room during school hours and the pupils use it freely for reference on the three afternoons per week that it is open. Saginaw, Mich., says that the "Butman Fish Public School Library is located on the grounds of the John Moore School building in which classes for crippled children are housed. Children draw books and make use of the library the same as the children of regular classes." Once a week the classes for cripples are taken to the library for the story

hour; they also study their regular work here under the supervision of the teachers and the librarian.

Massillon, Ohio, says that "The children use the public library just across the street and are permitted by the courtesy of the librarian to have a small number of books in their classroom." Cleveland, Ohio, states that "The public library sends (to the school) each year books which the children can take out subject to the regular library rules." Dayton, Ohio, reports library facilities but gives no information concerning them. Piqua, Ohio, says that its class is located in the Bennett Junior High School. Crippled children have the benefit of the use of the school library. Warren, Ohio, reports that "The City Library keeps us supplied with about 30 books. These are changed three times during the year."

The Horn School at Philadelphia, Pa., states that the "Library features are in the classroom—many of the books are supplied by organizations of a philanthropic character." The Revere School at Philadelphia reports that it has a "small library on the first floor. The children take turns acting as librarian. A simple system of cataloguing is used. Books may be taken out one week at a time. Books are given to the library by other schools and by an organization called the 'Lover of Children.'"

The class for crippled children at East High School in Erie, Pa., reports that "We have a library of about 200 books; of course, it is supervised by the school library but it was given to us as the Kate Douglas Wiggin's Memorial Collection." The school at Newark, N. J., receives from the Newark Public Library reading books and teachers' reference books for each classroom.

Music

Several cities report that the musical facilities available to the schools and classes for crippled children are those that are available for the regular classes. A few cities state that special facilities are provided and promoted. Grand Rapids, Mich., says that they "have a school orchestra with an instructor paid by the board of education. This orchestra has played for a number of gatherings such as Rotary Club meetings and Women's Clubs. The Orthopedic Chorus is also called upon to sing for various clubs." Saginaw Mich., says that the "Primary classes have a children's orchestra which uses triangles, bells, xylophone, and other toy instruments." Some of the children of the upper grades are enrolled in the piano classes.

Cleveland, Ohio, reports the organization of a glee club and a harmonica club in its school for crippled children. The Lafayette School at Philadelphia, Pa., reports that "during September, 1927, a glee club, composed of boys and girls of the orthopedic classes, was

organized; rehearsals are held twice weekly. On special occasions such as music week, education week, and at Christmas, the glee club renders a program of selected music to the members of the orthopedic and the orthogenic backward class."

Playground Equipment

Several cities report that they have special playground equipment, but most of them do not specify the types to be found; a few do so report. Cleveland, Ohio, for example, reports "croquet sets, rubber balls, soccer balls, baseballs and bats, tennis racquets, marbles, jacks and balls, flexible flyer sleds, quoits, and volley balls." The Revere School in Philadelphia reports a "sliding board, a maypole, and two baseball teams." Newark, N. J., states that the "park commission has supplied a beautiful park playground where the children play clock golf, baseball, croquet, and other games."

Art

Only five schools report art work. Highland Park, Mich., says that "the art work teacher in the building gives freely of her time and suggestions in connection with artcraft work." Grand Rapids, Mich., reports that "Fine and practical arts are given to all crippled children just as they are given to all regular grade pupils. Some of our crippled children develop special ability along this line. Saginaw, Mich., says that "regular work is being done in art under the supervision of the art supervisor. Considerable attention is being given to industrial arts." Cleveland, Ohio, states that they have painting and drawing which is correlated with the manual training provided for the boys; for the girls they provide printing, drawing, and costume designing as a part of a project or unit activity.

The Horn School at Philadelphia says that the "pupils follow the regular grade art work as furnished by the course of study." Several other schools suggest that "art work" is provided but they make no definite statement about it.

Other Activities

Seven schools state that a Scout Troop or a Girls' Reserve is organized but give little or no information about them. A Camp Fire Group is organized at Grand Rapids, Mich., which is sponsored by the grammar-room teacher.

