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Biological factors involved in the absenteeism of children from Stockton public schools

Fae-Belle Coudeyre
University of the Pacific

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BIOLOGICAL FACTORS INVOLVED IN THE ABSENTEEISM OF
CHILDREN FROM STOCKTON PUBLIC SCHOOLS

A Thesis
Presented to
the Faculty of the Department of Zoology
College of the Pacific

SECRET

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Fae-Belle Coudeyre
January 1954

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"If we want civilization to march forward, it will march not only on the feet of healthy children, but beside them, shoulder to shoulder, must go those others--those children we have called 'handicapped.'"

(White House Conference on Child Health and Protection, 1931)

CHAPTER I

INTRODUCTION

Statement of the problem. Every state has a compulsory school attendance law, and yet at any time during the school year approximately 12 per cent of the children will not be in school--cannot very well be in school, because of some physical, mental, or emotional handicap, either temporary or permanent.¹

These absentees are what are now often called the "exceptional" children, including the blind and partially-blind, the deaf and hard-of-hearing, the speech-defective, the crippled, the delicate, the epileptic, the mentally deficient, those with serious social maladjustments, together with those who are temporarily out of school because of a disease or accident. The total number of absentees from the regular public schools of the United States for such causes as the above amounted in 1948 to approximately 4,000,000 children² as compared to

¹ The Education of Exceptional Children, Part II, Forty-Ninth Yearbook of the National Society for the Study of Education. University of Chicago Press, 1950.

² Elise H. Martens. "Biennial Survey of Education in United States, 1946-48," Statistics of Special Schools and Classes for Exceptional Children, Chapter V (Washington, D.C.: Office of Education, 1950).

approximately 30,000,000 children of school age.³ A great many of these are cared for in special schools or special classes (the number of crippled children registered, to mention but one category, now reaches over 500,000), and this number is increasing yearly. However, there are also children who are not in any school or class at all-- children for whom the public, through its public schools, feels a definite responsibility. As a result, there has grown up a considerable program in connection with the public schools for the education of that group known as the "homebound."

Physicians once deplored the paradox that so much time and enthusiasm have been spent on trying to control colds and related diseases while scarcely any thought was given to helping children during convalescence from illness. Parents have some responsibility in preventing a child's precipitous return to activity, but schools are now doing much by giving pupils a chance, through home instruction, to get back gradually into a full program during an absence due to illness.

School schedules cannot be elastic enough to give every child an individual program in the classroom, but work can be maintained at home by a special teacher during

³ United States Census, Series P-25, No. 73.

illness and convalescence until recovery is complete. School appropriations based on average daily attendance, which accounted for the tendency to return children too early in convalescence, now apply also to educational services rendered in the home.

More than forty-one states (Arizona was added only last year to the list) now have legal provisions authorizing or requiring school districts to make special educational provisions for exceptional children. California has made these provisions since 1927, and the City of Stockton since 1931 has been engaged in a program of furnishing instruction to its homebound pupils. The investigator is one of the teachers now engaged in this work.

A large volume of literature has appeared in connection with this new profession, special education. The investigator's files now list more than five hundred titles, with others appearing daily. Most of them are in pamphlet form or mimeographed material issued by the Federal Security Agency in Washington, D. C., the National Society for Crippled Children in Chicago, or the school districts throughout the nation evaluating their special education programs. Much has appeared in the way of articles in current periodicals dealing with child health and school life. A number of scientific studies have, of course, also

been made. These are largely statistical in nature, showing the extent of the need, and the kinds of problems involved in various cities and states.

The climate and other ecological factors of the Stockton area make for conditions which are probably not duplicated anywhere else in the United States. It becomes valuable, therefore, to have a study made in this locality to determine what are the causes of absenteeism from schools, to make a statistical classification of these causes, and to show how the problem of the homebound school child in Stockton compares with that in other cities.

Since physical ill-health is the major factor in keeping children out of regular school classes, it was felt that it would be a contribution to the profession of teaching homebound children to make a new study of the physiological and pathological factors involved, in order to point up the importance of an understanding of these factors in the training (in-service as well as preparatory) of educational workers in this field.

The investigator wishes to express her thanks to:

Doctor Lloyd M. Bertholf, Dean of the College of the Pacific and Professor of Zoology, who suggested the topic of this study and gave general supervision to it;

Doctor Elmer M. Bingham, Director of the San Joaquin Local Health District, who has given unselfishly of his

time for consultation and expert advice on the medical phases of the problem;

Miss Hazel Lewis, Director of Research, Stockton Unified School District, for offering valuable suggestions as to statistical procedure; and

Mr. Herbert E. Welch, Instructor of Engineering and Career Drafting, Stockton College, who directed the fine work of selected students in the reproduction of the graphs.

The following supervisors and administrators of special education in eleven other cities and one state also generously cooperated in submitting figures for comparison and contrast of disabilities which cause children to be absent from school and thereby to require a home instruction program:

Doctor John P. Buchanan, Director of Secondary Education and Coordinator of Special Services, Vallejo Unified School District, Vallejo, California;

Miss Margaret L. Thomas, Director of Child Welfare and Student Personnel, Fresno City Schools, Fresno, California;

Mrs. Mayme Charvo, Supervisor of Special Education, Bakersfield City School District, Bakersfield, California;

Doctor Al Tudyman, Director of Special Education, Oakland Public Schools, Oakland, California;

Mrs. Honor B. Adams, Consultant in Special Education, Palo Alto Unified School District, Palo Alto, California.

Miss Katherine Sutter, Director of the Physically Handicapped, San Francisco Unified School District, San

Francisco, California;

Miss Ruth Hodgson, Supervisor of Home Instruction, Colorado Springs Public Schools, Colorado Springs, Colorado;

Mrs. Iva F. Boyles, Assistant Director of Education of the Physically Handicapped, Office of the Superintendent of Public Instruction, State of Illinois, Springfield, Illinois;

Miss Marie McCarthy, Supervisor of Special Schools, Board of Education, City Schools of Chicago, Chicago, Illinois;

Mr. Lee L. Caldwell, Superintendent of Schools, Hammond Public Schools, Hammond, Indiana;

Miss Grace E. Lee, Acting Assistant Director for the Education of Physically Handicapped Children, Board of Education, The City of New York, New York;

Mrs. Evelyn T. Meredith, Teacher of the Homebound, Board of Public Instruction of Dade County, Florida, Miami, Florida.

I. HISTORY AND SCOPE OF THE PROBLEM

Beginnings in the United States. Since the dawn of the Christian era, western man has been placing less and less emphasis on mere brute survival of the fittest, and more and more on brotherhood. In the early days it was the religious groups that began to care for the handicapped children. Then the medical sciences became interested. In Europe such pioneers in the field as Itard, Seguin, Montessori, Decroly, and Binet were all physicians and psychologists.

In **America** the first residential institution for handicapped children was the American School for the Deaf, privately organized in 1817, at Hartford, Connecticut.⁴

In the nineteenth century there were sporadic attempts to educate crippled children in private institutions, which were usually supported by charity or endowment. In 1899 a public school class for crippled children was opened in Chicago. This was the first such class to be operated by a board of education, to be supported by funds from the schools, and to be furnished transportation, material, and equipment by the public school system.

In 1906 a system of public school classes for physically handicapped children was instituted in New York City. The program soon spread. It expanded so markedly that by 1914, according to a survey of the Russell Sage Foundation,⁵ 3,269 handicapped children were receiving education. The great majority of these children were in New York, Chicago, Cleveland, and Detroit.

⁴ Oscar R. Ewing, "The Nation's Health--A Ten Year Program. J. Exceptional Child," 15:161, 1949. A summary report prepared by the Federal Security Agency, Washington, D. C.

⁵ Edith Reeves, "Care and Education of Crippled Children in the United States," Russell Sage Foundation, Survey Associate, New York, 1914.

Between 1914 and 1924, according to Frampton and Rowell,⁶ the number of crippled children for whom education was provided almost doubled. This period was very important when several special public schools were opened in such cities as Chicago, Detroit, Cleveland, and Jersey City. The Rehabilitation Law of 1920 was the first federal legislative measure to be enacted for the crippled.

In the 1920's the influence of voluntary organizations sponsoring the cause of crippled children became very strong. State societies were formed and became affiliated with the International Society for Crippled Children, which has its headquarters in Elyria, Ohio. These various state voluntary service clubs served to draw together and to stimulate local societies.

One of the chief contributions made by state organizations was the support given by them to legislation not only for the medical but for the educational care of crippled children. This support was on a state basis.

With the exception of the two national laws (Rehabilitation Law of 1920, and Social Security Act of 1935) the story of American legislation is to be found

⁶ Merle Elbert Frampton and H. G. Rowell, "Education of the Handicapped," History, Vol. I; Yonkers, New York: World Book Company, 1940.

in the attempts of the various states to provide locally for their handicapped children,⁷

write Frampton and Rowell. These laws, however, did not provide for the education of crippled children, but for medical and welfare care and for adult vocational rehabilitation.

In 1927 legislation was enacted in California to provide for physical restoration of crippled children,⁸ and in the same year the so-called "Special Education Act" (School Code Sections 3,620 to 3,638) stimulated the provision of special facilities for physically handicapped children by providing for reimbursement to school districts for excess costs of such facilities.⁹

In 1933 the Report of the Committee of the White House Conference on Child Health and Protection was published. This report brought about a better understanding of the nature and extent of the problem of the crippled child in the United States. On the basis of samples, the report estimated there were between 300,000 and 400,000

⁷ Frampton and Rowell, loc. cit.

⁸ Political Code, Section 2979(b).

⁹ H. D. Hicker, Survey of Physically Handicapped Children in California, Bulletin No. 8 (California: Department of Education, 1938).

crippled children in the United States, one third of whom would need provision for special education. This meant, at the time of the study, more than 100,000 crippled children needed special education facilities.

Since the publication of the Report of the White House Conference, the Federal Security Act of 1935 has included provision for medical care of crippled children to be administered locally. Under this provision, states have been registering crippled children, and on the basis of 1935-1940 registration figures, the 1933 estimate of 300,000 crippled children (with 100,000 needing special education) was much too low.¹⁰

An investigation made in 1939-1942 disclosed that all the data reported came from schools and classes according to the following nine categories:

- I. School for Crippled
- II. School for Various Types of Handicapped
- III. Center for Crippled Children in School for Normal Children
- IV. Single Multigrade Class for Crippled Children in School for Normal Children

¹⁰ Romaine P. Mackie, Crippled Children in American Education (New York: Teachers' College, Columbia University Bureau of Publications, 1945).

- V. Residential Institution Class
- VI. Convalescent Home Class
- VII. Hospital Class
- VIII. Sanatoria Class
- IX. Home Instruction¹¹

World War I and World War II have played their parts in this movement. World War I hastened the expansion of the program for the welfare of the crippled, and although the wartime emphasis on orthopedics was centered in the soldier, the new interest and achievement in orthopedic surgery gained by experimentation and research, soon carried over into more preventive type of work on the child level. During World War II the Army set up special educational provisions for men in the service. This wartime program and the return of many handicapped men to civilian life after the war had a definite effect upon special education for exceptional children. The general public became more and more cognizant of the work that could be done with handicapped individuals.

Size of the problem. In 1948, 378,059 children needing special attention because of marked deviation from

¹¹ Mackie, loc. cit.

normal were receiving instruction in special day schools or classes in the hospital or at home.¹² The children were reported by 1,459 different cities located in forty-seven states, the District of Columbia, and the Territory of Hawaii. When to these were added 63,761 children in 454 public and private residential schools, the total becomes 441,820. This is the largest number of children in such schools and classes that has ever been reported. As a whole, enrollments for special education of exceptional children in local school systems have increased during the past ten years by more than 20 per cent. (See Figure 2, page 56.)

Even greater has been the increase in the number of city school systems reporting special educational services. In 1940 this number was 729. In 1948 it was 1,459, an increase of 100 per cent over the 1940 figures. The important point is that more and more school authorities are conscious of the needs of exceptional children and are doing what they can to make adjustment for them.

There is no doubt that many exceptional children are still going without the special instruction they should have. This indicates insufficient means of identification,

¹² Martens, op. cit., 1950.

which is an important factor in the present study placed at the door of medical science.

According to Whelpton,¹³ school-age youngsters and adolescents made up 24 per cent of our population in the year 1945. This percentage does not remain stable, although there has been, in general, a steady decline, and it is predicted that this will continue until 1975, when this group will comprise about one fifth of the total population. Those under five years of age make up less than 10 per cent of the total.

About 20 per cent of all children are physically handicapped in some way. This group includes about 6,760,000 children (estimated by the National Resources Planning Board for 1945) with the following categories of defects:

4,000,000	- visual defects
1,000,000	- hearing defects
500,000	- handicaps requiring orthopedic or plastic treatment
500,000	- rheumatic fever and rheumatic heart disease
200,000	- epilepsy

¹³ P. K. Whelpton, "The Meaning of the 1947 Baby Boom," Special Reports 33, No. 1 (Washington, D.C.: Government Printing Office, October 7, 1948, National Office of Vital Statistics, Federal Security Agency, Public Health Service).

175,000	and more	-	crippled by infantile paralysis
175,000		-	cerebral palsy
175,000		-	tuberculosis
35,000		-	diabetes
<u>6,760,000</u>		-	physically handicapped children

Not all of these need special educational services, however. The latter comprise only about 12 per cent of the 33,604,000 children five to nineteen years of age, or approximately 4,000,000 children.

Since information on enrollments in special schools throughout the nation has not been published since 1948, it is impossible to give the 1951-52 statistical picture of the nation's special education program. However, a report from one state (not specified), says Hill,¹⁴ indicates that during the 1950-51 school year reimbursement was distributed to local districts for an average monthly enrollment of 55,660 children. In the statistical report of special education services for 1947-48 the same state¹⁵ reported only 38,136 children in its special schools and classes. In Stockton the total number of children receiving special instruction was as follows as of June 1, 1953:

¹⁴ Arthur S. Hill, "Special Education Comes of Age," The Crippled Child, April, 1952.

¹⁵ Loc. cit.

Speech correction	335
Lip reading	16
Home instruction	69
Mentally retarded	116
Cerebral palsy	<u>23</u>
Total	559

This represents 2.4 per cent of the total school population numbering 23,097 on that date.

Cost of special education. Forty-one states were reported by Martens in 1949 as having legal provisions authorizing or requiring school districts to make special educational provisions for exceptional children, and thirty-four of these states help local school districts to pay the extra cost of such education.

Martens points out that in 1949, Colorado, for the physically handicapped, increased from a previously unnamed sum to \$500.00 per child in average daily attendance. Maryland and Nebraska specified \$400.00 for each physically handicapped pupil, and Oklahoma provided that:

. . . qualified and properly certified teachers of special education shall be paid a minimum of 5 per cent above the prevailing wage paid teachers of normal children in the same school district.¹⁶

¹⁶ Elise H. Martens, State Legislation for Education of Exceptional Children, Bulletin No. 2 (Washington, D.C.: Office of Education, Federal Security Agency, 1949).

The State of California also at present specifies \$400.00 per pupil. (\$150.00 is provided for the school child in the regular classroom situation.)

Figures for state money appropriated for special education ranged for the biennium 1948-1950 from less than \$10,000.00 to over \$6,000,000.00. One million dollars, or more, were distributed in each of the following seven states: California, Illinois, Michigan, New York, Ohio, Pennsylvania, and Wisconsin.¹⁷

Many children are receiving good care, either privately or under the auspices of state crippled children's programs, which, since 1945, have been recognized as deserving the support of the federal government as well as the state and local government. The Social Security Law of 1935 has placed the greatest emphasis for the crippled child upon the medical program. Under this law substantial sums of money are allotted to states on a matched basis. Federal aid to the states for services for crippled children authorized in the Social Security Act has made possible the development of a nation-wide program of medical, surgical, and after-care service for the physical restoration and social readjustment of crippled children.

¹⁷ Martens, loc. cit.

The Children's Bureau in Washington, D. C. appor-
 tions to the states the funds that Congress appropriates
 each year to extend and improve these state programs.
 (This is independent of the appropriations for education.)
 During the fiscal year 1951, \$9,975,000.00 were distributed.
 The eight states and one territory allocated the largest
 amounts are as follows:

Texas	-	426,614
Pennsylvania	-	356,733
New York	-	271,610
Ohio	-	251,745
California	-	229,998
Michigan	-	217,024
Illinois	-	171,830
Wisconsin	-	150,728
Virgin Islands	-	67,060

In 1950 the Wisconsin program provided for the
 special need of children on all levels as follows:

<u>% of total</u>		<u>Contributed by state</u>	<u>Contributed by federal funds</u>
8	Speech	90	10
26	Crippled	59	41
27	Hearing	88	12
17	Vision	100	0
<u>22</u>	Mentally retarded	<u>100</u>	<u>0</u>
		437	63
100	per cent	87 per cent	13 per cent

CHAPTER II

MAJOR PROBLEM AREAS IN THE EDUCATION OF THE PHYSICALLY HANDICAPPED

I. IDENTIFICATION

Medicine and education have always had much in common, but in recent years they have come closer together in the fundamental concepts which underly their approach to the specialized problems with which each deals.¹ Today's educator and doctor, thanks to their own better understanding of the way human beings grow in physical and mental health, and because also of the contributions science is making to everybody's thinking, are aware that they must deal with the whole body and person of a child, not just part of his anatomy or a fraction of his life or education. Here we have an important need involving biological factors where absenteeism of children from school demands special programs--the need for identification of the individuals who need special services.

¹ Leona Baumgartner, M.D., "Better Health for School-Age Children," The Child, Vol. XV (September-November, 1950). Address made at 116th Meeting of the American Association for the Advancement of Science.

Doctor Thomas E. Shafer,² speaking for physicians generally, declares that the spotlight of scientific study, focused in the past on saving lives, is now turning toward ways to improve the health of people of all ages. School and community-wide health planning for children is being developed and certainly will receive increasing attention in years to come. The education of the child absent from school is one of the features included in this planning for health improvement.

Early identification means early adjustment. The earlier an illness is diagnosed, the more certain is the chance of recovery. Doctor Shafer also points out that the school age is marked by a host of physical and emotional disabilities which, though they do not endanger life, interfere with the best growth and development. Some of these handicaps could be prevented, and others, if discovered in time, could be overcome. Even in the case of those advanced beyond correction, much can be done during the school years to lessen their effects.

Difficulties of this problem. "Exceptional children must be identified." This is the first of the Ten Basic

² Thomas E. Shafer, M.D., "What Health Services Do School-Age Children Need?" The Child, Vol. XV (September, 1950).

Principles of State Legislation as proposed by the United States Office of Education, which are as follows:

1. Exceptional children must be identified.
2. Exceptional children should go to school.
3. All groups of exceptional children should be served.
4. Special education should begin early--particularly for children who are deaf, cerebral-palsied, or otherwise handicapped by a condition which requires long years of special training techniques. The law stipulates three or four years of age.
5. Special education should extend through the adolescent years.
6. Special education should be offered in school, home, and hospital.
7. The state must share the expense of the program.
8. The state should assume leadership in guiding the program.
9. The state supervisory agency should have certain designated functions.
10. The state should encourage the preparation of well-qualified personnel.³

³ The exceptional child is one who deviates from the average child to such an extent as to require special treatment or training in order to make the most of his possibilities.

The Ten Basic Principles of State Legislation, according to Elise H. Martens, "Biennial Survey of Education in United States, 1946-48," Statistics of Special Schools and Classes for Exceptional Children, Chapter V (Washington, D.C.: Office of Education, 1950).

It is difficult to formulate legislation for finding all the exceptional children, and probably no state has succeeded in doing so. Frampton and Rowell declare that the discovery of cases is one of the most difficult problems in all the work with the handicapped.⁴ Wider education of parents as to the true status of the handicapped, and what can be done for them through educational programs, is a partial answer to this problem. There is also the need for being sure that physicians and allied groups are informed concerning facilities available. Since a parent may at any time become the parent of a handicapped child, either through a new birth or by some disease or accident to an existing child, it follows that parent education should include all parents capable of child-bearing, with further services to those in whose family such a child exists.

Suggested ways of finding the handicapped. An annual census of the handicapped of all types is one way of finding them. The City of Cleveland, Ohio, has used this method. Such a census enables both the educator and the medical man to take up their respective problems of

⁴ Merle Elbert Frampton and H. G. Rowell, "Education of the Handicapped," History, Vol. I; Yonkers, New York: World Book Company, 1940).

rehabilitation at an early period in the life of the child.

