THE
ESTABLISHMENT
IN
THE PUBLIC SCHOOLS
OF
EDUCATIONAL PROCEDURES
FOR
CHILDREN WITH PHYSICAL DEFECTS

by

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PREFACE

The corrective phase of the physical education program has always been interesting to the investigator. However this special phase became of particular interest to him when as supervisor of physical education in a suburban community he was asked to establish a corrective program for the entire school system. The numerous problems and questions, both philosophical and administrative in character, which presented themselves have been the stimulus for this study. There is behind it also ten years of experience in this phase of physical education.

It is sincerely hoped that supervisors of health and physical education, school superintendents, and others, may find this study helpful in thinking through and establishing in their own communities appropriate educational procedures for public school children with physical defects.

Acknowledgments are very willingly and gratefully made to the following: Dr. Frank S. Lloyd, Professor of Education, School of Education, New York University, who was the advisor for the study, and whose guidance, constructive criticism, suggestions for organization of materials, and constant encouragement, have been of immeasurable value; C. M. Derryberry, Assistant in Education, School of Education, New York Univer-
sity, and member of the staff of The American Child Health Association, for valuable suggestions and editorial criticism; the sixteen jurors kind enough to judge the criteria; the
experts, school superintendents, and physical education supervisors who answered the questionnaires; Mrs. Margaret Wyer Metcalf, my wife, who has spent a vast amount of time arranging and checking questionnaire data, editing most of the manuscript, and furnishing the much needed understanding, inspiration, and encouragement for the completion of the study.
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PART I
INTRODUCTION
CHAPTER I
THE PROBLEM

A. Statement of the Problem

It is well known that a large percentage of the children entering school have physical defects, and that many other children develop physical defects during their school years. It is also known, although not so widely, that physical defects tend to limit the educability of children. A child with physical defects is not free to learn to his full potentiality, is not able to make the most of his educational opportunities. A child with an innately superior capacity for learning may on account of his physical defects be able to achieve only standards of learning far below the average.

Manifestly the physical defects of school children must be corrected. They must be corrected not only for the sake of the child and his personal achievement, but for the sake of the school. Wilkes, Director of the Medical Service of the American Child Health Association, has suggested that it is not good business economy for the school to spend an extended amount of time and tax-payers' money trying to teach children who on account of their physical defects are only educable to a slight degree. Most cases of physically defective children throughout the country are neglected. There are, however,

1. LeRoy A. Wilkes, in a personal interview.
some cities scattered here and there that are attempting the correction of the physical defects of school children. This work has been attempted by various agencies, by hospitals, clinics, private physicians, and, in some cases, by the school itself with the support of the school budget.

Among the defects found to exist among school children to a great extent are certain orthopedic defects of feet and general posture, the correction of which very frequently has been attempted by the departments of physical education. The question as to whether or not a school's department of physical education is justified in attempting corrective procedures as one of its functions in the school, was the question which set the writer to searching for an answer and at work on the problem as a whole. Inasmuch as the various orthopedic defects often treated by physical educators are classed with the other physical defects, the question as to whether the physical education department is justified in attempting the correction of postural and other orthopedic defects is dependent upon the answer to the problem: What Is the Responsibility of the Physical Education Department for the Correction of Physical Defects of Children in the Public Schools? The solution of this question depends in turn upon what is conceived to be the function of the school, and how the terms "correction" and "education" are to be defined. The school must face the problem of how best to deal with its children with physical defects or how best to insure that the school's responsibility of education will be fully met in the case of these handicapped children. In the light of the foregoing the statement
of the problem of this study is: The Establishment in the
Public Schools of Educational Procedures for Children with
Physical Defects. It is a definition of the school's function
and a setting up of educational procedures for improving the
condition of children with physical defects so that this func-
tion can be fulfilled.

B. Significance of the Study

The profession of physical education has undergone tremen-
dous changes in the last twenty years. Probably the most re-
markable change has been the swing away from the formal calis-
thenic type of program to informal program of games and sports.
This change came partly as the result of the demonstrated value
of the games program in the various war camps, and partly be-
cause educators were challenging various curricular subjects
to discover their contributions to the aims of education and
were of the opinion that the informal program far outweighed
the formal program in its educational value.

Concomitant with these changes in the physical education
program the United States was indulging in financial expansion
along many lines. New school buildings with elaborate gymnasias
and stadia were being constructed all over the nation and money
came easily and was spent freely for many school and other
projects.

Leaders of a specific and specialized phase of physical
education known as corrective gymnastics, sensing this period
of expansion as a time to increase the scope of their work,
put in requisitions for increased space and equipment, and in
the main were successful.

At this same time also there was widespread propaganda for the building of school dental clinics and of many other types of special school clinics. It is interesting, however, that the educator’s challenge to physical education and his evaluation of physical education included only the main or fundamental principles of modern physical education; and certain special phases of physical education, notably the corrective phase, escaped the critical gaze of the educator. However, after the new physical education began to feel itself a new profession and a new science, its leaders began to be interested in justifying it educationally and in viewing its intrinsic parts very critically. Consequently in the last five years physical education leaders have been most active in studying intercollegiate athletics, intra-mural athletics, and the phase of physical education forming the basis of this particular study: corrective physical education.

Corrective physical education, however, has undergone no change whatsoever in philosophy and very little in practice. It has been taken for granted and carried along in the tidal wave of the new physical education. On the other hand, intercollegiate athletics and intra-mural athletics can be guided and checked against the new philosophy and principles of physical education.

C. Needs

In the field of so-called corrective physical education, there is very definite need of: a definition of terms; a
definition of responsibilities of various community health agencies with regard to improving the condition of the physically defective child; a definite philosophy, creed, or group of guiding principles substantiated by modern educational principles which school superintendents can look to as a guide for suggesting the type of program best suited to their situation; and, finally, some typical modern programs to illustrate the applications of these guiding principles.

D. Purpose of the Study

The purpose of this study is to set up some educational procedures (substantiated by modern educational principles) which can be incorporated into the school program in order to improve the condition of children physically handicapped. This means that procedures are to be set up which will ensure that the school’s function of education extends itself fully to meet the needs of the handicapped child as well as of the child without physical defects.

E. Definitions of Terms

The definitions of the terms education and correction should be read with particular care, for the distinction made between the two is a very important one and will be referred to many times.

The definition of education will be given first:

EDUCATION from the standpoint of the school is the organization and leadership of children in selected activities which will stimulate them to make changes within themselves resulting in their progressive integration in an everchanging world. to
the extent of their native capacity.

The keynote of this definition is expressed in the words: "Children . . . make changes within themselves." The teachers will demonstrate, coach, guide, direct, supervise, and inspire, but any real change which takes place in the child is due to his active participation in the activity or activities provided by the teacher. The child himself makes the change.

Now let us consider the definition of correction:

CORRECTION as dealt with in this study is such beneficial changing of an individual's physical condition as can be accomplished only by a human agent external to the individual.

The core of this definition is that the individual has no active part in the accomplishment of the change. In other words, in correction a human external agent accomplishes a desirable change in the individual which he himself could not accomplish.

Comparing the two terms, education and correction, one might say that:

Education helps the child to help himself.

Correction makes the child better able to profit by education.

The physician, through correction, helps those unable to help themselves and profit by education. Much of the so-called corrective work done in the past by physical educators for children with functional deviations of the feet and spine, has been, according to this definition, entirely educational in character, and not corrective.

For example, the physical educator demonstrates certain exercises which will improve the condition specifically; he coaches and supervises the individual in these exercises; he
guides him and directs him and does what he can to inspire him. All of these procedures, however, are educational procedures and would be used in teaching any activity of the school curriculum.

To understand a corrective procedure, consider, for example, a case of structural flat foot. No amount of exercising on the part of a pupil will benefit the foot. However, the orthopedic surgeon can help the condition a great deal and can accomplish a large measure of correction. He may reset the tarsal bones under ether and then apply a plaster cast, or he may perform a stabilization operation of the tarsal bones when set in proper position. Either of these procedures, or others of a similar character, is clearly corrective. The orthopedic surgeon is the external agent making the change.

THE PUBLIC SCHOOL is a social agency of the community, supported by public taxation, and organized to give instruction to the community's children of school age.

Hetherington's definition¹ of Physical Education will be accepted in this study:

"PHYSICAL EDUCATION is the organization and leadership of children in big-muscle (or play) activities in order to gain the development and adjustment inherent in these activities according to social standards."

CHAPTER II
HISTORICAL ASPECTS OF THE PROBLEM

As far back as the beginnings of medicine, hundreds of years before the time of Christ, physical defects of many sorts were recognized. Of these physical defects probably the orthopedic were among the first to be noticed. For example, Hippocrates, who lived four centuries before the beginning of the Christian era, recognized club-foot, gave a very clear description of it, and suggested certain specific measures for its treatment. Hippocrates also distinguished the different curvatures of the spine and first gave the name scoliosis to lateral curvature of the spine, although it is apparent from some of his statements about it, that the causes of scoliosis were obscure to him.

In these early times, exercise, both active and passive, was one of the main items of treatment.

Lillian Curtis Drew says,

... Some sort of exercise for remedial purposes has been in use from earliest times. Primitive men seem to have recognized that certain bodily ailments were benefited by physical activity.

Records and pictures have been found representing the use of medical gymnastics by the Chinese 5000 years before Christ. One old record states that 'Gymnastic exercises stimulate bodily fluids to an even motion which constitutes a condition of health. This motion is facilitated by the lying position

Exercises and manipulations have been used in the same connection by Egyptians, Hindus, and other Eastern nations for many centuries, and were a part of the stock in trade of the priesthood who were the medical men of earlier eras. The Greeks and Romans employed exercise for its beneficial effect quite universally and Aesclepiades and Celsus, at about the beginning of the Christian era, prescribed exercises for the cure of many diseases, and for countering the effect of the effeminate luxury of the Romans.

The American Indian medicine man is thought of as one who relied entirely on the superstitions of his race and on his own good psychology to effect his cures. This is not the case, however, for the Indian medicine man not only used good psychology, but he very effectively used such available resources as sunbaths, baths in natural hot springs, cold baths, exercise, and massage.

It would seem only natural that a large part of the treatment of more ancient times should consist, as did that of the American Indians, in the utilization of the natural resources with which they were surrounded. It is interesting to note that the natural therapy measures, noted above, form the basis of our modern science of physical therapy. The physiotherapist of today still needs to use good psychology, and welcomes new machinery partly because there are still people superstitious enough to think that the simple therapies are not effective as the intricate.

Flexner is interesting at this point:

From the earliest times, medicine has been a curious blend of superstition, empiricism, and that kind of sagacious observation which is the stuff out of which ultimately science is made. Of those

three strands - superstition, empiricism, and observation - medicine was constituted in the
days of the priest physicians of Egypt and Babylon; of the same three strands it is still com-
posed. The proportions have, however, varied signi-
nificantly; an increasingly alert and determined
effort running through the ages has endeavored to
expel superstition, to narrow the range of empir-
icism, and to enlarge, refine, and systematize the
scope of observation.

As the trend of medicine in general from earliest times
has been away from magic and empiricism and toward rational-
ity and definiteness, so also has been the trend in that phase
of medicine which uses exercise and massage for its major
tools. This phase of medicine came to be known as "medical
gymnastics" and was given its greatest impetus in a scienti-
fic direction by Pehr Heinrich Ling of Sweden. In 1813 Ling
introduced his system of Swedish Medical Gymnastics (based
upon anatomical and physiological principles) at the Royal In-
stitute of Gymnastics at Stockholm, where he was the director.

Outstanding among the men followers of Ling who intro-
duced the Swedish movements into this country was Baron Nils
Posse, who founded the Posse Normal School of Gymnastics in
Boston.

The application of Swedish Medical Gymnastics and massage
to pathological conditions represents the framework of modern
physiotherapy, to which has of course been added many addi-
tional natural physical therapies such as hydrotherapy, elec-
trotherapy, and heliotherapy.

Those movements which we have designated as calisthenics
are directly descended from that phase of Swedish Gymnastics
which are called Free Arm and Leg Movements and required no
apparatus in the main. This phase of Swedish gymnastics was used for normal as well as for pathological individuals. It was a system of definite, precise movements of the body and extremities in a particular teaching sequence known as the "Day's Order". The movements were executed by large groups of people at the commands of one leader. This system of exercise won the greatest favor at the Boston Educational Conference of 1889, where it was demonstrated along with many other systems then in vogue. The educational leaders of that day were well pleased with this Swedish system of gymnastics because it required no apparatus, could be conducted in the school room by the classroom teacher, and took only two or three minutes' time. Consequently, the Swedish system became firmly established in the American schools as it already had become established in schools abroad, and was definitely recognized as a part of the educational program.

With the comparatively recent changes that have taken place in modern education, and in large measure because of the research of Clark W. Hetherington, educators began to see that the Swedish system of gymnastics was in no sense an adequate means of physical expression through which to gain the desired development of the whole child. The present trend in physical education is toward the natural or playful activities and is in accord with the changes which have taken place in our educational philosophy.

During the latter part of the nineteenth century and the beginning of the twentieth, other interesting and related devel-
opments were taking place. Corrective gymnastics, the direct descendant of Medical or Orthopedic Gymnastics, was developing in the schools. It was thought that the very nature of school life tended to develop certain faulty postural attitudes and gradually to convert them into definite deformities. To counteract such tendencies, corrective gymnastic exercises were given to large groups. The absorbing interest attending this corrective work led to giving exercises for more and more different kinds of defects—for example, for hernia, heart cases, nutrition cases and defective feet—and some teachers began to specialize in this corrective work.

The corrective phase was given additional impetus at this time for two other reasons. First, the medical profession had not yet become educated to its important functions in the school. Adequate health examinations were given only rarely. The medical men were interested primarily not in prevention but in cure and treatment. Consequently, many defects would not have been recognized at all had it not been for the teachers of physical education. Also, the machinery for making contacts with the medical profession was lacking. So the corrective teacher felt justified in attempting the correction of a number of defects which would otherwise have been neglected. Second, teachers of Swedish Gymnastics who could see the signs of the times realized that the days of Swedish Gymnastics, as a tool of education, were numbered. It was, however, admitted by a number of leaders in physical education that there probably was a place for the use of Swedish Gymnastics in the corrective program; hence, large
numbers of former teachers of Swedish Gymnastics specialized in corrective work.

The evolution of the terminology of corrective work is extremely interesting. The work was first termed Medical Gymnastics. At this time and somewhat later it was also called by the terms Orthopedic Gymnastics and Therapeutic Gymnastics. Then, after its introduction into the schools and colleges, it gradually became known as Corrective Gymnastics.

One of the stated aims of Swedish Gymnastics was the corrective aim, and in these gymnastic programs special corrective exercises were used. It was thought, however, by many of the greatest leaders of physical education, notably by J. F. Williams, that corrective exercises were not effective when given to large groups. It was deemed absurd to give forty different individuals the same exercises and expect to get identical results.

Perhaps the greatest contributor and teacher of corrective gymnastics in the schools was Lillian Curtis Drew. Drew sensed the situation at that time very clearly and wrote a book called Individual Gymnastics. In this she showed that if one would achieve results in the corrective field one must work with the individual, must study the subject as an individual and adapt instruction to meet his or her individual needs. Her book was well received by the physical education profession, and her term "Individual Gymnastics" was widely adopted.

This term, although far better than the term "corrective gymnastics," possibly was instrumental in lessening the amount
of interest educational administrators were taking in the possibilities of this phase of physical education, for they began to ask questions concerning Individual Gymnastics, such as: What does Individual Gymnastics involve administratively? They began, many of them, to visualize one teacher for one pupil, and they knew they could never provide these teachers; neither was there time enough in the day for one teacher to work individually with all of the defective children.

Drew became aware of this misinterpretation of her term and of the administrative difficulties apparently involved, and therefore wrote another splendid book, *Adapted Group Gymnastics*, in which she took up in greater detail the problem of teaching individual gymnastics to organized small groups.

Terms in use at the more progressive institutions to designate this special phase of physical education are: "Individual Gymnastics", "Individual Health Training", "Individual Physical Education", and "Special Adaptation of Activities in Corrective Procedures." All of these terms indicate respect for the personality of the individual and his special needs. Conservative institutions are still using such antiquated terms as "Therapeutic Gymnastics" and "Corrective Gymnastics."

The leaders of the medical profession have not altogether approved physical education's stepping over into what they consider their field, that of correcting defects of a physical character. Even though the efforts of corrective teachers have been conscientious and sincere, the very zealousness and enthusiasm they have shown in this work has branded them as
quacks by the medical profession, and only when this work has been carefully planned in cooperative relationships with medical men and has been under their supervision have they had much respect for it. In too many places the corrective phase of physical education has been carried on without connection with the medical service of the school and neither one of these health agencies has apparently been conscious of the existence of the other. In such cases the inevitable results are duplication of effort, waste of money, and mutual lack of respect.

In a recent study 1 of the city public schools of the United States it was found that only eighty-five and seven-tenths per cent. of the schools were giving health examinations, and in most of these schools the health examinations were neither adequate nor accurate. They were simply machine-like "once overs", taking perhaps two or three minutes.

It is deplorable also that in many places after the physical defects of a child have been discovered nothing more is done about them. One of the reasons nothing is accomplished in the way of a follow-up in some schools is that the health examinations of the children are strung over the entire school year.

There seems to be no general uniformity of principles or of practice as to the administration of the correction of physical defects. Most school superintendents feel that something should be done, but they consider the problem one for other

1. See Appendix p. 364.
experts to solve; and, since experts cannot agree as to how it should be done or as to whose responsibility it is, superintendents often do nothing about it at all, unless some exceptional personality can "sell" them a program. It is evident from these considerations that certain fundamental principles concerning corrective physical education and certain fairly clear-cut lines of responsibility should be evolved for the use of the school administrator and for the sake of the child whose defects must be coped with. It is sincerely hoped that this study will be of some help in this wide critical situation.

Various defects J. R.
CHAPTER III
PROCEDURES

A. Information Necessary.

In order to proceed with the problem of the establishing of educational procedures for public school children with physical defects, it was necessary first to obtain certain information. The specific types of information needed were as follows:

Information as to what is considered to be the school's functions, its objectives, the fundamental philosophies underlying its development, and the philosophy obviously most adequate for our present situation.

Information concerning the responsibility for the health of the child.

Information concerning the common physical defects of school children and ways and means of discovering these defects with various types of health examinations.

Information as to the procedures used in the correction of the physical defects of school children and as to the distinction between corrective procedures and educational procedures.

Information concerning the personnel and cost of carrying on corrective procedures.

Information concerning the function of physicians and surgeons with regard to school children with
physical defects.

Information concerning procedures in the public schools for children with postural deviations.

Information concerning the training of teachers to teach the so-called corrective physical education program.

More detailed and specific questions concerning these items of information will be found listed in the appendix.

B. Areas From Which the Information Was Obtained

The items of information listed in above section A were obtained from the following areas:

Libraries

Library of the School of Education
New York University, New York, N.Y.
New York Public Library, New York, N.Y.
Library of the Academy of Medicine, New York, N.Y.
Library of the University of the State of New York
Albany, N.Y.
The Congressional Library, Washington, D.C.
The Ohio State University Library, Columbus, Ohio.
Library of the Medical College of the Ohio State University, Columbus, Ohio.
The National Health Library, 450 Seventh Ave., New York, N.Y.

Courses of Instruction

Graduate course in Teachers College, Columbia University

Graduate courses in the School of Education, New York University

Courses in Orthopedic Surgery in the College of Medicine in the Ohio State University.

Clinical and Surgical Observations

Observations of orthopedic surgery clinics and operations in the larger clinics and hospitals of the following cities: New York, Washington, Philadelphia, Boston, Cleveland, Louisville and Columbus.

Personal Conferences

Personal Conferences with (a) numerous leaders in the field of health and physical education, (b) specialists in the individual or corrective phase of physical education, (c) state supervisors of health and physical education, (d) state commissioners of health and (e) physicians, orthopedic surgeons and physiotherapists.

Convention Programs

Convention programs relative to the items of information needed at sectional meetings of the following organizations: The American Student Health Association;
The Society for Directors of Physical Education in Colleges;
and the American Physical Education Association.

Teaching Experience

Experience over a period of thirteen years in teaching and in the training of teachers in the so-called corrective phase of physical education in the following institutions:

Case School of Applied Science, Cleveland, Ohio.
Teachers College, Columbia University, New York, N.Y.
Bronxville Public Schools, Bronxville, N.Y.
School of Education, New York University, New York, N.Y.
Chautauqua Summer School of Physical Education, Chautauqua, N.Y.
The Ohio State University, Columbus, Ohio.

Surveys

A questionnaire, sent to all superintendents of American public schools in cities of over twenty-thousand population designed to discover certain policies and procedures concerned in the administering of Individual or Corrective physical education in the school systems.

A Questionnaire sent to a selected group of experts in the field of so-called corrective physical education designed to determine their opinions as to what the policies and procedures relative to the administering of so-called corrective phy-
ical education should be.

C. The Procedures used in Obtaining the Information.

The items of information gleaned from the first six areas mentioned in section B, namely, libraries, courses of instruction, clinical and surgical observations, personal conferences, convention programs, and teaching experience were condensed into thirty-four definite statements or criteria. These criteria can readily be grouped under eight larger classifications and are used as chapter headings in that part of this study entitled "The development of the Criteria as a Basis for the Educational Procedures."

The thirty-four criteria were organized and sent to a carefully selected jury for evaluation. A detailed account of the findings of the various jurors on the specific criteria will be found in the chapter entitled "The Statement and Evaluation of the Criteria". The criteria accepted by the jury were then used as the basis for the educational procedures recommended.

A further step of interest in this study seemed to be a criticism of existing conditions and of expert opinion in the light of the criteria.

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1. The original list of criteria as sent to the jurors will be found in the Appendix, p. 342.

2. A complete list of the jury will be found in the Appendix, p. 353.
The findings of two different surveys formed the basis of the information concerning existing conditions and expert opinion.

One survey aimed to discover the present status of so-called corrective physical education in the public schools of the United States.¹

Letters with two copies of the questionnaire enclosed were therefore sent to all the public school superintendents of cities with a population of over twenty thousand in the hope of interesting them in the survey. Superintendents were requested to answer the questionnaire for their whole system themselves or to delegate the task to the staff member knowing most about this phase.

In case this latter method was chosen city school heads were asked to indicate on the back of self-addressed and stamped post-card, the number of questionnaires needed for each school in his system. Additional details as to the procedures used in this questionnaire will be found in the Appendix, p. 354-364.

The other questionnaire went to a carefully selected group of experts from the following: teachers and administrators of corrective activities in elementary and secondary schools and colleges, state directors of physical education, and physicians. All of these experts were contacted personally at the time of various physical educational and

¹ See Appendix, p. 364 for the complete report.

² See Appendix p. 359 for the original questionnaire sent to the school superintendents.
other educational conferences with a view to gaining their interest, cooperation and willingness to answer a questionnaire which was then given or later mailed to them. In no case was a questionnaire sent to an expert unless his interest had previously been enlisted in the project and unless he had promised to answer the questionnaire carefully. The detailed findings of this questionnaire are to be found in the Appendix, p. 423

D. Analysis Used for Obtaining the Information

The problem of establishing educational procedures for children with physical defects necessitates among other things:

An acceptable modern definition and philosophy of education.

A definition of correction and a clear distinction between it and the definition of education.

A knowledge of the common physical defects of school children and the procedures used to overcome them.

An application of the philosophy of education, or the fulfillment of the school's function in relation to the child with physical defects just as efficiently and completely as this philosophy has been applied in the past to school children without physical defects, and a determination as to which community agents are responsible for the correction of the school child's physical defects.

The criteria were found from these and allied items of information. The only way to approach the problem of prov-
ing the worth of the criteria was through the use of an un-
biased jury representing a cross-section of the leaders

(1) of physical and health education,
(2) of education for the handicapped
(3) in other related fields.

Having established the criteria as correct, the investi-
gator criticised the existing conditions as related to the
problem in the light of the criteria. Also criticised in the
light of the criteria were findings from a study of expert
opinion on the administration of individual or corrective phy-
sical education in schools.

From all of the foregoing material, conclusions were
drawn, and recommendations made, in keeping with the criteria
which are the educational principles on which the educational
procedures are based.

A suggested program of typical educational procedures
is then presented, one which makes sure that the educational
function of the school, hitherto concerned only with the nor-
mal child, reaches also, the life of the physically defect-
ive child.
PART II

DEVELOPMENT OF THE CRITERIA AS A BASIS FOR

THE EDUCATIONAL PROCEDURES

CHAPTER IV

INTRODUCTION INDICATING THE AGENCIES RESPONSIBLE
FOR THE SOLUTION OF THE PROBLEM

It would seem that the main agencies responsible for the
solution of the problem are the home, the school, the medical
profession, and the child himself.

The home has the first and most fundamental opportunity
to influence the child. He is born into the home absolutely
helpless and dependent upon the care and guidance of his par-
ents. It is thought by many that the pre-school years of the
child are more important in his life and health than are any
of the succeeding years. It is also felt that many of the phys-
ical defects discovered in school children could be prevented,
if their parents were wide awake to their opportunities and
responsibilities with regard to children of pre-school years.

The school exerts tremendous influence on children be-
because they are under its supervision approximately thirty hours
a week for about twelve years, and in that time a significant
metamorphosis takes place. The child enters school little
more than an infant and then passes through the stages of the
pre-adolescent and finally those of the adolescent. During
these formative years the child is thrown under the influence
of many different leaders: the principal, the various teachers
of different subjects, the physical education teacher, the school nurse or public health nurse, and occasionally the school doctor (where there is one).

The medical men have dealings with sick and physically defective individuals of all ages. There are general practitioners and specialists. The latter seem to be increasing, however, so that nearly all phases of medicine have their representative experts: surgeons; pediatricians; oculists; ear, nose, and throat specialists; skin specialists; obstetricians; gynecologists; orthopedic surgeons; and dentists.

The areas in which these men operate are in the main: their offices; hospitals and clinics; and, in the case of the general practitioners, the home.