Saginaw, Mich., adds to its report that "being in a regular school gives the children ample opportunity to exchange ideas and come in contact with normal children. This stimulates outside interests and banishes the self-consciousness so prevalent in the older children. It also enables them to feel the satisfaction of contributing to the education and the life experiences of others."

The Horn School at Philadelphia says that the "pupils of these classes receive much attention from public-spirited organizations and are frequently taken by them to luncheons, entertainments, and lectures."

Newark, N. J., reports that "about 50 graduates of the school have a club called the Junior Optimists. They meet at the school four times each year, at which times they discuss their problems and invite speakers to meet with them."

V. The Day's Work in a Few Schools

Dayton, Ohio.—The first class for crippled children was organized at Dayton in 1916. The class was taught by Miss C. Jeanette Wallace, who is now the principal of the school for cripples. In 1924 the school enrolled 31 children and had two teachers. At that time they had just entered the New Gorman School, which had been especially constructed for crippled children. The ground was donated by Mrs. Anne B. Gorman and the school was named for her; it is located on Grant Street near the Barney Community Center. The children in the school are treated at a clinic located in the Barney Center. "The rooms are all on one floor. A large corridor runs through the center of the building, north and south and east and west. This connects four large rooms and four small ones, in addition to toilets and showers." [19]

When all arrangements have been completed, two of the large rooms will be used as home rooms where the academic branches will be taught. One large room will be fitted up as a manual training room, and the fourth one will be a dining room where the noon lunches may be served.

Next to the dining room is a fully equipped kitchen. Here the girls will learn to cook as part of their training in domestic science.

On either side of the main entrance there are two rooms, one of which will be the principal's office; the other, a rest room, furnished with several couches, is required to have a rest period of 20 minutes every day for each child.

A large loom has been placed in a small room at one end of the corridor. This [illegible]e used as a weaving and sewing room.

[illegible]n addition to the lovely environment, one is deeply impressed with the spirit which pervades the entire school.

These children are taken to and from school in a bus, manned by two attendants. To have the care of these children en route demands men of unusual experience and kindness. A cheery "Good morning" is heard as each child enters the room, unassisted if possible, and finds his place. Four characteristics of these children are noticed at every turn—namely, self-reliance, initiative, helpfulness, and cheerfulness. * * *

The course of study is planned as nearly as possible to meet the requirements of the grade school. Handwork and regular academic branches are taught. Some special work has been added this year.

A teacher from the physical education department spends some time each week giving body-building and recreational exercises. The children are weighed

[19] Instruction in academic branches and handwork given under ideal conditions. School Progress, vol. 3, November, 1924, Dayton, Ohio.

and measured regularly, and they are given some health work, under her direction. Medical inspection given by the school doctor and nurses is another added feature this year.

Music, also given under the supervision of a special music teacher who visits the school every two weeks, is part of the course of study now. * * *

Much time is given to handwork. The boys work in wood using the Sloyd knife, following the course of study in the regular grades until they are ready for bench work. The girls are taught to sew, making the dresses and aprons prescribed in the regular curriculum. These children are given instruction in knitting and many have made sweaters and scarfs. They also work in reed and on the looms, making scarfs, and table runners on the smaller one, and rugs and couch covers on the large loom. All material that is used is furnished and the children are permitted to take all articles home; for every thing that is made is useful. * * *

The Barney Community Center serves a lunch, consisting of bread and butter, milk, and potatoes, macaroni, or some other nutritive dish, for 5 cents. In addition, soup is furnished by the board of education.[20]

Hamtramck, Mich.—Under the stimulus of a survey which showed a great many cripples, and which was conducted by the Rotary Club of Hamtramck to discover whether or not a class was needed for crippled children, a class for them was established January 5, 1925. The class enrolled 14 children. This enrollment has since been increased to 56 and 3 teachers have been employed. Such special services as bus transportation, a hot lunch, monthly physical examinations, and a physiotherapy room are provided.

The physiotherapy work is all done under the direction of a physician.

The cases are almost entirely some form of paralysis or congenital deformity. These are all treated first by exposure to the heat rays of the Zoalite, which softens the tissues and promotes circulation, then by massage, followed by muscle training, muscle stretching, or exercises—whichever is needed. Those children whose walking is abnormal are given as much correction as possible. Coordination in hand and finger muscles is obtained through the use of blocks. A few minutes spent, now and then, building with the blocks is exceptionally good to bring about the normal movements of the fingers.