The use of special consultants and clinics within the school building is a successful plan in conserving a maximum loss of time in getting to and waiting for medical service. Such a procedure is adopted in the Stockton schools. If responsibility is placed on the parent, this method is often unsuccessful because of the high cost of medical service in a true handicapped case. The existing clinics are usually overcrowded, wasting a great amount of time and energy of the pupil and of those who accompany him.

Two types of specialized identification services are being provided:

1. Periodic check-ups both of special defects and of general health--this routine physical examination is desirable because purely functional disturbances are too often wrongly diagnosed as organic. A correct diagnosis is the first step in any school service for the exceptional child. Special education emphasizes this procedure as a necessary element in the total philosophy underlying the program. Ophthalmologists, otologists, orthopedists, and pediatricians are important people in conducting a school program for exceptional children. If a child's enrollment in the regular class is detrimental to his own development

or that of other children, then he should be placed where his growth can best be furthered.

2. Emergency service, as in eye cases developing recurrent iritis and in osteomyelitis cases with acute flare-ups. There is a distinct trend toward a national standardization of programs that affect the cure and welfare of the handicapped. This tendency has not seriously influenced educational plans, but it has definitely influenced all remedial medical services. Federal legislation has increased the influence of three groups:

- a. The United States Public Health Service,
- b. The Children's Bureau under Social Security legislation, and
- c. The Office of Education in the Federal Security Agency.

The federal authority remains merely advisory in nature, but can contribute funds. Many voluntary agencies have sprung up, but there is a danger of overlapping programs between voluntary and official groups. This may become a cause of conflict and confusion.

New York City and Chicago have ways of their own for identification. The City of New York has developed a checking system based on the cooperation of all agencies handling cases of the physically handicapped. They have

worked out a system of reporting to each other and to the school; in return the school reports its cases to the agencies.

The Chicago public schools, on the other hand, have assumed full responsibility for discovery and identification of physically handicapped children. The ancient Greek ideal of "a sound mind in a sound body" gets full recognition in these schools. Community health and welfare agencies have united with the schools in a common drive to assure prompt recognition of physical conditions in need of attention, plus professional follow-up when indicated. The Bureau of Health Services Program developed in Chicago schools from a hearing and vision conservation survey promoted by several community agencies in 1949.

Representative school community groups in the nature of "health councils" are formed as rapidly as schools are assigned health personnel. The health council coordinates and guides the work of the entire school staff, the parents, and the pupils. The Bureau of Health Services acts as a resource agency, supplying professional and technical guidance. Final administrative responsibility, of course, rests with the school.⁵

⁵ Educational Progress, Vol. IV (October, 1952).

A key person in the health council of the Chicago schools is the "teacher-nurse" assigned to the school in which the council operates. She is an academically trained person who has majored in public health nursing, and is, thus, in a position to interpret the school needs to the community and utilize the community's resources for the good of the pupils. In the school organization she is classified as a high school teacher of public school health, carrying the title of "teacher-nurse." She is a regular member of her school faculty, working in unison with her colleagues on the teaching staff. Her duties are both specific and general. They include such work as assisting teachers in organizing health screening procedures; health counseling with children and parents, including home visitation if necessary; and public relations work of various kinds in the school and community.

Eligible types of handicapped including the emotional. As Elise Martens⁶ points out, in formulating special legislation it is necessary to designate the type of pupils to be considered as exceptional children eligible for the program. She considers this most important, and observes

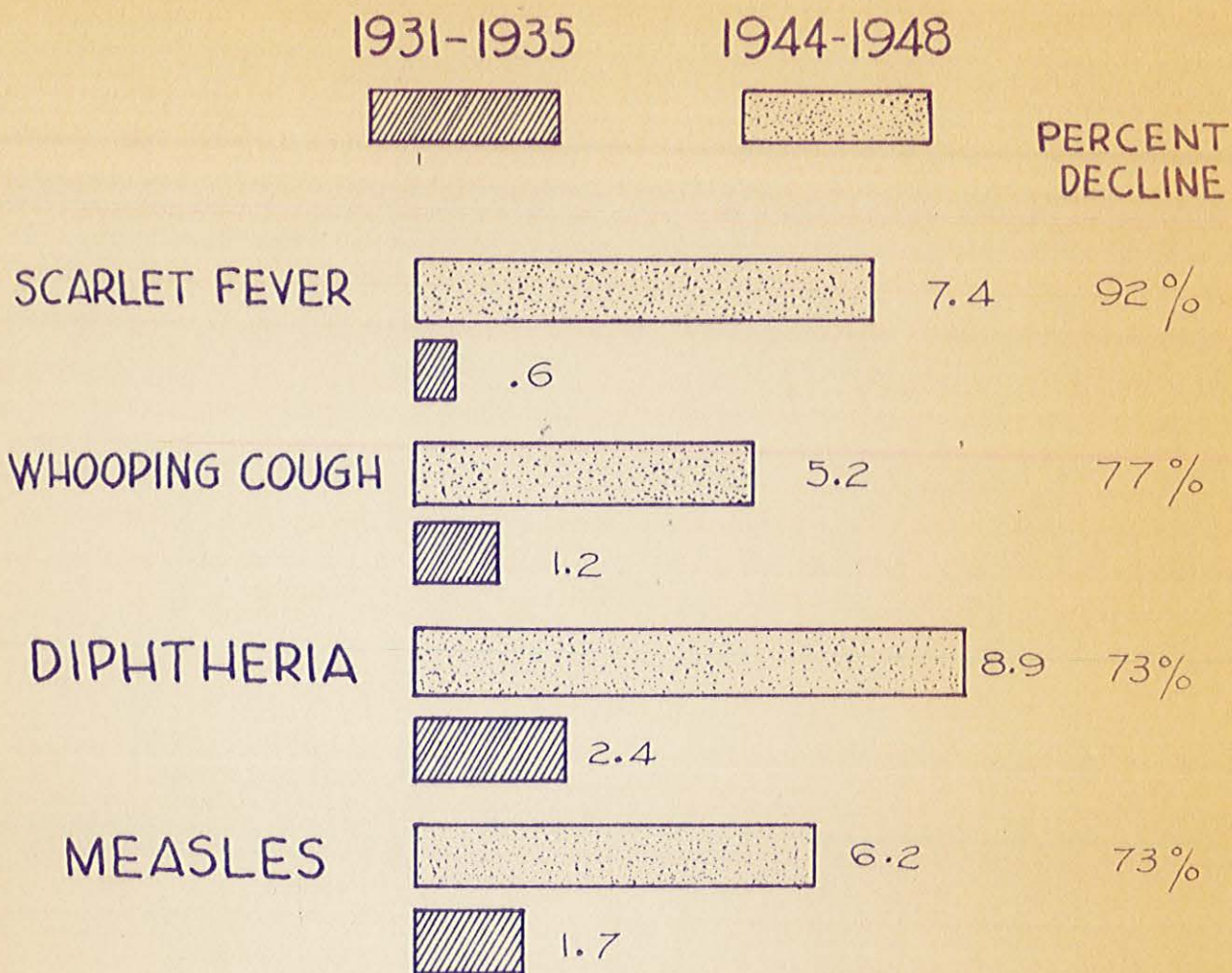
⁶ Elise H. Martens, State Legislation for Education of Exceptional Children, Bulletin No. 2 (Washington, D.C.: Office of Education, Federal Security Agency, 1949).

that while states have provided for the physically handicapped, some have limited the program to certain types, such as the orthopedically crippled and the cardiopathic, and have made no provision for others, such as the epileptic, the children with low vitality, and the emotionally disturbed. Communicable diseases have greatly decreased in recent years. (See Figure 1, page 27; and pages 107-108.)

Psychosomatic medicine has made doctors more aware that a child's health is not necessarily just an absence of germs or viruses. Baumgartner states: "What happens to a child in school may produce an illness every bit as serious as an illness of definitely physiological origin."⁷ It is recognized that a well child is not just a child who has no visible handicaps, or has no identifiable aches or pain. There is consequently increasing interest on the part of many states in providing special legislation for the emotionally and socially maladjusted. (Several cities carry such a program: New York, Chicago, San Francisco, and Oakland.)

Examples of state legislation for discovery of handicapped. Care of the physically handicapped appears to be one service which has tended to be more nearly

⁷ Baumgartner, loc. cit., 1950.



PRINCIPAL COMMUNICABLE DISEASES OF CHILDHOOD
 DECLINE IN ADJUSTED DEATH RATES FROM:
 1931-1935 TO 1944-1948

METROPOLITAN LIFE INSURANCE COMPANY
 WEEKLY PREMIUM PAYING BUSINESS
 AGES-ONE TO FOURTEEN YEARS

FIG. 1

equalized throughout the country by a public program. Rules for school attendance are a form of discovery of handicapped.

In a few states the law is so worded that a broad interpretation of it could include all groups of handicapped children. For example, the Florida statute reads:

The county board in each county is hereby directed to ascertain through the county superintendent the number, names, and conditions of exceptional children who require special education services or facilities in order to gain the full benefit of an education.⁸

In actual practice, however, it is doubtful that such **broad** interpretation is observed to any considerable degree if at all.⁹

How can handicapped children be identified and reported without a systematic and comprehensive system of physical examination? Recognizing the inadequacies of the situation, the Ohio law reads in connection with the census program:

The person taking such enumeration shall make every effort to secure an accurate enumeration of all persons between 1 and 21 years of age, and of all crippled, blind, or partially blind, deaf, and hard-of-hearing children, and those having speech defects between the same ages.¹⁰

⁸ Florida Statutes Annotated, Paragraph 230.44.

⁹ Martens, op. cit., 1949.

¹⁰ Page's Ohio General Code Annotated, Section 4853-

Ohio is one of the states which has a particularly effective program of special education for exceptional children.

Such laws cannot be allowed to pertain only to children enrolled in school if findings are to be accurate. The terminology "children of school age" or, as Ohio puts it, "persons between one and twenty-one years of age" is much more inclusive, for under such provisions it is possible to reach children perhaps unknown to the school authorities, who are staying out of school because of a serious handicap, but for whom special school provisions should be made. Under laws like the Ohio statute it would also be possible to locate children of pre-school age for whom special treatment should be made available in order to facilitate school attendance when the child is ready for it.

What school health services are being provided? The administration of school health services has been a matter of controversy between health and education authorities, but current trends are toward joint administration. There is agreement on some aspects, as for example that health education is primarily a job for education authorities and that control of communicable diseases should rest with the health agency. The major difficulty in obtaining information on the administrative pattern in operation at the local level lies in the definition of what constitutes an

agency.

The general situation throughout the United States

For educational purposes an agency is usually the school authority serving a school district. A city is generally served by a single agency, but there may be many agencies within a county covering individual school districts. For health purposes the picture is usually the reverse; a health jurisdiction is frequently made up of several counties. There is, therefore, some tendency for the number of education agencies to be multiplied and the number of health agencies to be reduced in relation to the same areas. There is greater tendency for education authorities to provide the service in metropolitan counties and for health agencies to be responsible in isolated counties.

The situation in Stockton

School health examinations are under the supervision of the San Joaquin Local Health District which is also in charge of the rural districts of San Joaquin County. Physicians, elementary school nurses, dental hygienists, and audiometrists are on the Health District's payroll. Only the high school and junior college nurses are employed by the school district.

The physicians visit the schools, but have the children referred to the Clinic where facilities for

examination and treatment are better. Over a period of six years (1946-1952) the children of the fourth and ninth grades have been examined annually, which is an efficient screening device. Public health nurses are assigned to the different elementary schools. They combine home nursing with school nursing service, and there is a distinct advantage in knowing both the school and family situation. The dental hygienists work exclusively in the schools, where they combine health education and examination, since they are too few in number to inspect each child. It is also possible to supplement instruction in dental health through the classroom teacher.

Also employed by the San Joaquin Local Health District are the audiometrists who spend all of their time with school children. There is a routine screening test in the second, sixth, and tenth grades every year. Any sign of hearing trouble suspected by the teacher is reported. The child who does not pass the test is referred to the clinic where the otologist investigates bone conduction and ear conduction. An additional service furnished to the Stockton Unified School District by the local health center is that of "health clerks" assigned to various schools to look after cumulative records. These clerks also assist the classroom teacher when weighing and measuring children.

The Stockton arrangement, therefore, is an example of how joint administration of school health services between health and education authorities can operate effectively.

II. CLASSIFICATION

After proper identification, the physically handicapped must be classified according to the nature of the physician's diagnosis. It has been suggested by Mackie that it would be a real contribution to the field of special education if a thorough study could be made of the physical conditions of the children on home instruction, both as to type of disability and as to severity of condition. The findings of such a study would be helpful in setting standards of classification for selection. No phase in the care, education, and rehabilitation of the handicapped is fraught with more difficulty than the classification of individual cases.

Early attempts at classification. In 1930 the first nation-wide survey of exceptional children distinguished eleven groups. The committee on special education of the White House Conference estimated that there was a grand total of 13,521,400 handicapped children in the United States. They were classified as follows:

Blindness (children under twenty)
 Partial sight
 Impaired hearing
 Defective speech (five to eighteen)
 Crippled condition (calling for special education)
 Tubercular condition
 Suspected tuberculosis
 Weak or damaged heart
 Malnourished state (school age)
 Behavior problems (3 per cent of elementary)
 Mentally retarded (2 per cent of elementary)¹¹

Later, for educational purposes, the physically handicapped were subdivided into six groups as follows:

Handicap involving one or more special senses--the blind, the partially-sighted, the deaf, the hard-of-hearing, the deaf and blind

Handicap resulting in motor disability including orthopedic--poliomyelitis, cerebral palsy, osteomyelitis, bone tuberculosis, congenital defects

Cardiacs
 Respiratory diseases
 Malnutrition (the delicate)
 Speech defectives¹²

Varying degrees and types of disease. In census taking and other services to the handicapped involving medical (term used as inclusive of the need for surgical or mental diagnosis and treatment) diagnoses, **carelessness** in failing to use accepted medical terminology is found. The answer lies in insisting upon the use of some standard

¹¹ White House Conference on Special Education, The Handicapped and Gifted (New York: The Century Company, 1931).

¹² Frampton and Rowell, op. cit., 1940.

set of diagnoses. Another difficulty lies in the fact that a disease such as poliomyelitis, when it leaves any disability at all, does so in varying degrees and types. At the onset, it is classified among "Infectious and Parasitic Diseases," the same as is pulmonary tuberculosis. If crippling results, after a year polio is entered in the category of "Diseases of the Bones and Organs of Movement."

Cosmetic (looks, appearance) effects of a disease may be handicapping only in the sense of affecting the morale or mental hygiene of the individual. Or there may be an accompaniment of definite physical ineptitude in some degree. It is quite possible that in the future the mildest type of permanent or semi-permanent effect of a disease, even if of cosmetic consequence only (skin diseases, or congenital defects, for example), will justify including the individual among the handicapped for purposes of guidance. Educational servicing will be a matter of learning and meeting existing individual needs which exceed in any way those of the so-called normals. Medicine, however, according to Frampton and Rowell must still draw a clean-cut border line between the allowable variations of normals and degrees of definite abnormality.

Confusion of legal definitions, medical definitions, and educational definitions. The term "crippled" in the

statutes sometimes is broadly interpreted to include any type of the physically handicapped, or certain special types not included medically in the category of orthopedic diagnosis.

Legal definition

Legal interpretation is, on occasion, the interpretation of necessity and of mercy. From an academic point of view such interpretation may, however, lead to great confusion.

"Classification" and "definition" are interwoven terms. The educational definition of any group of handicapped is based on the medical definitions (in which are included any parallel psychological definitions), the legal definitions, and a further determination of the educability of a child or type of child, with some attempt at classification that will result in reasonably homogenous groups which may be organized, served, taught together in a class or group of classes. This is another reason why there is still much confusion in definitions.

State definitions have a positive bearing upon the classification and services established. The Ohio State law reads as follows:

Any person of sound mind (a person of sound mind is one whose I. Q. is 70 or higher) who by reason of being so crippled as to be unable properly to care for himself without assistance cannot be properly educated

in public schools as other children and shall be considered crippled for establishing eligibility to a special class and for participation in the state subsidy. A child handicapped by cardiac complications may be enrolled as a cripple. A child for whom the services of the physiotherapist is required is eligible for a special class, even though he may be able to care for himself.¹³

Definitions which have had the greatest influence seem to be these related to state laws, which have governed the classification of children for purposes of procedure and subsidy. Much of the current confusion in this area exists, however, because of local practices, and because the program of the crippled child is not governed by federal planning or budgeting.¹⁴

Medical definition

The problems of classification, from a purely medical standpoint, are already apparent in this discussion of definition. Hospitals and physicians generally classify the orthopedic as to type for medical purposes. Typical of such classification of the crippled is the one used by the Hospital for the Ruptured and Crippled, New York City, the first orthopedic hospital to be established in the United States. Seven general classifications used there are:

¹³ Ohio General Code, Section 7760.

¹⁴ Romaine P. Mackie, Crippled Children in American Education (New York: Teachers' College, Columbia University Bureau of Publications, 1945).

Congenital
 Birth injury
 Metabolic disorders
 Infections
 Trauma (accident)
 Tumors
 Functional condition

In Minnesota there is a State Hospital for Crippled Children which uses the following medical definition to classify:

A modern orthopedic hospital is responsible for the care of every sort of injury, disease, or deformity of the bones, joints, muscles, and nerves; and such urgent conditions as fractures, injuries of joints, sudden acute inflammation of bones and joints, share the hospital with a more chronic condition, such as surgical tuberculosis, and it may be said at once that this form of tuberculosis is not infectious.¹⁵

The medical classification adopted in the present study is based on the current International Statistical Classification endorsed by the World Health Organization at Geneva, Switzerland. This listing of diseases has been universally recognized by the medical profession.¹⁶ (See pages

Educational definition

Many definitions, therefore, have been formulated and there seems to be no single standardized concept of who

¹⁵ Mackie, op. cit., 1945.

¹⁶ "Manual of the International Statistical Classification of Diseases and Injuries," Sixth Revision of the International Lists of Diseases, Adopted 1948; Vols. I and II, World Health Organization, Geneva, Switzerland, 1948.

the crippled child is because there are three different standpoints: legal, medical, and educational. Types of physical handicap, such as cardiac, malnutrite, and epileptic, for example, are debatable as to classification for educational service. There are nine types of organizations for education service to the physically handicapped. (See pages 10 and 11.)

The Biennial Survey of the United States in 1946-48 conducted by the Office of Education in Washington, D.C. classified "Exceptional Children" into seven categories as follows:

- I. Blind and partially-seeing
- II. Deaf and hard-of-hearing
- III. Speech defective
- IV. Crippled: all types of crippling conditions of bones and joints, also cerebral palsy belong here
- V. Delicate: heart ailments, tuberculosis, asthma, malnutrite, chorea, etc.
- VI. Epileptic
- VII. Mentally maladjusted¹⁷

The author of this survey points out that serious difficulty in classification was encountered as all school systems reporting did not keep the number of partially-seeing children distinct from the number of blind children,

¹⁷ ~~Ma~~rtens, op. cit., 1950.

for example, nor did they all distinguish the number of deaf from the number of hard-of-hearing. Also, the terms "crippled" and "delicate" are not always defined in the same way. The varying practices in classification among local school systems are bound to affect the way in which children are reported.

Examples of difficulty in classification of a single type of disability. Orthopedic. Three terms are commonly used to describe children with orthopedic physical deviations:

1. crippled
2. orthopedic
3. motor handicapped

The first of these terms, "crippled," was chosen for the title of Mackie's study because it is a broad term and one that is widely used.¹⁸ The term "orthopedic" fortunately carries with it less of the sentimental connotation, but in its strictest sense it describes only physical defects caused by bone or muscular deviations. Derived from the Greek, orthopedic means "straight child." In a literal interpretation it would not include cardiac children. There is a growing tendency, however, to use the word "orthopedic" and "crippled" interchangeably.

¹⁸ Mackie, op. cit., 1945.

The term "crippled" served in the above mentioned study¹⁹ because of a large number of cerebral palsy and cardiac children reported in special schools and classes. The third term "motor handicapped" is a broad general term, and would readily include the cardiac and cerebral palsy categories, but it has never been widely used.