The child himself is an important agent with respect to his own health. This is increasingly true as he advances in age. At birth the child is dependent upon his parents not only for care and protection but for education as well. As he develops he gains an increasing amount of his education outside the home. The school takes over a greater and greater amount of time for his education but his care is its concern only to the extent of seeing that physical environmental conditions contribute to his good health. More and more the child must learn to take care of himself. Apparently one of the fundamental aims of education is to develop intelligent, self-directing citizens. If this is true the school must recognize the child as an agent in his own self-care and as a part of its educational function must give more help to him than it has given him in the past. To this end, namely, that
the child be helped to develop into an intelligent, self-directing citizen, the cooperation of all agencies—the home, the school, the medical profession, and the child himself—must be enlisted.
CHAPTER V
CRITERIA CONCERNING THE FUNCTION OF THE SCHOOL

Physical education being a basic part of the general curriculum of public school education, the question of the responsibility of the department of physical education for the establishment of educational procedures for public school children with physical defects becomes primarily a question of the responsibility of the public schools for such procedures. Or to state it more briefly, what is the function of the public school? Specifically, is the function of the school education, is it correction, or is it both? This question concerning the function of the school will be discussed under two heads: first, the legal aspects of the question; and second, the standpoints of various philosophies of education and their proponents.

A. Constitutional Viewpoints

It was hoped that some very definite and specific statements of unique help in discovering the function of the school would be found from a survey of the School Laws of the various individual states of the union. This hope was shattered, however, when it was found that the constitutional provisions pertaining to the purposes and functions of education were of a very general character.

In order to illustrate the generality of these statements, quotations will be made from a few of the individual state laws.
A general diffusion of knowledge and intelligence being essential to the preservation of the rights and liberties of the people, the general assembly shall establish and maintain free public schools for the gratuitous instruction of all persons in this state between the ages of six and twenty years.

Revised School Laws, State of Missouri, 1931, p.10
Article XI, Section 1

The General Assembly, at its first session after the adoption of this constitution, shall by law establish throughout the state a thorough and efficient system of free public schools; and shall provide by taxation, or otherwise, for their maintenance.

The Public School Laws of Maryland.
Constitution of 1867, Article VIII, Section 1, p.4.

The General Assembly shall provide a thorough and efficient system of free schools whereby all children of this state may receive a good common school education.

The School Law of Illinois.
Constitution of 1870, Article VIII, Section 1, p.5.

... The legislature shall provide for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all the children in this state between the ages of five and eighteen years. ...

The New Jersey School Laws as revised for 1928, p.5.
Extracts from the State Constitution Respecting Public Schools, Section VII, Paragraph 6.

Religion, morality, and knowledge being necessary to good government and happiness of mankind, schools and the means of education shall forever be encouraged.

The School Laws of Michigan, Constitutional Provisions, Article II, Section 1, p. 7.

It shall be the duty of the General Assembly to pass suitable laws ... and encourage schools as a means of instruction.

Article I, Section 7, p. 7.

The General Assembly shall provide for the maintenance and support of a thorough and efficient system of public schools. ...

As a further illustration, Lide¹ states:

Practically all state constitutions specifically charge the state legislature with the general responsibility for promoting the educational interests of the state. Specific language to that effect is to be found in the constitutions of all states except Connecticut, Georgia, Louisiana, and Massachusetts. The constitution of Georgia declares that there shall be a thorough system of common schools, but does not charge the legislature with the duty of establishing and maintaining the system . . .

It is only in one respect, that of delegating general responsibility to the legislature that there is any considerable degree of unanimity among the states as to the nature of constitutional provisions relating to public school education.

As to the function of the school, then, the various state constitutions have little to contribute. The states must promote their educational interests by establishing and maintaining schools. Since the function of the school has been identified from the beginning with education, a program for the fulfillment of the function of education will be the concern of this study. There are many philosophers who have contributed much expert opinion as to the function and purpose of education. For purposes of this study certain lists of generally accepted objectives of education, stated by leading educators and educational societies, will be used. These objectives should be helpful in determining the school's function.

B. General Educational Objectives

Since the school is society's organized institution for the transmission of education, one is really discussing the function of education when we attempt to discuss the function

of the school. Some of the stated definitions and the lists of objectives generally accepted by educators will be used as guides in arriving at some conclusions as to the function of the school. These conclusions will be used as some of the criteria for determining the place of so-called corrective physical education activities in the public school program. Throughout the United States there are great numbers of children with physical defects of one sort or another. The school's function with respect to the improvement of the condition of these children is not clear. Some would say that the schools should correct these defects. Others would say that the school's function is to educate the children to do what they can for themselves and to send them to the proper medical man for correction if that be their need, but that it is not the school's function to take over the responsibility and expense of correcting these defects. The problem of the school's function in these matters therefore needs careful analysis.

The first list of educational objectives will be that of the Commission on the Reorganization of Secondary Education and is as follows:

1. Health
2. Command of the Fundamental Processes
3. Worthy Home Membership
4. Vocation
5. Citizenship
6. Worthy Use of Leisure
7. Ethical Character

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The Committee on Elementary Education of the New York Council of Supervisors at Albany said concerning the function of the school:

According to this committee, it is the function of the public elementary school to help every child:

1. To understand and practice desirable social relationships.
2. To discover and develop his own desirable individual aptitudes.
3. To cultivate the habit of critical thinking.
4. To appreciate and desire worthwhile activities.
5. To gain command of the common integrating knowledge and skills.
6. To develop a sound body and normal mental attitudes.

Chapman and Counts would advocate as objectives of education the following:

1. Furthering health.
2. Promoting family membership.
3. Ordering and humanizing industry.
4. Advancing civic interest.
5. Enriching recreational life.
6. Fostering religious aspirations.

Hetherington says: "Education from society's standpoint is the organization and leadership of children in selected activities in order to gain the development and adjustment in these activities according to social standards."

Health is one of the standards just as are morals and


manners. Health has been mentioned in all the lists of objectives here given and is set forth in most lists of educational objectives. Health, however, is something which cannot be bought. Good or bad health is dependent on the activities of the individual and on his heredity and environment. The greatest opportunities in controlling the health of the child lie in the possibility of his education and in the control of his environment so that it may be safe and sanitary. If the child or his parents can be educated to the point of consulting a physician to have him correct certain physical defects, that is again education and is of a high order. This education of the child or his parents to the need of going to a physician for the correction of defects is one of the functions of the school. It is evident that education is a process of leading children in desirable activities which will help them to develop and make changes within themselves, to the extent of their innate capacities, according to the standards set by society in general and by their leaders in particular.

C. The Education of the Whole Child

More and more educators are beginning to realize that man is a unity; that children are not physical bodies at one time, intellectual machines at another time. Man and his offspring represent the most delicate integration—of the spirit, mind and body into a unified, functioning whole—of all animals on this planet. When a child performs an activity of any sort for the first time, he does at the same time all of the fol-
lowing things: ¹ He thinks, he has certain feeling tones, he makes certain neural connections and various organic mechanisms (respiratory mechanism, circulatory mechanism, heat-regulatory mechanism, digestive and eliminative mechanisms) are stimulated or inhibited to a certain extent. This is another way of saying that in the process of development which the school hopes to nurture through providing selected activities, there are four different phases of development taking place at the same time. These four types of development Hetherington lists as: intellectual or interpretive development, impulsive or emotional development, menti-motor or neuromuscular development, and organic development. Although all activities develop all of these four phases, the activities do not furnish equal developmental opportunities for these four types of development. For example, in the study and recitation of a history lesson in junior high school, there are considerable opportunities for interpretive and impulsive development, but the opportunities for organic and menti-motor development are very small indeed. This situation exists with practically all of the other subjects of the school curriculum with the exception of music, fine arts, industrial arts, and physical education. In music there are slightly better opportunities for menti-motor and organic development than in a course like history. In fine arts and industrial arts menti-motor development is at a premium. In physical education activities, however, all

¹ Clark W. Hetherington, from notes taken during his class lectures in the course, "Principles of Teaching Health," New York University School of Education, 1927-1928.
four phases of development have ample opportunities for nurture, particularly in the games and sports of higher organization. In the physical education activities of lower organization there are somewhat fewer opportunities for interpretive or intellectual activity.

It is desirable that the school should have a large share in developing children with well-rounded personalities. It is then essential that the school should provide activities which offer the possibilities for all four phases of development. Not only is this essential for students falling in the center of the distribution curve but for those who from a physical standpoint are at the lower end of the curve. Children with physical defects need even more opportunity to develop organically (and from a mental-motor standpoint as well) than normal children. It is suggested that it is the school's function to provide educational procedures for children with physical defects so that they may receive wholesome all-around development. It is understood that many of these activities will have to be adapted by properly trained teachers for the use of these children. Because of the large amount of time that the child spends outside of school, and outside of the home also, it would seem to be the school's function to teach many activities which will result in an all-around development which the child will want to carry on outside of school hours. It is therefore thought to be the school's responsibility to educate the whole child by developing intelligent interests, informations, and impulses concerning health and physical efficiency, as well as by developing the other
curricular subjects.

D. **The Responsibility of the School for the Condition of the Environmental Factors of the Teaching Situations**

Because the child is under the supervision of the school such a great number of hours during the day and for so many days, it becomes the school's responsibility to see that the various environmental factors which it imposes on the child contribute to the child's health and comfort. If the school environment contributes to the health and comfort of the child it will also facilitate his education. The various environmental factors referred to are the lighting, ventilation, humidity, heating, plumbing, sanitation, and cleanliness of the school buildings and grounds. The play-ground and gymnasium of a school system should be periodically inspected to see that all apparatus is in good repair. The supervision of playgrounds and gymnasium by adequately trained teachers and leaders also constitutes a definite function of the school.

E. **Conflicting Educational Theories**

In his *Republic* the ancient Greek philosopher Plato suggests that in the ideal state there should be no family life as such, that children should be the common property of all of the rulers or free citizens. He planned that, even from their birth, children should be attended by nurses of the state, and that no child would know his parents, or any parent his child.

Aristotle, on the other hand, did not believe in this communism; he believed in the sanctity of the individual and
in family life. He criticized Plato’s communism, saying that what is everyone’s business is nobody’s, and that everybody is more inclined to neglect the duty which he expects another to discharge. Aristotle believed also that the individual families were the basic units of the state and essential to it. The state is bettered, he maintained, through the enrichment of family life.

Apparently we have somewhat similar antagonistic theories in modern times. There is a large group of people who say the family is degenerating. They point to the increase in divorce, and to the gross neglect of children; and then they say, “Let the family go; the state can more and more take over the duties of one family, and it will be the school’s function to take over those tasks in which the family fails.”

Contrasted with the above viewpoint is another, held by a group of people who recognize that there is an increase in the divorce rate, and that the family is changing along with the rest of the world, and that the family at times has failed in large measure. But this group would not abolish the family; it would rather study the family, discover the causes of trouble, and seek to remedy them. It would strive in every way to save the family from further disintegration, seeing in it, as Aristotle did, the basic unit of society. These people would even suggest that the school should be more basic in its instruction, placing more emphasis to sex education, educating for the desirability of permanence in the marital relationship, and educating for intelligent parenthood. This
Group would also suggest that it is not so much that the family has failed, as it is that perhaps the school has failed miserably to check the disintegration of family life in failing to see its significance in society and to check its education to meet the needs of the changing home.

There are many who realize the importance and function of the home. President Hoover's White House Conference recognized the place of the home. Paragraph XIII, of the Children's Charter says, "For every child a home and that love and security which a home provides; and for that child who must receive foster care, the nearest substitute for his own home."

Far from feeling that the home has failed and that the school must take over its functions, the school realizes its dependence upon the home if it is to make its maximum contribution. Consider the following statements:

"The present day school is an extension of the home and it is, therefore, logical that home and school should unite to assure a continuous system of education." ¹

Fiske,² in his book "The Changing Family", which has been well received, says:

"Nor is it simply a question of the time evolved. The socialized schedule with its humanizing of the whole educational process has vastly enriched the content of the school program, with real gain in efficiency. But again, this school efficiency is not only a substitute for family inefficiency, but home opportunity. It has robbed the home even though the parents were in collusion. One function after another the modern school has assumed - for two reasons, only one of which is good. It cannot be denied that pride in the school system

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¹ Marion Lyon Faegre "The Home and School, Partners in a Common Venture"
has led some educators to inflate its opportunity; as the Army
and Navy Club stimulates jingoism with its congressional lobby
and thrives on constantly advertising 'the next war'.

A better reason for the ever-broadening functions of the school
is to unify, if not to simplify, the child's daily curriculum
and to give the child a carefully controlled environment under
more or less expert guidance. So long as a vast number of homes
fail to function respectably to the neglect of vast numbers of
children, so long the school must supplement the work of neglect-
ful parents. Hence, the need of the free milk service, the
cafeteria, the school doctor, and the nurse, the medical examina-
tion, and the dental clinic. The educational theory back of this
inflation of school functions is a two-fold one: As the needs of
the child are neglected at home, society must meet these needs
through the school; and there must be unity in the educational
process and environment. This seems to assume both that the
home cannot be taught and made to function adequately, and that
it cannot be induced to cooperate with the school.

We wish to question these last conclusions, and meanwhile remind
our readers that the child belongs primarily to the home, not
the school. The priority of the home's claim and responsibility
cannot be questioned; nor the superiority of the home's influence
when rightly exercised. As regards many of these recently ac-
quired functions, the school can claim to be only a foster mother.
Too many teachers have been called to bat as "pinch hitters" be-
cause fathers have stopped making "sacrifice hits". The pinch
hitting policy may win more games, for the teacher is usually
better trained; but it is bad for the home team to see father
lounging lazily on the bleachers, smoking a "Camel" or eating
ice cream, when he ought to be at the bat. He needs more bat-
ting practice and less dodging when emergencies come."

Faegre¹'s article on home and school co-operation begins with the
following quotation of Ernest R. Groves: "The home is either
the greatest obstacle or the largest assistance to the school."

Later, Faegre² says: "At different stages of the child's growth
school and home will have different obligations. These will
depend on the changes taking place in the child, such as his
development of team spirit, his growing independence, his in-
terest in the opposite sex............Relationship with his parents
is the constant factor in the life of the child. School condi-
tions change from year to year. Only as the parents establish
an understanding relationship with the school will there be a
continuity in the child's experience............Aside from con-
tinued co-operation in matters of health and well-being in
general, there are particular phases of early adolescent life,
of the periods

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1. Faegre, Loc. cit.
2. Ibid. Pp. 11 - 17
just before and after puberty, in which the aims of home and school life should be one. The school cannot without the parents help meet the needs of each child.

The home may aid the school in "educating" the child if it is awake to its needs at different stages. Vocational guidance is a great need at this time. Children want a chance to experiment with different kinds of work. Life purposes may grow out of the hobbies that they are allowed a free hand in. "His own tools, his own corner, his precious opportunity to talk about what he is doing" - these practically every home can, in a measure at least, provide.

Finally Patri says, "Manners and morals are born in the home. Home is primarily the inspiration of character growth. The school has the right to expect that contribution from the home."

It has been suggested that there are two conflicting educational theories which seem to be reflected in modern education: one, of possible Platonic origin, which indicates that, since the home appears to be failing, the school should gradually take over responsibilities of the home; the other, perhaps rooted in Aristotelian theory, holds that the home is an essential and fundamental agent of education and of the school itself, and the necessary basic unit of structure of all society, even to the state and nation.

Either of these philosophies may be held. The particular philosophy accepted will make a great difference as to what the function of education may be.

Some of the possible logical outcomes, if either of these theories is realized, are contained in the following discussion.

The Platonic one will be discussed first. Brownell makes a number of statements which would classify him in this group:

The history of public education is a chronicle between those who have opposed free instruction and those who have

favored these facilities at public expense. Within a
generation the pendulum swung decidedly in favor of free
instruction, free textbooks and free supplies . . . .

If provisions are made for children with academic
defects and for certain forms of physical impairment, why
not extend this service to the correction of such unhealth-
ful conditions as dental caries and diseased tonsils? Will
such a viewpoint lead us in the direction of state medicine? If
this is in accord with the best educational interests of
our children, let it come! . . . .

The educational sociologist asserts that the school
must assume a greater responsibility than formerly in
preparing the individual for society. The influence of
the home, says the sociologist, is disintegrating to a
degree which renders it incapable of performing certain
tasks which have been assigned to it heretofore . . . .

Modern educational principles indicate a greater sig-
nificance being attached to the health examination and
the correction of remedial defects. One solution suggests
that public clinics be operated for those of pre-school and
post-school age, as well as for those enrolled in our edu-
cational institutions. Possibly the school should estab-
lish clinics and educate the child physically as it now
provides for his mental education.

Definite Platonic tendencies are evident in the fore-
going discussion; everything free for the children, state medi-
cine suggested as in line with the educational interests of our
children, establishment of school clinics free to the child and
the expense to be borne by the board of education.

Terman1 is one of the most vigorous and outspoken of
the protagonists of the Platonic theory, as can be seen from the
following:

The first duty of the school is to feed its hungry pupils.
The oft-heard argument that the school has no concern with
the child except to educate him is now an anachronism. . . .

The school is not an unchangeable entity whose functions

1. Lewis M. Terman and John C. Alsmack, The Hygiene of the School
Houghton Mifflin, Boston 1929.
are predetermined and limited by definition. It is fast becoming the recognized agency for every kind of child welfare work, the most effective leverage for raising the new generation to a higher level than our own. As Robert Hunter reminds us, "The world and all that is in it will soon belong to the children now in our schools, and every means is legitimate which can help to make them more worthy to possess it . . . ."

Advocates of school feeding are, therefore, not disturbed by the cry of "socialism." It is no more socialistic than free education, free text books, free pencils, free playgrounds, and medical inspection. It is no more socialistic to heat the child's body internally with food than to heat it externally by warming the air of the school room.

But is not school feeding a species of paternalism which will undermine parental responsibility? Some people are possessed by this pauperization argument. Parents did not lose interest in education when the state assumed control of it . . . .

The only solution of the problem lies in the installation of the school medical clinic for free treatment . . . The only fetish is "parental responsibility."

In the event the pendulum Brownell refers to keeps on swinging in the direction of free utilities and service for children, boards of education will find themselves in the swirl of building clinics of all sorts: dental clinics, surgical clinics, heart clinics, and many others. One kind of clinic can be justified about as easily as another. There are many, however, who fail to see wisdom in the financing of clinics under the schools' budget.

Aristotelian theory would lead us in a different direction. Consider the following statements which seem to point directly to parental responsibility, not as a fetish, but as a real and valuable entity in modern life, and to suggest that the school's

1. Brownell, loc. cit.
fundamental function is one of education rather than of correction or relief.

The White House Conference reports\textsuperscript{1} should be valuable as they represent trends of thought expressing principles and policies which have emerged from experiences in school medical service for more than thirty years.

The school is the universal, the officially accredited, and the strategic institution for organizing and directing the education of the child of school age. These health services which are carried on in the community, primarily for corrective purposes and to protect the community from the spread of disease should be administered and performed by some other agency than the school. Some communities have failed to distinguish between the various functions of the school and health program and have assigned to other agencies than the schools the control and direction of activities that are distinctly and fundamentally educational in character. Such procedure merely establishes other educational agencies in the community where the schools are already established and operated to do such work. This arrangement naturally results in increased cost with confusion in the public mind, and decreased efficiency in dealing with the problem of the school health program . . .

A thorough health examination, one that affords opportunity for real education at the time it is made is fundamental to the whole health program.

Concerning the follow-up program, the same White House Committee goes on to say:

It is the function of the school to correct defects, but it is the function to recommend to the home that attention be given the child by the family physician. It is the legitimate function of the school to advise the home regarding the available clinical facilities. . . . .

Due to financial limitations it is not always possible for parents to have family physicians give treatment for correction of defects. Under such circumstances the school should endeavor to have the work done through some other agency, preferably a community health clinic. If no clinical facilities are provided by the community, the school may take temporary and emergency provisions for treatment, until

\textsuperscript{1} White House Conference, Subcommittee Report on Administration of the School Health Program Section III, Committee C, Century Co. N. Y. 1932.
the community can be led to provide such facilities rather than allow the health of the children to suffer meanwhile. The permission of parents should of course be secured before any action is taken affecting the child...

School health service should do nothing for the child that can be done effectively by the family, unless it is something done primarily to educate the child or his parents. Remedial and curative work should for the most part be left for the family. While the promotion of health is one of the cardinal objectives of the school program, no service should be performed in such a manner that it takes away the fundamental privilege or responsibility of the home in relation to its children.

Whitney\(^1\) very aptly expresses similar views in the following paragraphs:

That all phases of the school health program may make indispensable contributions to the education of the child is being increasingly recognized in the United States by educators. Moreover, it is accepted in theory that activities conducted under school authorities should be educational in function...

Actually in school situations there are many health services and even plans of construction that are not functioning educationally...

The more fundamental difficulty to the integration of the health program lies, not in the outward control, but in the inner impulses which are shaping the kind and quality of service. What philosophy is really dominating the development of our important school health activities?

There have accumulated under the name of "School Health Program" an array of health activities - preventive, corrective, alleviative and promotional - some entirely of a relief nature, some partly relief and partly educational, and some purely educational. In many places the school health program is still considered, by welfare agencies and the public, primarily as an instrument of the community relief program. Such a viewpoint presents a basic obstacle to the satisfactory integration of the health program with the educational curriculum. It is clearly impossible to weld into a coherent, functioning whole, services and activities which not only originated to fulfill divergent functions but also are activated by divergent philosophies.

Where the main purpose of important health activities is relief, educational values not only become incidental and subordinate but also are often impaired and disorganized.

It is necessary to face the situation squarely. In developing health activities in schools are we seeking to build under school direction a program of relief with some educational features or to provide educational guidance in the health problems of life: a guidance based on actual needs, aimed primarily, not at a temporary relief of those needs but at developing within the individual interest, understanding, and capacity to solve his own problems intelligently.

After discussing the increase in recent years of school money being spent for school medical and dental clinics, Whitney goes on to say:

Can absorption in meeting the present need be accepted as justification for neglecting the educational function which is the prime responsibility of the school?

Relief methods are dominated by the spirit of emergency, of doing for others in the most efficient manner, rather than by the recognition that the problem is only solved when we change the basic factors from which the problem sprang.

A relief spirit and philosophy characterizes the type of campaign that seeks an immediate goal and does not reckon the effect of this immediate achievement on the development of the whole, whether it be the child or the school curriculum. Securing immediate results in terms of relief — correction of defects — a change in the immediate picture of the child's condition is given precedence over building for sound future attitudes. Immediate alleviation of a situation is chosen, rather than a development of a less spectacular but more effective long-time program. Such immediately effective methods ignore the more difficult but also the more important goal of developing and guiding the individual to become more capable and willing to assume the planning and direction of his own life.

... I believe the unique contribution of the school lies in its opportunity to provide a guidance of all children during their formative years. ...
Railroading children through a dental clinic every so often is relief work; helping the children to use dental services, to use them to best advantages, to appreciate dental service as an important factor in safe-guarding health, to understand the 'why' and to cooperate with dental advice given is educational work.

Whitney concludes with the following:

Some communities failing to distinguish between the different functions of various health activities have assigned to other agencies the direction and control of activities that are distinctly and fundamentally educational in nature. These agencies accept a responsibility for which they are not equipped, either in personnel or in opportunity for operation.

On the other hand, the schools, taking over in toto health activities organized and developed under relief agencies for purposes of relief, have assumed responsibility for relief measures in the community which they, organized for education cannot administer as efficiently or develop as adequately as the community needs demand.

Always there will be aspects of relief which the school should not ignore and which indeed represent educational opportunity. Guidance in meeting a need satisfactorily is the best type of educational direction, but passive acceptance of relief is not education. Distinctions must be made in educational work between relief work that offers opportunity for educational guidance, and relief work that is primarily the meeting of an economic need of the family as the unit.

For integration there must be identity of purpose, a fundamental like-mindedness in the viewing of the major goal. Without this harmonious and effective functioning of the parts is impossible. I am convinced that our school health program will only become an integrated part of our educational curriculum when its activities are genuinely guided by educational motives.

From England comes evidence of similar lack of integration of health agencies and consequent confusion. Webb\(^1\) says:

It is interesting to notice that the public health Medical Service and the Poor Law Medical Service sprang historically from the same source, namely, the prevalence of disease among the pauper class, and the economy of diminishing it ...

The outcome is in 1910 an admitted overlapping of work, a chaos of authorities, a startling lack of uniformity between district and district, an absence of any generally accepted principle by which the action of the local authorities should be guided, and in our judgment a consequent failure to secure for the enormous expenditure that has grown up on the various branches of the public medical service, anything like the utmost possible return in the prevention and cure of diseases. Not only are the two authorities, who spend the public money and are both acting with reference to the same locality, acting independently and without cooperation, but the town councils and the boards of guardians have absolutely conflicting policies.

It is, therefore, apparent that there are these two conflicting educational theories, and that they are well championed. It is believed that the pendulum has already swung too far in the direction of free utilities and services for the paid for out of the school budget. That policy is making the child dependent on the schools now and on charitable institutions later. It does not help him to make the normal adjustment of going to see his own doctor or dentist periodically or when in need, as he should do in adult life.

In the large cities where most of the school clinics have been built, great duplication and waste is evident, for the cities already have large numbers of hospitals and clinics, and additional school clinics are not needed.

The building of school clinics tremendously increases the cost of education in a community without providing additional

1. Ibid, p. 12.
education which is the school's purpose and function. The addition of these school clinics may mean even less emphasis on education at greater cost. The budget of the board of education should be used to enrich the education of the child; to hire the highest type of teachers; to raise the level of supervision; to further scientific research; to see that equipment is up-to-date; to see that the school plant is so run that the children will be kept in good health, and to see that the schools have adequate play space and facilities and equipment for various athletic sports so that this fundamental phase of education will not be neglected.

Even though state medicine does come, as so many think it inevitably will, its coming will not throw the burden of correction on the school but will set up more economical and practical techniques for insuring the correction of the physical defects of school children through other social agencies than the school, although the latter may be the discoverer and instigator. The Committee on the Cost of Medical Care in Washington is making fine studies of ways and means of reducing the cost of medical care.

It is believed that the implications of Aristotle's theories are more wholesome for our society:

That the family is the fundamental unit of the state and that it is also of primary importance in the education of the child. The school also is largely dependent on the home for its success.