The department is also quite fully equipped with apparatus for curvature of the spine, flat feet, contracted or weak muscles, etc. One indispensable piece of corrective apparatus is a full-length mirror in which the child may see for himself whether or not he has the correct position. Other pieces of equipment are stall bars, floor cleats, foot trough, and chest weights. At the present about 45 children are being treated three times a week.[21] * * *

A home call is made on each child by the teacher and the school nurse. The family is informed of the child's condition and the necessity of home cooperation is explained to the parent or guardian.

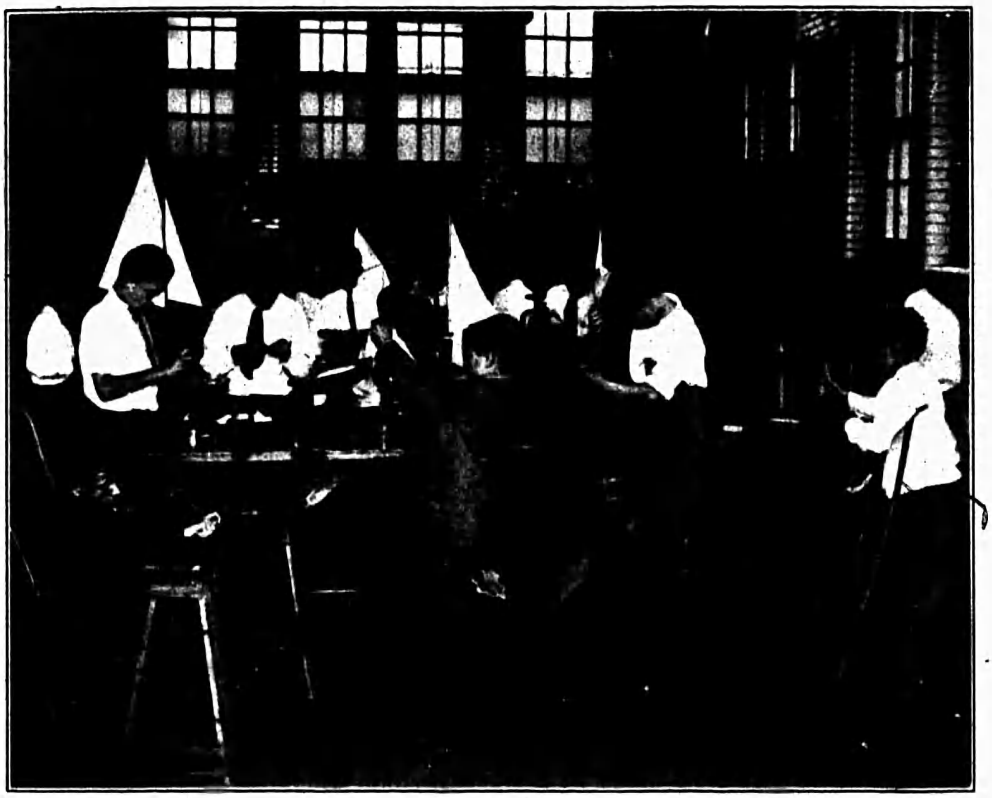
Milk and graham crackers are served as midmorning and afternoon lunch. At noon the children are served in their rooms.[22]