Cerebral palsy

The cerebral palsy group also presents varied problems with respect to classification. The primary handicap must be considered when a school or class is being chosen for such a child. It is possible that the cerebral palsy child, at different periods in his development, may be considered a sight-saving or hard-of-hearing case, or a speech defective.

Medically, cerebral palsy cases may be classified on the basis of:

1. the type of motor disturbances--true spastics, athetoid, primary incoordination, etc.,
2. the part of body involved--paraplegia, monoplegia, quadriplegia, hemiplegia, or
3. on the function involved--sight, hearing, or speech disturbance, or mental involvement.

¹⁹ Mackie, loc. cit.

Educationally, classification of cerebral palsy's is based on three levels:

1. Mental
2. Degree of physical handicap
3. What handicap dominates (or what combinations of handicaps)--speech, sight, hearing, or motor coordination.

Classification as a basis for statistics. For the purposes of statistics it is essential that classification be standardized. The following example illustrates this fact.

Varying local practices in classifying "crippled" and "delicate" children, and in some cases of including "delicate" children among the "crippled," would result in some questionable totals. When one combines "crippled" and "delicate," one finds an enrollment of 52,576 in 1940 and 49,736 in 1948. The difference is 2,840, representing a decrease of only 5 per cent. Compared with a decrease of 7 per cent in the total school population, there is still in effect an increase for these two groups combined.²⁰

²⁰ David T. Blöse, Statistics of State School Systems, 1946-47, Circular Number 255 (Washington, D.C.: Office of Education, 1949).

Standardization challenged by the fact that disabilities are not static. The problem of definition, therefore, complicates classification concerning the crippled. It is a condition that varies in manifestation and duration. The degree of crippling, the time of onset, the amount of apparency, the time of recognition, all classify and determine those who are known as orthopedic cases. The crippled, as a group, is heterogeneous--not static.

Many authorities, consequently, recognize that the classification of the physically handicapped is unsatisfactory. They observe that in all types of school centers, and classes related to the physically handicapped child, one of the problems which have complicated the planning of educational programs lies in the area of definition, terminology, and scientific classification.

III. TEACHER TRAINING

One of the purposes of the present study of biological factors involved in the absenteeism of children from school has been to point out the importance of these factors in the training of educational workers in the field of the physically handicapped.

Lack of training in medical sciences. One hundred thousand teachers of exceptional children will be needed

to serve the schools and classes of the nation. At present approximately 16,000 such teachers are available.²¹

Courses in health education are more and more being required for teachers of exceptional children who were first educated as regular teachers. Exceptional children have the same drives, motives, and capacities as normal children.

In the year 1947-1948 there were about 16,000 teachers reported as working for exceptional children.²² These teachers were serving approximately 450,000 pupils. There are an estimated 4,000,000 exceptional children needing special educational services. "More teachers must know more about exceptional children," is the general opinion of those interested in the care of the physically handicapped. For such teachers, therefore, training in the following areas is being recommended: survey of orthopedic defects, physiology, anatomy, diseases, and hygiene.

With the dearth of properly qualified teachers of all types that has characterized the trend of events in recent years, it is not surprising that the supply of teachers of exceptional children has also been far less

²¹ The Education of Exceptional Children, Part II, Forty-Ninth Yearbook of the National Society for the Study of Education (Chicago: University of Chicago Press, 1950).

²² Statistical data from United States Office of Education on city school systems and residential schools.

than the demand.²³ As far as is known, only five states have taken active legal steps to help along the cause of teacher preparation. In the Arkansas law, passed in 1947, the services authorized under the Act include the "cost of scholarships for in-service training of teachers." The statutes of Colorado and Maine also mention the "training of teachers" among the authorized services of the program.

California has authorized the establishment of a teacher-education program in a selected teacher-education institution of the state and has made a special appropriation of money for its maintenance: San Francisco State College.²⁴ In Ohio,

The Superintendent of Public Instruction may, by written agreement with the board of trustees of any State-supported university in Ohio, arrange with the teacher-education department of such university for the classroom and in-service training of teachers for handicapped children. Payments for teacher education shall be made directly to the university, provided, however, that the total payment for any instructor shall not exceed 50 per cent of the salary of such instructor.²⁵

To meet the demand created by this growing program, many colleges are giving attention to the orientation of

²³ Martens, op. cit., 1949.

²⁴ California Session Laws 1947, Senate Bill No. 672, Chapter 1535.

²⁵ Page's Ohio General Code Annotated, Section 4850.

all teachers in the problem of exceptional children.²⁶ Certain universities and colleges are offering intensive training in the education of the crippled and cerebral-palsied, the deaf and hard-of-hearing, the blind and partially seeing, speech defective, and other exceptional children. It is recognized that an adequate teacher education course in the field of the crippled, for example, should include some information on orthopedic conditions through lectures by physicians presented in lay terminology and with clinical observations. It is also believed that a thorough understanding of a child's health disorder leads to more sympathetic understanding and help from those who are around him. While scientific facts about an ailment are a primary concern to those who treat a handicapped child, a lucid explanation of the nature and significance of the child's troubles is also due those who give him non-medical guidance.

Suggested training in these sciences. In the opinion of many authorities, one of the important requirements and qualifications of those who wish to study and teach exceptional children is that they be as much informed about

²⁶ United States Office of Education, Leaflet 80, 1949.

and interested in internal as in external conditions. They point out that it is essential for teachers and parents to be familiar with the nature of a disease, with the course of its treatment, and its relationship to the education of disabled children.

At a national meeting of state school and health officers,²⁷ it was recommended that a certain amount of general medical training should be given the teacher of the physically handicapped. The Council on Medical Education and Hospitals of the American Medical Association recommends the following curriculum for physical-therapy technicians and occupational therapists. Teacher-training institutions might use it in some modified form:

Instruction in the biological sciences

Anatomy, kinesiology, neurology,
physiology, psychiatry, psychology--
15 semester hours

Social sciences

Sociology, delinquency and crime,
social and educational agencies--
4 semester hours

Theory of occupational therapy

Interpretative courses covering the
principles and practice of occupational
therapy in relation to orthopedics,

²⁷ National Council of Chief State School and Health Officers, 1951.

pediatrics, tuberculosis, psychiatry,
general medicine and surgery-- 4 semester hours

Clinical subjects

Blindness, deafness, cardiac diseases,
communicable diseases, and including
necessary bacteriology, general medical
and surgical conditions, orthopedics
and tuberculosis-- 4 semester hours

Electives-- 3 semester hours

Total-- 30 semester hours²⁸

Teachers themselves are seeking college or in-
service courses which give them more technical background.²⁹
They want such specialized courses as:

1. Surveys of various physical conditions presented
by a medical staff in lay terminology,
2. Clinical observations.

They ask that the courses be conducted by people who
have worked with crippled children. State crippled children
agencies, for example, help finance more training for
professional workers. These workers are often given oppor-
tunity for special training in such fields as: orthopedics,
epilepsy, rheumatic fever, speech and hearing disorders,
cleft palate and cerebral palsy. The emotional and social

²⁸ The Council on Medical Education and Hospitals
of the American Medical Association.

²⁹ Mackie, op. cit., 1948.

problems are also dealt with, as well as the physical trouble.³⁰

Many parents also lack understanding and knowledge about the physical condition of their child. Through specially trained teachers, programs, and discussion groups sponsored by the school, parents can get facts about crippling conditions, and they can secure general information concerning child development. With the help of a professional staff, many valuable programs can be arranged. Orthopedists, pediatricians, other physicians, physical therapists, and other specialists usually welcome the opportunity to talk with such groups.

The teacher of the physically handicapped can be truly effective only if he understands the physical needs of the child and can help him toward the best use of his abilities only if he knows how far and how fast the child should be urged to move. When fully informed as to medical recommendations, the teacher can know when and where pressures need be applied, and what should be expected from the child, as well as how best to encourage these youngsters to use their abilities in school. Thus, no phase of the treatment program can be isolated.

³⁰ Services for Crippled Children, Children's Bureau Folder No. 38 (Washington, D.C.: Federal Security Agency, Social Security Administration, 1952).

Many educators are concluding that the view held by some that medical needs are not properly a part of a discussion of educational planning is not only short-sighted but distinctly contrary to the best interests of the crippled child. They see that the teamwork of family doctor, medical specialist, teacher, and parent is highly important.

In an address made at a meeting of the American Association for the Advancement of Science, Doctor Leona Baumgartner³¹ of the Children's Bureau of Washington, D.C. declared that any sound program of educational services for homebound children should include, on the part of the teachers concerned, as much understanding as possible of the disorders involved. She is convinced that many parents, also, are eager for guidance and assurance in their job of rearing children. Close cooperation between doctors, educators, and parents should do much toward re-establishing the health of the child.

It is important, therefore, that special education be regarded as a professional service and not merely a device for more conveniently grouping children for instruction or for providing physical care. Special education

³¹ Baumgartner, op. cit., 1950.

becomes specialized only as persons trained in the special philosophies, methods, and techniques are provided for this task. This makes it necessary for universities and colleges to provide adequate teacher training in the various fields of specialization.

IV. RESEARCH NEEDED

Statement of the need generally. Research need is the last of the four major problem areas to be discussed in this study of the physically handicapped school child. The American people have been generous in their support of research in the physical sciences but much less so in supporting research into the most basic problems of mankind--the problems that human beings encounter as they grow physically, emotionally, and socially from infancy into adulthood.

In 1948 the Federal Government was spending, with Congressional approval, \$625,000,000.00 for research.³² Only about \$28,000,000.00 of this was in the field of health of human beings, and only a few thousands on problems of child health. This situation, as far as children are concerned, is little different today.

³² Baumgartner, loc. cit.

Area of the undervitalized, cardiacs, and tuberculous.
Because each type of exceptional child requires medical supervision, whatever research is undertaken should obviously be carried out as a cooperative study with medical personnel in order to determine the influence of both medical and psychological therapies in childhood adjustment.³³ A serious effort to improve educational technique in the area of the undervitalized, cardiacs, and tuberculous is especially needed.³⁴

There has been an about-face by the medical profession in the advocacy of what schools should do to make the medical treatment more effective, while at the same time offering the child adequate educational opportunities. Nutritional classes were formerly stressed. Open-air classes were highly approved. Both are now criticized. There is a danger, since both physicians and educators are sometimes said to be incurable extremists and faddists, that the pendulum will now swing too far in the direction of conservatism.

³³ Martens, op. cit., 1949.

³⁴ Frampton and Rowell, op. cit., 1940.

The primary difficulty here lies in the failure of the medical profession to understand the organization and administration of schools, and the admitted inability of the educators to interpret medical dogma in practical educational situations. Two highly divergent backgrounds need to be brought into sympathetic and cooperative service. The situation is such as might occur during any other period in the advance of preventive medicine or of science in general, where it applies to a specific group or groups, and where research should provide the bases for new and better programs.

The multiple handicaps of cerebral palsy. Another area calling for coordinated educational and scientific research is in relation to cerebral palsy. Psychological problems, medical problems, and educational problems cannot be differentiated separately in this area. The condition is one in which the learning processes are so intimately entwined with physical problems that it is impossible to separate them.

It is now recognized that the effect of related handicaps in a single individual is important, and more work needs to be done in this field, as well as in speech training for cerebral palsy cases. In the medical sphere the problems of anatomical and pathological localization

of the damage to the brain is still somewhat nebulous;
also the relationship of the hearing difficulties and eye
difficulties to the physical handicap is not clearly known.

CHAPTER III

SURVEY OF DISABILITIES AFFECTING HOMEBOUND CHILDREN IN STOCKTON, CALIFORNIA

I. RESTATEMENT OF THE PURPOSE OF THE PRESENT INVESTIGATION

As stated in the introduction to this study, its principal purpose is to determine what are the medical or biological causes of absenteeism from schools, how the home instruction program for physically handicapped children has developed in Stockton, California, and how the physical disorders involved compare in importance with those of other cities. From such information it is hoped that it will be possible to draw conclusions and perhaps make recommendations.

II. SOURCES OF INFORMATION

The investigator is indebted to various administrative branches of the Stockton Unified School District, such as the Department of Research, the Department of Attendance and Welfare, to several school principals, to the San Joaquin Local Health District, and to the supervisors of special education of the twelve cities and one state included in this investigation. All of the aforementioned were most cooperative in opening their files and furnishing

information desired.

III. RESULTS

Growth of the program since 1931. The development of the home instruction service in Stockton is shown in Figure 2, page 56. It is evident that home instruction enrollment has grown much more than the total school enrollment. By plotting the school enrollment and home instruction enrollment on a logarithmic graph, an immediate visual comparison is possible as to relative growth in the two. That is, although the enrollment in home instruction numbers in the hundreds and general school enrollment in tens of thousands, the slopes of the two lines are directly comparable by using the logarithmic method.

It is immediately evident that a sharp upturn in home instruction enrollment occurred beginning in 1944, and that another upswing began in 1950. The total school enrollment, on the other hand, shows little or no growth until after 1940. Then, after a slow start, it shows a steady increase. The home instruction program developed rapidly but dipped during the three World War II years following 1940. After 1944 there is continuous growth of enrollment.

In an over-all national estimate the following data are cited to show increase in enrollment of physically

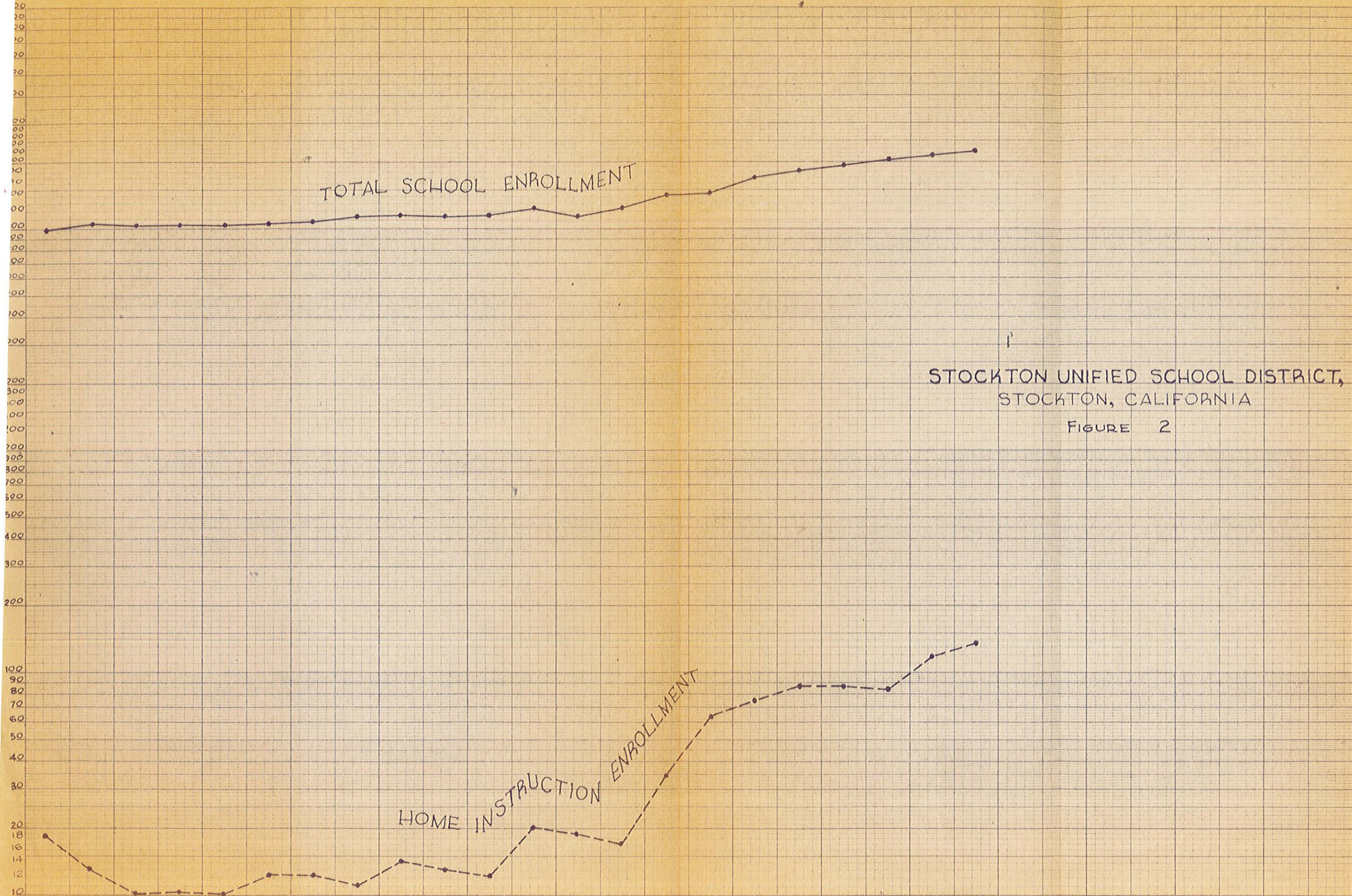
1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951

TOTAL SCHOOL ENROLLMENT

STOCKTON UNIFIED SCHOOL DISTRICT,
STOCKTON, CALIFORNIA

FIGURE 2

HOME INSTRUCTION ENROLLMENT



handicapped children during the ten-year period about forty and thirty years ago, respectively:

1914 -- 3,269	1929 -- 13,283
1924 -- 6,225	1939 -- 25,000 ¹

Each of these sets of figures represents nearly a 100 per cent increase. This clearly indicates the growth in enumeration which has occurred as the disorders of the handicapped have become more broadly defined, services expanded, and efforts at case-finding increased. Wide variations among states as to the definition of handicapping conditions, along with differences in case-finding efforts, have meant that the names of many children were still not included in these numbers.

National figures of a 1946-48 survey² show a striking increase in the number of pupils receiving instruction in their own homes or in the hospital³ because of a physical condition which prevents them from going to school. From

¹ Merle Elbert Frampton and H. G. Rowell, "Education of the Handicapped," History, Vol. I; Yonkers, New York: World Book Company, 1940.

² Elise H. Martens, State Legislation for Education of Exceptional Children, Bulletin Number 2 (Washington, D.C.: Office of Education, Federal Security Agency, 1949).

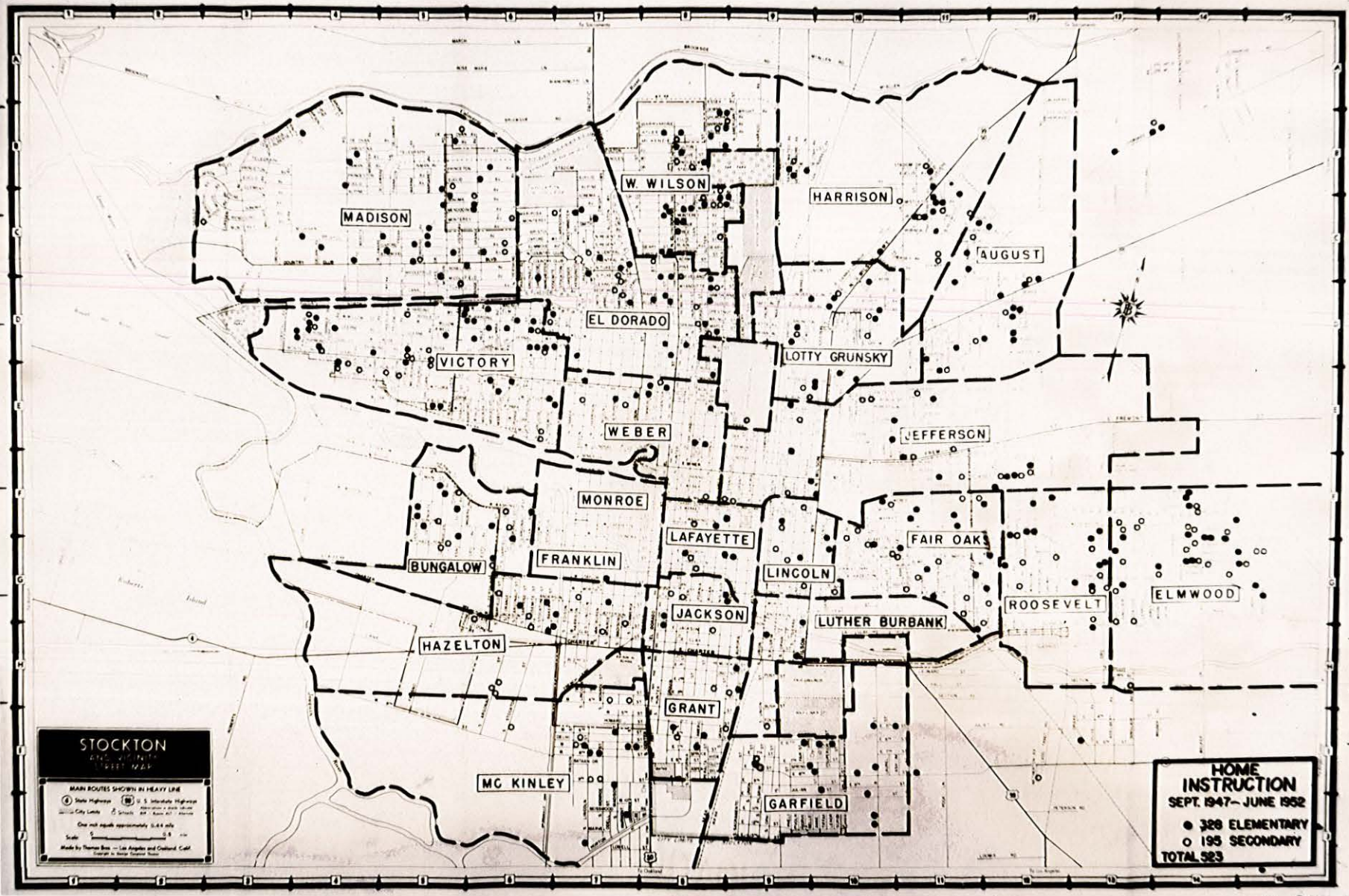
³ In Stockton the children taught in the hospitals are not counted separately from the "homebound" group because the same child may spend two months in the hospital, for example, and three months at home. He is visited in either place by the same teacher assigned to him at the beginning of his confinement.