That the family has not failed entirely but that it is going through a process of evolution to meet the needs of the
present civilization. That the school has failed to understand the family's changing situation and to meet its present needs. That the school should put more emphasis on educating all to the importance and value of the family and in making a greater contribution toward intelligent parenthood and permanence of marital relations. The school must be more aggressive in furthering and promoting its colleague, the home.

That parental responsibility is not a fetish, as has been stated, but a very real entity which is essential if the home is to contribute what it should in the education of the child.

From what has so far been said it might seem that the drift of this discussion was entirely against the school's having anything to do with the correction of physical defects. This is not the truth. Probably the school should aid in the discovery of the defects and then make sure that the parents or some other agency really makes the correction. Franzen¹ says:

Education is more than the building of mental reserves to cope with future problems. It is concerned with the present as well as the future. It deals with child life as well as citizenship. For that reason it must be concerned with correction of defects directly. It does not need itself to perform the correction but it has the obligation to instigate it and to supervise it.

The school must know the condition of its pupils and must educate them to seek intelligent correction from proper authorities.

Intelligent self-direction is an aim in education much talked about and most deserving.

1. Raymond Franzen, Research Director of the American Child Health Association. From a statement made concerning the responsibility of public schools toward the correction of physical defects.
Kilpatrick\(^1\) says:

We must free our children to think for themselves. Anything else is not only to refuse to accept the facts as to the unknown changing future but is at the same time to deny democracy and its foundational demand that we respect other people, even our own children.

Kilpatrick\(^2\) also stresses the undesirability of creating dependence among children, for he says:

We have to do with growing characters. We must help them grow. How much stimulation and suggestion and direction should come from us? How can we tell? The test is what is learned. If our suggestions make any child to grow in dependence on us or in aversion to us, then we are probably overdoing our active part.

Intelligent self-direction on the part of the students can never result from free school clinics for all school children.

**F. Summary**

State constitutions have little to contribute as to the school's function. They simply say in various ways that the states must promote their educational interests by establishing and maintaining schools.

Various educational philosophers and national and state educational associations have listed educational objectives which have been of value in discovering the school's function. In this particular study the accepted definition of education is, "Education, from the standpoint of the school, is the organization and leadership of children in selected activities

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which will stimulate them to make changes within themselves resulting in their progressive integration in an ever-changing world to the extent of their native capacity."

It was also brought out that the school should educate the whole child by developing intelligent interests, informations, and impulsions concerning health and physical efficiency, as well as by developing the other curricular subjects.

It is the school's responsibility to ensure that the physical environmental factors of its various teaching situations facilitate its function of education.

Two conflicting educational theories originating with the Greek philosophers Plato and Aristotle are found to be reflected in the philosophies of modern educators. The implications of each of these philosophies were discussed in some detail. It was noted that what is conceived to be the function of the school will depend upon the particular educational philosophy accepted.
CHAPTER VI
CRITERIA CONCERNING THE RESPONSIBILITY FOR THE HEALTH
OF THE CHILD

A. Consideration of the Home’s Case

Intelligent parents accept the responsibility for the lives of their children even before the children are born. A child is born into the home. The parents assume all financial obligations for it. The child is utterly dependent upon his parents for food, for clothing, for cleanliness, and for all its care and protection. Sick children are put to bed at home, and parents either assume the responsibility for their care or the financial burden of the nurse’s or doctor’s care. In the case of contagious disease the child is quarantined at home. In fact, so much do most mothers consider the health of their children as their responsibility that they voluntarily place themselves in quarantine with them to give them the best of care.

Intelligent parents withhold a child from school and keep him at home if they believe that he has a cold or is unwell. Less intelligent or less observant parents have their children sent home from school when school authorities become aware of sickness in the children.

The school recognizes the authority of the home’s responsibility for the child’s health when it reports to the parents various physical defects of the child discovered in the health examinations.
Children of all ages, up to the time they are of legal age and leave home, are glad to make their homes their headquarters whenever they are ill.

It would seem that only in the cases of indigency or neglect of the parents have other agencies the right to take over the responsibility for seeing to it that needy children have their defects corrected.

Primarily and fundamentally, then, the responsibility for the health of the child rests with the parents.

B. Consideration of the School's Case.

As has been previously pointed out in Chapter V it is the school's function to see that the various factors in the school's environment, both physical and social, contribute to the child's best health. It would seem to be true, then, that the school is responsible for the health of the child to the extent that the environment of the school, both physical and social, affects the health of the child while he is at school.

If school authorities will allow children to come to school who have been exposed to certain contagious diseases it would seem to be the school's responsibility that resulting diseases are spread. The school also has a responsibility in preventing the development of colds by eliminating drafts in the school-room and wet and muddy areas on the play-ground. If a school administrator fails to have a piece of apparatus repaired on the play-ground or in the gymnasium which has been reported in writing by the physical education teacher as unsafe, the
administrator is held legally responsible for any accidents which may result from this neglect.

Since the school's function is education it has the further and more fundamental responsibility of teaching safety-education and health-education as a means of preventing accidents and promoting the health of the pupils.

Recently it has become more and more evident that still another function of the school is that of providing for adult education, education of the parents in the home, and of prospective parents. Parental education is a problem of vast importance. One of the main reasons for the difficulty is that education has not been adequate in the past for children who are now parents. Earlier institutional education was not closely related to the interests of pupils, and therefore did not have wide-spread carry-over into the home and other institutions of community life. Still another reason for our present problem is that since earlier institutional education failed to develop individuals who were intelligently self-directing, as far as taking care of themselves was concerned, it is natural that its products, as parents, do not know how to cooperate with the school in making their offspring intelligently self-directing and able to take care of themselves.

It can readily be seen that cooperation between the home and the school in the common venture of contributing to society the highest type of boys and girls possible is the goal which will be most productive of the best results.

If those at home would only be as intelligent and as observing as they should be about detecting and taking care of
the defects of their children while they are in the pre-school period, the majority of the physical defects which crop out in children during the school years would be prevented. The White House Conference Report of the Subcommittee on Cooperation of Home and School has much interesting material on this point and a few pertinent lines are here quoted:

To allow children to be 'brought up' through the six most important years of their lives by totally uninformed parents or guardians is to deliberately sow the seed for a harvest of problems of health and behavior, and to depend upon cure rather than prevention for their solution. An example may be found in the report of the 1929 health campaign of the National Congress of parents and teachers known as 'The Summer Round-Up of the Children.' The examination of 56,865 pre-school children from a cross-section of the homes in forty states showed 109,606 remediable defects demanding correction before the children could be considered 100 per cent fit to enter school and take full advantage of what it has to offer them.

The home and the school must cooperate and help each other and there are countless opportunities for them to do so.

C. Summary

Primarily and fundamentally the responsibility for the health of the child should rest upon the parents.

The school must see to it that its environmental factors are such as contribute to the best health of the school child.

It is also the school's function to educate the child as he develops in such a way that he may be able intelligently

to take increasing responsibility for his own health to the best of his ability and resources.

The cooperation of the home with the school and of the school with the home will greatly facilitate the successful culmination of their joint objective; intelligent self-directing citizens produced from the raw material, children.
CHAPTER VII
CRITERIA CONCERNING HEALTH EXAMINATIONS
AND OTHER MEDICAL SERVICE

A. The Status of Health Examinations

The health examination is the basis for any attempt at follow-up work of any kind, and especially for the correction of physical defects.

There are many objectives for the health examination. Some of the main objectives are as follows:

To discover cases of communicable diseases in the early stages so that precautions may be taken which will prevent their spread to other children and the rest of the community.

To reveal the condition of children so that they can be classified according to their development and placed in physical education classes suitable to their needs and capacities.

To detect the presence of physical defects that can be remedied by medical, surgical, dental, or other treatment in the early stages and so render the child free to learn without such handicaps as defective eyes, ears, nose, throat, or teeth.

To reveal the condition of the child to himself and thus furnish an effective occasion for health instruction of a personal and practical nature.

The last objective relating to the use of the health examination as an educational opportunity is the core of Lloyd's remarks in the following quotation:

We desire that a student shall have a self-initiated interest and approval. It is obvious that the problem of examinations effect very definitely the establishment of these incentives.

On this question the White House Committee Report states that tests and examinations 'are of value primarily in helping pupils to understand themselves, their progress in learning, their limitations, and in enabling teachers to determine the efficiency of certain methods of study and instruction'.

The health examination offers many opportunities for the child to learn much about himself and to establish or initiate incentives toward a better condition of his health. It also helps the teacher to understand the child. Many children give false impressions of slowness and dullness because of poor eyesight or impaired hearing. Such unjust impressions work great harm to students, harm which could have been prevented had the educational opportunities of the health examination been fully utilized. A more extensive list of health examination objectives, a list which bring out additional educational opportunities, is in the report in the Appendix: "Expert Opinion on the Administration of Individual Corrective Activities in Public Schools." (p. 434)

There is pronounced lack of uniformity in the administration of health examinations throughout the country. Clark and Collins¹ state that school medical inspection is as a rule carried on by the state department of education cooperating with the state department of health or with the local health authorities through the local school authorities and that medical inspection laws are either permissive or mandatory. On this latter point they say:

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The law for school medical inspection is mandatory or permissive, depending on whether the designated authority is required to establish a system of medical inspection or whether it is merely permitted to do so. The law makes no reference as to whether or not the child is required to submit to physical examination. The law may merely require the teacher to examine the nose and throat and yet be classed as mandatory in as much as an examination is required.

In a study made by the present investigator, "A Report of Administrative Procedures of So-Called Corrective Activities in American Public Schools" (Appendix, pp. 369), it was found that of the 2935 schools making replies, eighty-six per cent. were giving health examinations. However, the quotation above makes one question the thoroughness and effectiveness of these wholesale examinations.

On the present legal status of health examinations the White House Conference makes the following brief remarks:

Thirty-seven states have laws regarding the medical inspection of school children, and two require in addition the examination of teachers for communicable disease, and three the dental examination or treatment of pupils. These laws present a great variety of provisions mandatory or permissive, and many of them could be improved.

This great variety of ways and means of administering the health examination—some through state agencies, and some through local agencies—and the fact that even the mandatory medical inspection laws may mean an examination of only the nose and throat, indicate a need for radical changes in these procedures. Additional problems which emphasize this need will

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be briefly discussed.

There is evident in too many places a lack of thoroughness in conducting the health examination. In some places doctors are not permitted to remove the clothing of the children in order to make a complete examination, and in other places where the doctor is permitted to do so he does not. That clothes "cover a multitude of sins", is a true statement. In addition, there is the fact that many times, particularly when the battery system of examinations is used, children are rail-roaded through so fast that the doctor's diagnosis is apt to be quite superficial.

From many conferences with individuals in a position to know, as well as from observations made personally by the investigator, it was gleaned that many of the school physicians of certain communities are not qualified for the responsibility they have shouldered. It has been found that some physicians, unable to make a living in the regular practice of medicine, have landed these salaried school positions through politics and by other means. Apparently the community has taken the attitude that the services of one very finest and most expensive physician should be available for old men and women, but that any kind of service is good enough for children. It is often the case, however, that the best physicians do not have time to give health examinations to children at school. The best physicians, those with the most prestige and reputation, are often very irregular and prompt in keeping health examination appointments at school buildings, and many times after they arrive and start making examinations they are
interrupted by calls that take them away after a very short
space of time.

This problem leads to another one, namely, that the health
examinations drag on throughout the school year and are not
completed in sufficient time to be of much use. It is impos-
sible to conceive of an efficient corrective physical education
program for individuals if the school year is over before one
knows which children are in need of attention. According to
a White House Conference Committee Report, there is a fair
percentage of cities insisting that children be examined be-
fore their entrance into the public schools, for the report
says: "About thirty per cent. of these cities report the ex-
amination of children before entrance to school, but in only
a few of them does the number examined approximate 100 per
cent."

In view of such weaknesses in the administration of
health examinations, it is hoped that many of these inefficien-
cies in health examining procedures may be eliminated in the
future.

Some technique for the development of cooperation between
the board of education, the board of health, and the county
or local medical associations would seem essential to aid in
the prevention of jealousy and duplication of effort.

There is no point in giving health examinations at all
unless they are thorough and mean something.

The very best of available diagnostic physicians should

1. Ibid., p. 35.
be secured for the examination of school children.

The health examinations should be given before school begins and should be a requisite for registration. The physical education teachers and other teachers should have the physical examination records available so that they can better understand the children with whom they work and play by knowing their condition. They will be able to read and understand these records and can interpret them to the teachers if necessary. The physical educators, knowing the condition of their pupils, will not ask them to do things that are unsafe for them. They can classify them into homogeneous groups and adapt programs to meet their needs.

It seems doubtful whether the battery type of physical examination ever can bring out to the utmost the educational opportunities inherent in the examination. There are always other children waiting in line for their turn. The doctors do not feel that they can take the time of these children to explain things to any child in desirable detail. Neither is the hurried atmosphere one in which children will feel free to ask questions.

B. The Relation of the Physical Educator to the Health Examination

From about 1890 on, most of the great leaders of physical education in this country were physicians who were well able to give thorough health examinations to their students. As time went on, and as more and more emphasis was being placed, rightly, upon education as the proper area for a
physical educator's specialization, physical education directors have concerned themselves more with the organization of the health examinations, and have turned over to outside physicians the business of actually examining the students, although they have helped in certain phases of the examination for which they were well trained.

However, it is not yet settled, who can best head up or co-ordinate the three phases of the physical education program, namely the activity phase, the health instruction phase, and health supervision. Rogers\(^1\) says that the best qualified person in the school, whoever he may be, Principal, nurse or physical educator, is the one to head up these three phases. Hetherington\(^2\) insists that the Director of Physical Education, if properly trained, is the logical person, for his training definitely includes work in health supervision, supervision of the activity program, and the teaching of health or hygiene. The Physical Educator is primarily an educator, and the job is one primarily for an educator. Physicians have failed because they were not trained as educators. They are specialists in health supervision, medical inspection, etc., but the physical educator is trained in health instruction, in the activity phase, and in health supervision, and, even though he does not actually examine the children, he has a good over-view of what it all is about and can organize the health examination procedures and see that things run smoothly for the doctors whose help he has enlisted. Then too, in communities where schools may not have medical men available for the health examination of school children,

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1. Frederick Rand Rogers, Director of Physical Education, Boston University, Boston, Mass, in a verbal conference.
2. Clark W. Hetherington, New York University, School of Education, New York City, in lectures in "Principles of Teaching Health".
the physical educator’s training is such that he can give a good screening type of examination at least, and can select from the large group those who should receive the attention of a medical expert.

A study of administrative procedures of so-called corrective activities in American public schools revealed that in fifty percent of 2,935 schools answering the questionnaire, the Director of Physical Education or one of his staff, was present at the time school health examinations were given.

The presence of the Physical Educator at the time of the health examination has advantages even though he does not make the examination. He has the opportunity to ask the physician questions about the advisability and amount of physical activity desirable for certain students. Further, the physical educator is then in a better position to talk to parents about the condition of their children and to interpret to them many of the findings of the physician.

Concerning the Physical Educator’s relation to the health examination and health service, Lloyd gives the following:

The Physical Educator, then, must be:

1. Examining expert
   a. In certain items of physical education
   b. In gross organic power and neuro-muscular skill.

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1. See Appendix, p. 364
(2) Inspectional expert in the gross health deviations
(3) Interpreter of the findings of other experts in general intelligence (interpretation) and emotional status
(4) Expert diagnostician in the determination of the needs of individuals for physical education activities
(5) Prescriptive expert in physical education activities for the middle groups of the distribution curve

A further important function of the physical educator with relation to health supervision, is the training and supervision of the class-room teachers to detect signs of abnormality and disease in their home-room children, and also to train these teachers to conduct in their classrooms a rough "screening" type of health examination.

It is, then, quite evident that there are responsibilities for the department of physical education as far as the supervision of the health examination is concerned.

C. Additional Types of Medical Service

The health examination is of course classified under medical service of the school, but it was made the subject of this chapter because of its tremendous importance in relation to the particular problem of this study. The health examination is one of the bases for the selection of educational procedures for children with physical defects, just as it has always been the basis for determining the corrective procedures necessary for correcting the physical defects of school children.

With regard to medical service, the White House Conference

stated:

The objectives of medical service in schools are the avoidance of preventable disease, and the development and maintenance of healthy bodies and minds. The following activities lend themselves to the attainment of these objectives:

Annual health examinations of all pupils;  
Follow-up service for the correction of all remedial defects discovered in the health examination;  
Control of communicable disease by cooperating in the daily health inspection of pupils for signs of health disturbance, excluding all pupils showing signs of acute illness, and by promoting immunization;  
Guarding against unhealthful overactivity, and modification of individual programs when physical condition requires;  
Direction of special services for handicapped children;  
Cooperation in the adjustments of exceptional children;  
Certification for work permits;  
Cooperation in maintenance of sanitary school plant;  
Advice on the hygiene of the school curriculum activities;  
Cooperation in the health education program;  
Advice regarding the health of the school personnel, teachers, janitors, cafeteria employees.

Many of the types of medical service mentioned are inextricably woven into the educational procedures for children with physical defects, which is the problem of this study, and which therefore will receive emphasis in many different parts of this study but particularly in Part IV (pp. 26-30) which deals with the application of the educational procedures in the school program.

The study is not primarily concerned with phases of the medical service not closely related to it. It would seem, however, that throughout the school day service of the following nature should be available:
Re-examinations of children requiring such;

Supervision of the follow-up program (this would include educational procedures within the school and corrective procedures outside of the school);

Supervision of such environmental factors affecting the health of students and teachers as heating, lighting, ventilation, and sanitation.

The agent carrying out these services might be any physician whose office is located close to the school; he might be a particular physician, located in a nearby hospital or clinic, who could send his assistant or a substitute when he himself was not available; he might be a special school physician with offices in the school itself; he might be a school nurse or a member of the physical education staff, or some other qualified person on the school faculty. One thing is certain: it is the school's responsibility to see that these services are carried out by agents that are competent.

C. Standards

It is felt that there is a definite need for certain minimum standards for the administration of the health examinations in the public schools. It is suggested that the following standards be given careful consideration:

1. Every school child should have at least one thorough health examination each year.

2. The examination should include as a minimum the checking of the following items:

<table>
<thead>
<tr>
<th>History</th>
<th>Nose</th>
<th>Heart</th>
<th>Hernia</th>
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<tr>
<td>Eyes</td>
<td>Throat</td>
<td>Nutrition</td>
<td>Spine</td>
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<tr>
<td>Ears</td>
<td>Neck</td>
<td>Lungs</td>
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<td>Teeth</td>
<td>Lymphatics</td>
<td>Abdomen</td>
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<td>Genitalia</td>
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</table>
3. The school should require school children to have completed their physical examinations before allowing them to engage in the physical education program of the school.

4. The health examinations should be completed at the latest by the week before the opening of school in the fall and should be a requisite for registration.

5. Physicians giving school health examinations should first have the written approval of the board of education, of the board of health, and of the local or county medical association.

6. It should be the function of the school to see to it that such standards as the above, if once established be lived up to to the letter. If a community does not have such standards relating to school health examinations, it is the school's function to take the initiative and so educate their community that eventually such standards will be set up. The school, the community's organ for institutional education, must be alive to its needs.
CHAPTER VIII
CRITERIA CONCERNING THE CORRECTION OF PHYSICAL DEFECTS

A. Definition of Correction

Correction as dealt with in this study is such beneficial changing of an individual's physical condition as can be accomplished only by an human agent external to the individual. The individual may or may not submit to it willingly but he has no active part in the accomplishing of the change. The external human agent accomplishes a desirable change in the individual which the individual could not have achieved himself.

Correction makes the child better able to profit by education, or fits the child to participate in educational processes on a higher level.

It is true that much of the so-called corrective work conducted in the schools in the past by physical educators for children with functional deviations of feet and spine has been entirely educational in character and not corrective according to the definitions listed in this study. This instruction by physical educators involves the development of interests and informations concerning the child's defects, demonstrations of exercises which will improve the condition specifically and generally, and supervision of activities while the child carries them out, to make sure that he is learning them accurately. The physical educator also teaches the ways of standing and walking that give the least strain on the arches of the feet,
and suggests proper footwear, etc. These procedures are clearly educational, for the child himself makes the changes under the guidance, stimulation and inspiration of the teacher (See definition of education, p. 5).

B. Responsibility of the Home for the Correction of Physical Defects

The statement was made in Chapter VI (p. 55) that primarily and fundamentally the responsibility for the health of the child rests upon the home. If this statement is true it can be seen that the question of the responsibility for the correction of the physical defects of children is closely related. When physical defects of pre-school age children are called to the attention of the parents, the parents alone make the decision as to what shall be done about it. They either decide to let the family doctor or specialist make the corrections, or they decide to let the defects go, thinking that maybe the condition will disappear or that at a later date they will be in a better financial position to pay for the needed treatment. At any rate, parents recognize that correction of the defects is their responsibility. Of course the more intelligent and better informed parents will have the defects attended to if at all possible and as soon as possible and will make many sacrifices to this end.

Physical defects noted in school, either at the time of the health examination, at morning inspection, or on the playground, will be recorded at school and reported to the parents concerned. The school tradition would not indicate that the
school immediately undertake to correct the defect, particularly a serious one. The school recognizes that the parents are responsible for the care of their child in this matter.

In the event that the parents of children with physical defects are indigent and cannot afford the medical care essential for correction, there is little the home can do but appeal for help to some community agency. If a public health nurse or district nurse becomes acquainted with the case, she will study it, find out whether it is a worthy case, and then will help the parents to get the child into the hands of the doctor, hospital, or clinic, which can give the surgical or other treatment necessary for correction.

Correction all the way along is fundamentally the responsibility of the home until the child becomes of age or self-supporting. If indigency on the part of the parents causes a neglect of the condition, the case becomes a responsibility of the community.

C. The Relation of the Board of Education to the Problem of the Correction of the Physical Defects of School Children

According to the definition of correction accepted in this study analysis will show that the schools rarely if ever have indulged in the correction of the physical defects of school children. They have of course conducted a few educational procedures for some of the least serious physical defects, such, for example, as posture. In the case of posture, either the school nurse or one of the physical education staff has prescribed and taught certain exercises thought to improve
the posture of children. But these were educational procedures, not corrective, although they were called corrective. These exercises were supposed to improve the child's condition. Whether they did improve the child's condition or not was problematical. Nevertheless, if the condition did improve it was because the children themselves did something about it, namely, participated faithfully in the activities prescribed, and their improvement, if improvement was possible, was in direct proportion to their own efforts.

One might wonder why so much discussion of correction if the school hasn't really been carrying it on in the past. The future, however, is the concern of this study, and there are two major possibilities which are definitely related to the two conflicting educational theories of Plato and Aristotle mentioned in an earlier chapter (Χρονο-37). Both of the two possibilities of the future involve an expansion of the school's program. One possibility, however, would follow a trend popular with some and introduce into the school the element of correction of the physical defects of school children which is the home's responsibility fundamentally and would pass from the home in case of indigency to community agencies specially designed for the correction of defects, so that if the school takes over this new function it will mean tremendous added expense and sailing into unchartered waters.

The other possibility involves an expansion of the school's program from within, not an annex from without. It will involve a deepening and an enrichening of the school's unique
function of education. It will mean that educational activities always present in embryo will develop into full fruit rather than remain as in the past undeveloped, stunted "stumbling-blocks". It is a question of the school's fulfillment of itself in a way far surpassing past achievements. It is a question of the school's taking inventory of itself and then making sure that all of the implications of its function of education are realized. Briefly, it is a matter of the establishment of educational procedures for children with physical defects. It will not require great expense but probably a gradually increasing expense, increasing in proportion to its sensing of future opportunities of expansion from within.

One of the interesting things about school superintendents who are exponents of the expansion by annexation of the function of correction possibility is that they are apparently interested only in seeing tangible results. They will point with pride to their long lists of figures showing the number of thousands of teeth of school children that have been cared for in one special school dental clinic. The details of their real task of educating the children of the community, however, may not be so clear to them. They would probably be "hard put" if they had to give examples as to how their school systems were attempting to fulfill the educational objective of making children more independent, less dependent on parents, teachers, and the state, after they leave school. (Of course it looks well in the papers to see that such and such a principal has corrected so many dental conditions at his school.)
Chayer\(^1\) makes some interesting comments which throw some light on the thought processes of these superintendents. She says: "The general public still likes the emotional uplift of doing something for the 'unfortunate' but the unfortunate asks only an opportunity to do things for himself."

Since this is true of the public would it not be worth while to let the public, through its various community health agencies and service clubs, raise the money for the correction of the physical defects of children of indigent parents? The appeal to the heart is strong and the response is usually adequate. Surely this would be a simpler and better way of raising the money than to pack the needed funds for the building and maintenance of special school clinics into the already high school budget. It is likely that people will have to be educated to gradually increasing budgets as the school's program expands from within, but the overwhelming burden of an annexation to a budget, in order for the school to take over a task in which other community agencies are the experts and are equipped to carry on, does not seem intelligent. It would seem the school's function to pay more attention to doing ever more efficiently its unique and strategic task: to educate the community.

Correction of the physical defects of school children is a health service, and if the parents (who are responsible for such correction) cannot afford to give their children this

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service through the medium of private physicians, the service should be rendered by the municipal health authorities, or by the best fitted agency outside of the school. In the event that there are no other agencies better fitted than the school to correct these physical defects, it is conceivable that the school would be justified in correction until such time as it had been able to educate the community to the point of providing adequate facilities for correction of physical defects of children of indigents. Therefore, it would seem that it is not the function of the board of education to correct the physical defects of school children. The corollary to this statement is that it is not the function of the department of physical education to attempt the correction of the physical defects of school children. This is true because physical education is primarily and fundamentally educational; its objectives are fundamentally the same as those of general education, and it is definitely a part of the educational curriculum under the direct administration and supervision of the various principals and school superintendents.

D. The Medical Profession

It is well recognized that the function of the medical profession has always been to diagnose and to treat surgically, medicinally, or otherwise, those patients who put themselves under its care or who are placed in its care by parents, guardians, friends, or the state.