---

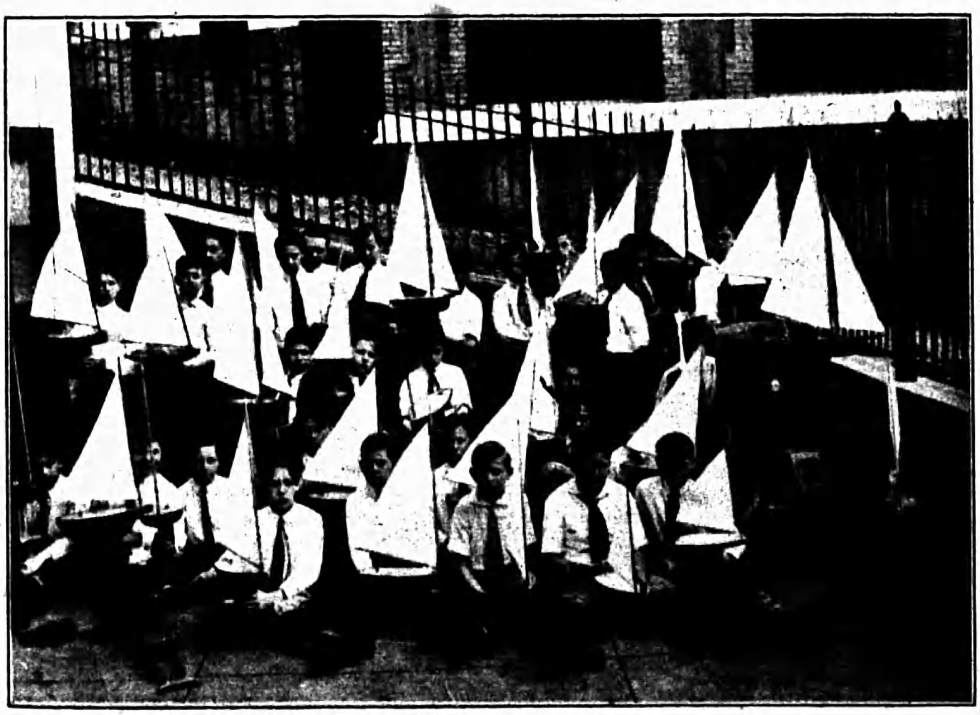
[20] "Instruction in academic branches and handwork given under ideal conditions. School Progress, vol. 3, November, 1924, Dayton, Ohio.

[21] Physiotherapy department established. Hamtramck Public School Bulletin, vol. 1, April, 1928, p. 118.

[22] Three years' work with crippled children. Hamtramck Public School Bulletin, vol. 1, March, 1928, p. 105.



IN THE WORKSHOP, NEWARK, N. J.



CONTEST IN BOAT BUILDING, NEWARK, N. J.

ON THE PLAYGROUND, NEWARK, N. J.

Newark, N. J.—Newark has a specially built school for cripples, housing 140 pupils of all grades up to high school.

The building is centrally located and is of one story. There are six classrooms, an auditorium, a dining room, kitchen, work room, rest room, and treatment room. The auditorium is centrally located with illumination from above. The dining room is located at the rear of the auditorium, its long dimension being the same as the width of the auditorium, from which it is separated by a movable partition. On occasion the two rooms can be thrown together. There is a large paved play space at the rear surrounded on three sides by the main building and its extensions and on the fourth side by a wire fence which prevents the escape of balls or other apparatus from the immediate field of play. At the time of our visit a game of volley ball was in progress, and the contesting groups of girls were as much absorbed as if they were not hampered by lameness or by supporting braces. The favorite game of the boys is baseball. A flower garden is cultivated by the pupils.

The auditorium is used for indoor games. On its stage a minuet was being practiced by boys and girls, a recreational activity altogether out of the question where cripples are associated with children with normal limbs. The classrooms, which are located peripherally about the auditorium, are of comparatively small size, as they are intended for 24 pupils. One notes the better illumination which goes with the narrower width of room and more hominess in smaller space. There is practically no use of special furniture. The movable seat and table are found satisfactory except for a few cases.

The school owns four large busses which make two trips in the morning and two at the close of school. The first bus load of children arriving in the morning and the second bus load leaving in the afternoon busy themselves with special work or play in the absence of the remainder of the pupils. The busses are also used to transport children for a recreation period to a near-by park on suitable days. The busses are housed in the basement of the school.

Lunch is prepared and served in the school at 15 cents per pupil. Where necessary, the cost of the lunch is met by funds supplied by private agencies.

While the pupils are all of elementary grades, the ages of those above the lowest grades show a wide range, owing to the fact of non-attendance, at any school, of many pupils in their earlier years. This is especially true of children whose parents have recently come to the city. One child entered, for the first time in any school, at the age of 14. Another pupil of 12 had never been in school, though with a small amount of help he had received at home and his access to books he was able to begin his school work in the sixth grade. Except for cases with some temporary or minor disability, little effort is made

to send children to regular classes, as they are much happier and do better in company with their disabled kind.