14,304 in 1936 and 16,909 in 1940, the number grew to 24,326 in 1948.

Distribution of cases throughout the city. Figure 3, page 59, presents a spot map in which the distribution of the homebound of both elementary and secondary grades is shown. Several factors influence the fairly even distribution of spots on this map of Stockton. Less privileged south and east areas are about as well represented as the northwest area where more favorable living conditions prevail.

In Table I, page 60, the number of homebound elementary children per 1,000 school enrollment is shown to vary from 43.7 in the Harrison District to 0.0 in the Monroe District, with an average of 20.0 for all. In general, the south districts have the fewest cases per thousand, the northwest the greatest number, and the east the medium number, although there are several notable exceptions in each section.

In Table II, page 61, the same data are shown for secondary children, and it will be seen that the number per thousand varies from 40.6 in the Elmwood District to 0.0 in both the Franklin and Monroe Districts, with an average of 20.9 for all. In this case the south districts again usually have the least number of cases per thousand, but the



STOCKTON
 AND VICINITY
 STREET MAP

MAIN ROUTES SHOWN IN HEAVY LINE

① State Highways ② U. S. Interstate Highways
 City Limits Schools ③ School District

One inch equals approximately 0.64 miles

Scale: 1" = 0.64 miles

Made by Thomas Blom, Los Angeles and Oakland, Calif.

HOME INSTRUCTION
 SEPT. 1947 - JUNE 1952

● 328 ELEMENTARY
 ○ 195 SECONDARY
TOTAL 523

TABLE I

DISTRIBUTION OF PHYSICALLY HANDICAPPED CHILDREN ACCORDING TO SCHOOL DISTRICT
ELEMENTARY GRADES: K, 1, 2, 3, 4, 5, and 6

Name of School District	Section of City	Average School Enrollment	No. Home-bound 1947-1952	No. Home-bound per 1000 school enrollment	Graphic Presentation											Rank	
					0	5	10	15	20	25	30	35	40	45	50	E	S
Harrison	E	320	14	43.7	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											1	8
Victory	NW	823	34	41.3	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											2	2
Bungalow	S	359	11	30.6	XXXXXXXXXXXXXXXXXXXX											3	5
Garfield	S	561	15	27.5	XXXXXXXXXXXXXXXXXXXX											4	20
Woodrow Wilson	NW	851	23	27.0	XXXXXXXXXXXXXXXXXXXX											5	9
August	E	625	16	25.6	XXXXXXXXXXXXXXXXXXXX											6	16
El dorado	NW	1026	25	24.3	XXXXXXXXXXXXXXXXXXXX											7	11
Madison	NW	1111	26	23.4	XXXXXXXXXXXXXXXXXXXX											8	15
Lotty Grunsky	E	511	11	21.1	XXXXXXXXXXXX											9	11
Elmwood	E	886	18	20.3	XXXXXXXXXXXX											10	1
Roosevelt	E	832	14	16.8	XXXXXXXXXXXX											11	12
Grant	S	310	5	16.1	XXXXXXXXXXXX											12	10
Jefferson	E	782	12	15.3	XXXXXXXXXXXX											13	7
Weber	NW	619	9	14.5	XXXXXXXXXX											14	18
Lincoln	S	290	4	13.8	XXXXXXXXXX											15	3
Fair Oaks	E	711	9	12.6	XXXXXXX											16	6
LaFayette	S	402	5	12.5	XXXXXXX											17	19
Luther Burbank	S	264	3	11.4	XXXXXX											18	19
Hazelton	S	570	6	10.5	XXXXX											19	4
McKinley	S	975	9	9.2	XXXX											20	14
Jackson	S	588	5	8.5	XXX											21	21
Franklin	S	117	1	8.5	XXX											22	22
Monroe	S	213	0	0.0	X											23	23

TABLE II

DISTRIBUTION OF PHYSICALLY HANDICAPPED ACCORDING TO SCHOOL DISTRICT
SECONDARY GRADES: 7, 8, 9, 10, 11, and 12

Name of School District	Section of City	Average School Enrollment	No. Home-bound 1947-1952	No. Home-bound per 1000 school enrollment	Graphic Presentation											Rank	
					0	5	10	15	20	25	30	35	40	45	50	E	S
Elmwood	E	542	22	40.6	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											10	1
Victory	NW	500	18	36.0	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											2	2
Lincoln	S	178	6	33.7	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											15	3
Hazelton	S	349	11	31.5	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											19	4
Bungalow	S	189	7	30.7	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											3	5
Fair Oaks	E	432	12	27.8	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											16	6
Jefferson	E	477	13	27.2	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											13	7
Harrison*	E	318	8	25.2	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											1	8
Woodrow Wilson	NW	519	12	23.1	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											5	9
Grant	S	189	4	21.1	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											12	10
El Dorado	NW	625	13	20.8	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											7	11
Roosevelt	E	508	10	19.7	XXXXXXXXXXXXXXXXXXXX											11	12
Lotty Grunsky	E	318	6	18.9	XXXXXXXXXXXX											9	13
McKinley	S	594	10	16.8	XXXXXXXXXXXX											20	14
Madison*	NW	678	9	13.8	XXXXXXXXXXXX											8	15
August	E	383	5	13.0	XXXXXXXXXXXX											6	16
LaFayette	S	246	3	12.2	XXXXXXXXXXXX											17	17
Weber	NW	383	4	10.4	XXXXXXXXXXXX											14	18
Luther Burbank	S	157	1	6.3	XXXXX											18	19
Garfield*	S	341	2	5.8	XXXX											4	20
Jackson	S	360	2	5.5	XXXX											21	21
Franklin	S	72	0	0.0	X											22	22
Monroe	S	129	0	0.0	X											23	23

* Three of the schools were not in use in 1947; Harrison, February, 1950; Madison, September, 1949; and Garfield, September, 1948.

east districts tend to have a greater number than the northwest districts.

The fact that parents in the upper income brackets usually seek out every advantage available for their children may account for the large number of children on home instruction in the northwest area.

Where there is denser spot concentration of elementary children in certain school districts, it may be due to the fact that school principals, nurses, and classroom teachers of certain districts are more conscious of the home instruction program than others.

The sparse number of cases in lower standard areas south and east could be explained by the fact that these parents often fail to obtain medical attention due to cost. The low concentration of cases in the McKinley School District is a possible example. Treatment is usually expensive and there are many who cannot afford it unless the costs are spread out by insurance. The educational services, although free as a part of the public education program, can only be obtained through application bearing the medical practitioner's signature, proving active treatment. Conventional treatment is not enough. Many cases require long-term rehabilitation. Measures must be taken for the relief of progressive disability and

handicaps of non-emergency nature.

The map (Figure 3, page 59) shows, however, that many of the homebound children do come from poorer districts where large families with inadequate and uncertain income and crowded living quarters add tension to family relationships and place a heavy burden on the more insecure or emotionally immature parent. Settings such as this provide poor background for good physical and emotional health, and a large proportion of these children have a history of nervous tension and poor school achievement. As the child's whole health problem is so closely related to the setting from which he comes, and as his care in turn will affect his family, the medical and educational intervention help both the child and his parents. Such services should result in better adjustment and better health for the whole family.

It is possible, therefore, that the facts just discussed are responsible for the disparity between the number of children known to need instruction at home and the number who obtain it.

In 1945-46 a national survey on home instruction⁴ reported that of 10,400 children receiving this service

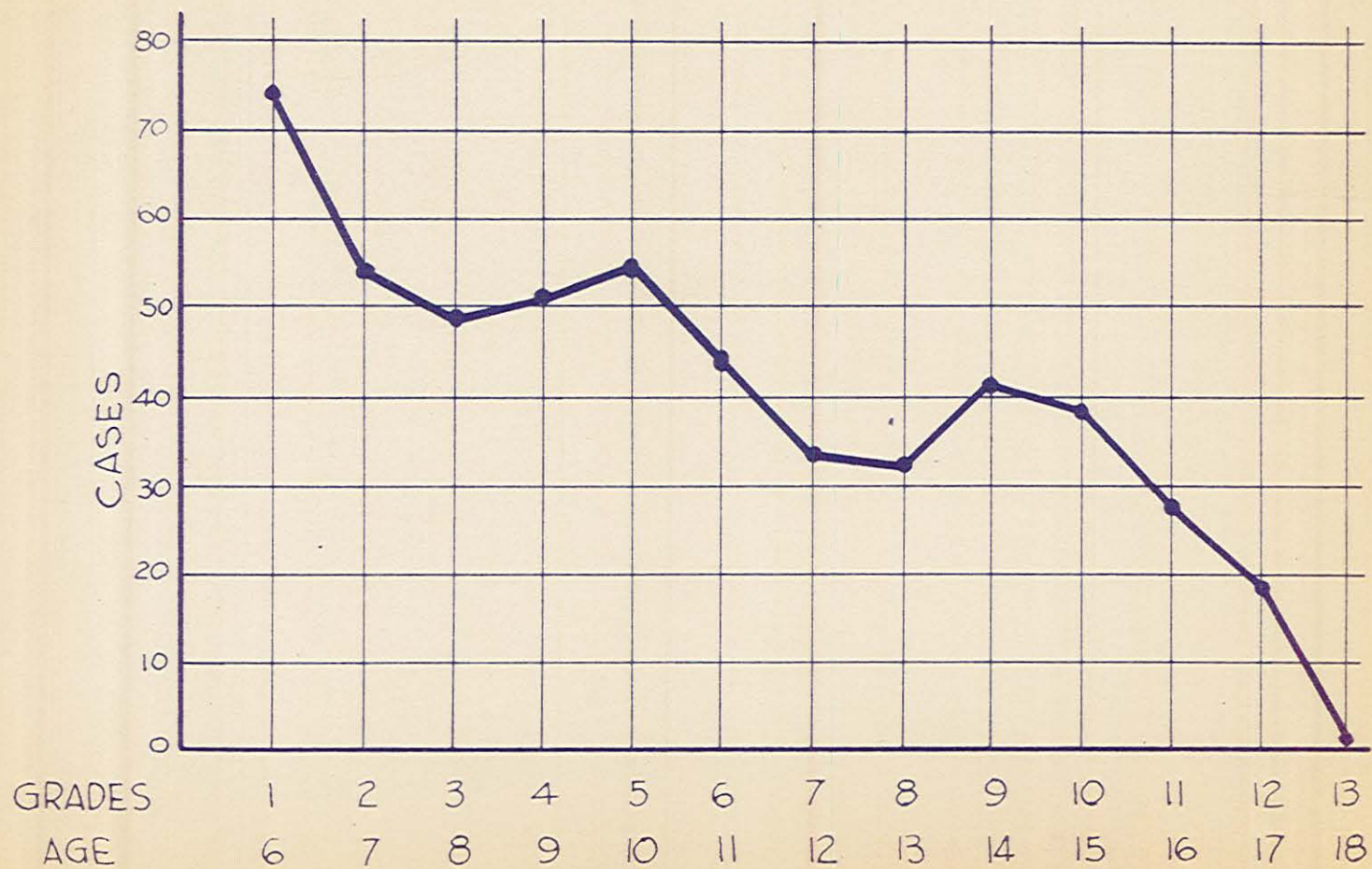
⁴ Elise H. Martens, "Biennial Survey of Education in United States, 1946-48," Statistics of Special Schools and Classes for Exceptional Children, Chapter V (Washington, D.C.: Office of Education, 1950).

about four fifths were in elementary grades and one fifth in secondary grades. The present five-year study (1947-1952) of Stockton shows the results of having extended the program since 1946 through grades nine to twelve by a higher proportion of secondary pupils---three fifths of the total being children in elementary grades and two fifths in secondary:

Elementary	328
Secondary	<u>195</u>
Total	523 pupils

Age-grade distribution. In Stockton, according to the graph on age-grade distribution, Figure 4, page 65, the greater number of children are in the lower grades. The first year appears to be the most hazardous as to physical disability. It will be observed also that the number of fifth graders is high. Just as the first year in elementary school counts the most absentees, the ninth grade in high school does likewise, the latter marking especially the onset of adolescence. It is possible that emotional maladjustment at these two critical periods in a child's existence may be bound up with the physical complications involved.

On a nation-wide basis one report investigating chronological age found children in school classes for



STOCKTON CALIFORNIA HOME INSTRUCTION

TOTAL CASES IN 5 YEARS

SEPT. 1947 TO JUNE 1952

AGE-GRADE DISTRIBUTION

FIG. 4

crippled to be distributed from three years to over twenty-one.⁵ The largest number of crippled children, or 70.9 per cent of the total, were in the group from ages six to fourteen years.

The grade distribution throughout the nation shows these same tendencies and is similar to that of Stockton. As demonstrated in Martens' survey published in 1950, the median grade for the total was found to be 5.2. A very high proportion of the crippled children reported in city school systems are in elementary grades: 79.6 per cent are in grades one through eight; only 7.4 per cent are in grades higher than grade eight.

For the total age-grade distribution, only 4.4 per cent of the children are "under-age"; 53 per cent are "at age," while a large number, or 42.6 per cent, are "over-age." There is a reason for the small number of under-age and the large number of over-age crippled children. Crippled children lose much time from school because of illness, hospitalization, and treatment. Even when enrolled in school, crippled children spend many hours in rest, therapy, transportation, and medical examination.

⁵ Romaine P. Mackie, Crippled Children in American Education (New York: Teachers' College, Columbia University Bureau of Publications, 1945).

Relative importance of various factors. Figure 5, page 68, presents graphs showing the incidence of cases according to grade distribution in five major classes of disabilities. It will be noted that rheumatic fever predominates and that it, like polio and the respiratory diseases, has its greatest incidence in the lower grades, whereas in the accident and the orthopedic categories, there is no such trend. Polio cases, like those of rheumatic fever, are especially numerous in the first and fifth grades. There are nine times as many rheumatic fever patients in the first grade, for example, as those listed due to accidents. Accidents and orthopedic cases (which could be sequelae of accidents) are high in the upper grades.

In Figure 6, page 69, are presented bar graphs showing the distribution of total cases in Stockton during the past five years (1947-1952) according to months, by sexes. It will be seen that the home instruction program counts its greatest number of cases in the month of April. The girls are shown to out-number the boys at a ratio of about 1.6 to 1.0. Examination of this graph will show a steady increase in pupils from September to April, then a slight drop down to the end of the school year. Each year the program has developed in this manner.

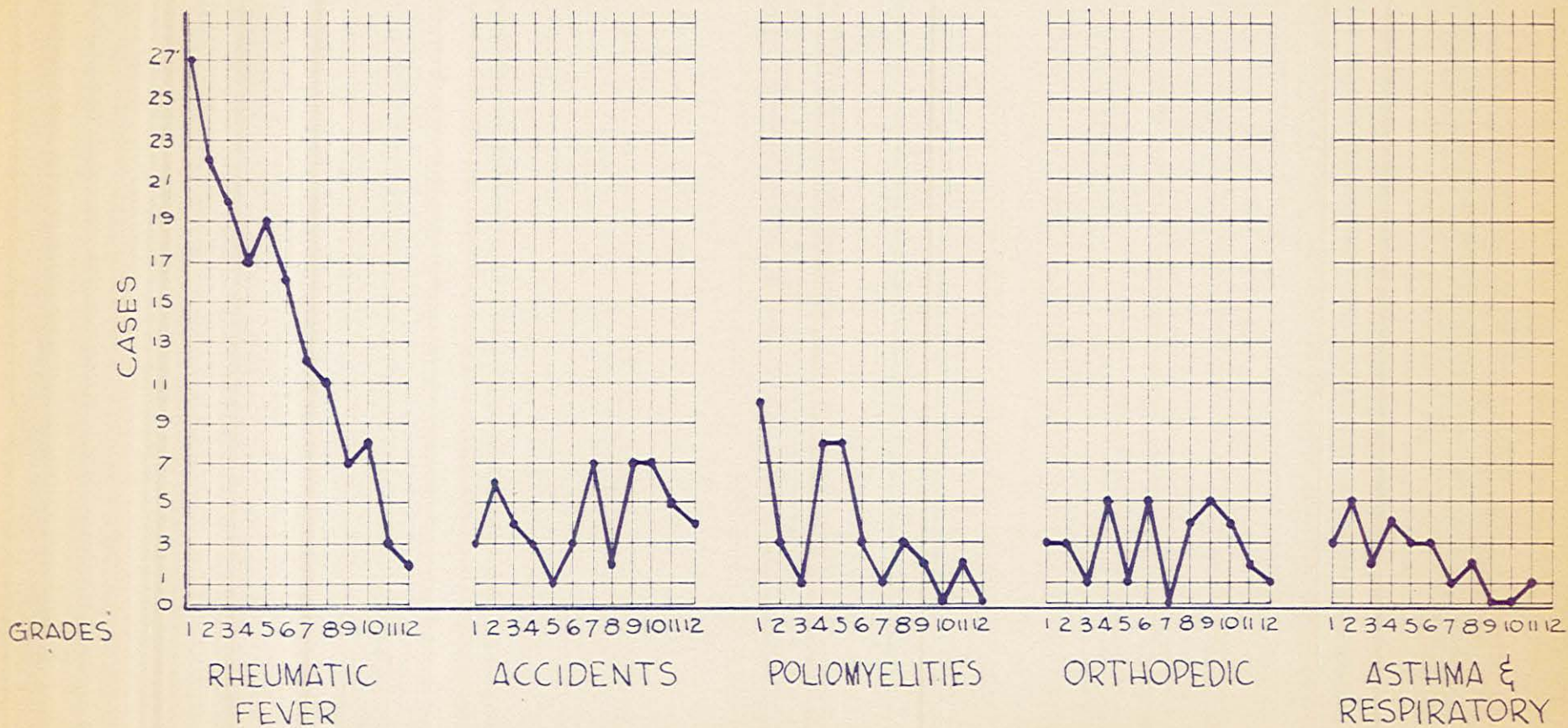
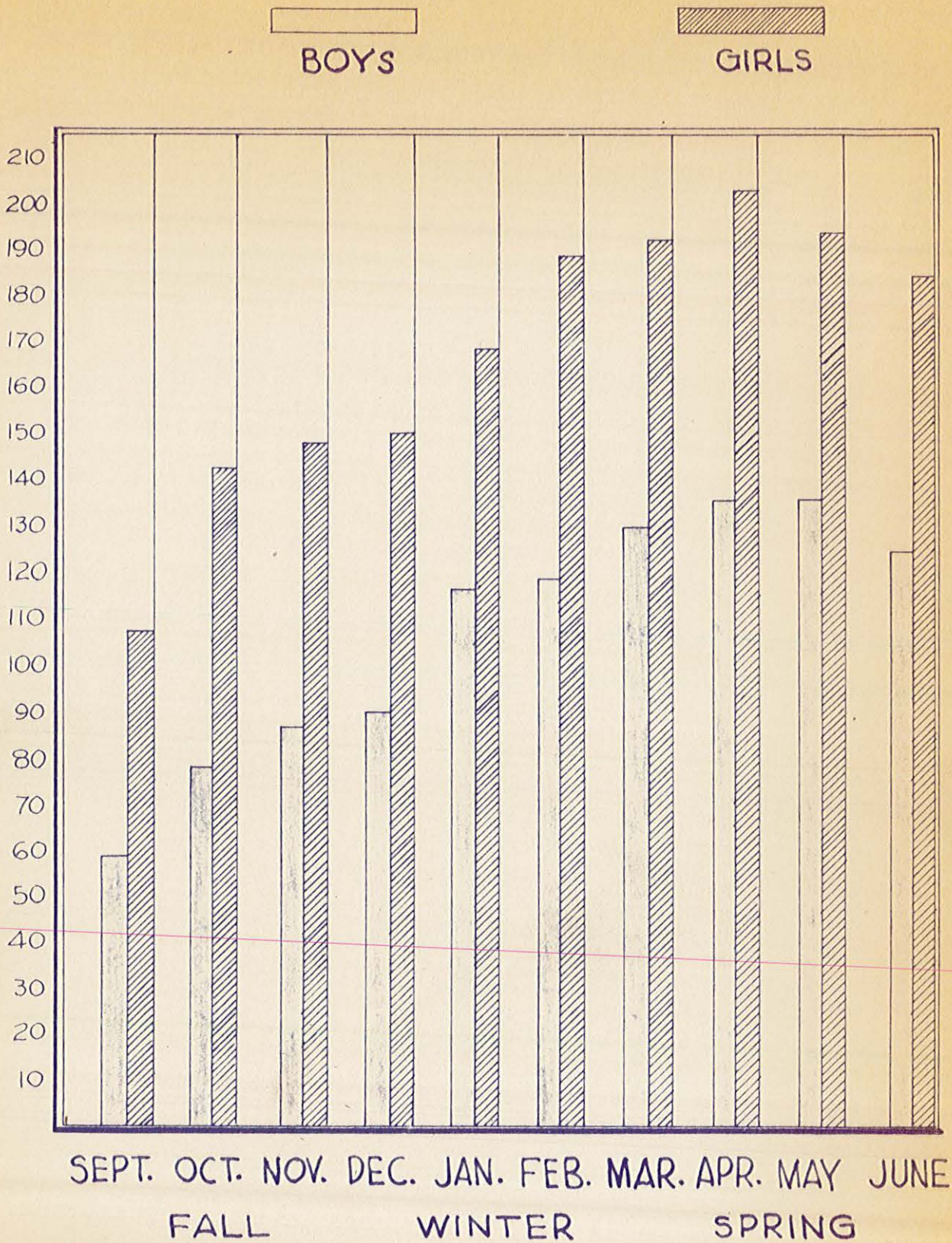