In recent years prevention has been increasingly important in the mind of the public, and the better doctors have always
been glad to discuss with patients means of preventing the particular ailments from which they suffered. Medical men as a whole, however, do not yet feel this responsibility to any great extent; they rarely volunteer advice of a preventive character. Of course, many doctors are probably too busy with a specialist's practice to volunteer much advice.

Anderson¹, in arguing against state medicine, has some interesting statements at this point:

> It is not the function of the medical profession to maintain lobbies or to endeavor to secure public health measures by political methods. The true function of the medical profession is to advise the people, to show them how to protect themselves. The doctors' mission is to be a teacher and not a political manipulator.

It is certainly the doctor's mission to diagnose and to treat disease and other pathological conditions; whether it is also his mission to be a teacher or not is not yet clear, but he has also many opportunities to serve by giving advice of a preventive character and he should more and more utilize them. There are certain groups of physicians practically all of whose work is of an educational character. In this class are those teaching in medical schools and hospitals, those training medical students and nurses, those engaged in the educational program of the American Red Cross, and particularly those physicians giving all or a large share of their time to the health service of the public schools. These last will be especially discussed.

A great deal has been spoken and written about school

physician as such, but relatively few schools have full-time school physicians. Such health service as is required by the public schools does not need the constant attendance of a full-time physician, and it would, therefore, be uneconomical to have one. The public health nurse with part-time assignment to the school in her district can handle a tremendous amount of the necessary school health service needs. The physical director and his assistants will have a large share and the school principal and others as well.

The best physicians will not feel able to give full-time to the health program of a school or school units alone, so it is not likely that the majority of school physicians will be of a high order. Wilkes\(^1\) feels that one good answer to the question would be hiring the best physicians possible for short time assignments, perhaps one-half to one hour daily. This would be economical and the school would be having the best. In case the doctor could not arrive on a particular morning at the scheduled time he could send his assistant.

The school doctor will have several duties. Manifestly the control of contagions will be one of the duties of the school doctor, and medical inspection will of course be another. If corrective physical education is attempted, medical counsel and supervision will be necessary. The school physician would periodically inspect the sanitation and the hygiene of the school plant. All of these things depend upon the particular organization of the city, and whether special school physicians

\(^1\) LeRoy A. Wilkes, Medical Director of the American Child Health Association of America, 450 Seventh Ave., N. Y., in a personal conference.
or other systems are utilized.

Moore\(^1\) has much to contribute; he says:

A review of the development of school health programs during the last ten years impresses one that often it has been out of the hands of sound educational guidance and frequently without judicious medical advice. It is not surprising, then, that there should be little standardization and that fundamental principles have been slow of recognition and acceptance. . . .

In introducing the discussion of the function of the physician in the school, he goes on to say:\(^2\)

This discussion is based on the fact that the school is an educational institution and not one of relief. Other organizations should assume responsibility for relief and medical treatment. It is further presumed that all medical service rendered the school should be for compensation. Every proposed activity in a school health program should be appraised for its educational values before being put into practice. Medical guidance is eagerly sought by educational authorities; but, we, as counselors, must be willing to have our proposals closely questioned for their real values. The most essential quality for a physician who would encourage this program is the preventive point of view.

Moore distinguishes between medical inspection and health examination. The former is a quick affair, probably making use of the battery system, and the latter is\(^3\) much more comprehensive and detailed examination. Relative to medical inspections, he says: \(^3\)

We do not advocate an annual medical inspection at school. That lessens the educational value to the parent. We repeat it every third year and teach that it should be done annually as a parental responsibility. In other words, the outstanding educational objective of the school medical inspection should be the periodic examination on parental responsibility.

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1. Fred Moore, Responsibilities of the Medical Profession in the Health Program of Public Schools, The Journal of the American Medical Association, April 12, 1930, pp. 1109-12.
2. Loc. cit.
3. Loc. cit.
A brief summary of this chapter would suggest that correction as defined in this study is not the responsibility of the board of education or of the department of physical education but rather of the home. If the home cannot assume this responsibility because of parental indigency, correction becomes a community problem, best handled by other agencies than the school, whose unique function is education. Correction of physical defects is, however, the function of the various branches of the medical profession.
CHAPTER IX
CRITERIA CONCERNING COSTS

A. Costs of Medical Care

The question of the cost of correcting the physical defects of school children and the cost of constructing special school clinics of one sort or another is tied up with the general problem of the cost of medical care. If in some way these costs could be made much lower without loss in quality of medical service given, there would be fewer parents of school children on the indigent list, as well as a generally increased standard of health. Armstrong\(^1\) said in a recent speech:

> The problem of assuring adequate medical care to all of the people at an attainable cost and by an equitable procedure, in a manner that will enhance the practice of preventive medicine, insure the economic and scientific integrity of the practitioner, and improve the health status of the population, is one that calls for the greatest degrees of imagination, cooperative enterprise, and leadership upon the part of every physician and of organized medicine in general.

Probably the best authority on the costs of medical care as far as the American people are concerned is the final report of a committee\(^2\) that spent over five years studying this particular problem. One of the recommendations of this committee

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2. Committee on the Cost of Medical Care, Final Report, Medical Care for the American People, University of Chicago Press, 1932, pp. 109-10.
is as follows:

The committee recommends that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician.

By an 'organized group' the committee understands a group which is so organized that each professional person in it is responsible to the group for the quality of his work rather than solely to himself.

To carry out this basic recommendation the committee proposes the following specific steps:

IA. Community Medical Centers.—The committee's most fundamental specific proposal is the development of suitable hospitals into comprehensive community medical centers, with branches and medical stations where needed, in which the medical professions and the public participate in the provision of, and the payment for, all health and medical care, with the professional aspects of the service under the control of professional personnel. . . .

The committee over and over again refers to the value of preventive work on the part of the medical profession, and of the lay public as well, in lessening the costs of medical care. The following statements illustrate this point:

Through the prevention of disease further increases in the total cost of medical care can best be avoided. Moreover, physical and mental suffering and other personal and social costs which cannot be measured in monetary terms are often caused by diseases which might be prevented.

The key to prevention of disease is education. The medical man has one of the best opportunities for educating the

1. Ibid., p. 42.
public that the community offers. People come to the doctor with very definite problems of personal health. They are interested in their condition of health or in the health condition of someone dear to them. They thus represent the best "culture" or medium for the growth and development of wholesome hints or suggestions concerning the care of the body and prevention of disease. The doctor should be a better teacher than he is, and should take more time to make suggestions of a preventive character. The committee on the cost of medical care states in its fifth recommendation:

The committee makes the following recommendations in the field of professional education: (A) That the training of physicians give increasing emphasis to the teaching of health and the prevention of disease; that more effective efforts be made to provide trained health officers; that the social aspects of medical practice be given greater attention; that specialties be restricted to those specially qualified; and that post-graduate educational opportunities be increased; . . .

Medical men can help in educating the community by general lectures and radio-talks and by talking before parent-teacher groups.

The school, however, has a still more strategic position in the educational process. Education is the school's supreme function. The child is in the school approximately five days a week for five hours a day for twelve school years. Surely that would seem time enough for the child to learn something about the laws of personal hygiene, yet scarcely half of the students taking freshman hygiene in the Ohio State University

1. Ibid., p. 138.
report that they studied hygiene in the public schools.

We have been living in an age that has witnessed the spending of millions of dollars yearly for such institutions as jails, asylums for the insane and feebleminded, and homes for soldiers and sailors. It would seem high time we left that age behind and pushed on to an age willing to spend some time and money in the prevention of crime, insanity, feeblemindedness, and war.

School superintendents can well afford to stop and consider the expansion of their program from within, to the extent of providing adequate health instruction (adapted to the ages of the various grades) with a view to the prevention of disease, before allowing themselves to launch forth on an expensive program of correction and special school clinic construction. Prevention through education should be the concern of the school, not correction.

B. Costs and Inadequacies of Special School Clinics

In the event that the superintendent of schools in a particular community contemplated the possibilities of adding to his school system the function of correction of physical defects of school children, he should seriously consider the cost. It would probably mean the construction of a special clinic of some sort—perhaps of a dental clinic. Possibly one or more rooms in one of the school buildings could be made over into the clinic. At any rate the clinic would have to be furnished with special equipment so that the technical procedures essential for the correction of particular defects
could be carried out.

It will not be necessary to give the entire set-up and cost for the correction of each of the various physical defects which children commonly exhibit. The approximate set-up and cost of the apparatus for the correction of a few of the defects will be sufficiently suggestive.

One of the most common types of special school clinic is the dental clinic. Concerning its cost a publication of the Metropolitan Life Insurance Company states:

The cost of operating a dental clinic varies of course, with the extent of the equipment and the size of the staff. The cost of a chair, including cuspidor and engine, and of instruments is about $1500.00. This does not include the cost of X-ray equipment for dental work which would be approximately an additional eight hundred dollars. Record forms would call for a further slight outlay.

According to this, the initial cost of a small but fairly complete dental clinic would be somewhat over $2,300.00. This amount would pay the salary of a very high grade full time teacher for a whole year or furnish sufficient equipment of games and sports for a physical education program for the same period.

Clark and Butler give a very complete list of the equipment needed in a clinic for the correction of dental defects.

This material has been placed in the Appendix (p. 355).


From an X-ray specialist the following prices were secured:

A complete X-ray laboratory with all the modern electro-therapy machines would cost about $20,000. The minimum one could expect to pay for equipment in order to start out as an X-ray specialist would be $5,000. In addition to the installation costs, are numerous small but very expensive and necessary parts of the X-ray equipment which are needed for general upkeep. For example, one can never tell when a valve-tube might have to be replaced or when several might be needed. One valve-tube alone costs $150.00 and if four were kept on hand for an emergency there would be $600.00 tied up in tubes alone. Other parts of the X-ray which constantly or periodically have to be replaced are likewise expensive.

Turning now to probable costs of space and equipment for a school eye clinic, studies of the Metropolitan Life Insurance Company are again of value and from them is quoted the following:

The oculist in charge (of the eye clinic) would naturally be consulted as to the equipment needed, but for general guidance, the following will give an idea of what is available:

**Illuminated test chart cabinet.** - Metal or wood cabinet with Snellen test letters backed on illuminated opal glass. Illumination is controlled by a switch so that each line can be lighted separately if desired. The whole unit is set up on an adjustable stand. Cost $50.00 to $100.00.

1. From conferences with a specialist in use of X-ray, Jamestown, N.Y., 1932. (Charles W. Dodge)

2. Metropolitan Life Insurance Company, Industrial Health Series pamphlet No. 4, "Functions of an Industrial Eye Clinic."
Various types of more elaborate units may be obtained if desired, such as a combined testing device for visual acuity, astigmatism and color-blindness. One type of complete unit consists of a projector which throws the image of the test characters on a screen or wall and by operating slides back and forth the acuity, astigmatism, and color tests can be made. Cost $250.00 to $350.00.

**Diagnosis Unit.**—Containing stand, phoroptometer, current controller or transformer with socket and connections, opthalmoscope, retinoscope, transilluminator and small instrument case, complete. Cost $16.00.

Or each of the above instruments can be secured separately; the phoroptometer can be obtained with muscle-test attachments and lens discs.

**Trial Case.**—Lens and lens tray and trial frames.
Cost $115.00 to $150.00.

**Opthalmometer.**—Cost $4.00 to $25.00.

**Chair.** — Cost $200.00 to $275.00

**Tonometer** for muscle measurement or simple devices for testing convergence.

It is readily noted that the combined costs of equipment for the eye clinic above mentioned ranges from $1230.00 up to $1716.00.

If it is considered logical and justifiable to conduct special school eye clinics, special school dental clinics, and similar nose and throat clinics, it is certainly just as logical and justifiable to conduct school heart clinics or endocrine clinics or any other kind of clinic. Let us, then, for example, consider some of the standard requirements for a cardiac clinic listed by one of the foremost heart committees in the United States:

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Space.—There shall be separate rooms for the examination of male and female patients.

Equipment.—Medical equipment shall include: (1) scales and measuring rod; (2) examining table in each room; (3) wooden tongue depressors; (4) thermometers; (5) Sphygmomanometer in each examining room; (6) spirometer; (7) Fluoroscopic unit at least available and preferably in the clinic; (8) special blanks to be used in referring patients to other departments of the hospital or dispensary, to convalescent homes, to schools, to day nurseries, to social agencies or other institutions.

Facilities.—There shall be available: (1) an electrocardiograph; (2) the services of an X-ray plant; (3) the services of a clinical laboratory; (4) the services of a pharmacy.

It has previously been mentioned that the cost of a complete X-ray plant would run about $20,000. An electrocardiograph costs about $500.00. The costs of some of the items mentioned under the list of equipment are:

1. Scales and measuring rod (least expensive) $37.00
2. Examining table (average cost) 110.00
3. Wooden tongue depressors (box of 500) 1.25
4. Thermometers (1 mouth, one rectal) 4.00
5. Sphygmomanometer (average cost) 30.00
6. Fluoroscope (approximate cost) 1200.00
   Tubes for fluoroscope (average cost) 450.00
7. Electrocardiograph (average cost) 400.00

Total $2232.25

With the exception of the fluoroscope and the electrocardiograph, the above items of equipment would all be necessary for each examining room installed. The initial outlay for a heart clinic or for any other kind of clinic seen to involve a tremendously large amount of money.
Then, in considering the cost of school clinics, one must consider the cost of the personnel to operate these clinics. Physicians to operate various aspects of the clinic must be specialists, and the training of a specialist is a long and expensive process. There are the four years of medical school, a year or two of general internship, and finally two or three years of internship in the field of his specialty. Doctors must buy their own books (and they are the most expensive books sold), buy their own medical and surgical instruments, and rent their offices. Most young doctors are thousands of dollars in debt when they first start their practice. They have to make money and a great deal of it in order to pay off their debts. The specialist has special equipment to buy and it is always especially expensive.

The best specialists probably will not be particularly interested in a school clinic position unless the salary is pretty high and no schools can afford to pay high salaries. In addition to the salaries of the physicians there are of course the salaries of the nurses, assistants, and other personnel necessary to the smooth running of the clinic.

Another disadvantage of the school clinic, no matter what its special mission, is that it is idle so much of the time. It cannot be used for a school party one night and used as an emergency school room the next day. It is filled with delicate, expensive equipment which must not be tampered with. It is a clinic and a special one at that, and hence can have but one purpose. This is manifestly a great waste of time and money in view of the function of the school.
Most communities have an adequate number of agencies already available for the purpose of correcting the physical defects of the children of indigent parents at least. Even if a school in a particular community could afford to correct all of the physical defects of all of its children, its doing so could not be justified educationally. Such procedures as the above tend to train the child in the habits and attitudes of dependence upon the school and other community agencies for various kinds of relief. Modern social workers attempt to get even the most poverty stricken of the people they help to pay something for services received even though it is very small in order to nurture and develop the small sparks of self-respect and independence still glowing in their hearts. It must be remembered that a fundamental wish in the hearts of parents is that their children when sent to school will not be given various types of relief and service free but will be helped to become more independent and self-directing and able to take care of themselves.

The Committee on the Costs of Medical Care has made its final report after very careful research over a period of five years. It is very significant that nowhere in the entire report of 213 pages is there even mention made of the school clinic. Manifestly they do not feel that the school clinic has a contribution to make as far as high quality medical care at low cost is concerned. This committee on the other hand

2. Ibid., p. 59
would recommend such procedures as the following:

The keystone of the concept of a satisfactory medical service for the nation is the development of one or more non-profit "community medical centers" in nearly every city of approximately 15,000 population or more.

This center would include a well equipped general hospital, an out-patient department and a pharmacy. It would provide offices for physicians, dentists, technicians and subsidiary personnel, and headquarters for nurses. All facilities necessary for the practice of modern scientific medicine would be available such as X-ray laboratory and physiotherapy equipment, and a well stocked library. In large communities there would doubtless be several medical centers.

The special school clinic can in no way compete with the type of medical service just recommended. The medical center can diagnose and treat not only a boy in the third grade, but his baby sister one year old, his mother, his father, his grandmother, and his older sister in high school. The medical center can furnish all kinds of medical service—not just dental or orthopedic service. Its physicians are of the highest caliber. Because the center has treated the boy's entire family at one time or another, its records contain elaborate history for each member, history which will be of great value in later diagnosis. The center is a "clearing-house" of cooperative endeavor on the part of the various nurses of the community striving to help needy children. Such medical centers as the Committee on the Costs of Medical Care has recommended are already here in some communities, along with private group medical clinics and many of their other suggestions for efficiency and diminished cost.

The special school clinic cannot be justified, and it is felt that only in rare instances will the cost of operating
it be tolerated under the board of education budget.

We are now in the midst of the greatest economic depression this country has ever seen, and the chances are that it will continue for some time to come. To support school clinics under a board of education budget is most absurd.

C. Educational Budgets for Educational Purposes

There are in most communities ample clinic facilities in the neighborhood of various schools which can be made available. There are also in every community numerous service clubs, such as The Rotary Club, The Kiwanis Club, and The Parent-Teacher Association, which will be happy to see that the underprivileged child is taken care of. An appeal to the public by any community agency to correct a child's deformity or to fill his decaying teeth usually finds a quick response in financial support. The board of education budget, however, is always grudgingly raised. Manifestly it is wiser to keep the cost of clinical correction of defects of school children separate from the school budget.

The following quotation of Chayer's¹ suggests an interesting and valuable point of view on the way schools should handle children of indigent parents:

What shall the school do with those children who suffer from physical defects and those parents are not financially able to consult a physician? Often the community has not seen the need for providing clinic service. There was a time not long ago when some schools surfeited children with material relief in the form of shoes, clothing, milk, and medical and dental service, forgetting in their eagerness that they might be increasing personality defects. It is not one of the

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functions of the school to furnish material relief. Just as long as medical and dental service is not as free as education, great care and discrimination is needed in giving relief. All needy families should be referred to well-trained social workers whose policy is not to distribute relief, but rather to help the family build on its own resources to the end that it may become self-supporting.

Miss Chayer seems to favor the Aristotelian philosophy rather than the Platonic, according to the quotation, and she would take the point of view that correction is not the function of the school.

The recommendations of the Committee on the Costs of Medical Care on the questions raised by Chayer should be interesting at this point:

**3H. Tax Funds for Medical Care of Indigent and Necessitous.** - General medical care for those who are charge upon the community must be provided either by private charity, including the charitable services rendered by practitioners, or by public funds. The Committee believes that this burden should fall largely upon the latter and recommends that more adequate provision be made for meeting it. The service should include medical, dental, and nursing care, given in hospitals, clinics or homes. Sound policy demands that the practitioners as well as the agencies which provide such service be properly remunerated.

It can be seen from the above quotation that the Committee has not felt that it is the school's function in any sense to furnish relief or correction.

**D. Summary.**

It is felt there is danger that school superintendents will lose their sense of proportion as to the relative place to be given to education in its broadest sense and to the

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correction of physical defects. There seems to be a tendency on the part of some to sponsor the building of school clinics, dental and otherwise. It has been pointed out that one kind of clinic is as justifiable as any other, and that any of them are unwarranted in the school and supported by school budgets, because they involve so much waste of money, are idle so much of the time, make for duplication of effort, and make it harder for the school to gain sufficient money adequately to carry out its unique function of education.

It is felt that the board of education should use its entire budget for those purposes which are primarily educational. In other words, it is the function of the board of education to utilize all the money it can acquire in employing the best teachers, paying them fair salaries, keeping equipment up to date, enriching teaching by adequate supervision and research, educating the community, and making the school environment contribute to the best health of the students and teachers.

With the many and increasing opportunities for general clinic and hospital service in most urban communities it would seem not economical, nor educationally practical, for boards of education to finance the construction and administration of any free school clinics, dental or otherwise.

The correction of the physical defects of school children is a health service, and if the parents (whose responsibility it is) cannot afford to give their children this service through the medium of private physicians, the service should be rendered by the municipal health authorities or by the best fitted agency outside of the school.
General community or local clinics or "medical centers" are better and more valuable than special school clinics since the former have records of the children's parents and other near relatives who have there been treated or cared for at some earlier date. This information generally throws much needed light on a child's case, light which would be wanting in a special school clinic.

It is the school's duty to educate children, parents, and the community—the parents through the children, parent-teacher organizations, and other forms of adult education; the children at school and through the parents; and the community through both of the foregoing—to be sufficiently self-directing and intelligent to go on their own accord to the medical men for periodic health examinations and treatments, and in the meantime see to it that the children who need special medical attention get it through the intelligent cooperation of physical educators, nurses, and the entire educational staff who must be constantly on the alert to recognize needs and set in motion the machinery which will result in the correction.
CRITERIA CONCERNING POSTURE

A. Common Postural Deviations and Technical Procedures for Their Improvement.

The question of posture has received such marked emphasis in the physical education departments of public schools in general in the past that it would seem logical to give it considerable attention in this thesis, especially since the survey\(^1\) revealed that those schools reporting attempts at the correction of defects mentioned postural defects more than any others.

The common postural deformities are: kyphosis (an exaggeration of the normal spinal curve in the thoracic region in the anter-posterior plane), lordosis (an exaggerated lumbar spinal curve in the anteroposterior plane), kypho-lordosis (a combination of both kyphosis and lordosis), and scoliosis (a lateral curvature of the spine always accompanied by torsion of the spine; it may be in the upper lumbar, thoracic or cervical regions of the spine, but is most common in the cervicothoracic region).

Tests of the various types of posture and their reliability will not be discussed at this time as they will be featured in a later chapter.

There are two main divisions of postural deformities, structural or rigid, and functional. Lowman\(^2\) distinguishes a third classification, namely transitional, which is a half-way mark between the functional and structural condition.

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1. See Appendix pp. 364-409.
In the structural spine, whether the defect be kyphosis, lordosis, or scoliosis, there are rigid adhesions holding the spinal vertebrae inflexibly together, "frozen" in the pathological condition. In the functional spinal deformities, however, the entire spine is flexible and limber. Tests to determine whether a deformity is structural or functional are made by hanging from a high bar, or lying down. A functional deformity of the spine disappears when the subject lies down or hangs by his hands from an overhead position while a structural deformity remains the same.

It is well agreed by both educational and medical authorities that only the orthopedic surgeon should attempt to treat a structural spinal deformity, and that all scoliosis cases, whether structural or functional, should first be referred to him.

There are scores of splendid books dealing with the correction of postural deviations. Most of these books contain full discussions of the subject and of corrective exercises. Any one with a fundamental knowledge of kinesiology and physiology can formulate exercises of this nature.

Any exercises which tend to stretch the spine in its various parts will be efficacious. The four-legged animal simply stretches itself, first the upper part of the body, neck, forelegs, and thorax, and then the lower back and hind legs. Human beings could afford to do the same thing oftener than they do.

Speaking more technically to improve the general posture one attempts to do the following:
Stretch the muscles in front of the neck (sternocleidomastoid muscle mainly) and in front of the shoulders and upper chest (pectoralis major and pectoralis minor) by exercises of hanging, climbing, swinging (from hands) and stretching the arms.

Strengthen (by scientific progression in contraction and use) the muscles of the upper back (upper erector spinae group) and those between the shoulder blades (rhomboid (rhomboideous major and minor, and the trapezius muscles).

Stretch the muscles of the lower back (lower erector spinae group). Strengthen and permanently shorten by constant contraction the muscles of the abdominal wall (rectus abdominus, external and internal oblique abdominals, and the transversalis.)

The above outlined methods, or some slight modification of them, have been traditionally used, but with varying degrees of success. Physical educators of the past have been most enthusiastic about their corrective work which was mainly aimed at postural defects and have been very optimistic about the results they were achieving. They have made many claims for their work and have spent considerable amounts for special rooms and special apparatus. The literature of physical education, both books and periodicals, has been full of the insidious evils of bad posture of its deleterious effects on health, and of the many, serious pathologic conditions resulting therefrom.

B. Causes of Postural Deviations.

In the past five years the place in public schools of corrective gymnastics so-called, and particularly those exercises for the correction of postural defects, is being definitely challenged.
In place of optimistic and enthusiastic reports of corrected posture, with physical educators justifying their positions by telling how much fine work they are doing, we now have in contrast the calm, cold facts of scientific investigators, and the thought-provoking queries of thinking educators.

In a way these two antagonistic groups of people seem to hold two differing views about posture.

The first group, apparently thinking of bad posture as an entity, as a disease which causes certain other pathologic conditions, and which must be directly treated by special corrective exercises, immediately commence such so-called corrective exercises.

The other group, because of their research, and their study of the researches of others, look upon bad posture as a symptom of other more serious and insidious conditions, and concern themselves with the underlying causes.

Deaver\(^1\) gives a good illustration as follows:

"Several years ago a young man was referred to me for a prescription of exercise. The man stated he was always tired, dopey and lacked 'pep' to do his work. He was thin and anemic with weak musculature and a drooping figure -- a good subject for special posture training. The physical examination, among other things, showed large septic tonsils. He was advised to have his tonsils removed before beginning any exercises. Several months later he re-appeared and stated he had gained eight pounds and was feeling fine and the miraculous thing was that he 'stood tall, head up, chin in, chest high, abdomen flat and weight on the balls of the feet.' What had caused this great

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\(^1\) George G. Deaver, Physical Therapy Series Monograph, III. "Physical Therapy Department Organization and Equipment and Conditions Affecting the Skeletal and Digestive System."
change? The tonsils were no doubt producing toxins which were poisoning the body. The cells which had been using their nourishment and strength to resist the tonsilar toxins now devoted their attention to building a man. Cases of this type illustrate the necessity of a thorough physical examination in order to determine the cause of the poor posture. In the majority of cases, in my experience, poor posture will be found to be the result, rather than the cause of ill-health.

A similar incident can be cited in which a boy was assigned to an individual physical education section on account of a very bad posture. In a personal interview for the purpose of becoming better acquainted with the student and his problems it was discovered that he was able to get but three to four hours of sleep daily as he was supporting his family as well as himself, while going to school. His job was shifting heavy batteries all night long. The boy was advised that he did not need corrective exercises for his posture, but sleep, and that it was essential that he change or adjust his job so that he could get adequate rest. In the meantime he was to report for his class in individual physical education as usual, but instead of taking any exercise he must spend that time resting. A place was arranged for him and invariably he was sound asleep within a few minutes after arriving. Two weeks later he reported that he had arranged his job so that he now was able to get eight hours of sleep. At the end of a month he was so full of 'pep' he couldn't sleep when he came for his class period and his posture was quite good. He was then placed in a section of the regular physical education classes which was suitable for him, and his general feeling of pep and efficiency improved steadily. His
case was one in which chronic fatigue was causing poor posture. Not being able to rest in a horizontal position in bed, he had been getting as much rest and relaxation as he could in a vertical position, or slump.