The school work is as individual as possible, and this is made easier by the small number in each room. Manual work is given prominence and is directed by a teacher from a high school. Music is an important subject, and there are teachers of piano, of string and of wind instruments, belonging, of course, to the rest of the school system.

The physical care and education of the pupils is looked after by an orthopedic surgeon employed as a part-time member of the medical inspection staff of the school system. There is also a consultant in orthopedics who serves without pay. The immediate work for the pupils is taken care of by three physiotherapists with training also in physical education. One of these spends part of her time in directing the general physical activities of the pupil and one has charge of the special treatment of those in the eighth grade and of the pupils from the school who are in high school. She thus serves as a human connecting link, between the special schools and the high school, for these pupils. The equipment for treatment is comparatively simple, consisting chiefly of baking machines, tables for massage, and floor mats. The school has under consideration the construction of a pool for the treatment of paralytic cases in the water.

Of the 140 pupils now in attendance, 15 require daily treatments. Most of the others have two or three treatments a week. Shower baths are given twice a week. All children have a rest period each day on cots in a special rest room. The efforts of the physiotherapists are put forth to enable the crippled child not only to get about but to handle himself under all conditions and with reference to attaining his best in gait, speed, endurance, and appearance.

Every effort is put forth and successfully to place the crippled child in suitable positions of employment after he has completed his high-school or vocational-school course, and in this the teachers have the assistance of the State department of labor and the board of rehabilitation.

The educational work for cripples, as for other handicapped children in Newark, is under the general direction of an assistant superintendent of schools and under the immediate supervision of the principal of the special school. The physical care of pupils is in charge of the department of medical inspection.

Detroit, Mich.—Detroit maintains two separate schools for the education of the crippled, each with an enrollment of above 250; special centers in 6 elementary schools, in the convalescent homes and hospitals, and itinerant teachers for those who are unable to leave home. Seven hundred and thirteen children are enrolled in the classes and schools for crippled children, 35 teachers and principals are engaged in the work, and a supervising principal is in charge

One of the special schools, a 2-story building provided with a large roof playground, rest room, inclined planes, and an elevator facilitating ease of moving from one floor to another, was built in 1919. The other, a commodious and attractive 1-story building, was completed in the fall of 1929. This building represents the most recent research relative to the care and training of crippled children. It is of the hollow-square type, and contains, in addition to the usual classrooms, auditorium, dining room, etc., a clinical unit, including helio and physiotherapy rooms, a plaster and X-ray room, rooms for doctors and nurses, a dental clinic, and an infirmary.

On three sides of the building classrooms open upon wide terraces, providing open-air, play, and recreation places for children who use wheel chairs particularly. Windows are so placed and constructed as to furnish facilities similar to those in most open-air rooms. Corridors are particularly wide to permit free passage of wheel chairs and of children using crutches and other appliances and there are full-length mirrors at either end of each corridor. These are provided in the hope of improving the posture and locomotion of the children. All children arrive and depart in busses and attendants are provided to assist the badly crippled as necessity demands.

Children are admitted to the schools for crippled following examination and recommendation by an orthopedic surgeon appointed by the board of health. Any crippled child who needs the facilities of a special school is eligible. Children not under the care of a private physician receive the necessary physical treatment at the school under the direction of school physicians. Not only special apparatus but personnel for physical training, corrective gymnasium work, and various forms of physiotherapy are provided in addition to the academic and industrial training. The school follows the courses of study followed in the regular elementary schools. The children may, therefore, if physically able, return to these schools at any time without loss so far as progress in academic work is concerned. Children who finish the grades and wish to attend high school may do so. At least one technical high school is provided with elevators large enough to accommodate wheel chairs. Transportation is provided in the same way—sometimes in the same vehicles—as to the special elementary schools.

RECORD FORMS

[Figure 1]

DULUTH PUBLIC SCHOOLS

DEPARTMENT OF HEALTH

CRIPPLED HISTORY CARD

Name..... Address.....

School..... Grade..... Tel.....

Date of birth..... Place of birth.....

Father's name..... Occupation.....

Mother's name..... Occupation.....

Number brothers..... Number sisters.....

Members of family with deformities.....