FIG. NO. - TOTAL CASES ACCORDING TO GRADE DISTRIBUTION
 5 YEARS - SEPT. 1947 TO JUNE 1952
 FIVE MAJOR DISABILITIES

FIG. 5

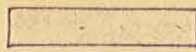


THE DISTRIBUTION OF TOTAL CASES OF
 HOMEBOUND PUPILS BY MONTH ACCORDING TO SEX.
 TOTAL NO. OF CASES
 BY
 MONTH & SEASONS

FIG. 6

As for the distribution of disorders according to season, accidents and respiratory ailments have been chosen as the most typical and appear in Figure 7, page 71. **Pupils** having other disorders are fairly evenly scattered throughout the year. The cases mount, in both instances, as the school year progresses. Accidents take a sudden jump in February at the beginning of the spring semester and remain at that peak until the end of the school year. Girls predominate at first, but the boys become a very close second by June. On the other hand, where asthma and respiratory disorders are concerned, boys are more numerous during the spring months.

As to the length of time lost from school by various disorders, three different types are chosen and presented graphically in Figure 8, page 72, and Figure 9, page 73, namely: rheumatic fever, accidents, and polio. Rheumatic fever, it will be observed, is a disease that keeps children out either for one to four months, or else for the entire year, with few absent from the classroom for six to nine months. The probable explanation of this is that children are often diagnosed as "possibly" having rheumatic fever and consequently confined at home. But after one to four months' observation they are pronounced well enough for classroom attendance. Most patients, however, are absent from the classroom the entire school year,

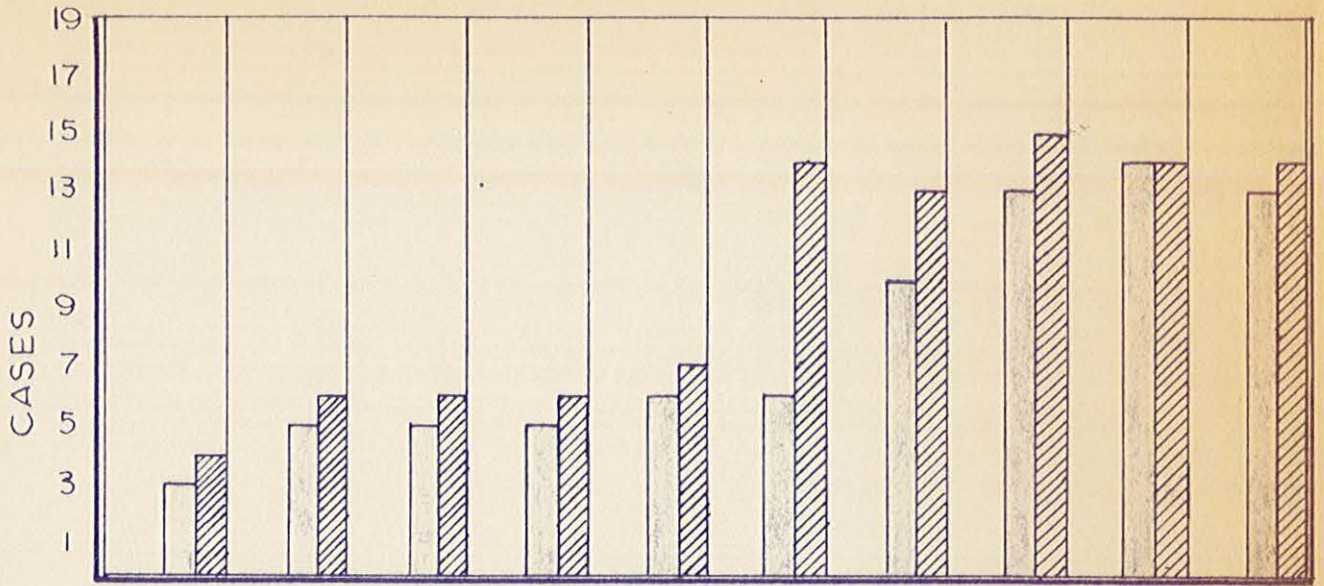


BOYS



GIRLS

SEASONAL DISORDERS



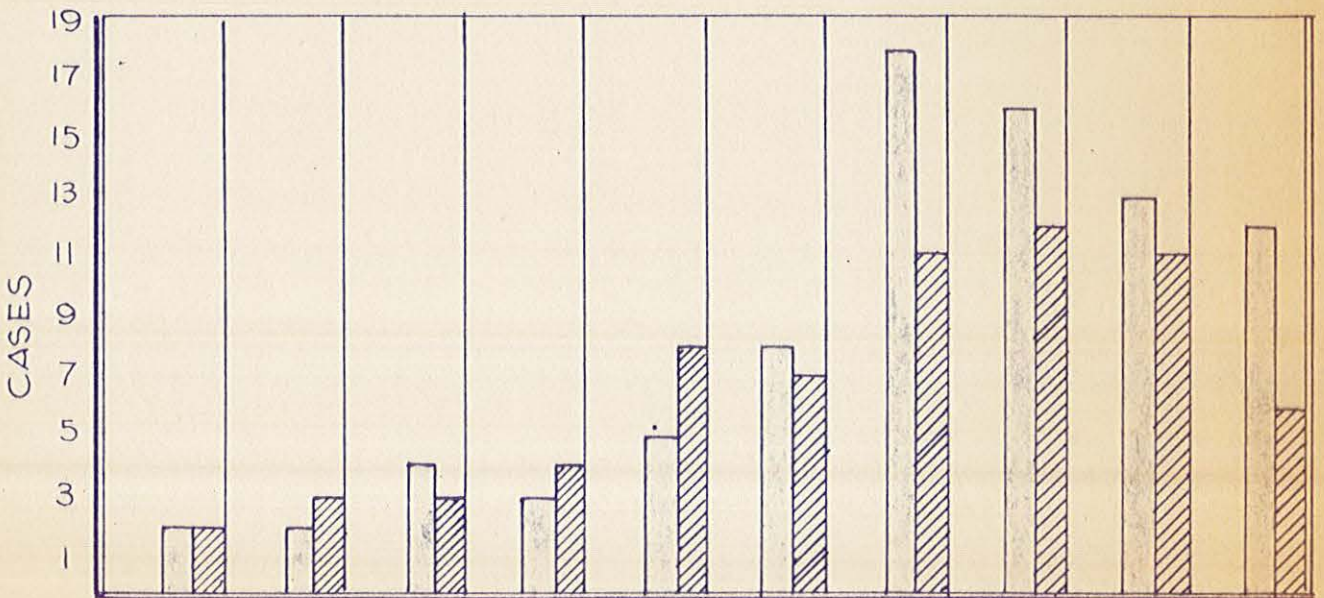
SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

FALL

WINTER

SPRING

ACCIDENTS



SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

FALL

WINTER

SPRING

FIG. 7

ASTHMA & RESPIRATORY

NUMBERS OF MONTHS ABSENT FROM SCHOOL

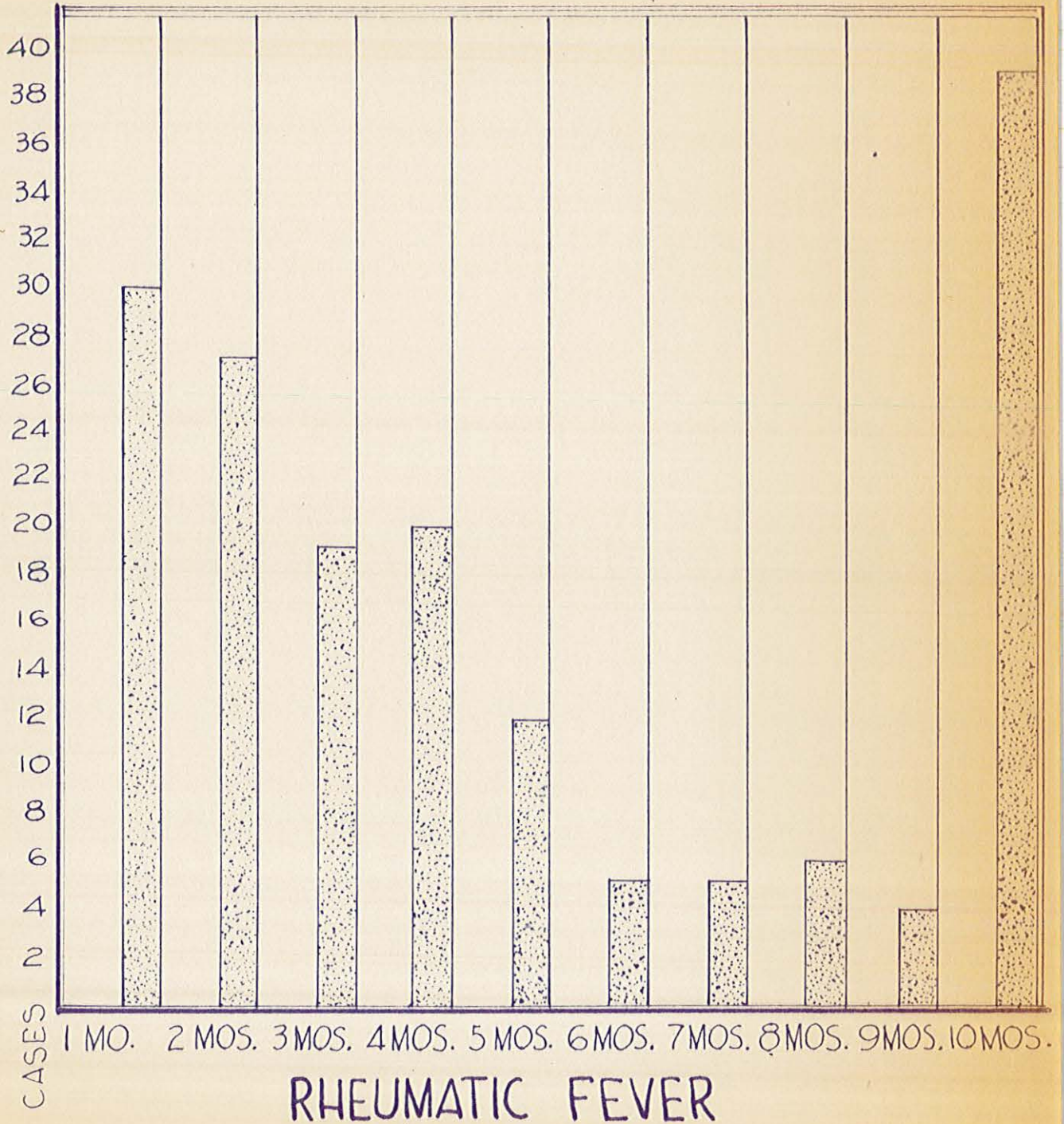


FIG. 8

NUMBER OF MONTHS ABSENT FROM SCHOOL

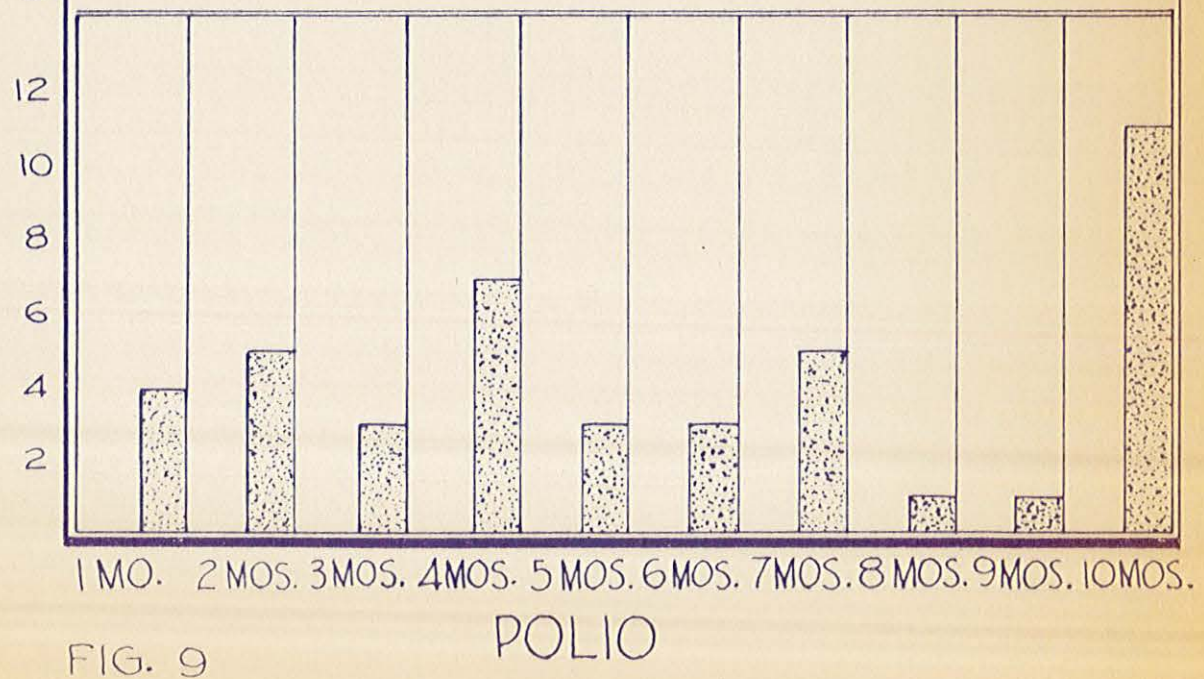
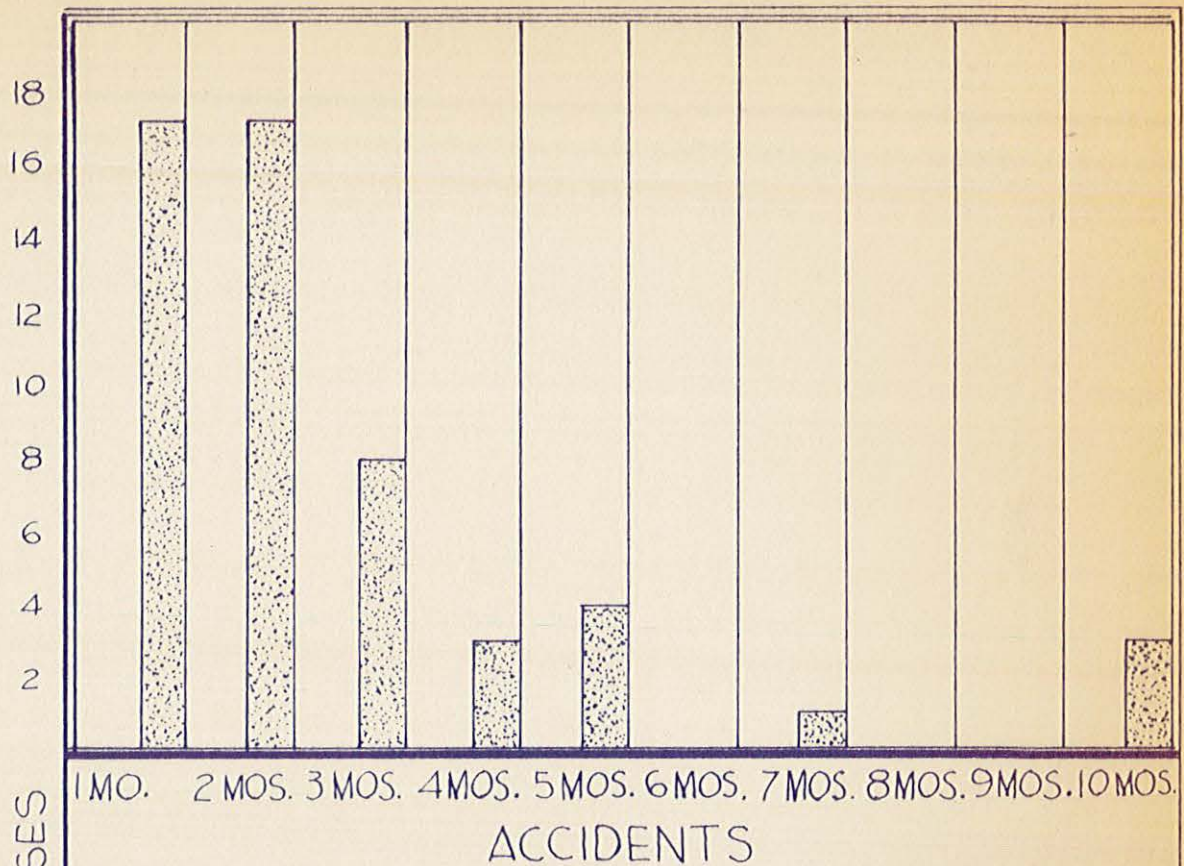


FIG. 9

POLIO

and in some instances over a period of years. (See list of long-term illnesses in Appendix.) Polio follows the same trend in that the preponderance of cases is in the ten-month category, as shown in Figure 9, page 73. The one-month column is low due to the fact that diagnosis is probably more easily determined for polio than is true regarding rheumatic fever. Accident cases are usually of the shortest duration, as shown in Figure 9, page 73, where one will note that the one and two month categories are the most prevalent.