In commenting on an extensive review of the literature relating to posture, Schwartz states: "It has not been established whether the faulty postures associated with certain diseases are causes or the results of these diseases."

Schwartz also gives an account of what thirty different posture writers give as the cause of bad posture. The various causes are:

- Improper clothing
- Mistaken idea of beauty
- Muscular weakness or weak muscle tone
- Low vitality and those factors which cause it
- Improper sitting habits
- Improper standing habits
- Lack of strength in the abdominal wall
- Lack of flexibility and symmetry
- Weakened and stretched ligaments
- Fatigue
- Malnutrition
- Improper furniture
- Occupational stress
- Flat foot
- Defective vision
- Poor lighting
- Carrying weights on one side
- Heredity, a slender build
- Weakness of connective tissue.

Muscular weakness was noted as a cause of poor posture by eight different authors, while such causes as faulty clothing, fatigue, and malnutrition were mentioned by two different authors. Many of these stated causes cancel each other. For example, lack

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of strength in the abdominal wall could be classified under general muscular weakness, as could flat foot as well, and weak muscles would be the very natural result of chronic fatigue and malnutrition also.

Therefore, a more logical list of the main causes of bad posture might be:

- Fatigue
- Malnutrition
- Certain physical defects (vision, hearing, tonsils, adenoids)
- Occupational stress
- Heredity
- Undesirable types of clothing
- Furniture of undesirable type.

The first five causes would seem to be most significant. Styles of clothing have changed rapidly in recent years and most of it now would not affect posture one way or the other. Furniture also is more comfortable than it used to be. In schools, in particular, there is a wholesome trend toward movable furniture and frequent changes in position, so that if the child is free from the other five causes of bad posture, he should easily be unscathed by furniture as a cause.

Items 5 and 6 in Schwartz's summary are interesting at this point:

"5. Fatigue is the most frequent cause of postural deformities in the industries.

6. Continuous sitting or standing in any posture is fatiguing."

C. Posture Research

The traditional theories of posture are pretty generally known. It would seem, however, in order to show what the general

1Schwartz, Louis, Ibid., page 23.
trend with respect to the status of posture is among that second group of people aforementioned who have been doing most of the thinking and research in this field recently. A number of quotations from various authentic sources will, therefore, be given.

In recent research by Schwartz, Britten, and Thompson\(^1\), in which an experimental group of sixty-eight boys was contrasted with a control group of fifty boys, in which the experimental group was subjected to strenuous physical activity for a period of about five months, the object being to see what effect the exercise had on physical fitness and posture, the conclusion was:

"Such measurements of posture as were available either from the examinations or from the photographs did not indicate any appreciable change in the experimental group."

In research concerning more definite postural relations, made at a later date with 2200 men and boys of normal posture, the same authors\(^2\) include in their conclusions the following:

- No fixed type of posture could be found. Gradual variation of such magnitude as to defy classification into particular types was the rule.

II. Correlation of the posture measurements on the photographs and the strength tests indicate no appreciable relation. No data were available for any direct study of the relation between posture and muscular tone, since the various strength tests employed do not give a definite indication of the normal tone of abdominal trunk muscles. However, the findings of this study, in connection with the results of the first paper in the series, suggest that strength and posture are not closely associated.


19. On the basis of the extended analyses which have been rather briefly summarized in this report, it seems necessary to emphasize a point to which reference has frequently been made in the preceding pages—that there is no uniform type of 'good' posture in the profile. The primary characteristic of all the postural relations studied is that of variability and this variability is particularly manifest in the presence of widely different postural characteristics in the same individual."

The above should be interesting news for the host of posture classifiers.

From the White House Conference\(^1\) comes the following:

"There are many variations in the shape and arrangement of the bones, ligaments, articular facets, muscles and visceral relations in different individuals............"

"There is no single type of individual which can be taken as a standard form. If these two premises are allowed, it is undesirable to formulate any exact mathematical statement as to the normal curve of the spine in relation to weight bearing lines."

Rogers\(^2\) in his research has probably contributed more than anyone else to the stimulation of thought concerning posture. From him comes the following:

"There is ample evidence that, like all our other features, physical and mental, posture is an inherited trait bound up with the complicated physique handed down through millions of years and not to be tampered with lightly for artistic purposes ....... There is no evidence whatever that posture is essentially influenced either by general or by specific posture exercises ....... Students may be classified according to four or forty types as regards their general build but the usual law of distribution holds except as it may be affected by injury, or disease, including occupational stress and strain."

Some current definitions of posture reflecting the more modern trend follow: Todd\(^3\) says:


"Postural patterns may be interpreted to be the various positions which each individual may assume, at the same time keeping to his specific configuration. Postural patterns imply movements of parts within the configuration which are constantly adjusting to meet the forces playing upon them."

Giovanni says:

"Good posture has been defined as the most economical adjustment of the various body segments to each other in relation to the task at hand."

This task at hand may require several postures in rapid succession.

White House Conference Committee on Body Mechanics says of body mechanics (their way of referring to posture):

"Body mechanics may be defined as the mechanical correlation of the various systems of the body with specific reference to the skeletal, muscular, and visceral systems and their neurological associations. Normal body mechanics may be said to obtain when this mechanical correlation is most favorable to the function of these systems."

The above definition might be changed somewhat as follows: Normal body mechanics may be said to obtain when the mechanical correlation is favorable to the function of the total individual. The word "most" seems out of place in speaking of normal body mechanics. "The best" would seem to the author to be the most efficient position (brought on by the correlation of these systems) for the particular activity at hand.


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D. Summary of Chapter on Posture

In the light of the foregoing, it would seem that the following best summarizes the status of posture:

Posture is good to the extent that it facilitates function in the activity at hand.

The best posture for a particular individual is the most appropriate and efficient posture the individual can assume in carrying out his specific purpose or activity.

It is natural and proper for one to shift his posture periodically even in sleep to rest muscles, relieve strain, and secure more adequate relaxation.

It is undesirable to make children stand or sit in the same posture for long periods of time without change, no matter how straight, good, or proper that posture is supposed to be.

A straight, stiff, and inflexible posture is not an efficient one for the activities of life in an ever-changing world.

Posture has heretofore been tremendously oversimplified in the public schools of the United States. Efforts have been made in the school to correct posture when it has been a symptom of other more important and insidious pathological conditions which have been in the main neglected. Posture efforts have been wasted since we have attempted to treat it without eliminating its deleterious causes. Bad posture may quite logically contribute to other succeeding pathological conditions, but beneath posture lie more fundamental considerations which demand attention.
Therefore in concluding a discussion concerning posture and the procedures necessary for its improvement, it can easily be seen that these procedures will depend on the viewpoint, whether it be the traditional one or one more timely. The latter necessitates an immediate attack on the insidious causes which result among other things, or incidentally, in bad posture. If the causes are eliminated posture tends to right itself provided its causal condition was not too firmly entrenched. Of course this refers only to functional posture since structural cases demand surgical and medical correction.

It takes all sorts of people with all sorts of postures to make a world and probably most of the latter are normal postures for the particular individuals to whom they belong.

One implication of the more modern point of view is that no child should be put in a special class and given so-called corrective exercises and kept from regular physical education class attendance on a basis of his poor posture alone. Of itself poor posture is not of sufficient importance. One must not however overlook the insidious concomitant which may be hidden beneath the stoop of poor posture.

Should one then throw all posture overboard? No, not at all. The traditional good posture can well be cultivated within the elastic limits of an individual's spine. It has tremendous aesthetic and social value.

One's posture may reflect one's emotional state of elation or depression. A successful conscious effort to
assume a particular posture often brings with it, by conditioned reflex the particular state of mind associated with this particular posture. Since courage, happiness, joy, and optimism are often expressed by an upright erect carriage of the body. The assumption of such posture goes a great ways towards bringing about those emotional states. This would seem to be one of the most valuable things about good posture.

It is also felt that the traditional good posture has certain preventive value in connection with inguinal hernia prevention, etc., although that refers specifically to the abdominal region rather than to good posture in general.

Probably the important thing to guard against is standardization of any posture which would lead to inflexibility of the spine. The ideal to work for is to be able to take any specified or possible position of the spine and body as quickly as possible. If the human organism is rutted in any kind of posture traditionally good or bad, it is bad since it leads to inflexibility.

Concerning traditionally good posture, its aesthetic value and its possibilities for the development of desirable conditioned reflexes are its most valuable assets.
CHAPTER XI.

CRITERIA CONCERNING THE TRAINING OF TEACHERS OF PHYSICAL EDUCATION IN THE EDUCATIONAL PROCEDURES FOR SCHOOL CHILDREN WITH PHYSICAL DEFECTS

A. Educational Emphasis.

Professional students of physical education should be trained to think of themselves as educators. Physical education is distinctly a teaching profession. Physical educators join hands with all other educators in the cooperative project of achieving the general educational objectives, vocational adjustment, good health, command of the fundamental processes, worthy home membership, citizenship, worthy use of leisure time, and ethical character. Physical education simply represents another highway over which children pass on under proper leadership to the goals of education.

Physical educators, and doctors as well, have been too much inclined in the past to think of children with physical defects in terms of their defects only, or in terms of their differences from other children. Professional students must think of these children in terms of other children as well, for the children with physical defects are going to be under the necessity of going out into the world and of making adjustments to it and to normal
individuals and of being independent if they can. The physical defects will hinder or impede to some extent certain of their adjustments in later life as it is now hindering their school education, but regardless of handicap they must succeed, and the physical education teacher can do much to help them. He must understand their defects and their consequent limitations, but he must also understand their inmost desires to be like other children and to exercise as other children do the fundamental emotions made available through play. These children may not be able to play some of the games of normal children, but they can play some of them, and teachers can adapt and invent more games for them to play. Children with physical defects must be given opportunities to play if they are to have anything like normal emotional development. Play is just as much the business of the handicapped child as it is the business of his physically normal brother, and professional students must sympathetically and with patient understanding teach them to play. Physical educators must take children not only as they are but also with respect to what they may become with help. Activities must be provided to meet the needs of physically defective children. Physical education teachers must then inspire them to participate in these adapted activities in such a manner that the resulting changes will be beneficial. This task and opportunity of the teacher of physical education is definitely educational.
B. Training in Technical Procedures.

A few of the common physical defects typical of those which professional students of physical education should be able to recognize after completing their special four-year undergraduate curriculum are as follows:

Certain orthopedic defects of posture and of body mechanics; various foot deviations, such as pronation, fallen arches, and weak arches; bowlegs; knock-knees; wry neck; various deformities due to infantile paralysis; and tuberculosis of the spine, hip or other joints.

Dental caries, inflamed throat, swollen tonsils, and swollen superficial glands.

Certain common skin diseases and infections.

Various symptoms of heart or circulatory weakness, such as might be exhibited on the playground or in the swimming pool. Prompt recognition of these will, of course, prevent future strain and trouble.

Symptoms of eyestrain and of certain common eye diseases.

Symptoms of the common cold and of sinus infections.

Signs of deafness and of ear infections.

Signs of malnutrition and of general muscular weakness.

Symptoms of hernia.

Professional students of physical education should be able not only to recognize these defects but also to understand their causes and the means by which they may be prevented. Physical educators should gain such comprehension of these defects in order that they may better understand
the children exhibiting these defects and their individual problems.

For example, there is a tremendous difference between the particular problems of a child with infantile paralysis and the problem of one with spastic paralysis,—although both children are deformed and are inhibited in their movements. Without the instructor's having a genuine comprehension of these differences, and of the fundamental bases for these differences, he can neither understand nor help.

It is highly desirable also that professional students study the technical procedures that doctors follow in the correction of some of the common defects. For there can be little genuine comprehension without considerable study of these defects and procedures used for their correction.

Students of physical education should make frequent visits to children's hospitals and clinics where they can observe defective children, observe the treatment actually given, and occasionally see correction being brought about in the operating room. With study of this type, as well as study from books, students can develop much greater usefulness. They can talk intelligently with physicians and surgeons. They can carry out the doctor's suggestions as to a follow-up program, and they can be of great help in interpreting the condition of children to their parents and teachers.

C. Prescription of Activities for Specific Defects.

The professional student of physical education who would
be expert in the teaching of educational procedures to children with physical defects must have a very exceptional background in physiology, anatomy, and kinesiology. With a physiological background specially emphasizing the physiology of activity, he will understand the workings of the various organs that run the human organism and how to assist them, and through studies of metabolism he will learn of the relative strenuousness of various activities. Anatomy and kinesiology will teach him the principles of developing c lightspecific muscles and muscle groups that need strengthening. In case a permanent deformity makes impossible certain movements, the study of kinesiology suggests new muscles and new forms for their use in certain activities once deemed impossible for one child to participate in ever again.

During the course of the professional student's training he should build up a tremendous repertoire of game and sport activities that can be played with benefit all one's life, such as archery, bowling, archery golf, golf, bait-casting, fly-casting, shooting the blow-gun, badminton, quoits, horse-shoes, etc. He should be able not only to do all of these with a fair degree of skill but also should be able to teach them efficiently and to make them so interesting that children will take them up and carry them on as hobbies. Many of these sports will be safe for most of the group of physically defective children and the instructor should always be able to teach at least one interesting game and sport activity to any child with physical defect coming to school.
The student should understand the general principles of game construction so that he will be able to adapt various games which unadapted are too strenuous for a given child or group or individual he is working with. He should also develop sufficient imagination so that, in the event of his lacking certain equipment and space for certain games and sports, he can invent games and sports utilizing such equipment as he has and adapt it to meet the needs of his group.

Students preparing to teach physical education, and particularly such educational procedures as would form an essential part of the Individual Physical Education Program of physical education, should study carefully the place of rest in their program. Unfortunately people have associated physical education with great and violent activity and much perspiration, and seem to consider the value of a physical education activity in direct proportion to its strenuousness. Students must avoid that concept. The individual need is the key to the type and amount of activity to be prescribed. Many times the very finest kind of physical education for children will be quiet rest on a cot. If rest is the crying need it should be provided. It is felt that in this increasingly mechanistic world, a world moving faster all the time, opportunities for rest must be provided and the desirability of relaxation must be taught. In brief, the professional student who would best serve physically defective school children must be an expert in the organization and leadership of such
temporarily or permanently handicapped children in a program of activities selected and adapted to meet their individual needs.
Chapter XII

Statement and Implications of Criteria

A. Statement of the Criteria

Before listing the criteria which have been developed in the preceding chapters, a restatement of certain definitions is deemed essential. Particular attention should be given to the distinction made between the words, EDUCATION and CORRECTION, for this distinction suggests a possible solution to the grave problem as to how far (if at all) the school should go in accepting the responsibility for the correction of the physical defects of school children. The definitions which will be accepted for purposes of this dissertation follow with appropriate illustrations of the same.

EDUCATION from the standpoint of the school is the organization and leadership of children in selected activities which will stimulate them to make changes within themselves resulting in their progressive integration in an ever changing world, to the extent of their native capacity.

The keynote of this definition is expressed in the words, "children . . . . make changes within themselves." The teachers will demonstrate, coach, guide, direct, supervise, and inspire, but any significant change which takes place in the child is due to his active participation in the activity or activities provided by the teacher. The child himself makes the change. In contrast to education, let us now consider the definition of correction.
<table>
<thead>
<tr>
<th>KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>V = SUITABLE</td>
</tr>
<tr>
<td>VV = PARTICULARLY SUITABLE</td>
</tr>
<tr>
<td>(SUITABILITY WILL OF COURSE OFTEN DEPEND ON SPECIFIC CASE)</td>
</tr>
</tbody>
</table>

**I. Activity Greatly Limited**

<table>
<thead>
<tr>
<th>Structural Cardiacs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculous Joints (Arrested)</td>
</tr>
<tr>
<td>Endocrine Dysfunction (Tonic Glands)</td>
</tr>
<tr>
<td>Post-Oper-Thyroidecomy</td>
</tr>
<tr>
<td>Post-Oper-Herniotomy</td>
</tr>
<tr>
<td>Post-Oper-Appendeceotomy</td>
</tr>
<tr>
<td>Inguinal Hernia</td>
</tr>
<tr>
<td>Fractures (Leg or Foot)</td>
</tr>
<tr>
<td>Torn Cartilage</td>
</tr>
</tbody>
</table>

**II. Activity Slightly Limited**

<table>
<thead>
<tr>
<th>Strains &amp; Sprains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital Hip Dislocation</td>
</tr>
<tr>
<td>Chronic Dislocating Knee</td>
</tr>
<tr>
<td>Chronic Dislocating Shoulder</td>
</tr>
<tr>
<td>Malnutrition</td>
</tr>
<tr>
<td>Functional Foot Deviations</td>
</tr>
<tr>
<td>Weak Abdominal Muscles (Flossy)</td>
</tr>
<tr>
<td>Functional Postural Deviations</td>
</tr>
<tr>
<td>Chronic Bronchitis</td>
</tr>
</tbody>
</table>

**III Limited Only by Anatomical Nature of Defect**

| Infantile Paralysis Deformity |
| Amputated Arm |
| Amputated Leg |
| Ankylosed Knee |
| Ankylosed Elbow |

*Chart of developmental sport activities suitable from infant, senior, high school children with specific physical limitations.*
<table>
<thead>
<tr>
<th>SPORTS</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOXING</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>BOWLING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOWLING ON GREEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOCHAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ITALIAN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DECK TENNIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLY-CASTING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TARGET)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLY-CASTING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(GAME FISH)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOLF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOLF CAGE DRIVING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HANDBALL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HORSE-SHOES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(+ QUARTZ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HUNTING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(WITH BOW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURE-HIKES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROPE-SPINNING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHUFFLE-BOARD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWIMMING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENNIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOLLEY-BALL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRESTLING</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CORRECTION as dealt with in this study is such beneficial changing of an individual's physical condition as can be accomplished only by a human agent external to the individual.

The core of this definition is that the individual has no active part in the accomplishment of the change. In other words, in correction a human external agent accomplishes a desirable change in the individual which he himself could not alone accomplish. Comparing the two terms, education and correction, one might make the following statements:

EDUCATION helps the child to help himself.

CORRECTION makes the child better able to profit by education, or fits the child to partake of education at a higher level of physical efficiency.

The physician, through correction, helps those unable to help themselves up until such time as they are thought able to help themselves and profit more extensively by education.

For example, much of the so-called corrective work done in the past by physical educators for children with functional foot deviations has been entirely educational in character and not corrective as just defined. Note that the physical educator demonstrates certain exercises which will improve the specific condition, he explains the possible causes of the condition and the reasons why the prescribed exercises should help; he coaches and supervises the individual in the performance of these exercises; he guides and directs the individual and does all in his power to inspire him. All
of these procedures are definitely educational and would be used in teaching any activity of the school curriculum. In any case, it should be remembered that if the pupil improves, it is because he has made certain definite changes in himself.

To illustrate a corrective procedure, consider for example a case of rigid or structural flat foot which is giving considerable pain. No amount of exercising on the part of a pupil will benefit the foot. However, the orthopedic surgeon can help the condition a great deal and can accomplish a large amount of correction. He may reset the tarsal bones under ether and then apply a plaster cast, or he may perform a stabilization operation of the tarsal bones when they are set in proper position. Either of these procedures, or others of a similar character which the patient could not do for himself are clearly corrective. The orthopedic surgeon is the external agent making the change.

It is well understood that the corrective work of the physician will be more effective and lasting if it is followed up by educational activities of parents, school teachers (especially the physical education instructor if he be trained in the individual phase), physiotherapists and physicians to some degree. Before the medical profession entertained so much specialization, many of the general practitioners or those known as family physicians spent a fair amount of time with educational procedures, teaching their patients various techniques in caring for themselves. At present the specialist seems to be at his peak, and they
are kept so busy they do not have time to educate to a large extent. The increasing emphasis placed on prevention is necessitating more educational procedures on the part of physicians, however, and is a welcome sign. Although it is impossible for the work of a physician not to result in education in some degree, it must nevertheless be remembered that the physician’s unique service lies in correction, just as the school’s unique function is education.

Having again defined the terms education and correction as they will be used in this study, the criteria for the Establishment of Educational Procedures for Children with physical defects in the public schools will now be stated:

A. School

1. The function of the school is Education.

2. It is the school’s responsibility to ensure that the physical, environmental factors of its various teaching situations facilitate its function of Education.

3. The school should educate the whole child by developing intelligent interests, informations and impulsions concerning health and physical efficiency, as well as developing the other curricular subjects.

B. Responsibility for the Health of the Child

1. Primarily and fundamentally the responsibility for the health of the child should rest upon the parents.

2. It is the school’s function to educate the child as he develops in such a way that he may be able intelligently to take increasing responsibility for his own health to the best of his ability and resources.
C. Physical Examinations

1. Every school child should have at least one thorough physical examination each year.

2. The examination shall include as a minimum the checking of the following items:

<table>
<thead>
<tr>
<th>History</th>
<th>Nose</th>
<th>Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Throat</td>
<td>Nutrition</td>
</tr>
<tr>
<td>Ears</td>
<td>Neck</td>
<td>Lungs</td>
</tr>
<tr>
<td>Teeth</td>
<td>Lymphatics</td>
<td>Abdomen</td>
</tr>
</tbody>
</table>

| Hernia | Spine | Bones | Skin | Genitalia |

3. The school must require school children to have completed their physical examinations before allowing them to engage in the physical education program of the school.

4. The physical examinations should be completed by the week previous to the opening of school in the fall and should be a requisite for registration.

5. The school, after advisement from the municipal health authorities and from the local medical society, should establish standards for the school physical examinations.

6. It is the school's responsibility to see that these standards are met.

7. The physical examinations should be given only by members of a board of examining physicians, agreed upon yearly by a joint committee representing the local or county medical society and the municipal educational and health authorities.

D. The Board of Education and the Correction of Physical Defects

1. The correction of the physical defects of school children is a health service, and if the parents (whose
responsibility it is) cannot afford to give their children this service through the medium of private physicians, the service should be rendered by the municipal health authorities, or the best fitted agency outside of the school.

2. It is not the function of the board of education to correct any physical defects of children.

E. Correction of Physical Defects by Physical Education Department

1. Correction of physical defects is the function of the various branches of the medical profession.

2. It is not the function of the department of physical education to attempt the correction of physical defects of school children.

F. Medical Service

1. There shall be available throughout the school day service of the following nature:

   a. Re-examinations of children requiring it.
   b. Supervision of the follow-up program.
   c. Supervision of such physical environmental factors affecting the health of students and teachers as heating, lighting, ventilation, and sanitation.

2. It is the school's responsibility to see that these services are carried out by competent agents.

3. If you agree with the above criteria, indicate the ways this may be met:

   a. Full time service financed by the school.
   b. Full time service financed by some agency outside the school.
   c. Part time service financed by the school.
   d. Part time service financed by some agency outside the school.
   e. Clinic of some agency outside of the school.
   f. Hospital of some agency outside the school.
G. Concerning Costs

1. The board of education should use its entire budget for those purposes which are primarily educational; in other words, it is the function of the board of education to utilize all the money it can acquire in hiring the best teachers, paying them fair salaries, keeping equipment up-to-date, enriching teaching by adequate supervision and research, educating the community and making the school environment contribute to the best health of the students and teachers.

2. The municipal health authorities or other social agencies of the community outside of the school should pay for school medical service and correction of physical defects not financed by the parents of the school child.

3. It is not economical or practical for boards of education to finance the construction and administration of school clinics, dental or otherwise.

H. Concerning Posture

1. Posture is good to the extent that it facilitates function in the activity at hand.

2. The best posture for a particular individual is the most appropriate and efficient posture the individual can assume in carrying out his specific purpose or activity.

3. It is natural and proper for one to change his posture periodically even in sleep to rest muscles, relieve strain, and secure more adequate relaxation.

4. It is undesirable to make children stand or sit in the same posture for long periods without change, no matter
how straight, good, or proper the posture is supposed to be.

5. A straight, stiff, and inflexible posture is not an efficient posture for the activities of life in an ever-changing world.

I. Professional Training

1. Professional training in physical education does not and should not fit an individual to correct the physical defects of school children. (See definition of correction, page 6.)

2. Professional students of physical education should be trained in the use of educational procedures for children with physical defects; in other words they should be prepared:

   a. To recognize certain physical defects of school children.
   b. To understand the causes of certain physical defects so that the instructors can educate for prevention.
   c. To know and understand many of the common procedures the medical man must use to correct these defects; so that the physical educator can be of greatest service to the child in making arrangements with the nurse or the physician resulting in the child's more rapid correction.
   d. To talk intelligently and in correct technical terms about most of the common physical defects found among students, and be able to follow the doctor's directions in the event he recommends a special or individual physical education program.
   e. To formulate and teach exercises which will develop certain specific muscles or groups of muscles through the application of sciences of physiology and kinesiology.
   f. To teach an increasingly large number of those sports representing milder forms of activity which can be participated in by children with physical defects all their lives; such as bait-casting, archery, bowling, horseshoes, deck tennis.
   g. To give various tests of functional efficiency which can be used to classify, grade and measure the progress of children with certain physical defects.
B. The Evaluation of the Criteria.

The jury method was used in the evaluation of the criteria. Many of the statements of the criteria are the subjects of much debate in the field of physical and health education, and even though educational philosophy might point in their direction, some more definite proof of their validity was desirable, so the jury system was recommended for use. In the selection of the jurors an attempt was made to secure a representative cross-section of experts from different institutions and communities and with different backgrounds, positions and points of view.

Three of the jurors were carefully selected on the above basis. One of these was the Medical Director of the American Child Health Association; a second was from the department of nursing education of Teacher's College, Columbia University; and the third was the consultant in Hygiene and Specialist in Health Education from the Bureau of Education, Department of the Interior, Washington, D. C. These individuals were asked to serve as jurors and also to suggest the names of other experts who would be competent jurors and who would contribute other points of view. The persons thus suggested were asked to serve as jurors and also to suggest other possible jurors. Nearly every list of prospective jurors contained at least three names. Many of the same people were found on different lists, but eventually a well-rounded group of sixteen jurors was secured.