.....

Home conditions.....

Language spoken.....

Remarks.....

.....

.....

Date..... Nurse.....

(Over)

[Figure 2]

Doctor's Report

Name_____

Age of onset_____sudden_____gradual_____

Probable cause_____

Who gave medical treatment?_____

Has any operation been performed?_____

How long since last treatment or operation?_____

Has condition been helped?_____

Is child improving?_____

Handicapped for walking_____

Handicapped for school work_____

Parents consent to crippled class_____

Parents consent to treatment in class_____

Date_____Nurse_____

(Over)

[Figure 3]

DULUTH CLASS FOR CRIPPLED CHILDREN

Muscle Examination

Number_____ Date_____

Patient's name

	Contractions and deformities	
	Shoulder	
	Elbow	
	Wrist	
	Fingers	
Left arm	Anterior deltoid	Right arm
	Posterior deltoid	
Upper		Upper
Middle	Trapezius	Middle
Lower		Lower
	Serratus magnus	
	Rhomboids	
	Latissimus dorsi	
	Clavicular pectoralis major	
	Sternal pectoralis major	
	Outward rotators	
	Biceps	
	Triceps	
	Supinator brevis	
	Pronators	
	Flexor carpi radialis	
	Flexor carpi ulnaris	
	Extensor carpi radialis	
	Extensor carpi ulnaris	
	Flexor profoundus digitorum	
	Flexor sublimis digitorum	
	Finger extensors	
	Lumbricales	
	Dorsal interossei	
	Palmar interossei	
	Opponens pollicis	
	Abductor pollicis	
	Thumb flexors	
	Thumb extensors	
	_____	
Measurements	Upper arm	
	Lower arm	

[Figure 4]

DULUTH CLASS FOR CRIPPLED CHILDREN

Muscle Examination

Number_____ Date_____

Patient's name

Can not walk, walks unaided, with braces, crutches, and corset

Characteristic gait

Scoliosis

Left	Contractions and deformities	Right
	Hip	
	Knee	
	Ankle	
	_____	
	Orbit	
	Facial	
	Mouth	
	Anterior neck	
	Posterior neck.	
	Back	
	Quadratus lumborum	
	Anterior abdominals	
	Lateral abdominals	
Left leg		Right leg
	Gluteus maximus	
	Hip flexors	
	Tensor fasciae latae	
	Hip abductors	
	Hip adductors	
	Quadriceps	
	Inner hamstrings	
	Outer hamstrings	
	Gastrocnemius	
	Anterior tibial	
	Posterior tibial	
	Peroneals	
	Extensor longus digitorum	
	Exterior proprius hallucis	
	Flexor longus digitorum	
	Short toe flexors	
	Flexor longus hallucis	
	Length	
	Calf	
	Thigh	

(Over)

RECORD FORMS

[Figure 5]

Name Address

19– Treatments						19– Treatments						Date	Height	Weight	Normal
Jan.						Jan.									
Feb.						Feb.									
Mar.						Mar.									
Apr.						Apr.									
May						May									
June						June									
July						July									
Aug.						Aug.									
Sept.						Sept.									
Oct.						Oct.									
Nov.						Nov.									
Dec.						Dec.									

Operations:

General remarks:

Remarks (visits to hospital):

[Figure 6]

Name Address Age Date of application Name of parent

Diagnosis

History

L. Leg June '25	L. Leg Jan. '25	Musculature	R. Leg Jan. '25	R. Leg June '25
		Glut. max.		
		Hip flex.		
		Ten. fas. lata.		
		Hip abd.		
		Hip add.		
		Quad. ext.		
		In. ham.		
		Out. ham.		
		Gastroc.		
		Ant. tib.		
		Post. tib.		
		Peronei		
		Ext. long digit.		
		Ext. prop. hall		
		Flex long digit.		
		Flex. brev. digit.		
		Flex. long hall		
		Length		
		Calf		
		Thigh		

Condition of back

Condition of feet

Remarks

Can not walk | Walks unaided | With braces | Crutch and corset

Contractions and deformities

	Hip
	Knee
	Ankle
	Back
	Quad. lum.
	Ant. abd.
	Lateral abd.