CHAPTER IV

COMPARISON OF STOCKTON FIGURES WITH REPORTS FROM OTHER PARTS OF THE UNITED STATES

I. RATIO OF HOME INSTRUCTION SERVICE TO TOTAL POPULATION

Local conditions determine local programs, and no situation in a particular city or state can arbitrarily set the pattern for every other city or state. According to Table III, page 76, it is shown that some cities have a greater percentage of pupils on the home instruction program than do others. Among the cities in California, Vallejo and Fresno have a greater per cent of their children under home instruction. Upon inquiry at Vallejo, this difference was attributed to an unusually active service **existing** in that city for identification and rehabilitation of physically handicapped school-age children on the home instruction basis rather than poor community health conditions. The low percentage in large cities such as San Francisco, New York, and Chicago, may be due to more elaborate facilities in the way of special schools and classes where the physically handicapped children are transported rather than taught in their homes. The relatively low figures computed for Colorado Springs, Colorado, and for the State of Illinois may possibly reflect more

TABLE III

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO NUMBER OF CASES
OF HOME INSTRUCTION PER THOUSAND OF GENERAL POPULATION

Name of City in California	1950 General Population	No. Cases Home Instruction	No. Cases per 1000	Graphic Presentation									
				0	5	10	15	20	25	30			
San Francisco	775,357	543	7.0	XXXXXXXX									
Oakland	384,575	588	15.3	XXXXXXXXXXXXXXXXXXXX									
Fresno	91,669	234	25.5	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX									
Stockton	70,853	138	19.5	XXXXXXXXXXXXXXXXXXXXXXXXXXXX									
Bakersfield	34,784	54	15.5	XXXXX XXXXXXXXXXXXXXX									
Vallejo	26,038	77	29.6	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX									
Palo Alto	25,475	26	10.2	XXXXXXXXXXXX									
<u>Name of other cities and states</u>													
New York City	7,891,957	1,658	2.0	XX									
State of Illinois (minus Chi- cago)	5,091,214	806	1.0	X									
Chicago, Illinois	3,620,962	1,676	4.0	XXXX									
Miami, Fla.	294,276	149	5.0	XXXXX									
Hammond, Ind.	87,594	163	18.0	XXXXXXXXXXXXXXXXXXXXXXXXXXXX									
Colorado Springs, Colorado	45,472	33	7.0	XXXXXXX									

healthful living conditions there, since these include large mountainous and rural areas.

II. SUGGESTED CLASSIFICATION AND COMPARISON OF DISORDERS WITH OTHER CITIES

The first to classify diseases systematically was François Boissier de Lacroix (1706-1777). His comprehensive treatise was published under the title Nosologia Methodica. While three centuries have contributed something to the scientific accuracy of disease classification, there are many who doubt the usefulness of attempts to compile statistics of disease because of the difficulties of classification.¹

To these, one can quote Professor Major Greenwood:

The scientific purist who will wait for medical statistics until they are nosologically exact, is no wiser than Horace's rustic waiting for the river to flow away.²

The following outline of World Health Organization classification will also situate the disorders studied in

¹ Manual of the International Statistical Classification of Diseases and Injuries, Sixth Revision of the International Lists of Diseases, Volumes I and II, Adopted 1948, World Health Organization, Geneva, Switzerland, 1948.

² M. Greenwood, "Medical Statistics from Graunt to Farr," Bimetrika, 32:204, 1942.

Table IV, page 87, and Table V, page 92. The diseases mentioned in our outline of the classification compiled by the World Health Organization at Geneva, Switzerland, are limited to only those disorders afflicting homebound children listed in the reports received for the present study from the eleven cities and one state referred to in this investigation. The listing below will serve to show the variety of diseases responsible for causing absenteeism, as Table IV, page 87, and Table V, page 92 mention only the major disabilities. All diseases reported have been listed even though some of the terms are synonomous:

I. INFECTIVE AND PARASITIC DISEASES

(This section excludes influenza, pneumonia, enteritis, and certain infection.)

Tuberculosis of respiratory system

Tuberculosis, other forms

Tuberculosis of bones and joints, active or unspecified Pott's disease

Disseminated tuberculosis
Miliary tuberculosis

Infectious diseases commonly arising in intestinal tract

Typhoid fever

Dysentery (bacillary or amoebic)

Other bacterial diseases

Scarlet fever

Streptococcal sore throat
 Septicoemia and Pyemia
 Blood poisoning
 Diphtheria
 Whooping cough
 Meningococcal infections

Diseases attributable to viruses

Poliomyelitis
 Encephalitis
 Measles
 Mumps
 Hepatitis
 Glandular fever (mononucleosis)
 Trachoma

Malaria

Other infective and parasitic diseases

Trichiniasis
 Fungus infections
 Dermatophytosis
 Ringworm
 Histoplasmosis

II. NEOPLASMS

Neoplasms of unspecified sites: (malignant or benign unspecified cancer)

Neoplasms of lymphatic and hemotopoietic (blood-forming) tissues

Lymphosarcoma
 Hodgkins disease
 Leukemia

III. ALLERGIC, ENDOCRINE SYSTEM, METABOLIC,
 AND NUTRITIONAL DISEASES

Allergic disorders

Hay fever
 Asthma
 Asthmatic bronchitis

Urticaria
 Hives
 Allergy without manifestation specified

Diseases of thyroid gland

Goitre
 Thyrotoxicosis with or without goitre
 Exophthalmoplegia
 Other diseases of thyroid gland

Diabetes Mellitus

Diabetes

Diseases of other endocrine glands and polyglandular dysfunction

Avitaminoses, and other metabolic diseases (lack of vitamins, etc.)

Obesity
 Nutritional deficiency states

IV. DISEASES OF THE BLOOD AND BLOOD-FORMING **ORGANS**

Diseases of blood and blood-forming organs

Anemias
 Hemophilia
 Purpura and other hemorrhagic conditions
 Diseases of spleen

V. MENTAL, PSYCHONEUROTIC, AND PERSONALITY DISORDERS

(This section excludes mental disturbance accompanying definitely physical disease.)

Psychoneurotic disorders, other, mixed, and unspecified types

Asthenia
 Neurasthenia
 Nervous trauma
 Nervous breakdown

VI. DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS

Vascular lesions affecting central nervous system

Cerebral hemorrhage

Inflammatory diseases of central nervous systemMeningitis, except meningococcal and tuberculous
(section I)

Encephalitis, myelitis

Hydrocephalous

Other diseases of central nervous system

Cerebral palsy

Hemiplegia

Paraplegia

Epilepsy

Migraine

Ataxia

Diseases of Cranial nerves and peripheral ganglia

Neuritis, neuralgia (of unspecified forms)

Diseases and conditions of eye

Conjunctivitis and ophthalmia

Optic neuritis (inflammation of optic nerve)

Strabismus

Glaucoma

Diseases of ear and mastoid processes

Otitis media without mention of mastoiditis

Mastoiditis without mention of otitis media

Deafness (partial, complete, nerve deafness)

VII. DISEASES OF THE CIRCULATORY SYSTEM

Rheumatic feverRheumatic fever with or without mention of heart
involvement

Chorea

Chronic rheumatic heart disease

Diseases of valves (mitral, aortic, tricuspid,
pulmonary)

Other diseases of heart

Endocarditis
Myocarditis
Pericarditis

Certain diseases of lymph nodes and lymph channels

Lymphadenitis mesenteric
Mesenteric adenitis

Hypertensive disease and other

Hypertension
Hypotension

Diseases of arteries and veins

Aneurysm of arteries
Varicose veins

VIII. DISEASES OF THE RESPIRATORY SYSTEM

(This section includes influenza and excludes strep-
tococcal sore throat, hay fever, and asthma.)

Acute upper respiratory infections

Nasopharyngitis (common cold)
Sinusitis
Pharyngitis
Tonsillitis

PneumoniaBronchitisOther diseases of respiratory system

Empyema
Pleurisy (disease of pleural cavity)
Bronchiectasis

IX. DISEASES OF THE DIGESTIVE SYSTEM

Diseases of Buccal cavity and oesophagus

Diseases of teeth and supporting structures
Stomatitis

Diseases of stomach and duodenum

Ulcer
Gastritis

AppendicitisHernia of abdominal cavityOther diseases of intestines and peritoneum

Enteritis
Colitis
Diarrhea
Peritonitis

Diseases of liver, gall bladder, and pancreas

Acute and subacute yellow atrophy of liver
Hepatitis
Icterus
Jaundice

Cirrhosis of liver
Diseases of pancreas

X. DISEASES OF THE GENITO-URINARY SYSTEM

Nephritis and nephrosisInfections of kidney

Pyelitis
Pyelonephritis

Diseases of bladderDiseases of uterusDiseases of vagina

Disorders of menstration

Menorrhagia

XI. DISEASES OF SKIN AND CELLULAR TISSUE

Infections of skin and subcutaneous tissueBoil and carbuncle
DermatitisCellulitis and abcess with or without lymphangitis

Pelvic cellulitis

Other diseases of skin and subcutaneous tissueEczema (this title excludes eczema specified as allergic)
Erythematous conditions
Erythema nodosum
Lupus eythematodes
Diseases of hair and hair follicles
Alopecia
Diseases of sweat and sebaceous glands
Acne
Ulcer of skin

XII. DISEASES OF THE BONES AND ORGANS OF MOVEMENT

Arthritis and rheumatism (except rheumatic fever)Osteomyelitis and other diseases of bone and jointOsteomyelitis and periostitis
Osteochondrosis
Epiphysitis
Legge-Perthes' disease
Osgood-Schlatter's disease
Displacement of intervertebral disc
Bone graftOther diseases of musculoskeletal systemSynovitis
Muscular dystrophy and atrophy
Curvature of spine (scoliosis)
Flat foot

Pes planus
 Talipes planus
 Clubfoot
 Clubfoot
 Clawtoe
 Hallux valgus

XIII. CONGENITAL MALFORMATIONS

Spina bifida and meningocele

Congenital malformations of circulatory system

Nonclosure of foramen ovale (interauricular
 septal defect)
 Coarctation of aorta

Congenital malformations of bone and joint

Congenital dislocation of hip
 Congenital malformation of skull
 Hypertelorism

Brittle bones
 Fragilitas ossium

Congenital malformations of skin

Alopecia (see Section XI also)
 Ichthyosis (see section XI also)
 Epidermolysis bullosa

XIV. ACCIDENTS

Fractures

Dislocation without fracture

Sprains and strains of joints and adjacent muscles

Head injury (excluding skull fracture)

Internal injury of chest, abdomen, and pelvis

Lacerations

Contusion and crushing with intact skin surface

Effects of foreign body entering through orifice

Burns

XV. SYMPTOMS AND ILL-DEFINED CONDITIONS

(Titles not otherwise specified, unknown etiology, transient.)

Symptoms referable to systems or organsSymptoms referable to nervous system and special senses

Disturbance of cranial nerves
Paralysis of soft palate
Dizziness

Symptoms referable to cardiovascular and lymphatic system

Fainting spells

Symptoms referable to respiratory system

Epistaxis (nosebleed)

Symptoms referable to genito-urinary system

Fecal incontinence

Other general symptoms

Persistent pain

Ill-defined diseases

Nervousness and debility
Headache
Observation for further medical care³

Increase and decrease. Table IV, pages 87-89, demonstrates an attempt to ascertain if the incidence of

³ Manual of the International Statistical Classification of Diseases and Injuries, loc. cit.

TABLE IV

COMPARISON OF FIVE-YEAR AVERAGE PERCENTAGE WITH THE 1951-1952 PERCENTAGE
FOR SIX MAJOR DISORDERS IN THREE CITIES

Name of Disability	Name of City	Length of time	% of Cases	Graphic Presentation											
				0	5	10	15	20	25	30	35	40			
Circulatory (VII) (Heart)	San Francisco	5 yrs.	19.3	XXXXXXXXXXXXXXXXXXXX											
		1 yr.	15.1	XXXXXXXXXXXX											
	Stockton	5 yrs.	33.7	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX											
		1 yr.	37.0	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX											
	Colorado Sprg.	5 yrs.	22.1	XXXXXXXXXXXXXXXXXXXX											
		1 yr.	21.2	XXXXXXXXXXXXXXXXXXXX											
	Total	5 yrs.	22.1	XXXXXXXXXXXXXXXXXXXX											
		1 yr.	19.6	XXXXXXXXXXXX											
	Infective and Parasitic (I) (Polio and T.B.)	San Francisco	5 yrs.	19.7	XXXXXXXXXXXXXXXXXXXX										
			1 yr.	17.3	XXXXXXXXXXXX										
		Stockton	5 yrs.	13.4	XXXXXXXXXX										
			1 yr.	16.7	XXXXXXXXXXXX										
Colorado Sprg.		5 yrs.	9.2	XXXXXXX											
		1 yr.	15.2	XXXXXXXXXXXX											
Total		5 yrs.	18.0	XXXXXXXXXXXXXXXXXXXX											
		1 yr.	17.1	XXXXXXXXXXXX											

TABLE IV (continued)

COMPARISON OF FIVE-YEAR AVERAGE PERCENTAGE WITH THE 1951-1952 PERCENTAGE
FOR SIX MAJOR DISORDERS IN THREE CITIES

Name of Disability	Name of City	Length of time	% of Cases	Graphic Presentation										
				0	5	10	15	20	25	30	35	40		
Accidents (XIV)	San Francisco	5 yrs.	12.8	XXXXXXXXXXXX										
		1 yr.	13.8	XXXXXXXXXXXX										
	Stockton	5 yrs.	10.7	XXXXXXXXXXXX										
		1 yr.	8.7	XXXXXXXXXX										
	Colorado Sprg.	5 yrs.	14.1	XXXXXXXXXXXX										
		1 yr.	12.1	XXXXXXXXXXXX										
	Total	5 yrs.	12.6	XXXXXXXXXXXX										
		1 yr.	12.7	XXXXXXXXXXXX										
	<hr/>													
	Allergic, Endocrine (III) (Asthma, glandular)	San Francisco	5 yrs.	10.9	XXXXXXXXXX									
			1 yr.	17.4	XXXXXXXXXXXXXXXXXXXX									
		Stockton	5 yrs.	4.0	XXXX									
1 yr.			5.8	XXXXX										
Colorado Sprg.		5 yrs.	3.4	XXX										
		1 yr.	12.1	XXXXXXXXXXXX										
Total		5 yrs.	9.3	XXXXXXXXXX										
		1 yr.	15.0	XXXXXXXXXXXXXXXXXXXX										

homebound cases is increasing or decreasing and in what categories of disability. Only three cities are concerned here--San Francisco, Stockton, and Colorado Springs--each of which furnished figures for the five-year period (1947-1952). This five-year period has been compared with the most recent one-year period (1951-1952) to determine the increase or decrease in cases listed under six major causes of absenteeism: circulatory, infectious and parasitic, accidents, allergic, and endocrine, orthopedic, and nervous system.

Stockton shows an increase in heart disorders, whereas the other cities do not. Polio and Tuberculosis do not change much. This is also true of accidents. The endocrine ailments increase appreciably in the most recent one-year survey over the general five-year period. This parallels the fact that endocrinology has become an increasingly important branch of medical science in recent years. It is possible that more cases are given this diagnosis than formerly. The decrease in orthopedic cases may be due to the effective use of physiotherapy and the improvement of artificial aids for cripples, thus obviating the necessity of their being homebound. Drugs and improved treatment for spastics and epileptics are reported generally in current medical literature. This may explain the

stationary or decreased enrollment of patients for home instruction in this last of the six categories presented in Table IV, pages 87-89. As a whole it will be observed that there are more instances where the number is decreasing rather than increasing. This trend may someday be as striking as that of the diminished communicable diseases (see pages 108-109).

Incidence compared. Table V, pages 92-98, the last page being a summary of the breakdown on the foregoing pages, is an attempt to compare twelve cities and one state for the year 1951-1952 as to percentage of total homebound children in nine major categories of causes for absenteeism from school.

The cardiac and accident categories are notable in that Palo Alto ranks lowest in heart ailments and highest in accidents. High living standards in Palo Alto may account for low disease rating. This would push the accidents up to the high percentage shown in the general table.

There is much more polio in the eastern cities than in the west. Faulty classification is a possible factor here. Some polio cases may be listed as orthopedic cases. More children with cerebral palsy receiving home instruction are reported by eastern cities than by those in the west. The Stockton percentage is low due to the fact that

TABLE V

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO PERCENTAGE OF
TOTAL HOMEBOUND CHILDREN IN NINE MAJOR CATEGORIES

Kind of Disability	Name of City or State	% of Total Cases	Graphic Presentation					
			0	10	20	30	40	50
Cardiac (VII)	Hammond, Ind.	46.1	XXXXXXXXXXXXXXXXXXXXXXXXXXXX					
	Stockton, Calif.	37.0	XXXXXXXXXXXXXXXXXXXXXXXXXXXX					
	State of Illinois	24.7	XXXXXXXXXXXXXXXXXXXX					
	Vallejo, Calif.	24.5	XXXXXXXXXXXXXXXXXXXX					
	Bakersfield, Calif.	24.0	XXXXXXXXXXXXXXXXXXXX					
	Colorado Sprg., Colo.	21.2	XXXXXXXXXXXXXXXXXXXX					
	New York City	20.0	XXXXXXXXXXXXXXXXXXXX					
	Miami, Fla.	15.4	XXXXXXXXXXXX					
	San Francisco, Calif.	15.1	XXXXXXXXXXXX					
	Oakland, Calif.	14.8	XXXXXXXXXXXX					
	Fresno, Calif.	11.5	XXXXXXX					
	Chicago, Illinois*	10.7	XXXXXXX					
Palo Alto, Calif.	7.7	XXXX						
Accidents (XIV)	Palo Alto, Calif.	23.1	XXXXXXXXXXXXXXXXXXXX					
	Hammond, Ind.	18.4	XXXXXXXXXXXX					
	Fresno, Calif.	17.1	XXXXXXXXXXXX					
	Miami, Fla.	16.7	XXXXXXXXXXXX					
	San Francisco, Calif.	13.8	XXXXXXX					
	Vallejo, Calif.	13.0	XXXXXXX					
	Bakersfield, Calif.	12.9	XXXXXXX					
	State of Illinois	12.2	XXXXXXX					
	Colorado Sprg., Colo.	12.1	XXXXXXX					
	Oakland, Calif.	9.4	XXXXX					
	Stockton, Calif.	8.7	XXXXX					
	New York City **							
Chicago, Illinois **								

* A low figure based on a school for physically handicapped and not a home class.

** Accidents are probably included in Orthopedic or miscellaneous category.

TABLE V (continued)

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO PERCENTAGE OF
TOTAL HOMEBOUND CHILDREN IN NINE MAJOR CATEGORIES

Kind of Disability	Name of City or State	% of Total Cases	Graphic Presentation				
			0	10	20	30	40
Infectious Diseases (including Polio and T.B.) (I)	Chicago, Ill.	25.4	XXXXXXXXXXXXXXXXXXXXX				
	Bakersfield, Calif.	24.0	XXXXXXXXXXXXXXXXXXXXX				
	State of Illinois	23.7	XXXXXXXXXXXXXXXXXXXXX				
	Palo Alto, Calif.	23.1	XXXXXXXXXXXXXXXXXXXXX				
	San Francisco, Calif.	17.3	XXXXXXXXXXXXX				
	Stockton, Calif.	16.7	XXXXXXXXXXXXX				
	Fresno, Calif.	15.8	XXXXXXXXXXXXX				
	Miami, Fla.	15.4	XXXXXXXXXXXXX				
	Colorado Sprg., Colo.	15.2	XXXXXXXXXXXXX				
	Oakland, Calif.	10.5	XXXXXXX				
	Hammond, Ind.	10.4	XXXXXXX				
Vallejo, Calif.	2.6	XX					
New York City *							
Poliomyelitis (I)	State of Illinois	21.0	XXXXXXXXXXXXXXXXXXXXX				
	Chicago, Illinois	21.0	XXXXXXXXXXXXXXXXXXXXX				
	Miami, Fla.	12.7	XXXXXXXX				
	Colorado Sprg., Colo.	12.1	XXXXXXXX				
	Palo Alto, Calif.	11.5	XXXXXXXX				
	Stockton, Calif.	8.0	XXXXXX				
	San Francisco, Calif.	7.6	XXXXX				
	Bakersfield, Calif.	7.4	XXXXX				
	Fresno, Calif.	6.8	XXXX				
	Oakland, Calif.	6.1	XXXX				
	Hammond, Ind.	4.9	XXX				
New York City **							
Vallejo, Calif.	0.0	X					

* New York City--Tuberculosis in sanatoria or in miscellaneous--30.1 per cent, category XV, and polio perhaps in Orthopedic, category XII.