1The complete list of jurors will be found in the Appendix pp. 353, 354.
On this jury were represented, in addition to the three already mentioned, two medical directors of public schools, four administrators of the teacher-training departments of colleges, two state directors of physical education, a prominent author in the field of sociology and professor at New York University, the director of the Bureau of Special Education at the Ohio State University, a former head of the Physical Department of the International Committee of the Y.M.C.A., and the Health Commissioner for the State of Ohio. Seven of these jurors are fellows of the American Physical Education Association. Nine of the jurors are physicians (M.D.'s), and five are Ph.D.'s. All the jurors have made numerous written contributions to their respective fields in the form of published books and magazine articles. It is felt that they truly represent a cross section of the very best expert opinion available for these particular criteria.

 Mimeographed copies of the criteria were constructed to be sent to the jurors for evaluation. After each of the separate criteria or statements the words "Agree ___" and "Disagree ____" were placed. Before each group of criteria were one or two paragraphs of explanatory remarks to help jurors in catching the meaning of the statements, and the definitions of education, correction, and the school preceded all of the criteria. A statement of the criteria in this form was mailed to each juror with a self-addressed, stamped envelope enclosed.

1 The criteria as sent to the jurors will be found in Appendix pp. 342-53.
The number and per cent of jury agreement with specific criteria is shown below in Table A. Since the criteria have already been listed, the table contains only the section and specific numbers of the criteria.

**Table A**

The Number and Per Cent. of Jury Agreement with the Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Agreement</th>
<th></th>
<th>Criteria</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Per Cent.</td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>A - 1.</td>
<td>16</td>
<td>100</td>
<td>F - 2.</td>
<td>9</td>
</tr>
<tr>
<td>2.</td>
<td>16</td>
<td>100</td>
<td>G - 1.</td>
<td>12</td>
</tr>
<tr>
<td>3.</td>
<td>16</td>
<td>100</td>
<td>H - 1.</td>
<td>8</td>
</tr>
<tr>
<td>B - 1.</td>
<td>15</td>
<td>93.7</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>2.</td>
<td>16</td>
<td>100</td>
<td>I - 1.</td>
<td>16</td>
</tr>
<tr>
<td>C - 1.</td>
<td>14</td>
<td>87.5</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>2.</td>
<td>13</td>
<td>81.0</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>3.</td>
<td>13</td>
<td>81.0</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>4.</td>
<td>10</td>
<td>62.5</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>5.</td>
<td>10</td>
<td>62.5</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>6.</td>
<td>13</td>
<td>81.0</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>7.</td>
<td>6</td>
<td>37.5</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>D - 1.</td>
<td>14</td>
<td>87.0</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>2.</td>
<td>16</td>
<td>100.0</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>E - 1.</td>
<td>13</td>
<td>81.0</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>2.</td>
<td>12</td>
<td>75.0</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>F - 1.</td>
<td>12</td>
<td>75.0</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Having shown the percentage agreement of the jurors with the specific criteria, the next problem is to decide what percentage of agreement a particular criterion must have in order to be significant for use in setting up the kind of program it suggests. Perhaps a better way of stating the present problem would be; if the agreement of the majority of the sixteen jurors is going to be accepted as sufficient, how
can one be sure that there would still be a majority of
agreement had one hundred jurors or more been used?
Holzinger\(^1\) uses a formula for the Standard Error of a Pro-
portion which was utilized here. It was found by statistical
procedures that an agreement of at least thirteen out of the
sixteen jurors was essential or eighty-one per cent. These
procedures are as follows:

\[
\Sigma_p = \sqrt{\frac{pq}{n}} = \text{Standard Error of a Proportion}
\]

\(p = \text{the proportion of jurors who agree.}\)
\(q = \text{the proportion of jurors who disagree.}\)
\(n = \text{the number of jurors altogether.}\)

Trying out 13 agreements or 81% and substituting in the
formula we have;

\[
\sqrt{\frac{13 \times 3}{16 \times 16}} = \sqrt{\frac{39}{256}} = \sqrt{\frac{39}{4096}} = \frac{6.245}{64}
\]

\[= \frac{1}{4} \times 0.0975 \text{ or 1 sigma}\]

Since 1 sigma takes in only two/thirds of the cases and
practically one-hundred per cent certainty is desired 3
sigma is used or, 3 \times 0.0975 which gives \(\frac{1}{4} \times 0.2925\)

0.81 plus 0.2925 equals 1.10
0.81 minus 0.2925 equals 0.5175

\(^1\)K. J. Holzinger, "Statistical Methods for Students in Education,"
The Standard Error of a Proportion p. 248.
Therefore using thirteen out of sixteen jury agreements the chances are 99.7% certain that agreement would range from 51.75% to 110% when a group of one hundred or more jurors were used. This means that the use of thirteen agreements is statistically adequate. Jury agreements of fourteen and fifteen and sixteen are of course also adequate while any agreements less than thirteen are not statistically adequate. Of course for practical purposes 2 Sigma which contains ninety-five per cent of the cases should be adequate, in which case twelve agreements out of the sixteen would be adequate.

The jury of sixteen is not excessively large but it is felt that the jurors, because of their very careful selection, represent the best opinion that could be assembled for judging the criteria. It is doubted whether a hundred jurors, or even twenty-five or thirty, could be found who could render opinion as expert as that of the jurors selected. This all goes to prove that the statistical adequacy above mentioned can not be taken too seriously. The problem at stake is not a statistical one, but rather the problem of establishing certain fundamental principles or criteria which can be a guide to school administrators in setting up certain phases of their physical education program. An attempt is being made to set up principles which are ideal, and to hold up standards which will challenge educators to raise the level of certain phases of their administration. Nowhere will it be stated that the criteria here set forth are right, true
or certainly correct. No one can know what is certainly right or correct, and probably if we did know what is best for today, this would be no indication whatever that these principles would always hold as the best for the future. However it can be said that these criteria are in keeping with the objectives of modern education and modern physical education. They also would solve many of the evils evident in the administration of the so-called corrective physical education program.

Consider for a time some of the possible reasons for disagreement on the part of the jurors. From their comments it is evident that they disagreed with some of the criteria because of some of the following reasons:

1. Criteria ideal and therefore thought impossible to put into practice.

2. Failure to understand the distinction made between the terms Education and Correction as herein defined, or which is much more likely, a failure on the part of many of the jury to keep before their minds the conception of these above mentioned terms sufficiently clearly to prevent the returning of inadvertent former traditional associations with the two terms. The natural result being a judgment while thinking in terms of the former associations with the terms education and
correction rather than in the light of the meanings of the terms as defined in the thesis.

3. Many of the criteria outlined suggest procedures at great variance with present practice.

4. Many of the criteria bring up moot questions about which there is much difference of opinion and furthermore the criteria which receive almost equal agreement and disagreement are recognized as vital issues of the day.

Considering then in some detail the first of the reasons for disagreement, that of finding the criteria ideal and hence impractical, one is inclined to feel the serious consideration of this objection illogical. The very purpose of the thesis is to attempt to set up ideal standards. Furthermore, it does not follow that because a tentative program is ideal it is therefore impractical. If we accept a principle as ideal, we are morally bound to work toward its realization in practice. Practice, however, must be preceded by a philosophy of what is considered ideal, else progress to a higher level can not take place.

A quotation from one of the jurors which was written concerning the criteria in question is interesting at this point:

"You have constructed the basis for an ideal program that is far beyond the reach of the public school. Your theory is correct, and it is the foundation upon which we are all working, but the ultimate realization of the aims expressed therein cannot take place for twenty-five to fifty years."
From the above quotation and other comments it is evident that this juror disagreed only because he felt the criteria too ideal. In the light of the previous discussion it would seem justifiable to consider the disagreements of this particular juror as agreements.

Another juror contributes the following appropriate quotations:

"I will agree with criterion 3, page 3, but I want again to say that you are setting up an ideal situation that has many practical obstacles. Your principle may be correct but the practice is another matter. But I will agree to a thorough examination, especially if it is finished before school is open.

"If human nature were perfect perhaps this three-fold combination would work. Ideally again I will agree to your happy combination of the three groups cooperating.

"...............I would agree ideally with all your propositions. However, those we have discussed are most questions when it comes to actual practice and program building.

The changing of this juror's disagreements to agreements seems likewise justifiable.

One might think that the changing of the above two jurors' disagreements to agreements would make a great difference in the total proportion of agreements to disagreements but such is not the case. Considering all the jury agreements on all the thirty-four criteria previous to the changing of the answers of the two above-mentioned jurors, we have a total of eighty-five per cent agreement against fifteen per cent disagreement. The above changes raised the
percentage of agreement only two per cent or up to a total of eighty-seven per cent.

The changes did however raise the validity of certain criteria to a marked extent, as is shown below:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>93% to 100% agreement</th>
<th>62.5% to 68.7% agreement</th>
<th>37.5% to 50% agreement</th>
<th>75% to 81% agreement</th>
<th>75% to 81% agreement</th>
<th>50% to 62.5% agreement</th>
<th>68.7% to 75% agreement</th>
<th>62.5% to 75% agreement</th>
</tr>
</thead>
</table>

The two criteria underlined were raised in validity to eighty-one per cent, which was the statistical adequacy for certainty of agreement in the majority of cases, no matter how many jurors might have been used.¹

With eighty-seven per cent agreement on the total thirty-four criteria it is evident that most of the jurors agree without any reservations. A quotation from one of the latter follows:

"You will note that I am in entire agreement with your proposals. I am sure that the distinction between what the School and what the other agencies have, as their responsibility for dealing with physical defects, will help to clear up considerable confusion and eliminate debate.

"Then too it should prevent men and women with limited ability from doing what they have been, in many instances, without the necessary qualification."

Considering the quality of the selected jury, the evident reasons for their disagreement, and the fact that the setting up of an ideal group of guiding principles is the main object,

¹See pages 126 and 127 for explanation of this.
the author feels justified in empirically considering the agreement of nine out of the sixteen jurors adequate in the selection of criteria for the guiding principles to be used in this thesis.

A revised chart of the number and per cent. of jury agreement follows on page 133.
TABLE B NUMBER AND PER CENT OF JURY AGREEMENT WITH CRITERIA (REVISED).

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Agreement</th>
<th>Criteria</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>A-1.</td>
<td>16</td>
<td>100</td>
<td>F-2.</td>
</tr>
<tr>
<td>A-2.</td>
<td>16</td>
<td>100</td>
<td>G-1.</td>
</tr>
<tr>
<td>A-3.</td>
<td>16</td>
<td>100</td>
<td>H-1.</td>
</tr>
<tr>
<td>A-4.</td>
<td>14</td>
<td>87.5</td>
<td>I-1.</td>
</tr>
<tr>
<td>A-5.</td>
<td>11</td>
<td>63.7</td>
<td>I-2.</td>
</tr>
<tr>
<td>A-6.</td>
<td>13</td>
<td>81.0</td>
<td>I-2.</td>
</tr>
<tr>
<td>A-7.</td>
<td>8</td>
<td>50.0</td>
<td>I-2.</td>
</tr>
<tr>
<td>A-8.</td>
<td>14</td>
<td>87.0</td>
<td>I-2.</td>
</tr>
<tr>
<td>A-9.</td>
<td>13</td>
<td>81.0</td>
<td>I-2.</td>
</tr>
<tr>
<td>A-10.</td>
<td>13</td>
<td>81.0</td>
<td>I-2.</td>
</tr>
<tr>
<td>A-11.</td>
<td>12</td>
<td>75.0</td>
<td>I-2.</td>
</tr>
</tbody>
</table>

The various criteria will now be considered in their order, and those with which there is most disagreement will be discussed in the greatest detail.

Criterion A-1. The function of the school is education. This statement, as well as the four following, received one hundred per cent. agreement and therefore will receive no further comment.

Criterion A-2. It is the school’s responsibility to insure that the physical environmental factors of its various teaching situations facilitate its function of education.

Criterion A-3. The school should educate the whole child by developing intelligent interest, informations, and
impulsions concerning health and physical efficiency, as well as developing the other curricular subjects.

Criterion B-1. Primarily and fundamentally the responsibility for the health of the child should rest upon the parents.

Criterion B-2. It is the school's function to educate the child, as he develops, in such a way that he may be able intelligently to take increasing responsibility for his own health to the best of his ability and resources.

Criterion C-1. Every school child should have at least one thorough physical examination each year. This is well validated by the high jury agreement of eighty-seven and five-tenths per cent.

Criterion C-2. The examination shall include as a minimum the checking of the following items:

<table>
<thead>
<tr>
<th>History</th>
<th>Nose</th>
<th>Heart</th>
<th>Hernia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Throat</td>
<td>Nutrition</td>
<td>Spine</td>
</tr>
<tr>
<td>Ears</td>
<td>Neck</td>
<td>Lungs</td>
<td>Bones</td>
</tr>
<tr>
<td>Teeth</td>
<td>Lymphatics</td>
<td>Abdomen</td>
<td>Skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gentilia</td>
</tr>
</tbody>
</table>

Agreement with this particular criterion was eighty-one per cent, which was also high. It was felt that an examination could not be thorough which did not at least include the above items.

Criterion C-3. The school must require school children to have completed their physical examinations before allowing them to engage in the physical education program of the school.

This criterion enjoyed the same high agreement as the previous one. It is a principle that is fairly well recognized in theory, but seldom carried out in practice because
of inefficient and time-consuming methods of giving the health examinations in the school.

Criterion C-4. The physical examinations should be completed by the week previous to the opening of school in the fall and should be a requisite for registration.

Ten of the jurors or sixty-two and five-tenths per cent. agreed with this criterion. This is one affirming juror more than necessary for acceptance in this study, but the disagreement is much higher than in the case of most of the criteria. Those who disagreed, in most cases, did so on the basis that the scheme was too ideal and could not be worked out practically. This seems strange when so many of the larger universities and colleges are able to accomplish the same result by having what they call a "Freshman week", just previous to the opening of school, at which time the physical examinations are given and are a regular part of the registration procedures. It should also be considered that in an increasing number of communities throughout the country "Summer round-ups" for the pre-school, or nursery school child (in which the main feature is the health examination) are being held yearly.

When students representing the two extremes in age are thus being scientifically looked after, it does not seem illogical and impractical, nor does it seriously stretch one's imagination, to visualize the realization of the above criterion in the not-distant future.

Criterion C-5. The school, after advisement from the
municipal health authorities and from the local medical society, should establish standards for the school physical examinations. Eleven jurors or sixty-eight and seven-tenths per cent. were in agreement.

Disagreeing jurors were inclined to feel that the medical societies were neither interested nor informed concerning the problems of the school therefore, could not give good advice. Some also felt that it would be impossible to get such authorities as the board of health, the local or county medical board, and the board of education to cooperate to the extent suggested in the criterion. However, cooperation to this extent has already been accomplished in some communities. This type of cooperation means increased efficiency, less duplication of effort and a saving of the community's money. It may be quite true that medical societies and many medical men of a community are not aware of the problems and objectives of the municipal educational authorities. This is all the more reason why the school should take every opportunity to educate the medical profession to its responsibilities and opportunities with respect to the schools and to sell their objectives and program. The municipal school authorities should also realize that the points of view of the medical authorities and of the board of health are of real value to them and should be considered. The more all three of these authorities know about each other, their aims and objectives; their achievements; and their mutual contributions, the more the mutual respect of each
for the other will result and the better and finer will be the service rendered to the community of which they are all a part. It would seem logical that suitably qualified representatives of the board of education should take the initiative in the attempt to secure the mutual cooperation of all. The idea of the school's seeking advisement of the other two authorities is more than a mere gesture; it is a technique of initiating procedures which reach out towards ever-increasing cooperation.

Criterion C-6. It is the school's responsibility to see that these standards are met. This criterion was awarded the high agreement of eighty-one per cent. Because of the school's broader outlook upon life as a whole and because of its nearness to the students concerned, it is in a most strategic position to see to it that the standards of the physical examination are met.

Criterion C-7. The physical examinations should be given only by members of a board of examining physicians, agreed upon yearly by a joint committee, representing the local or county medical society and the municipal educational and health authorities.

There being only fifty per cent. agreement with this criterion, it can not be considered or discussed.

Criterion C-8. The correction of the physical defects of school children is a health service, and if the parents (whose fundamental responsibility it is) cannot afford to give their children this service through the medium of
private physicians, the service should be rendered by the municipal health authorities, or the best fitted agency outside of the school.

This criterion received the very high agreement of fourteen out of sixteen jurors or eighty-seven per cent.

Criterion D-2. It is not the function of the board of education to correct any physical defects of children.

This criterion received sixty-eight and seven-tenths per cent. agreement which is not high, but sufficiently large to be included in the study. Where disagreement occurred, it was due in almost every case to a failure to grasp the distinction made between the terms education and correction.

Criterion E-1. Correction of physical defects is the function of the various branches of the medical profession.

The high agreement of eighty-one per cent. followed this criterion.

Criterion E-2. It is not the function of the department of physical education to attempt the correction of physical defects of school children.

This criterion received the same amount of agreement as the preceding one, namely, eighty-one per cent.

Criterion F-1. There shall be available, throughout the school day, service of the following nature:

a. Re-examination of children requiring it.

b. Supervision of the follow-up program.

c. Supervision of such physical environmental factors
affecting the health of students and teachers as heating, lighting, ventilation, and sanitation.

Twelve out of the sixteen jurors, or seventy-five per cent., agreed with this criterion. Those disagreeing were uncertain as to how the word "available" was to be interpreted. The author implied that it meant within easy reach of the doctor should he be needed at times other than at a regular office period, at specified times at the school on certain days of the week.

Criterion F-2. It is the school's responsibility to see that these services are carried out by competent agents.

This criterion received a bare nine out of sixteen or fifty-six and two-tenths agreement. This criterion, when originally sent out to the jurors, was worded in a slightly different way namely: "It is the school's responsibility to see that these services are carried out by competent medical doctors". In numerous instances it was pointed out by different jurors who disagreed that their objections were two: first, the term "medical doctor" was not correct and tended to arouse considerable irritation, the preferred term being "physicians"; and second, they objected to the term being as specific as "medical doctors", or even "physicians". They indicated that the term should be a more general one, such as personnel or agents, arguing that it was unnecessary for a physician to supervise the physical environmental factors affecting the health of
students and teachers such as heating, lighting, ventilation and sanitation. Physical education teachers, nurses, principals or even janitors it was felt could efficiently render this service. The author found himself in agreement with this line of thought but still felt that it would do no harm to have the physician supervise these factors in some degree at least. However, it was agreed that the more general term "agents" would be satisfactory in either case, and since a sufficient number of jurors had agreed with the original statement, it was deemed justifiable to change the wording to "agents" since it could result only in more agreement.

Criterion F-3. was omitted from inclusion in Table B on page 133 since it was not so much a true criterion in keeping with the others as a series of questions asking certain information. It was stated as follows:

"If you agree with the above criteria, (Criteria F-1., and F-2.) indicate the ways this may be met:

a. Full-time service financed by the school?
b. Full-time service financed by some agency outside of the school?
c. Part-time service financed by the school?
d. Part-time service financed by some agency outside of the school?
e. Clinic of some agency outside of the school?
f. Hospital of some agency outside of the school?

The returns of this group of questions are noted in Table C which follows:

| TABLE C |
| Methods Advocated by Jurors of Meeting the Needs in |
in Health Service Method

(Percents based on 11 Jurors only, since 5 did not answer)

<table>
<thead>
<tr>
<th></th>
<th>No. of Jurors</th>
<th>Per Cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Full-time service financed by school</td>
<td>8</td>
<td>72.7</td>
</tr>
<tr>
<td>b. Full-time service financed by some outside agency</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>c. Part-time service financed by school</td>
<td>3</td>
<td>72.7</td>
</tr>
<tr>
<td>d. Part-time service financed by some agency outside of school</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>e. Clinic of some agency outside of school</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>f. Hospital of some agency outside of school</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>g. Any way but controlled by education activities</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Many of the jurors voted for more than one particular way of meeting the situation. One juror who voted for all of them made the following pertinent comment: "I mark these all because the manner of financial support is secondary to the desired results - and because different communities may do the job in different ways."

Criterion 0-1. The board of education should use its entire budget for those purposes which are primarily educational; in other words, it is the function of the board of education to utilize all the money it can acquire in hiring the best teachers, paying them fair salaries, keeping equipment up to date, enriching teaching by adequate supervision and research, educating the community, and making the school environment contribute to the best health of the students and teachers.

The affirmative response to this criterion was high agreement being eighty-one per cent.

Criterion 0-2. The municipal health authorities or other social agencies of the community outside of the school should pay for school medical service and correction of
physical defects not financed by the parents of the school child.

The agreement with this criterion was sixty-two and five-tenths per cent. It was felt that the agreement would have been somewhat higher had the words, "school medical service", been deleted. The difficulty lies in what is interpreted to be included in "school medical service".

Criterion G-3. It is not economical or practical for boards of education to finance the construction and administration of school clinics, dental or otherwise.

Seventy-five per cent. of the jurors agreed with this criterion.

The next five criteria, all on the subject of posture, received one hundred per cent agreement.

Criterion H-1. Posture is good to the extent that it facilitates function in the activity at hand.

Criterion H-2. The best posture for a particular individual is the most appropriate and efficient posture the individual can assume in carrying out his specific purpose or activity.

Criterion H-3. It is natural and proper for one to change his posture periodically even in sleep to rest muscles, relieve strain, and secure more adequate relaxation.

Criterion H-4. It is undesirable to make children stand or sit in the same posture for long periods of time without change, no matter how straight, good or proper the posture is supposed to be.
Criterion II-5. A straight, stiff, and inflexible posture, is not an efficient posture for the activities of life in an ever-changing world.

Criterion I-1. Professional training in physical education does not and should not fit an individual to correct the physical defects of school children.

The agreement here was seventy-five per cent. or ten out of sixteen jurors. From the comments made by those disagreeing it is very evident that the agreement would have been much higher had the jurors kept closer in mind the distinction between the two terms education and correction as defined in this study.

Criterion I-2. This criterion is divided into seven parts; a, b, c, d, e, f and g, all of which received very high agreement from the jurors. Their meaning is self-evident so they will be mentioned without comment other than the percentage of agreement received by each.

a. To recognize certain physical defects of school children. Agreement ninety-three and seven-tenths.

b. To understand the causes of certain physical defects so they can educate for prevention.

Agreement ninety-three and seven-tenths.

c. To know and understand many of the common procedures the medical man must use to correct these defects; so that the physical educator can be of greatest service to the child in making arrangements with the nurse or the physician resulting in the child's more rapid correction.
Agreement ninety-three & seven-tenths.

d. To talk intelligently and in correct technical terms about most of the common physical defects found among students, and to be able to follow the doctor's directions in the event he recommends a special or individual physical education program.

Agreement eighty-seven & five-tenths.

e. To formulate and teach exercises which will develop certain specific muscles or groups of muscles through the application of the sciences of physiology and kinesiology.

Agreement one hundred per cent.

f. To teach an increasingly large number of those sports representing the milder forms of activity which can be participated in by children with physical defects all their lives; such as: bait-casting, archery, quoits, horseshoes, and deck tennis.

Agreement one hundred per cent.

g. To give various tests of functional efficiency which can be used to classify, grade, and measure the progress of children with certain physical defects.

Agreement one hundred per cent.

C. Summary

The criteria have been stated and the results of the jurors' evaluation of them have been indicated. It was statistically demonstrated that in order to be sure of a majority agreement, using any number of jurors, there should be an agreement of at least eighty-one per cent,
or in the present case, out of the sixteen jurors thirteen were used. However, due to the exceptional quality of the jurors, the fact that the criteria are supposed to represent ideal standards which are of necessity at variance with present practices, the failure of certain jurors to keep before them the distinction made between education and correction in this thesis, and the fact that the criteria most disagreed with raised mute questions about which there are many differing opinions, it was decided to accept nine out of sixteen jury agreements or fifty-six and two tenths per cent. as a sufficient amount of agreement to set about the establishment of a program.

All of the criteria save one (Criterion C-7.) received sufficient agreement to be included in the continuation of the study. This one criterion, however, had only fifty per cent. agreement and, in addition, was felt after all not to be strictly a criterion, but rather a thorough-going application of certain criteria previously stated. It was therefore dropped.
CHAPTER XIII
CRITICISM OF EXPERT OPINION AND EXISTING CONDITIONS
IN TERMS OF CRITERIA


1. A questionnaire report was recently completed in which a group of experts expressed themselves as to what should be the practices and policies in force in administering the so-called corrective phase of the physical education program in American public schools. It was felt that a comparison of the views of the experts with the criteria stated and developed in previous chapters of this study would be enlightening.

For various reasons not all of the material reported by experts on the administration of the corrective phase is related to the criteria set forth. It therefore seems best to take up first the comparison with these criteria to which the experts' report showed some relation, and deal later with the other criteria.

For convenience the thirty-three different criteria are condensed and grouped under their larger headings.

I. Criteria About Which Experts Gave Information.

1. Criteria Concerning Health Examinations.

The first point set forth by these criteria is that every school child should have a health examination once
each year. The report of the experts is in agreement with this statement since it states, "Eighty-nine per cent of the experts said that health examinations, including detailed orthopedic and postural examinations, should be given in the beginning of each term of the school year to all pupils entering elementary or secondary school grades."\(^1\)

The criteria state at this point that the health examination should include as a minimum the checking of a certain definite list of items. The experts give no definite information, apparently assuming that the ordinary items of a thorough health examination are to be checked.

Next the criteria make two statements: one referring to need for health examinations previous to the child's participation in physical education activities; and the other with reference to the time of completion of the examinations. These statements are: "The school must require school children to have completed their health examinations before allowing them to engage in the physical education program of the school," and, "The health examinations should be completed the week previous to the opening of school in the fall and should be a requisite for registration." On this latter point approximately seventy-five per cent of the experts said that the health examinations should be completed by the end of the fourth week of school, and only eleven per cent of the experts favored the idea of health

\(^1\) See Appendix, p. 424.
examinations completed before the opening of school and as a necessary requisite for registration. One of the other experts said that this last mentioned method was the best but that it was not yet generally used.