(Over)

[Figure 7]

Left June '25	Jan. '25	Arm	Jan. '25	June '25 Right
		Ant. del.		
		Post. delt.		
		Up. Upp.		
		Mid. trap. mid.		
		Low. Low.		
		Ser. mag.		
		Rhomb.		
		Lat. dor.		
		Clav. pect. maj.		
		Ster. pect. maj.		
		Out. rot.		
		Biceps		
		Triceps		
		Sup. brev.		
		Pronators		
		Flex. car. rad.		
		Flex. car. uln.		
		Ext. car. rad.		
		Ext. car. uln.		
		Flex. prof. dig.		
		Flex. sub. dig.		
		Finger ext.		
		Lumbricales		
		Dor. inter.		
		Palm. inter.		
		Oppon. poll.		
		Abd. poll.		
		Thumb flexors		
		Thumb extensors		

Contractions and deformities
Shoulder
Elbow
Wrist
Fingers
Remarks (general condition & attitude)
Treatment outside of school
Absences of long duration

(Over)

SELECTED REFERENCES

Abt, Henry Edward. The care, cure, and education of the crippled child. Elyria, Ohio, International Society for Crippled Children, 1924. 222 pp.

Contains the history of the care of cripples; causes of crippled conditions; social agencies which are interested in the welfare of crippled children; State legislation in regard to the care of cripples; etc. It also contains a good bibliography.

Allen, Edgar F. The education of crippled children. (Abstract.) Proceedings of the National Education Association, 1924, vol. 62, p. 443–446.

Defines "crippled child"; states that physical care and education go hand in hand; gives method of organizing special classes, proper size of classes, ratio of crippled to normal, and the importance of educating the crippled children.

Berry, Charles Scott. The Leland School for Crippled Children. Department of Special Education. Board of Education, City of Detroit (1925). p. 25–30.

Describes the Leland School for Crippled Children; gives method of financing; eligibility rules; discusses corrective gymnasium work, visiting teacher, length of sessions and rest rooms.

Bruner, Frank G. Report of the director of special schools, 1922–23. Chicago, Board of Education, p. 103–138.

Gives history; methods of transportation and costs; prevocational training; academic work; physical correction work; records kept; and surgical and hospital care.

Christianar, Alice. The education of the crippled child. Bulletin of the Department of Elementary School Principals, July, 1925, vol. 4, no. 4, chap. 9. p. 257–261.

A detailed description of the Sunbeam School of Cleveland, Ohio.

Fernald, Mable R. *and* Arbitt, Ada H. A psychological study of a group of crippled children of various types. A preliminary report. School and Society, 21: 449–452, April, 1925.

A study to determine the cause for the inferior intelligence of the group of crippled children as a whole, as measured by any of the standard tests; investigation still in progress.

Goldsmith, Evelyn May. Schools for crippled children abroad. *In* Report of the Commissioner of Education, 1909, vol. 1. Washington, Government Printing Office, 1909. p. 503–511.

Discusses progress made, in last 25 years, in the physical, mental, and moral training of crippled children in Denmark.

Hadley, Hazel. Educating crippled children. Ohio State Department of Education Bulletin (1927). Columbus, Ohio, 1927. 134 p.

Contains a chart showing the counties in which special effort is being made to educate the cripples, and a discussion of the provision made by Ohio for maintaining proper and adequate educational facilities for cripples. Present reports from Ohio cities dealing with their classes for crippled children.

Horn, John Louis. The education of exceptional children. New York, Century Co., 1924. p. 291–308.

Gives some of the outstanding features in the education of crippled children, such as equipment and curriculum; presents statistics on provision made for crippled children in 14 cities; and gives a description of two State schools.

Koch, Felix J. Teaching school arts to a big city's wee cripples. School Arts Magazine, 27: 8–11, September, 1927.

Gives detailed working plan of the unique school maintained in a Cincinnati hospital for the purpose of teaching crippled children.

Leary, Elizabeth I. Crippled children's school. School Magazine (Buffalo Public Schools) 8: 461–462, May, 1926.

Describes the Buffalo City Hospital School for Crippled Children and the provisions made for the pupils.

Meyer, Florence A. The school for crippled children, Part II. Newark School Bulletin (February, 1926), vol. 6, no. 6. p. 111–117.