** Grouped in Orthopedic.

TABLE V (continued)

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO PERCENTAGE OF
TOTAL HOMEBOUND CHILDREN IN NINE MAJOR CATEGORIES

Kind of Disability	Name of City or State	% of Total Cases	Graphic Presentation				
			0	10	20	30	40
Tuberculosis (I) (Pulmonary)	San Francisco, Calif.	6.2	XXXXXX				
	Stockton, Calif.	5.8	XXXXX				
	Bakersfield, Calif.	5.6	XXXXX				
	Hammond, Ind.	5.5	XXXXX				
	Oakland, Calif.	4.4	XXXX				
	Colorado Sprg., Colo.	3.0	XXX				
	Vallejo, Calif.	2.6	XXX				
	State of Illinois	1.5	XX				
	Fresno, Calif.	0.4	X				
	New York City *						
	Chicago, Illinois *						
Palo Alto, Calif.	0.0	X					
Miami, Fla.	0.0	X					
Orthopedic (XII)	New York City **	40.7	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX				
	Vallejo, Calif.	22.1	XXXXXXXXXXXXXXXXXXXXXXXXXXXX				
	Chicago, Ill.	13.1	XXXXXXXXXXXX				
	Miami, Fla.	9.4	XXXXXXXX				
	State of Illinois	8.3	XXXXXXX				
	Palo Alto, Calif.	7.7	XXXXXX				
	Fresno, Calif.	7.3	XXXXXX				
	Colorado Sprg., Colo.	6.0	XXXXX				
	San Francisco, Calif.	5.5	XXXX				
	Hammond, Ind.	5.0	XXXX				
	Stockton, Calif.	4.3	XXX				
	Oakland, Calif. ***	.7	X				
	Bakersfield, Calif.	0.0					

* Listed in sanatoria classes.

** This may include Accidents as no mention of such is made.

*** Only arthritis is mentioned, balance in miscellaneous.

TABLE V (continued)

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO PERCENTAGE OF
TOTAL HOMEBOUND CHILDREN IN NINE MAJOR CATEGORIES

Kind of Disability	Name of City or State	% of Total Cases	Graphic Presentation				
			0	10	20	30	40
Cerebral Palsy (VI)	Chicago, Illinois *	42.1	XX				
	Colorado Sprg., Colo.	15.2	XXXXXXXXXXXXXXXX				
	Miami, Fla.	14.8	XXXXXXXXXXXXXX				
	Hammond, Ind.	11.7	XXXXXXXXXX				
	State of Illinois	11.4	XXXXXXXXXX				
	New York City	9.2	XXXXXXX				
	Bakersfield, Calif.	5.6	XXXXXX				
	San Francisco, Calif.	5.3	XXXXXX				
	Stockton, Calif.	4.3	XXXXX				
	Palo Alto, Calif.	3.8	XXXX				
	Fresno, Calif.	3.4	XXXX				
	Oakland, Calif.	3.1	XXXX				
Vallejo, Calif. **	0.0						
Asthma and Glandular (III)	San Francisco, Calif.	17.4	XXXXXXXXXXXXXXXXXX				
	Colorado Sprg., Colo.	12.1	XXXXXXXXXXXXXX				
	Palo Alto, Calif.	11.5	XXXXXXXXXXXXXX				
	Miami, Fla.	7.4	XXXXXXX				
	Stockton, Calif.	5.8	XXXXX				
	Vallejo, Calif.	5.2	XXXXX				
	Oakland, Calif.	3.6	XXX				
	Bakersfield, Calif.	1.9	XX				
	Fresno, Calif.	1.7	XX				
	State of Illinois	1.1	XX				
	New York City ***						
	Chicago, Illinois	0.0					
Hammond, Ind.	0.0						

* School for physically handicapped where C.P.'s are more numerous than in home classes.

** C.P.'s may be in special school rather than home instruction.

*** Asthma and various allergies included in miscellaneous figure.

TABLE V (continued)

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO PERCENTAGE OF
TOTAL HOMEBOUND CHILDREN IN NINE MAJOR CATEGORIES

Kind of Disability	Name of City or State	% of Total Cases	Graphic Presentation				
			0	10	20	30	40
Kidney Ailments (X)	Fresno, Calif.	10.7	XXXXXXXXXX				
	Palo Alto, Calif.	7.7	XXXXXXX				
	Miami, Fla.	6.0	XXXXXX				
	Vallejo, Calif.	5.2	XXXXX				
	San Francisco, Calif.	4.6	XXXX				
	Hammond, Ind.	4.3	XXXX				
	Stockton, Calif.	3.6	XXX				
	State of Illinois	3.5	XXX				
	Oakland, Calif.	3.4	XXX				
	Colorado Sprg., Colo.	3.0	XXX				
	Bakersfield, Calif.	1.9	XX				
	Chicago, Ill.	1.6	XX				
	New York City *						
Pregnancy (XVI)	Oakland, Calif.	21.8	XXXXXXXXXXXXXXXXXXXXX				
	Stockton, Calif.	5.0	XXXXX				
	Vallejo, Calif.	1.3	XX				
	Bakersfield, Calif.**						
	New York City **						

* Kidney ailments listed among miscellaneous.

** No cases of pregnancy listed in other than the five cities listed above.
Unspecified number included in miscellaneous category XV.

TABLE V (continued)

COMPARISON OF TWELVE CITIES AND ONE STATE AS TO PERCENTAGE OF
TOTAL HOMEBOUNDED CHILDREN IN NINE MAJOR CATEGORIES

Kind of Disability	Name of City or State	% of Total Cases	Graphic Presentation				
			0	10	20	30	40
Personality Disorders (V)	Oakland, Calif.*	8.3	XXXXXXXX				
	San Francisco, Calif.	4.4	XXXXX				
	Hammond, Ind.	4.3	XXXX				
	Colorado Sprg., Colo.	3.0	XXX				
	Miami, Fla.	1.3	XX				
	State of Illinois	0.9	X				
	New York City **						
	Chicago, Illinois ***						
	Stockton, Calif.	0.0					
	Fresno, Calif.	0.0					
	Bakersfield, Calif.	0.0					
	Vallejo, Calif.	0.0					
	Palo Alto, Calif.	0.0					

* The "nervous trauma" cases are financed by a special city school fund as the State of California does not grant aid for the "emotionally disturbed" on home instruction--only the purely physical diagnoses are accepted.

** "Emotionally disturbed" lumped into miscellaneous category XV.

*** The "emotionally disturbed" are segregated into the Division of Socially Maladjusted having a total enrollment of 1,824 pupils in the year 1951-1952.

TABLE V

SUMMARY
COMPARISON OF STOCKTON WITH THREE TO TEN OTHER CITIES
IN REGARD TO PERCENTAGE OF CASES OF ABSENTEEISM IN EACH
OF EIGHT MAIN CATEGORIES

Categories	Other cities			Stockton	
	No. cities	% cases	Graph	% cases	Graph
Cardiac	10	20.0	XXXXXXXXXX	37.0	XXXXXXXXXXXXXX
Infectious	9	14.9	XXXXXXX	16.7	XXXXXX
Polio	9	10.0	XXXXX	8.0	XXXX
T.B.	7	3.9	XX	5.8	XXX
Accidents	9	15.2	XXXXXXX	8.7	XXXX
Asthma and glandular	8	7.6	XXXX	5.8	XXX
Pregnancy	3	9.3	XXXXX	5.0	XXX
Orthopedic	8	9.5	XXXXX	4.3	XX
Cerebral palsy	9	8.0	XXXX	4.3	XX
Kidney disorders	10	4.8	XX	3.6	X

cerebral palsied children are taught in special classrooms rather than on the individual basis.

Only three cities reported pregnancy cases. Upon written inquiry several reasons were given in response. Bakersfield reported that pregnancy cases were classified under the heading "miscellaneous" (a category which is obviously one of the chief stumbling blocks in classification for comparative purposes). The State of Illinois and Colorado Springs have none or very few applications for this cause of absenteeism, but would not refuse them as their ruling is to accept any student who is "unable to attend school for physical reasons." A response from Miami, however, stated that, "it is not, and never has been, our policy to teach pregnant girls on homebound." In Fresno, the tendency is not to accept such cases unless it be a secondary student whose diploma for graduation would be compromised by the loss of a year's credit. Oakland is unique in having 21.8 per cent of its total home instruction enrollment listed as pregnancy cases. Upon investigation, it was learned that the greater number arose from the negro population, which is large in this city. Also, the ~~Se~~ Salvation Army maintains the Evangeline Booth Hospital in Oakland where care is given unmarried mothers drawn from the entire San Francisco Bay area. One teacher is assigned exclusively for this group at the

hospital. New York City lists this category under the heading: "Unmarried mothers."⁴

No cases due to personality disorders (the last category on Table V, page 97) exist in the California cities, with the exception of Oakland and San Francisco. The two last-mentioned cities have local budgets for the emotionally disturbed, as the state rules that **only** cases due to physical disability may receive state aid for home instruction.

The Summary of Table V, on page 98, compares the home instruction situation in Stockton with that of the other cities which bear no asterisk setting them apart as exceptional. It is interesting to note that in seven of the ten categories listed in Table V, pages 92-98, Stockton has relatively fewer cases than the other cities used in the comparison, in the other three categories it has more cases. Stockton is high, for example, in cardiac ailments. This correlates with the fact that a large number of rheumatic fever cases are accepted each year. Tuberculosis, like cardiac ailments, is also above the average in other cities, which confirms the San Joaquin County Public Health reports

⁴ In October, 1953, the California State Department of Special Education ruled that "pregnancy" cases could no longer receive home instruction services, the disability being considered due to natural causes rather than to a true physical handicap.

of high incidence of tuberculosis in this area as well as in nearby Oakland and San Francisco.

Accidents, on the contrary, are comparatively low. Likewise, orthopedic cases in Stockton are only half as high as in eight other cities. This may be partly due to faulty classification; orthopedic cases resulting from accidents should be entered in the latter category, but the two classes are often confused. It is also of interest to note, regarding the orthopedic category on the general table, that in most of the cities percentages are relatively low. The fact that few cases of cerebral palsy are included in the Stockton home instruction program, as already explained, is due to special classes being provided for this group.

CHAPTER V

GENERAL DISCUSSION

The foregoing presentation of physically handicapped children brings up the following questions regarding prevention, difficulties of diagnosis, and trends in child health. These questions relate to areas of identification, classification, teacher training, and scientific research, where, as it has been shown in the first part of this study, there is still much work to be done.

I. PREVENTION--IDENTIFICATION AND TEACHER TRAINING

Preventive services do not guarantee good health for every child, but they brighten the prospects for many. On account of heredity or of other factors beyond control, there will always be some children who need medical care. Programs for prevention have been established which include the care of prospective mothers, and provide the education of parents and teachers concerning ailments of children.

Prevention concerns every type of physically handicapped child. Parents and teachers too seldom realize how dangerous the after-effects of many of the ordinary contagious diseases of children are. The common cold, catarrh, and influenza are sources of health complications if streptococcal infection sets in. Too much emphasis cannot

be placed upon the desirability of educating parents and teachers regarding common ailments and diseases.

To make prevention effective, there are school physicians and school nurses, but there is also a need of classroom teachers and special teachers who can detect and understand physical ailments. Such teachers, it is recommended in the present study, should receive a certain amount of training in the biological sciences. Likewise, authority is needed to compel negligent parents to provide needed medical aid or to allow the state to do so.

II. DIFFICULTIES OF DIAGNOSIS--CLASSIFICATION AND RESEARCH

Difficulties of diagnosis. The acute or sudden illnesses are usually soon apparent and are not difficult to diagnose. There are many thousands of children of school age with cerebral palsy, epilepsy, residual effects of poliomyelitis, congenital heart disease, and birth injuries. Physicians deplore the fact that these conditions, for which treatment or rehabilitation is so necessary, are frequently neglected until their effects cannot be remedied.

All the skills and techniques modern medical science offers are used for the child with a suspected health problem. Research has advanced the understanding of physiology and of disease, but, at the same time, has made diagnosis more complex. For example, among the 167

rheumatic fever patients applying for home instruction in Stockton during the past five years, a substantial number of the applications bear the diagnosis: "possible" rheumatic fever. Reduced activity is requested during further observation. Fresno, for the year 1951-1952, reports seven diagnoses as reading "fever of **undetermined** origin," and fourteen cases as "under observation at hospital for ailment."

Diagnoses nowadays usually require resources not found in the average physician's office. Treatment, however, depends on accurate diagnosis, so that the services of specialists are as indispensable today as was the fever thermometer of bygone times. The benefits of accurate diagnosis, therefore, are not limited solely to children who need treatment. There are also those who are temporarily or even permanently consigned to the ranks of the sick and disabled on insufficient evidence. Adequate study of such children returns a host of them to normal pursuits without the need for treatment. An outstanding example is seen in the investigation of children with heart murmurs; in the final analysis only about one out of fifteen or twenty children with such murmur actually has heart disease.

Emotionally disturbed children must also be considered. Experts agree that the need for specially trained personnel and diagnostic facilities is by no means limited

to those concerned with physical disorders. Emotional maladies are a conspicuous problem among children of school age, and resources for their diagnoses are essential to proper treatment.

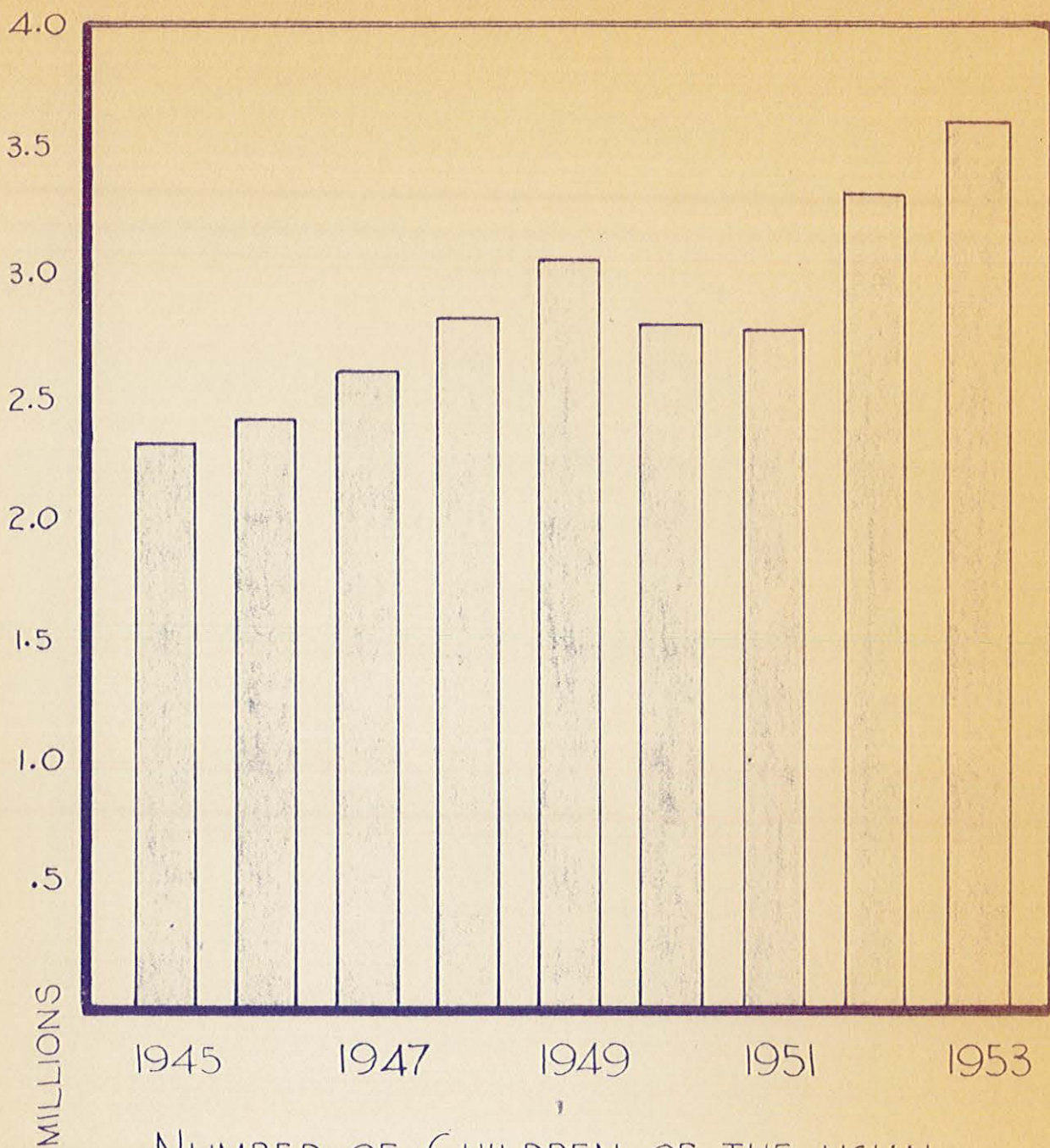
III. TRENDS IN CHILD HEALTH

Statistics. The recent marked increase in the birth rate is introducing additional problems in health services for children and will continue to do so during the ensuing years. (See Figure 10, page 106.) In 1947 there were somewhat more than 3,900,000 births in the United States, an increase of more than 400,000 or 13 per cent over the previous high in 1946 and an increase of 54 per cent over the average of five years immediately preceding the war (1937-1941).¹

In 1952 nearly 900,000 more children were estimated to be ready for entering school than in 1946, an increase of 36 per cent.² In five years, 5,000,000 children have been added to the elementary school population since 1948. This increase in the number of children calls for an expansion

¹ P. K. Whelpton, "A History of Population Growth in the United States," Science Monthly, 1948.

² United States Bureau of Census, 1947.



NUMBER OF CHILDREN OF THE USUAL
AGE TO ENTER THE FIRST GRADE
SEPTEMBER 1945 - 1953

FIG. 10

TAKEN FROM
WHELPTON

* SEE BIBLIOGRAPHY *

of health and educational facilities and services, and will have an important influence upon many aspects of our social structure. It is also known that families with low income tend to have more children than well-to-do families.³

The United States may feel rewarded for the gains which have been made in protecting the health of its children. Mortality in infancy and childhood has decreased. Certain diseases which accounted for a high proportion of deaths twenty-five years, or even ten years ago, have become less frequent or have largely disappeared. The death rate among pre-school children (ages one to five) has shown a decline from 20 deaths per 1,000 population in 1900, to 10 in 1920, to 2 in 1945. Among school-age children (ages five to fifteen) the rate has declined from 4 in 1900, to 3 in 1920, to 1 in 1945.⁴

The phenomenal record of improvement for the pre-school ages is due mainly to the control of communicable diseases. It is a striking fact that among pre-school children the death rate from all causes in 1945 was less

³ M. L. Craig, and G. M. Wheatley, Report on Health in Pre-School and School Years (Prepared by the Metropolitan Life Insurance Company, New York, for the National Conference on Family Life. Mimeographed, 1948).

⁴ These figures are from the National Office of Vital Statistics, United States Public Health Service.

than the combined death rate from pneumonia, influenza, and other communicable diseases in 1935. The reduction in mortality from diarrheal diseases, scarlet fever, whooping cough, and measles has been particularly noteworthy. During the last twenty years the death rate in this age group from diarrheal diseases, although still important, has been cut to less than one tenth of its former level. (See Figure 1, page 27.)

There are new problems in child health today. The rapidly changing mortality picture has brought about major shifts in the relative importance of the various causes of death, and consequently new concepts regarding the chief problems and objectives in child health today. Accidents are now responsible for about one in every four deaths among children beyond the age of one year, outranking every other cause of death in this age group. Among children of school age chronic illnesses are increasing in importance as morbidity and mortality from acute diseases diminish. Today rheumatic heart disease is at the top of the list of causes of death from disease. A rather **surpris-**ing finding is the entrance of cancer, including leukemia, into the picture as one of the leading causes of death among children.