The next two points made by the criteria concerning health examinations are that the school, after advisement from the municipal health authorities and the local medical society, should establish standards for the school health examinations, it being the school's definite responsibility to see that these standards are met. On these points the experts have little to offer although it might be implied that if standards are set up at all, the school would have the most to say about it since eighty-nine per cent of the experts felt that health examinations of school children should be conducted at school. In addition to this fact ninety-five per cent of the experts felt that the board of education should be responsible for the health examination and for its cost. This, however, eliminates the solicited participation of the municipal health authorities and the local or county medical society provided for by the criteria.

2. Criteria Concerning Medical Service

Although the question of health examinations is also a part of medical service, the criteria stated, under the heading of Medical Service, that there should also be

1. Ibid., p. 414.
2. Ibid., p. 424.
3. Ibid., p. 424.
available throughout the school day service of the following nature:

a. Reexamination of children requiring it.

b. Supervision of the follow-up program.

c. Supervision of such physical, environmental factors affecting the health of students and teachers as heating, lighting, ventilation and sanitation.

An additional criterion was that it was the school’s responsibility to see that these services are carried out by competent agents.

On these points the experts contributed no information except concerning the supervision of the follow-up program. For example, they agreed one-hundred per cent that at regular intervals a check-up should be made by the school to see whether the recommendations of the doctor were being carried out. However, the check-up is only a small part of the follow-up in which may be included many educational procedures for which the school is responsible.

3. Criteria concerning the Correction of Physical Defects.

A condensed statement of the criteria on the subject of the correction of the physical defects of school children would involve the following points:

a. The responsibility for the correction of the physical defects of school children belongs to the parents.

b. Correction in the main, then, should be secured by parents through contacting their private physicians and carrying out their recommendations.

1. Ibid., p. 435.
c. Indigent parents, unable to afford to have their children's defects corrected through private physicians, should have this service rendered by the municipal health authorities or the best fitted agency outside of the school.

d. It is not the function of the board of education or the physical education department to attempt the correction of any physical defects of school children.

e. Correction of the physical defects of public school children is the function of the various branches of the medical profession.

Consideration of points a and b above shows no information of the experts which would apply specifically. However, for the other points mentioned (c-e), fairly direct applications can be seen.

The experts did agree one hundred per cent that the school, through its physical education department, should organize and conduct classes for the correction of certain remediable defects of school children revealed in the health examination.

The particular defects for which seventy-five per cent or more of the experts felt that corrective measures could be undertaken by the public school were: kyphosis, flat foot, pronated feet, relaxed arches, lordosis, relaxed abdomen, bowel elimination exercises, cardiac and functional scoliosis. Less than fifty per cent of the experts voted for corrective procedures for dysmenorrhea, neurasthenia and structural scoliosis in the public schools.

At first sight the opinion of the experts on the above

1. Ibid., p. 437.
2. Ibid., p. 438.
matters seems to be at great variance with the points raised in the criteria, since the experts favor correction of certain defects and the criteria state that the school should not attempt the correction of any defects. However, it must be remembered that the experts are thinking of the term correction from a very different viewpoint from that stated in the definition of terms in this study (pp. 5, 6), and they have not made a definite distinction between education and correction. Their conception of the word correction held a large place for many procedures which in the light of the terms used in this study would be definitely educational. At this point it should be pointed out that the criteria of this study indicate that a great many different educational procedures, for defects listed above and many others, are the school's very definite responsibility. Undoubtedly many of the experts had at least some of these educational procedures in mind. It is therefore safe to say that even though the experts did favor correction of physical defects of school children, to the extent that they had in mind what this study would term educational procedures, they are in agreement with the spirit and meaning of the criteria.

Further support may be implied through a consideration of the defects the experts mentioned on the preceding page. (TABLE 38, p. 138) For example, the particular defects that over seventy-five per cent and in the main over eighty per cent felt could be taken care of in the public schools, are defects for which improvement mainly comes as a result of
educational procedures which the child must learn to perform for himself. The particular physical defects which less than fifty per cent of the experts felt could be handled in the schools, such as structural scoliosis, dysmenorrhea and neurasthenia, generally require for correction the services of specialists in the medical profession. Educational procedures will improve them only slightly. For a more detailed discussion of the specific physical defects in relation to this matter consult Chapter XIV B., Pp. 173 - 219 in this study.

In another part of the questionnaire report of the experts is the information\(^1\), fifty percent, fifty-eight percent and sixty-six percent of the experts felt that dysmenorrhea cases, cardiacs and neurasthenia cases respectively should be handled at regular medical clinics and not at the school. Again on the same page, (P. 448) is this additional information: Fifty-five percent and seventy-nine percent of the experts felt that cases of malnutrition and of postural deviations respectively should receive attention in the school. These cases are the types where educational procedures are the most effective.

Concerning the problem of handling correction for children of indigent parents the experts reported the following information: "In cases of indigency and consequent failure of parents to correct the defects of children, eighteen percent of the experts felt that free clinics should be estab--

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\(^1\) Ibid. p. 423
lished and paid for by the board of education; twenty-nine per cent. said such clinics should be paid for partly by the board of education, and partly by the state and city, while sixty per cent. felt that the school nurse should direct such cases to free clinics already established in the community. The analysis of the various statements of the experts seems to indicate more agreement than disagreement with the criteria of the study as far as the problem of correction of physical defects is concerned.


There are eight different statements contained in the criteria dealing with professional training of teachers. The experts, however, gave opinion regarding only two of these criteria (f and g) as follows:

Professional students of physical education should be trained in the use of educational procedures for children with physical defects; in other words they should be prepared:

f. To teach an increasingly large number of children with physical defects those sports representing milder forms of activity which can be participated in throughout life, such as bait-casting, archery, badminton, horseshoes, deck-tennis, etc.

g. To give various tests of functional efficiency which can be used to classify, grade, and measure the progress of children with certain physical defects.

1. Ibid. p. 431
Statements of the experts' report related to criterion f. are as follows:

"Games and game situations involving the use of muscles needing to be strengthened were considered the most valuable activities for use in the so-called corrective program by seventy-one per cent. of the experts."  

"Dancing or rhythmic activities were checked as most valuable by thirty-seven per cent. of the experts."

In the questionnaire to experts they were asked which of four different types (1. Formal calisthenic, 2. Mimetic, 3. Games and game situations and 4. Dancing or rhythmic activities) of exercises used in so-called corrective programs were thought the most valuable. Expert opinion on two of these activities has been given above.

Formal or calisthenic exercises were rated most valuable by twenty-five per cent, and the mimetic type by thirteen per cent, of the experts. Several of the experts voted for more than one type of exercise program and this accounts for the total of percentages being considerably over one hundred per cent.

Experts were also asked whether they thought combinations from the four types of activities might make the best program, and if so which combinations would be best.

"It is interesting that of the thirty-four per cent. of the experts, voting for combinations of the four types of activities suggested for use in the so-called corrective

1. Ibid., p. 452
program, all include games and game situations in the combinations advocated."

It may seem that what we have been discussing above is really the program to be taught rather than the training of teachers. However, the questions of teacher-training and program are inextricably bound together, for it is the teachers who must put across the program. From the foregoing it can be seen readily that there is rather large agreement between the experts and criterion f. which stresses the importance of the ability of physical education teachers to teach suitable game and sport activities.

Referring back to criterion g., which deals with the ability of teachers to give objective tests for classification, grading and measuring the progress of children with physical defects, expert opinion contributed the following: "Eighty-two per cent. of the experts say that it should be possible to test objectively the progress of a child in corrective activities but only fifty per cent. feel that we are able at present to test objectively our results in the so-called corrective activities." Even though only one-half of the experts feel that the task of objectively testing the work of the so-called corrective program is at present possible, the great majority feel, as criterion g. suggests, that tests should be given to measure the work.

A direct quotation from the report of the experts dealing with the matter of objective tests for physical

1. Ibid. p. 452
2. Ibid. p. 457
defects should be interesting at this point.

"There were opportunities given for the listing of objective tests for twelve different physical defects. Of the thirty-eight experts the average percentage listing tests at all was only eighteen per cent." This is a very small per cent, when you consider that only fifty per cent. of the experts said that it was now possible to test objectively for the various physical defects considered in corrective physical education.

The outstanding findings in this list of objective tests were the extreme paucity of range and the scarcity of actual tests mentioned, as well as considerable inaccuracy or discrepancy in the lists. The greatest variety of tests and the greatest accuracy were noted in the answers of the group of physicians on these tests. The question naturally arises: how effective can programs of individual corrective activities be when organized and conducted by people unable to test objectively or measure the progress or regress of their work?"

It is, then, quite obvious that teachers must be trained in testing the progress of children in many of the educational procedures which it is their responsibility to teach.

1. Ibid. p. 460
5. Criteria Concerning Costs.

The experts gave but slight indications as to how they felt about the following criteria:

a. "The board of education should use its entire budget for those purposes which are entirely educational; in other words, it is the function of the board of education to utilize all the money it can acquire in hiring the best teachers, paying them fair salaries, keeping equipment up to date, enriching teaching by adequate supervision and research, educating the community and making the school environment contribute to the best health of students and teachers."

b. "The municipal health authorities or other social agencies of the community outside of the school should pay for school medical service and correction of physical defects not financed by the parents of the school child."

c. "It is not economic or practical for boards of education to finance the construction and administration of school clinics, dental or otherwise."

The question of costs in connection with the so-called corrective phase of the physical education program is scarcely mentioned by the experts except that a fair amount of agreement with criterion b. above is indicated since sixty per cent. of the experts felt that the school nurse should direct such cases to free clinics already established.

More agreement can be indirectly implied since only eighteen per cent. of the experts felt that free clinics

1. Ibid., p. 437
should be established and paid for by the board of education. So fundamental a distinction as that raised by the first of these criteria (a) on the preceding page is given no thought, apparently, by the experts.

II. Criteria About Which Experts Gave No Definite Information.

1. Criteria Concerning the Function of the School.

The experts had no definite information concerning the following criteria:

The function of the school is education.

It is the school's responsibility to insure that the physical environmental factors of its various teaching situations facilitate its function of education.

The school should educate the whole child by developing intelligent interests, informations and impulses concerning health and physical efficiency as well as developing the other curricular subjects.

The particular reasons why experts gave no helpful comments one way or the other concerning the above criteria would seem to be two. First, the experts were reporting on a questionnaire dealing with administrative procedures while the criteria are fundamentally and basically guiding principles for various administrative procedures. Second, experts and teachers in the so-called corrective phase of physical education are the more concerned with the carrying out of a number of activities than they are in considering the WHY, the HOW, the WHAT and the WHO questions which must be answered first.

No definite information was forthcoming from the experts concerning the following criteria:

"Primarily and fundamentally the responsibility for the health of the child should rest upon the parents."

"It is the school’s function to educate the child as he develops in such a way that he may be able intelligently to take increasing responsibility for his own health to the best of his ability and resources."

Here again are questions so fundamental that experts in the field of teaching and administration of the so-called corrective phase of physical education have apparently not considered them, and the reasons for this are the same as those following the criteria dealing with the function of the school on the previous page.


The following five criteria about posture seem to represent concepts entirely foreign to any expressed by the experts.

"Posture is good to the extent that it facilitates function in the activity at hand."

"The best posture for a particular individual is the most appropriate and efficient posture an individual can assume in carrying out his specific purpose or activity."

"It is natural and proper for one to change his posture
periodically, even in sleep, to rest muscles, relieve strain and secure more adequate relaxation."

"It is undesirable to make children stand or sit in the same posture for long periods of time without change, no matter how straight, good, or proper the posture is supposed to be."

"A straight, stiff and inflexible posture is not an efficient posture for the activities of life in an ever-changing world."

The experts feel that posture is important, and something to which the school should give its attention. However, the posture and posture training visualized by the experts are of the traditional type. In this connection the report showed that functional postural deviations received the highest ratings (from eighty to ninety per cent.) of all the physical defects considered. Another interesting bit of information from the report is that seventy-nine per cent. of the experts felt that postural deviations should be dealt with in the school and only ten per cent. felt that postural deviations should be handled in the clinics.

However, as to the specific criteria concerning posture mentioned above, the experts have nothing to say. The criteria are too fundamental. The experts have apparently taken posture for granted and their concept is the traditional one.

1. Ibid. p. 438
B. Criticism of Existing Conditions in Terms of Criteria.

A survey of existing conditions was recently made to discover the prevailing practices and policies in the individual or corrective phase of the physical education program of American city schools. In this survey returns were received from one hundred and six school systems out of three hundred and forty-nine systems questionnaired, or from over thirty per cent. Many findings of this questionnaire study are irrelevant to the present study which concerns responsibility for certain educational procedures rather than detailed administrative procedures. For this reason the present section will be a criticism of only such existing conditions as are related to the criteria. Inasmuch as the questionnaire report contributed no information concerning certain of the criteria, these will be discussed last and the criteria about which the questionnaire gave some information will be dealt with first.

I. Existing Conditions Related to Criteria.


As has been stated many times previously, the criteria say that the responsibility for the health of the child rests upon the parents. The fact that eighty-five per cent.

of the school systems answering the questionnaire notify
the parents of the results of the health examinations is one
indication at least that the schools consider the parents
responsible for the health of the child. Over eighty-five
per cent, of the school systems not only notify the parents
of the results of the health examination but interpret the
results to the parents. This would seem to be a further
indication that parents are considered responsible for the
health of the child.


The gist of the various criteria concerning health
examinations is a health examination for each child each
year previous to the opening of school and before the child
engages in any physical education activities. The criteria
also state that standards for the health examinations should
be set up by the schools after advisement from the municipal
health authorities and the local or county medical board and
that it is the duty of the school to see that these standards
are met.

With regard to health examinations the questionnaire
study on existing conditions contributes the following infor-

mation. Over eighty-five per cent, of the 2935 schools
reporting stated that health examinations are given to all
children of the school. These examinations are conducted in
the school in over ninety per cent of the cases.

1. Ibid. p. 360
2. Ibid. p. 361
3. Ibid. p. 362
The criteria state that the health examination shall include as a minimum for the examiner to check seventeen different items. The questionnaire report showed that all of these same items were being checked in the health examinations of sixty-two per cent of the schools reporting except bones, joints, and genitalia, and that certain items of the examination were being checked by still higher percentages of the schools and are as follows: teeth, 91%; eyes, 91%; nose, 83%; throat, 83%; lymphatics, 83%; ears, 87%; skin, 86%; heart, 83%; lungs, 83%; nutrition, 78%; spine, 75%; history, 64%; hernia, 63%; and abdomen, 62%.

It is interesting that although eighty-five per cent of the schools reporting state that they give health examinations to all students, and ninety per cent of these examinations are conducted in the school building, only sixty to sixty-nine per cent of the schools in the three educational units state that they are equipped to give efficient health examinations. In addition to that, it is interesting to consider that this report shows that only the following equipment is available for use in giving health examinations in forty-five per cent, or more, of the schools reporting: first aid equipment, weight scales, lavatory, and instrument cabinets.

With respect to the school's setting up standards for the health examinations after advisement with municipal health authorities and local medical boards, it can be

1. Ibid., p. 379.
2. Ibid., pp. 373, 374, 375.
3. Ibid., Table VIII, p. 376.
implied that experts felt the school authorities should set up the standards for the health examinations and see that they are met since eighty-nine per cent. of the experts felt that the examinations should be conducted in the school. Likewise it can be implied that in the recent administration of school systems the schools are setting up such standards as there are, at present, since over ninety-nine per cent. of the school systems reporting stated that health examinations were conducted in the schools. However, one cannot with certainty assume this and there is furthermore no evidence in either report of experts or of schools to show that school systems should or are seeking advice of the municipal health authorities or county medical boards.

3. The Correction of Physical Defects.

The criteria are quite specific in stating that the correction of physical defects of school children is not the function of education nor of physical education but rather of the medical profession. The report of existing conditions shows, however, that fifty-six per cent., seventy per cent., and sixty-one per cent., of the elementary schools, junior high schools and high schools, respectively, are attempting so-called correction by means of organized classes.

The relative emphasis given to various physical defects in these organized classes for correction is indicated in

1. Ibid. p. 372
2. Ibid. p. 387
the percentages of schools conducting classes for specific
1 defects which follow. Posture 74%, weak arches 53% mal-
nutrition 51%, exercises to aid in bowel elimination 24%,
dysmenorrhea 26%, cardiax 30% and relaxed abdomen 24%. It
should be noted here that school systems, like the experts,
make no distinction between what is education and what is
correction, and that the majority of the physical defects
with a high emphasis rating above are those for which educa-
tional procedures will be most effective.

Of the persons actually organizing and conducting these
2 so-called corrective classes in the schools, the school
nurse according to the survey ranks first in frequency, the
specialist in individual corrective activities second, the
director of physical education third, and his assistant last.

4. Posture.

The criteria concerning posture reveal both new defini-
tions and standards and a different emphasis (see posture
criteria as stated in previous section pages\(^1\)) from the
traditional definitions, standards, and emphases noted in
the questionnaire report of existing conditions. This sur-
vey showed that of the schools conducting classes in
corrective activities, seventy-four per cent. included
corrective measures for postural deformities. The percent-
ages of other defects are listed on the previous page (\(^2\)).

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1. Ibid. Table XXI, Fig. 12, p. 390
2. Ibid., Table XX, Fig. 11, p. 389
3. Ibid., Table XX, Fig. 11, p. 389
and the order according to highest per cents following posture is; weak arches, malnutrition, dysmenorrhea, relaxed abdomen, bowel elimination, and cardiac cases. It is felt that posture as a problem of the school child is insignificant when compared to such items as the cardiac, malnutrition, weak and painful arches, defective vision, defective hearing, dental caries and diseased tonsils.

The traditional viewpoint concerning posture, as reflected in the survey report, would eulogize one particular type of posture supposed always to be right, a stiff more or less inflexible posture which did not take individual differences into account and which, ideally, was to be maintained constantly. This traditional viewpoint was the one held by the experts to which reference has previously been made. In contrast to these traditional viewpoints are those of the criteria. Their main thought being that posture is good to the extent that it facilitates function in the activity at hand, that one should periodically change one's posture to secure more adequate relaxation and prevent spinal rigidity and furthermore that the best type of postural instruction will develop individuals who can assume at will the greatest number of different postures.

5. Teacher Training.

The questionnaire report had little information bearing on the criteria about teacher training. One fact gleaned from this report, however, was that of the 3,935 schools
reporting, only forty-two per cent. claimed to be achieving results from their classes in corrective activities which could be objectively measured. It will be remembered that criterion g. under Teacher-Training suggested that teachers should have been trained to give objective tests for classification and grading, etc. Eighty-two per cent. of the experts said that this should be the case although only fifty per cent. of them felt that it was possible at present.

Although the survey of existing conditions showed that forty-two per cent. of the school systems felt that their results could be objectively measured, only thirty-two schools out of the 2,835 reporting, or a little over one per cent., listed objective tests for use with certain of the defects, when asked to do so in the questionnaire. There is here, of course, the fairly obvious implication that although the schools were optimistic enough to feel that their work could be measured, they had done nothing about it and were even at a loss to state how it could be measured. There are, of course, other reasons why this particular question was answered so few times, not the least of which would undoubtedly be the time and trouble involved in listing the tests.

Further criteria listed under Professional Training are as follows:

2. a. To recognize certain physical defects of school children.

b. To understand the causes of certain physical defects so that education for prevention can be

1. Ibid. p. 457
2. Ibid. p. 402
carried on.

c. To know and understand many of the common procedures medical men must use to correct these defects; ........

d. To talk intelligently and in correct technical terms about most of the common physical defects found among students, and to be able to follow the doctor's directions in the event he recommends a special or individual physical education program.

e. To formulate and teach exercises which will develop certain specific muscles or groups of muscles through the application of the sciences of physiology and kinesiology.

It is evident, from a study of the foregoing, that prospective teachers of physical education must have, among others, courses in physical diagnosis and in the giving of health examinations, courses with hospital observations, courses in physiology and in the physiology of activity, courses in human anatomy, courses in the kinesiology of modern physical education activities, and courses in individual physical education. The only scientific source of information available concerning existing conditions relative to professional training of teachers in physical education was that of McCurdy. The table below represents a summary of certain facts pertinent to the training of teachers for individual physical education.

TABLE D

Percentages of Four-Year, Three-Year and Two-Year Professional Schools of Physical Education Offering Certain of the Subjects Needed by the Teacher of So-called Corrective Physical Education.

<table>
<thead>
<tr>
<th>Subject</th>
<th>4 year</th>
<th>3 year</th>
<th>2 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical examination</td>
<td>10</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Physical and health examination</td>
<td>39</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Anthropometry</td>
<td>26</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>71</td>
<td>86</td>
<td>14</td>
</tr>
<tr>
<td>Anatomy (human)</td>
<td>79</td>
<td>87</td>
<td>14</td>
</tr>
<tr>
<td>Physiology of exercise</td>
<td>57</td>
<td>80</td>
<td>7</td>
</tr>
<tr>
<td>Physiotherapy &amp; corrective exercise</td>
<td>64</td>
<td>73</td>
<td>14</td>
</tr>
</tbody>
</table>

Most attention should of course be paid to the column of four-year schools since the two- and three-year professional schools are rapidly dying out. It can readily be seen that the criteria for professional training of teachers for individual physical education cannot be put into operation until standards higher than those in the table above are realized.

Another factor which should be considered here in addition to the small percentages of schools offering work in these subjects is the great variation as to amount of course offerings. The range here was from one-half a credit hour to five or six credit hours. One should consider also that in most cases where courses were mentioned they were specified for only one of the sexes and usually for women only.

1. McCurdy mentioned also that catalogue descriptions varied a great deal and that terminologies differed. On top of this, the ever present human factor of the course instruc-
tors' differences in background and presentation makes one feel that the preparation of teachers for the so-called corrective phase of physical education is far from ideal.

II. Criteria About Which Existing Conditions Gave No Information.

1. The Function of the School, Medical Service, and Costs.

The report on existing conditions had no information whatever as to the particular criteria listed under the heading of the function of the school. Briefly, these criteria stated that the function of the school was education, that its further responsibility was to insure that the physical environmental factors of the various teaching situations of the school facilitated its function of education, and to develop the child's interests and impulses in health and physical efficiency as well as in the other curricular subjects. One of the main reasons that none of the information in the survey of existing conditions bore relationship directly to the criteria was that the report was a report of administrative procedures only and not one of educational principles involved. The schools have been taking a great many things for granted and have never bothered to make a distinction between education and correction. In this respect the schools were like the experts.

Apart from the material listed under the criteria concerning health examinations the report gave no information about medical service. Likewise, nothing was mentioned as
to costs. The general picture seemed to be that the schools had such medical services as they could afford and went without those they could not afford. They made no particular study as to what was needed or as to what was the responsibility of the parents, the municipal health department, and the school.
IMPLICATIONS OF THE CRITERIA

CHAPTER XIV

RESPONSIBILITIES OF COMMUNITY AGENCIES WITH RESPECT
TO CORRECTIVE AND EDUCATIONAL PROCEDURES FOR PUBLIC
SCHOOL CHILDREN WITH PHYSICAL DEFECTS

A. General Responsibilities of Home, School, and Other
   Community Agencies.

   In the light of the criteria and of previous dis-
   cussion it is perfectly clear that the responsibility
   for the correction of the physical defect of a school
   child rests upon his parents or guardian. In the event
   that the parents are indigent and cannot afford the
   medical or surgical attention necessary to correct the
   child's defect, the responsibility becomes that of the
   community. Any one of the following community agencies
   could then take over this responsibility:

   The municipal health authorities.
   The state or county medical society.
   Hospitals or clinics in the community.
   Interested physicians and surgeons.
   Service clubs such as The Rotary Club, The Kiwanis
   Club, or the Parent Teachers' Association.
   The Junior League.

   It appears to be the school's function to have a
   share in the recognition of the physical defects of
children to notify the parents, and to do their best to see that the parents live up to their responsibility and have the defects corrected, or, in the event that the parents are indigent, to see to it that the children are brought to the attention of those agents of the community who will accept the responsibility for making the needed corrections.

It is also the school's responsibility to expand its program to include such educational procedures for children with physical defects as will improve their condition emotionally as well as physically. This involves the introduction of games and sports into one physical education classes, games which are relatively mild and are suitable for life-long practice.

In addition, the school must very greatly increase the amount of health instruction as a basis for the prevention of defects in the future. This health instruction function of the school must be made to reach the parents of the community as well as the children.

B. Specific Responsibilities of Community Agencies with Regard to Specific Physical Defects.

It is felt that it would be helpful to describe some of the specific procedures which must be carried through if specific defects are to be corrected. In the course of the discussion of these defects the implications as to community responsibility will be brought out.

The common physical defects existing among public school children are listed by both Rogers andlikens.
Rogers¹ and Wilkes² as the following: teeth, tonsils, and adenoids, goiter and dysfunction of endocrine glands, vision, hearing, heart, lungs (tuberculosis), malnutrition, orthopedic variety (posture and spinal curvature, flat feet, bowlegs, etc.), and hernia. Other common defects listed by Wilkes but not by Rogers are: enlargement of cervical glands, skin, bones, nervous diseases, and cripples. These are not, of course, all of the physical defects of school children but are the common ones listed by two of the very best authorities.

This study will not discuss the prevalence of these various defects as reported in different parts of the country by various authorities, nor will it suggest reasons why the percentages of particular defects found in the same locality vary tremendously according to the particular physicians making the report. The purpose in this study is simply to throw some light on the question as to the school's responsibility in attempting the correction of any of these defects, and its responsibility also for establishing educational procedures for those with physical defects.

Dental Defects

Dental defects will be considered first, for these are

most prevalent among public school children. It is unnecessary to dwell at length upon the various technical procedures which have to do with the correction of dental defects, for these are familiar to all, the drilling and the filling of teeth; mixing amalgam, cement, porcelain, and other fillings; making various bridges and the necessary modeling of the jaw with plaster or wax; the pulling of teeth that are too far gone to be of use or have become abscessed or diseased; the care of the tooth sockets to keep them sterile and free from infection; the lancing of gums; the removal of impacted wisdom teeth; the scraping and cleaning of teeth.