Stresses the importance of health and physical efficiency for the crippled child and discusses the physical education program of the school.

Miley, Cora. The Bryan School for Crippled Children in Oklahoma City. American School Board Journal, 75: 48, 150, August, 1927.

Gives cost of building and equipment, types of training offered, and efforts made to correct physical defects.

Miller, Clyde R. The Sunbeam School of Cleveland. American School Board Journal 68: 55–56, June, 1924.

Gives a detailed description of the Cleveland Sunbeam School building.

Monroe, Paul. Education of Crippled children. *In* Cyclopedia of Education (1926), vols.1 and 2. p. 230–234.

A chronological history of the care and education of crippled children; a detailed description of the model school of Europe founded in Copenhagen, Denmark, in 1872.

Mortenson, Peter A. Chicago's public-school classes for crippled children. Proceedings of the National Education Association, 1923, vol. 61, p. 916–920.

Discusses the organization, enrollment, location, equipment, cost, types of training, and aims of the special classes for crippled children in Chicago.

Neil, Jane A. Provision for physically handicapped children in the schools. Proceedings of the National Conference of Social Work. The University of Chicago Press, 1923. p. 382–387.

Gives brief history of the growth of education for cripples, reasons for educating cripples, ratio of cripples to normal, and the threefold aim of the Spalding School of Chicago.

Rector, Frank L. The handicapped in industry. Welfare Magazine 18: 156–161, February, 1927.

Discusses the social, economic, and mental aspects of the placing of handicapped persons in industrial positions.

Reeves, Edith G. Care and education of crippled children in the United States. New York, Russell Sage Foundation, 1914. 252 p.

A handbook for the use of those who are interested in the care of crippled children. Contains concrete information respecting 37 hospitals, convalescent institutions, and asylum homes.

Smith, A. J. Crippled children. Twenty-third Annual Report of the Superintendent of Schools, 1920–21. p. 61–67. New York City Board of Education.

Gives report on present organization, treatment of orthopedic defects, number of new classes, transportation, number of admissions and discharges, number of graduates, home instruction, physical records of types of ailments, school progress, and milk service.

Sollenberger, Edith Reeves. Public-school classes for crippled children. United States Bureau of Education Bulletin, 1918, No. 10. Government Printing Office, Washington. 52 p. (Out of print.)

A detailed account of the special classes for crippled children which have been organized in six of the large cities of the United States.

Taylor, Henry Ling. Cooperation between educators and physicians in classes for cripples. Proceedings of the National Education Association, 1916, vol. 54, p. 827–828.

Suggested recommendations for organising and conducting classes for crippled children.

Wallin, J. E. W. Special classes for handicapped children. Educational Research Bulletin, Ohio State University (September, 1927), vol. 6, no. 12. p. 247–251; 264.

Gives data regarding number of special classes, number of teachers, and enrollment in the classes in cities of Ohio having population of 2,500.

——— The education of handicapped children. New York, Houghton Mifflin Co., 1924. p. 114–118.

Give some suggestions for organizing instruction for crippled children, for the enrollment of pupils, as to methods of transportation; discharge of pupils, and description of classrooms, equipment, curriculum and teacher qualifications.

Wettlin, Emma L. The school for crippled children. Newark (N. J.) School Bulletin (January, 1926), vol. 6, no. 5, p. 87–94.

A detailed description of the building, equipment, and method of transportation used in Newark, N. J.; and a discussion of the types of training offered.

Classes for crippled children, Special schools of the public schools of Newark, N. J. Monograph no. 8, Part III, p. 21–33.

A comprehensive review of the efforts made to provide for the education of crippled children in Newark, N. J.

Survey of the educational facilities for crippled children in New York State. University of the State of New York Bulletin, no. 835, September, 1925. Albany, N. Y. p. 26.

A description of efforts being made to educate crippled children in nine cities of New York State. Gives details regarding financing, types of training, transportation, equipment in use, and aims.

Twenty-Third Annual Report of the Superintendent of Schools. (January, 1922.) Board of Education of the City of New York. p. 61–77.

Gives number of crippled children cared for and educated in New York; methods used; need for expansion; additional teachers; and transportation.

○