Infant mortality serves as one useful index of general health conditions. The national average of 1946 was

34 deaths under one year for every 1,000 live births, the lowest ever attained up to that date. Utah, Oregon, and Connecticut succeeded in bringing their death rates below 28. On the other hand, in New Mexico the rate was 78, three times the rate in the three states above named, and the same as the national average thirty years ago. In New Mexico the rate for non-white was still at the startling height of 152, a condition due essentially to the notoriously poor health conditions among Indians.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

1. Most absenteeism from schools has a definite medical or biological cause. Even when, as in the case of accidents, the cause is not biological, the recovery from it is quite definitely a biological phenomenon.

2. The fact that "more teachers must know more about exceptional children" (see page 43) indicates the lack of properly qualified teachers. Where the instruction of physically-handicapped children is concerned, teacher training both in college and in-service should include the study of physiology, hygiene, and related medical subjects to insure as much understanding as possible of the disorders involved.

3. Regarding the medical or biological causes of absenteeism from schools in Stockton, it was found that rheumatic fever predominates and that this ailment is most prevalent in the lower grades, notably the first and fifth, which correspond, roughly, to the ages of six and ten years. Girls outnumber the boys and the incidence is progressively augmented during the winter months. This tends to confirm the belief that rheumatic fever flourishes best in the temperate zone and in the cold, wet seasons of the year, being closely linked with streptococcal infections

that are common in the winter.

4. As for the increase and decrease of cases in certain disease categories, it was found that cardiac and endocrine ailments are rising, whereas home instruction educational services for the orthopedic, epileptic, and spastic are lessening. For the orthopedic patients this may be due to more effective use of physiotherapy and the improvement of artificial aids for cripples causing them to no longer be homebound. New drugs and improved medical treatment for spastics and epileptics are releasing these absentees from isolation for transfer into group activities.

5. The causes of absenteeism in Stockton are much the same as in other cities, but the relative percentage of students absent from Stockton schools because of cardiac ailments and tuberculosis is considerably higher than in other cities studied, whereas it is appreciably lower than other cities in the categories of accidents and orthopedic difficulties (Summary of Table V, page 98).

6. Now that the international statistical classification of diseases and injuries is in the process of perfection, the use of such classification in reporting these cases of absenteeism is to be greatly recommended. (See pages 78-86.) If this generally accepted source of information is consulted, the confusion caused by faulty listing of ailments under the wrong disease category will

be avoided. It can also serve as a means of obviating the "miscellaneous" catch-all category used in classifying the physically-handicapped school children--a category which reveals nothing to an investigator, and which conceals data of possible interest and value.

7. It is a major responsibility of society to use the results of medical research and the scientific resources at its command to prevent handicaps and maladjustments among children. Workers in the field of special education believe the need for such services can gradually be eliminated in certain areas where medical science is finding cures. This fact was also borne out in Table IV, pages 87-89, showing a decrease of cases in certain disorders over a period of five years. But while the common need prevails, these workers must carry on, always seeking the ways and means of preventing further complications and correcting existing handicaps, and, when measures of prevention and correction have not proved effective, doing everything possible to bring about a satisfying compensation.

Periodical evaluation, therefore, of what is being done in a given locality and comparison with other localities, such as the present study of ailments attempts to make, serves as a means of better understanding the factors involved, biological in this instance, in the absenteeism of children from the public schools.

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APPENDIX A

LIST OF LONG TERM AILMENTS*

<u>Case No.</u>	<u>Sex</u>	<u>Ailment</u>	<u>Years on Home Ins.</u>	<u>Grades</u>
212	G	Hypertelorism, hemiplegia, and coarctation of aorta	12	1-12
18	B	Hemophilia	9	1-10
19	B	Hemophilia (two brothers one year apart in age)	9	1-10
54	G	Blue baby (congenital heart)	8	1- 9
41	G	Muscular dystrophy and various diagnoses (amystonia congenita, spastic with deformity, etc.)	7	1- 7
69	G	Rheumatic fever	6	3- 9
101	G	Paraplegia, TB of the spine	6	6-12
278	G	Arthritis	6	3- 9
200	G	Arthritis	5	4- 9
218	G	Nephritis	4	9-12
100	B	TB pulmonary, arrested	4	9-12

* Home instruction of the Physically Handicapped, Stockton Unified School District, Stockton, California.

APPENDIX B

CASE STUDY

(Outline used by Journal of American Medical Association.)

Report of two cases (number 18 and number 19--two brothers)

Comment

Incidence

Definition

Pathology and heredity

Clinical record and laboratory observations

Roentgenologic changes

Prognosis and course

Treatment

Hemophilia. A Case Study

Report of two cases. Two brothers, now twelve and thirteen years of age, respectively, have been enrolled in our Home Instruction program since their kindergarten days. Hemophilia is not a common disease, but children afflicted with it are permanently homebound due to the nature of the ailment. They have now reached the high school level.

Roger, the older of the two boys, can use crutches, but the younger brother, Rodney, is the more delicate and usually confined to his bed.

Comment. A hemophiliac's blood does not coagulate, so that it is quite possible for him to cut his lip and bleed to death. Nobody knows whether it is something lacking or something added to his blood which makes it fail to clot, but the only way to stop a bad hemorrhage is to give him a transfusion of normal blood. This makes his blood coagulate normally, but only for about forty-eight hours. A "bleeder" cannot be spanked, he cannot run, jump, or have physical contact with other children.¹

He cannot be permitted the normal cuts and scrapes of childhood. One of the hospital clinical records shows that when Ronald once bit his tongue he was in the hospital for weeks and received several blood transfusions before he was out of danger. If hemophiliacs jump from a box two feet high onto the floor, or run thirty feet, they will have hemorrhages in both ankles. There is one thing they can do, however. They can swim. This has not been possible in Stockton for Rodney and Roger as the water in the pools is too cold.

Treatment is very expensive, but there is the Hemophilia Foundation, Inc., in New York City and in Hollywood, California, itself composed of parents and

¹ since hemophiliac bleeding is often deep and produces pressure on the nerve trunks, excruciating pain is not unusual.

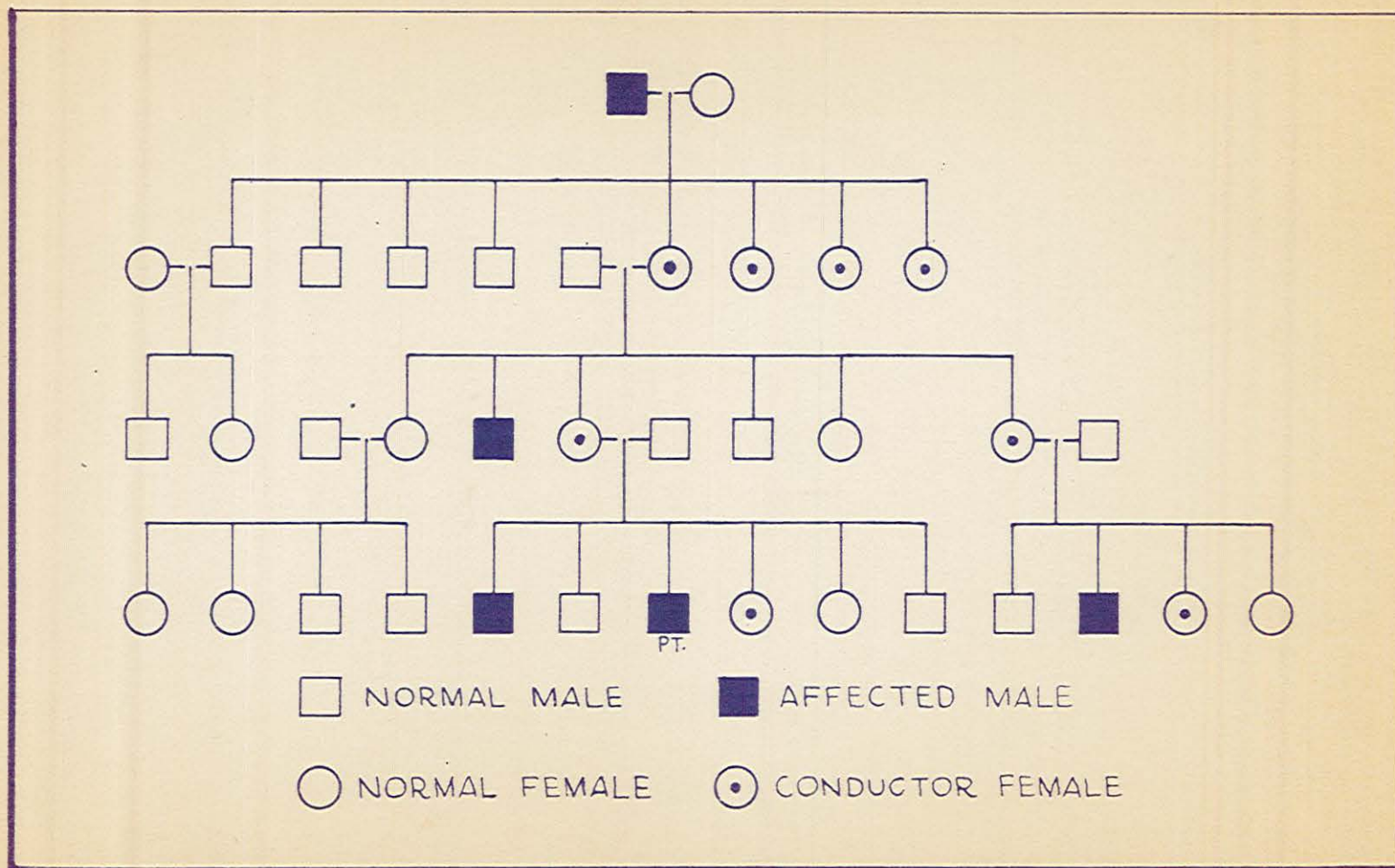
sufferers which raises funds to help combat the disease.²

Incidence. Hemophilia is not so rare a disease as popularly supposed. There are about 40,000 sufferers in the United States. This is a steady rise in a disease where 85 per cent of the sufferers die before achieving maturity.

Definition. Hemophilia is a constitutional anomaly of blood coagulation which depends on the hereditary transmission of a sex-linked, recessive gene, and is characterized by a life-long tendency to prolonged hemorrhage as well as markedly delayed coagulation time in affected males.

Pathogenesis and heredity. The factors or genes responsible for the development of hemophilia are contained in the X-chromosome of the reproductive cells. The disease is unknown in the female, although partial hemophilia in females has been noted. It is ordinarily transmitted from the male through an unaffected daughter to a grandson. The sons of an affected male (see Figure 11, page 124) are normal, themselves, and cannot transmit the defect to any of their descendants. The daughters of an affected male,

² André Fontaine, "His Parents Refused to Let This Boy Die," McCall's Magazine, May, 1951.



HYPOTHETICAL FAMILY TREE OF A HEMOPHILIAC (PT.) WITH
 A FAMILY LARGE ENOUGH TO ILLUSTRATE THE MODE
 OF TRANSMISSION OF HEMOPHILIA

all outwardly normal, are capable of transmitting the trait as an evident defect to half of their sons and as a recessive or hidden characteristic to half of their daughters.³

A heterozygous female, while showing no evidence of the disease, transmits the recessive gene to half of her offspring and the dominant gene to the other half, regardless of sex. The daughters by normal father receiving the recessive gene will be like the mother, that is, heterozygous and carriers. Since the rest of the daughters, while normal, are indistinguishable from the carriers, it is inadvisable for any of them to propagate. The sons receiving the recessive gene will be bleeders since a sex-linked character has no allelomorph in the male. Therefore, those sons who do not exhibit the disease cannot transmit it.⁴

Birch who studies the genetics of twenty families of hemophiliacs concluded that,

. . . nature seems to have provided that this disease shall go on forever, because the transmitters of hemophilia have more sons than daughters while persons with hemophilia have more daughters than sons.

³ M. M. Wintrobe, M.D., Ph.D., Clinical Hematology (Philadelphia: Lea and Febiger, 1951).

⁴ H. B. Kracke, M.D., Disease of the Blood and Atlas of Hematology (Philadelphia: J. B. Lippincott Company, 1941).

Clinical record and laboratory observations. The following notes were taken from the files of different hospitals in Stockton where Roger and Rodney have received treatment. The tendency to bleed was found at the time of circumcision. Hemophilia is mentioned in The Talmud, the ancient guide to law and living, written for the Hebrews about two thousand years ago. The Talmud mentioned the fact that when two sons of the same mother died from bleeding as a result of circumcision, further sons should not be subjected to the same operation.

I. SAN JOAQUIN GENERAL COUNTY HOSPITAL

Roger (older of the two brothers)

1940 January 14 born
 22 day of circumcision
 4 pm circumcision; swelling of the penis
 7 still bleeding, then dressing dried
 10:30 bleeding again
 12 bleeding stopped
 23 swelling due to coagulated blood in the buttocks
 29 hard brenendaries both sides
 30 bruises in thighs
 February 2 baby taken home

Age: two years

1942 March 17 fever and bleeding into skin; infectious disease expected as cause
 19 baby fine; no bleeding; more laboratory study to find what cause of bleeding
 25 definitely decided that child has hemophilia

Age: three years

- 1943 April 28 bleeding from mouth, gums; tooth came in
teething, continuous bleeding
- 30 bleeding stopped a little
- May 1 still bleeds
- 2 same
- 3 bleeding stops
- 5 nose bleeds, then stops by itself in few
hours; blood transfusions
- 11 discharged

Age: six years

- 1946 May 18 pain in abdomen; probably bleeding in
muscles; much laboratory work on blood
testing; blood transfusions
- 23 discharged

Age: seven years

- 1947 May 12 Many nose bleeds; blood in urine, bowels
and joints.
- July 2 discharged

Rodney (younger of the two brothers)

- 1941 April 17 born; started to bleed into skin and
various parts of body; diagnosis of
hemophilia made
- April 26 taken home

Age: one year

- 1942 April 21 had bumped lip on bed at 6 pm; bled all
night; next day it stopped
- 23 started bleeding again

1942 April 25 stopped by coagulation
 30 discharged

July 28 laceration on forehead; struck by another
 child with piece of glass; stitches but
 wound starts bleeding again
 29 bleeding stopped that night
 30 starts again and goes on and on

August 1 stops bleeding
 4 wound bleeds again in the morning
 5 stops in morning but starts again later
 in day
 7 stops
 10 no bleeding
 12 no bleeding; discharged

Age: six years

1947 May 9 painful bleeding at joints of both knees
 15 pains; limitation of motion

June 5 could straighten knees; discharged

II. VANOSSE HOSPITAL

Roger (older of the two brothers)
 (Blood type "B," Rh positive)

Age: twelve years

1952 April 4 transfusion; patient very tired; trans-
 fusion discontinued at mother's request

Rodney (younger of the two brothers)
 (Blood type "A," Rh positive)

Age: eleven years

1952 January 14 patient to have blood transfusion this am
 have laboratory do crossmatch
 Dil. grs 1/32 for pain
 still complaining of pain
 transfusion started when sleeping

February 20 severe pain
 23 discharged

June 9 transfusion
 one bottle Dermassage taken home with
 patient

October 5 transfusion

III. DAMERON HOSPITAL

Rodney (younger brother)Age: eleven then twelve years

1952 December 12-
 14

Diagnosis: Transfusions
 Crossmatch--no agglutination observed

Clinical record:

Crying out at interval blood absorbed--
 discontinued
 Restlessness, crying out and distress,
 doctor notified
 Admission and dismissal by wheel-chair

Blood count: (differential for possible infection)

Hb 59.1 per cent Newcomer	Neutrophils 77 per cent
10 grams/100 cc bld	Stabs 7
RBC 3,610,000 cu mm.	Lymphocytes 21 per cent
CI (color index) .82	Monocytes 2 per cent
WBC 11,300 cu mm	Eosinophils 0 per cent
	Basophils 0 per cent

Polychromatophilia - slight Nucleated rbc - 5 seen during
100 wbc

1953 March 4

Diagnosis: Blood transfusions

Physician's orders: Ice collar to neck
Oxygen by nasal catheter, trans-
fusion completed

may have jello; liquid diet

Clinical record: Codeine gr. 55 for pain
Restlessness, condition poor
Refuses to use ice collar

1953 April 10

Diagnosis: Transfusions

Physician's orders: Units of whole, compatible blood
(6 days)

Clinical record: liquid diet,
large emesis of bile colored fluid
seen by doctor
Demeral 50 grs for pain and rest-
lessness
Abdominal pain severe when lying
down, difficulty in breathing
Crying and pain

Dismissal per wheel-chair

Roentgenologic changes. The "hemophiliac knee" which is so common occurs when bleeding goes on intermittently over a period of time in that region of the body. The blood destroys the cartilage on which the joint moves smoothly. When this happens, the knee can never be made to function again, but it can be straightened and kept straight with a brace permitting the patient to walk.

Doctor Henry H. Jordan and Doctor Francis B. Roth of the Hemophilia Foundation in New York City have classified lesions in hemophilic arthritis as follows:

NON-SPECIFIC FINDINGS

1. Hemarthrosis - Distension and increased density of joint space
2. Synovitis - Thickening, increased density of joint lining.

DISTINCTIVE FINDINGS

3. Early Hemophilic Arthritis
 - a. Cartilage erosion--small areas, irregular in contour and distribution, usually adjacent, subchondral defects, seldom on contact articular surfaces.
 - b. Epiphyseal change--coarsening trabecular structure.
 - c. Hemarthrosis and synovitis.
 - d. Contracture in flexion, often with subluxation.
4. Advanced Hemophilic Arthritis
 - a. Juxta-articular cysts
 - b. Epiphyseal change--side to side enlargement.
 - c. Ossification centers.
 - d. Patella deformity.
 - e. Progressive cartilage destruction
Complete destruction of articular surfaces and bizarre disorganization of metaphyseal trabecular structure.
5. Late Hemophilic Arthritis
 - a. Secondary changes of degenerative joint disease and of joint malalignment.
 - b. Recalcification and partial reorganization of trabecular structure.

Prognosis and course. The immediate prognosis in a hemophiliac who is bleeding is always poor. Most patients die before the age of puberty, and if they attain manhood

as the years go by their chances of long life become better. They are usually well between attacks of bleeding. Many live the life of prolonged invalidism, barely recovering from the disabling results of one attack before another sets in. The mental outlook is poor since they live in constant fear of a recurrence of bleeding.

Treatment. In hemophilia the lack of thromboplastinogen can temporarily be rectified by the transfusion of blood or plasma, thereby establishing a condition sufficiently favorable to permit the performance of a major operation. The correction of the defect is measurable by the prothrombin consumption test.

Transfusion is given to increase the thromboplastinogen content to as high a level as is feasible in order to achieve permanent hemostasis immediately. Small amounts of blood or plasma or plasma fractions may be enough to bring the coagulation time to normal but not enough to influence the prothrombin consumption. The coagulation time, therefore, is most misleading and often creates a false sense of security.

Plasma is far more valuable in combating hemophilic hemorrhage than is whole blood. Since the thromboplastinogen is contained only in the plasma, one volume of the latter is equivalent to two volumes of whole blood. Another

great advantage is that much larger volumes of plasma can be given when the need arises than of whole blood. Only when anemia becomes fairly severe, should whole blood be given. It appears that the hemostatic potency of blood is increased rather than decreased by anemia. It should also be remembered that most hemophiliacs have a remarkable ability to regenerate erythrocytes.⁵

⁵ A. J. Quick, M.D., "Management of Hemophilia in General Practice," Journal of the American Medical Association, January 6, 1951.

A. J. Quick, M.D., Ph.D., The Physiology and Pathology of Hemostasis (Philadelphia: Lea and Febiger, 1951).

APPENDIX C

STOCKTON UNIFIED SCHOOL DISTRICT
REQUEST FOR HOME INSTRUCTION

Investigated ()
Accepted ()

Superintendent of Schools, Stockton, California

Dear Sir:

I hereby make application for the services of a visiting teacher for:

Child's Name.....

Child's Address..... Telephone.....

Date of Birth..... Place of Birth.....

Name of Parent or Guardian.....

School Last Attended..... Grade.....

Teacher..... Last Day of Attendance.....

Remarks:

.....

.....

Date Signature of Parent or Guardian.....

REQUEST FOR HOME INSTRUCTION
Physician's Statement

Child's Name.....

Diagnosis:

.....

Do you recommend home instruction? Yes..... No.....

Recommended hours of study a day: Hours

Or:..... Full Schedule

Approximately when will child be able to return to school

.....

Remarks:.....

.....

.....

Date..... Signature of Attending Physician.....