It is evident that these corrective procedures are best carried through in the office of a dental surgeon. There are many, however, who believe that the schools should finance free dental clinics in order to make certain that all of the children of the public schools have their teeth taken care of periodically without fail.

Nevertheless, in the light of this study, it would seem best not to have school dental clinics giving school children free service. The better practice would be to utilize local community dental clinics already established, in connection with hospitals or other institutions, for the use of those children whose parents cannot afford to go to a dentist. Those who can afford dental treatment should go to their family dentists on parental responsibility. Another way would be to have special community clinics established in districts available for the greatest number where those who
can pay only for the bare cost of materials could be taken care of, and where the children of indigent parents could also be taken care of entirely at the community's expense. The district nurses and social workers of the district can ascertain the worthiness of the free patients.

At any rate it seems inadvisable to burden the school with any corrective functions or, specifically, with dental clinics which would cut in on both their time and their finances.

There are many educational dental procedures which might well be incorporated into the school program as a part of the health supervision and health instruction. For example, it would be a fine thing educationally for a teacher to take her home room class or her hygiene class, as the case might be, down to see one of the community clinics at work,—to have the children see just what a dentist does, and have an opportunity to ask him questions about the care of the teeth, and about the relations between bad teeth and disease and about the causes and treatment of dental caries. Another thing of great value educationally would be to have the community finance a school dental round-up or inspection once a year. At this time dental hygienists could make wholesale inspections of and reports in the teeth of all school children in the city. The public health nurses, with part-time school assignments, and other nurses working in the schools, could follow up those cases needing attention and see that the parents or community provide the necessary treatment.

Although school superintendents are many times proud to
show such definite results and although these do unquestionably constitute a service, oftentimes forget and neglect the main reason for which they were employed, namely, to lead the community educationally. Then, too, the effect upon the child should always be considered. Is the child becoming more dependent upon the school and community for various services, or is he being guided to the point where he can be intelligently independent in thought and action, an intelligently self-directing individual? When he leaves school, unless he has become dependent upon the community, he will have to go to an outside dentist of his own choice; how much has the school helped him to make his adjustment?

**Tonsils and Adenoids**

The correction of diseased tonsils and enlarged adenoids is a matter of surgery, and manifestly such correction has no place in the public schools. There are a number of different techniques used in the removal of Tonsils and Adenoids, but it is not thought necessary to discuss them.

The diagnosis to determine the need for removal is not as simple as it is sometimes thought, as examiners differ in their opinions. Wilkes¹, for example, says:

"The opinion of the same examiner, on the same case, is in certain types of defects, such as tonsils, not always constant, and opinions of different examiners on the same case, when independently formed, even after examinations made in the same hour, not infrequently differ markedly."

If the child were required to present himself for health examination at the office of one of the doctors of the board of examining physicians (each doctor of the board

². Loc. cit. p. 690.
being agreed upon yearly by the board of education, the board of health, and the local or county medical society), this difficulty would be eliminated, for the doctor would have more time in which to make a detailed examination with precise instruments, and, if necessary, could refer the child to a specialist or clinic. The battery system of health examinations at schools is not satisfactory as a rule.

Goiter and Other Glandular Dysfunction

The procedures used in the correction of endocrine gland dysfunction are: regulation of the patient's diet, exercise and sleep, the feeding of glandular extracts, and surgery.

Endocrinology has become a very special branch of medicine, and one that has a great future, but it is also one that requires great study. Manifestly, the correction of endocrine glandular dysfunction has no place in the public schools but only in hospitals, community clinics, and the private offices of physicians.

There are items in endocrinology which may be used in the teaching of hygiene, such as the relation of goiter to iodine content of water, the uses and functions of the various ductless glands (so far as they are known), etc.

There are numerous interesting and valuable educational features of the endocrine glands which the superior teacher can get across to her classes.
Vision

The first step in the procedures to correct visual defects is to detect the defects. In general, it may be said that initial tests are often given by home room teachers in the school by means of Snellen eye charts. These tests enable teachers to discover children with impaired visual function. The records of the eye tests are turned in to the principal, and those of children with defective vision are turned over to the nurse for follow up. These children then have a very much more detailed examination by an oculist skilled in the use of the ophthalmoscope and in detecting abnormalities of the eye. For these more detailed examinations the doctor generally puts a few drops of homatropin in the patient's eye so that the refraction of the eye may be studied to better advantage. The oculist, after thorough examination, makes out a prescription for the glasses the child should wear. The child then takes this to the optician, who in turn, fits him with the proper glasses.

Although the teacher cannot and should not attempt to diagnose any of the eye conditions demonstrated by her pupils, she can and should observe the conditions of the eyes of her pupils. Berkowitz\(^1\) quotes a list of suggestive hints for teachers as to what they might be able to do along this line, a list prepared by J. T. C. Nash, of Norfolk and recommended for general use by the Chief Medical Officer of the Board of Education for England and Wales:

"Defective eyesight may be suspected when a child (1) in a back row cannot read what is written on the blackboard; (2) cannot tell the time by the clock at a little distance; (3) fails to keep to the lines when writing; (4) misses out small words when reading; (5) habitually holds a book nearer to the eyes than 12 inches when reading; (6) complains that the letters run into one another; (7) squints, even if only occasionally; (8) complains of tiredness of the eyes or of frontal headaches after reading or sewing."

There are three types of visually defective children recognized today: (1) children with defects which can be corrected by medical treatment and proper glasses; (2) those semi-blind children with about one-tenth normal vision who are really too nearly blind to attempt their education in a regular public school with children without visual defects, and yet are not sufficiently blind to be classed or schooled with the third group, (3) those who are totally blind. The last two groups should have separate special schools. The semi-blind child should not have to learn the raised print reading methods, but should have very large bold print for his reading. Much of this can be written large on the board by the teacher. The teacher also can read a good deal of the work to the students and so save their eyes which must be carefully conserved.

The cases in the first-mentioned group must be carefully followed up by the nurse to see that the parents perform their obligations with respect to the child. Berkowitz suggests that criteria for judging the value of the nurse's follow-up work might be as follows:

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1. Ibid, pp. 42-43.
"1. The promptness with which the child is examined for refractive errors, either by a private ophthalmologist or at a clinic, after being reported as having defective vision by either teacher or medical inspector.

2. The promptness with which eyeglasses are obtained when prescribed.

3. The testing of glasses as to their accuracy wherever obtained.

4. Endeavors to ensure the wearing of the eyeglasses by the children."

Berkowitz apparently looks upon school eye clinics with favor. He says that the outstanding American cities from the standpoint of school eye clinics are New York City, Cleveland, Milwaukee, and Rochester. In Cleveland, children follow pretty much the regular routine of health examination procedure and if one is discovered with eye defects, the nurse notifies the parents. If she discovers that the parents cannot afford to take the child to an oculist, she takes the child to the school clinic (which is open every afternoon), provided she can first gain the written consent of the parents. The child is then thoroughly examined and taken care of in every detail. After dilation of the pupils by homatropin, error of refraction is determined by means of the retinoscope. Proper glasses are ordered for the child and the frames of these are later carefully adjusted. Finally the nurse has the duty of seeing to it that the child wears the glasses. She also follows up the case to see that the child is free from the symptoms of which it formerly complained.

It would seem that the Cleveland system is a very good one. Apparently it serves gratuitously only those cases which cannot afford to pay for the treatment and whose parents are willing for it to be administered. It is financed by the
board of education and managed by the department of medical
inspection which is under the board of education. Since it
is under the board of education, it is felt that it goes
farther in giving service than it should be, considering one
function of education. It could logically go as far as a
detailed diagnosis of the case to be strictly within its scope
under the department of medical inspection.

New York City is more logical in conducting its school
clinics through the health department under whose jurisdiction
the school medical inspection is maintained. These school
clinics, as Berkowitz explains:

..."are in locations where the need is greatest as determined
by the economic character of the neighborhood and the lack of
other clinical facilities in the vicinity."

It would seem in keeping with the thesis here set forth
that a school clinic is justifiable if the needs of a com-
community are such that children cannot adequately be taken care
of otherwise. The New York City school eye clinics are
administered as follows:

The examinations are made by ophthalmologists, and
for this reason these clinics, like the private special
eye infirmaries, should be preferred, and probably are,
by school nurses and principals when directing the
attention of indigent parents to the need of having
their children's refractive errors corrected. No
glasses are sold at these clinics nor is any particular
optician recommended to the children receiving pres-
criptions. Precautions are, of course, taken to the
end that the clinic privileges are not abused and also
that they are fully utilized for the children's benefit.

All children referred to the clinic are required
to present a card signed by the school nurse indicat-
ing that she has investigated the social and economic
status of the family and that they are entitled to free
treatment. Where no adult member of the family is
available, the school nurse accompanies the child to
the clinic after containing written consent of the parents
to have the child treated at the clinic.
Each child on admission to the registrar's office is given two history cards, one for refraction and one for contagious disease. The child is then sent to the clinic physician (oculist) who makes his diagnosis of the eye condition. If there is no eye disease present on examination, the contagious disease history card is terminated at once and the diagnosis marked "normal." The examination of vision for classes is then entered on the refraction history card. If, however, eye disease is found, the refraction history card is marked "refraction pending," the order being to treat and cure any eye disease before glasses are prescribed.

All cases of eye diseases are treated until terminated either as cured, improved, unimproved, or transferred to another hospital or clinic. Operative cases are referred to the nearest special hospital. When cured or terminated otherwise on contagious disease history cards, all cases are then refracted for refraction history cards.

The vision of each eye is tested and compared with vision of each eye previous to mydriasis. In the dark room the eye is examined with the ophthalmoscope, direct and indirect methods, and by retinoscopy. The astigmatic error is measured by JaVal ophthalmometer. The refractive condition is then corrected with trial lenses and test types, all findings being noted on the history cards. The child is then told to return for final tests in approximately four days, when, without mydriasis, all the above methods of examination are repeated and compared with the findings under mydriasis. If satisfactory glasses are then prescribed or case terminated as normal, unimproved, or transferred elsewhere, e.g., for operation or strabismus.

All children with glasses ordered are directed to return to have their lenses tested for accuracy in grinding and adjustment of frames before history cards are terminated as cured.

The New York system seems to be a very thorough-going one, and it was of course the first one in America.

It would seem that school clinics are justifiable only when there are no other health agencies of the community available to do the job. It would be better to utilize the clinics already established if they are not overcrowded, to establish a special clinic to handle not only the children
but also their parents and relatives. In such a clinic with records of the whole family available, hereditary family tendencies could be studied and taken into consideration along with observable emotional factors. The clinic would also be in constant use and therefore efficient and economical.

The correction of visual defects is not a logical function of the school. The teachers, however, can be of great help in the discovery of children who need correction. Their keenness in observation at this point may mean the difference between a child's success or failure in his school work. Many children are failed and deemed dull because they see poorly. Changing seats to the front of the room is often helpful to such children.

The teacher also can make valuable suggestions on the proper care of eyes, and on the proper distance of eyes from work, and in the proper lighting of rooms.

Hearing

Impaired hearing is another defect like that of poor vision. It places the child at a tremendous disadvantage in the schoolroom, making him appear dull and stupid because he cannot clearly apprehend what is said. Its correction requires a great many procedures, from cleaning cerumen from the external auditory meatus to very serious surgical operations, such as indicated in the case of mastoiditis.

Manifestly the school has no corrective function here but has educational opportunities in the teaching of ways and means to prevent deafness. The teacher can serve the child, the school, and his parents by taking time to give
simple hearing tests, preferably with the audiometer, to
discover defective hearing which can be reported to the
nurse for follow-up.

Lungs (Tuberculosis)

The most common defect of the lungs is, of course, pulmonay tuberculosis. Jacobs¹ presents very clearly the picture of childhood tuberculosis and the procedures involved in coping with this dread disease.

"The problem of tuberculosis in children, therefore, resolves itself into two major phases; first, the finding of the children who have been at some time during their lives in intimate contact with open foci of infection, and second, the safeguarding of this particular group of children by every known means from breakdown with active disease in later life. It is most important that the contact of these children with the open case of tuberculosis be broken, preferably by removing the open case to a sanatorium.... The technique as finally elaborated includes, first, the securing of permission from the parents for the administration of the tuberculin testing of the children whose parents have given consent. Chadwick in his early studies and many other workers have used the Pirquet Test (1); the Mantoux Test (2) is becoming more popular and is apparently more reliable and accurate. After a period of from twenty-four to forty-eight hours, the tests are read. The third step is the X-raying of all the children found to react positively. In some instances the children are brought to a nearby sanatorium or dispensary where X-ray facilities are available, and in others a portable X-ray apparatus is employed. The fourth step is the interpretation and the reading of the X-ray plates............

"From the standpoint of the physician, the indications for treatment of a child found to be afflicted with the childhood type of tuberculosis have been stated by the National Tuberculosis Association as follows:

(a) Contact with the tuberculous adult who presumably has infected the child, must be broken. This is done by removing the tuberculous adult to a sanatorium or by taking the child out of the home. If both of

those expedients are impracticable, every member of the household must be taught the principles underlying the transmission of tuberculosis.

(b) The child must be relieved of all possible strain which means the avoidance of strenuous exercise and burdensome school work. Rest is the cornerstone on which the preventorium care is based.

(c) The child's health must be built up, which means that all physical defects must be corrected and that the benefits of good food, sunshine and fresh air must be made available.

(d) The psychology of the child must be adjusted so that he will not think of himself as being inferior to others gifted with greater reserve of physique. At the same time he must restrain overambitious impulses ... The following group should have sanatorium care or its equivalent whether symptoms or physical signs are present or absent.

1. Cases with diffuse or circumscribed infiltration of the lungs.

2. Cases with uncalcified tuberculous tracheobronchial lymph-nodes.

3. Cases with numerous pulmonary tuberculous lesions or large masses of tuberculous tracheobronchial lymph-nodes even if partially calcified. Children in this group have poorly walled off caseous lesions from which dissemination of the bacilli can take place and cause the adult type of pulmonary tuberculosis, miliary tuberculosis, or bone and joint tuberculosis.

"Demonstrable tuberculosis of the lungs or tracheobronchial lymph-nodes, or both, which is shown by X-ray examination to be well healed by fibrosis or calcification or both. No clinical symptoms. These patients usually react to tuberculin. When the tuberculin test is negative, the lesion may be considered obsolete. It should be remembered, however, that cases with apparently well-healed lesions may have other concealed caseous nodes from which tubercle bacilli may be disseminated.

"All children with tuberculosis of the childhood type should be kept under observation during the period of adolescence and X-ray films taken of the chest at least once a year. In this way, cases of the adult type of tuberculosis may be discovered before the appearance of symptoms.
"There is no need for special treatment of infected children who react positively to the tuberculin test, but who show no evidence of tuberculosis and are in good health. Such children are usually in no danger unless exposure to a source of infection is recent or long continued."

The tuberculin tests, both the Pirquet test and the Mantoux test have been mentioned frequently in the foregoing. A brief summary of these two tests as described by Chadwick would seem in order at this time:

"The Mantoux test is intra-dermal or intra-cutaneous and done on the forearm.
1. Inject one-tenth centimeter of .01 miligram solution; wait forty-eight hours, if negative.
2. Inject one-tenth centimeter of .1 Miligram solution; wait forty-eight hours if negative.
3. Inject one-tenth centimeter of 1. Miligram solution; if after forty-eight hours there is no reaction, it is negative. The reaction may appear after either of the injections. Wait no longer than from forty-eight to seventy-two hours.

The reaction - edema, and redness at end of forty-eight hours; no edema means negative.

"The Pirquet method of tuberculin test.
Scarify the skin (no bleeding).
Apply one drop of Koch's full strength tuberculin.
Allow ten to fifteen minutes to absorb. No covering for arm.
Reaction takes place three to seven days later."

"A more detailed discussion of the Mantoux method and its relative standing with the Pirquet method and others will be found in an editorial in a recent Journal of the American Medical Association describing the technique suggested by P. D. Hart.

It is evident from the foregoing that tuberculosis is another physical defect the correction of which the school should not attempt. The school can, however, cooperate in many ways with medical men and nurses carrying out certain lines of work in the community. The teachers

1. Chadwick, N. D., "Diagnostic Aids, Childhood Type of Tuberculosis," National Tuberculosis Association, 1930.
can do a great deal in the way of valuable education which will aid materially in the prevention of the disease. For example, the teachers can suggest or emphasize proper personal habits of living which will protect the children from infection, can discuss the ways and means of the spread of tuberculosis, and can also encourage the child to maintain a high personal resistance, through his enjoying plenty of sleep, food, and fresh air.

Hernia

There are three common types of hernia; umbilical hernia (common in infants and in very young children), femoral hernia, and inguinal hernia. Inguinal hernia is by far the most common. All hernias should be diagnosed by competent physicians, although it would be well for physical educators to be thoroughly familiar with what hernias look like and refer to a doctor all children with lumps in the region of the groin or umbilicus which may look suspiciously like hernias.

The procedure for the treatment of umbilical hernia is ordinarily to fit cloth bands snugly about the abdomen to hold the hernia or rupture in and to give the overlying muscles an opportunity to develop to sufficient strength to take over the job of holding in the hernia. The umbilical hernias of infancy are generally satisfactorily handled in this way, although sometimes operative procedures are necessary.

For the treatment of femoral hernia, surgery is essential.
Most doctors would agree that the best treatment for inguinal hernia is radical correction by surgery, although some of our best authorities, Seaver\textsuperscript{1} and McKenzie\textsuperscript{2}, for examples, would say that there are a great many hernias for which exercise treatment, or exercise plus the wearing of a proper truss, can effect a permanent cure.

It is generally felt that in the main the fundamental cause of inguinal hernia is heredity, and that the exciting causes are generally violent effort exercises, coughing when the muscular condition is extremely poor. In discussing the possibilities of heredity as a cause of inguinal hernia, Seaver\textsuperscript{1} says:

"... That a person should inherit an abnormally large inner inguinal ring or a thin and lax external oblique muscle is no more peculiar and exceptional than that he should inherit a specially large ear or a peculiar type of nose."

Seaver's non-operative method was a systematic training of the muscles of the abdominal wall, particularly of the external and internal oblique muscles, to produce muscular firmness and strength, together with a supporting truss that would not prevent the drawing together of the walls of the inguinal rings.

Practically all non-operative treatment consists in the prescription of specific exercises to develop the external and internal oblique abdominal and the transversalis muscles.

\textsuperscript{1} R. Tait McKenzie, "Exercise in Education and Medicine."
\textsuperscript{2} J. W. Seaver, "The Non-Operative Treatment of Reducible Inguinal Hernia." Reprint from the Archives of Physiological Therapy, Boston, June, 1906.
Breathing is done in such a way that one is exhaling when
the muscular exertion is being made, so that intra-
abdominal pressure is at a minimum.

Exercises have to begin very gradually, and the hernias
must, of course, be reduced before exercise treatment, and
trusses must be worn to support the hernias until such time
as the muscles are strong. If a patient is taught to hold
his middle finger snugly over the region of the external
inguinal ring while doing exercises, he will not need a
truss at this time.

Whether the corrective treatments given for hernia are
operative or non-operative, it is evident that they are not
the function of the school but rather of the medical pro-
fession. A doctor must make the diagnosis, he must prescribe
and fit the particular truss to be used (a poorly fitting
truss does much more harm than good), and he must prescribe
the exercises. Of course a surgeon must perform the operation.

The place of the physical educator is in using certain
educational procedures, in teaching certain of the exercises
prescribed by the doctor, and in conducting play activities
that are in keeping with the particular condition of the
child with hernia. The physical educator can do much in the
prevention of hernia by leading children in games and sports
which exercise the lateral trunk muscles. And also after
operation for hernia the physical educator, working under
the doctor's supervision, can be helpful in directing the
child in a number of educational exercises designed to in-
crease the strength of the lateral trunk muscles and thus to make more nearly permanent the corrective efforts of the surgeon.

Neurasthenia

Certain menti-emotional abnormalities of school children have been treated in the past with an exercise program by certain well-meaning and ambitious school authorities, sometimes physical educators. They have listed or talked of these defects under the heading of neurasthenia. The term neurasthenia covers a multitude of mental conditions and is not an accurate description of a case. The ordinary physician is quite unable to diagnose (with any degree of accuracy) menti-emotional states of individuals. Such diagnosis requires the special services of a trained psychiatrist, or of a physician who has specialized in psychiatry. If a psychiatrist can diagnose these cases with only a fair degree of certainty, manifestly it is out of the question for teachers in the schools to attempt any such thing at all or to make a pretense of giving corrective measures for so-called neurasthenia. Nevertheless, school teachers have been guilty of attempting to correct these cases with exercises.

It is quite true that physical educational exercises will often-times do more for such individual cases than any other measures. But it is for the physician, preferably and probably essentially a psychiatrist, to prescribe the exercises or games and their amount and kind. The physical
education teacher can carry out many of the educational procedures of the psychiatrist and can cooperate with him in many ways, but the responsibility is always with the physician and the parents, not with the school.

Skin Defects

The school is not the place to correct defects of the skin. It may, however, discover the skin disease and notify the parents through the nurse. It is far better to have the child see a doctor immediately, as the disease may turn out to be very contagious. Defects of the skin are very numerous and often require a skin specialist for correct diagnosis. It would save the doctor's time and the patients' money if the patient, instead of spreading iodine, mercuriochrome, or some kind of patent salve on the affected parts, --lotions which so cover up the natural aspect of the disease that it becomes unrecognizable,--would go to the doctor first and let him see the skin disease in its natural color and setting.

Teachers in the school can do a great deal through education as to the care of hands and the spreading of infections all of which will go far towards the prevention of skin diseases.

The X-ray is used a great deal in the treatment of skin defects, as well as acids, salves, lotions, and other drugs. Of course such things as these have no place in the school.

Cripples

The correction of crippling deformities can be accomplished
only by the medical profession, ordinarily by an orthopedic surgeon. Corrective measures for cripples have no place in the public schools.

The education of cripples in every way seems to be a definite part of the work of the board of education. Keesecker\(^1\) reports:

That the state should provide education for crippled children and give them a chance to lead independent lives is a growing conviction, and the history of the education of such children in American shows the gradual transition from public responsibility. This transition is not yet complete. Only a few of the states have laws providing special public school classes for such children.

Keesecker also reviews the laws relating to the education of cripples in the twenty-one states that have such.

Heck\(^2\), who has made some very extensive studies concerning the education of crippled children, says:

Operative procedures are, of course, out of place in a school for cripples, and a child who needs such treatment should be cared for elsewhere until he is ambulant and sufficiently recovered to profit fully by his school work.....

In some cities the children are sent from school to a dispensary for hospital for massage or other forms of treatment. While this involves extra transportation and sometimes attendance, it may be the most economical arrangement. Where there is no dispensary or hospital affording adequate treatment or where there are some forty or more pupils, it would seem much better to employ one or more persons trained in physiotherapy and furnish the treatments in the school.

Infantile paralysis causes more cripples than any other one disease. For this reason it should be given

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very careful consideration. The procedures used in the
treatment of this disease are as follows:

As soon as it is possible to diagnose the disease, the
subject is usually given convalescent serum if it is avail-
able. If the disease is quickly diagnosed and the serum
can be obtained and administered within twenty-four hours of
the acute symptoms the serum is generally very effective in
combating infantile paralysis or giving the patient a very
light case rather than a serious one. The main difficulty
is that diagnosis is not completed until too late for the
serum to do any good.

During the acute stages of the disease the subject
should be kept as comfortable as possible and quiet as
possible. After the acute stages are over a muscle examina-
tion has to be given generally by a physiotherapist to see
what muscles have been affected by the disease and to what
extent they were affected. The next procedure after this is
to see that all possible deformity is prevented. The weakened
muscles will tend to be stretched by their stronger an-
tagonsists, the stronger and shorter certain muscles become
those which were not affected by infantile paralysis, the
weaker the damaged antagonistic muscles become. This dis-
balance of the antagonistic muscles is what causes the de-
formities. One of the best procedures is to see that the
child is horizontal in bed most of the time and is not
allowed to get up too soon. The struggle of the body to
maintain the erect position, especially with weakened muscles,
is probably the greatest direct cause of deformity after the
disease. Braces of all sorts are used to keep weak muscles short and non-affected muscles stretched. Most of the deformities of infantile paralysis are preventable if the children are made to remain in bed long enough and if the proper braces are properly fitted and used.

Other procedures are the physiotherapeutic ones used in the process of re-educating the affected muscles, and slowly and gradually, through massage, heat, electricity, and carefully graded and supervised active exercises, reawakening the weakened muscles that were only temporarily affected.

Permanent paralysis of muscles is on such a large scale in certain individuals that the orthopedic surgeons have to perform operations to enable the patients to stand or walk, or to improve their walking. Typical of such an operation would be the transplanting of the tensor fascia-latae muscle insertion into the patella to take the place of a destroyed rectus femoris muscle.

Segregation of the patients in the acute stages of the disease is essential, as infantile paralysis is a contagious disease. Infantile paralysis or anterior poliomyelitis, as it is technically called, is a disease affecting the central nervous system, and in its later stages very definitely attacking the anterior horns of the spinal cord where the cell bodies of the motor neurones are located. These motor neurones are either temporarily put to sleep or actually killed by the disease. In the latter case no amount of physiotherapeutic treatment of any kind is of use. One never knows whether the motor neurones controlling the action of
certain muscles have been temporarily or permanently injured until years later. Ordinarily, if after two years of physiotherapy treatment (after the acute stages of the disease is over) the muscles of the injured motor neurones show no sign of life, they are thought to be permanently injured.

After orthopedic surgery and physiotherapy have done all they can for a child suffering from the affects of infantile paralysis, the only other procedures are educational ones to help the child help himself to the best of his ability with what he has left in the way of a physique.

It is felt that a great deal more could be done for the crippled child educationally, even in the states that have already begun the good work. Especially in the field of physical education there would seem to be variety of activities to be adapted or invented, activities which would bring large amounts of valuable development and satisfactions in life to cripples whose outlook on life may be very drab. More definite suggestions for this physical education program for crippled children will be given in Part V of this thesis.

Further information concerning the next seven physical defects to be discussed will be found in Part IV of this thesis, as they were given special treatment in the author's questionnaire.

Dysmenorhea

Dysmenorhea is a fairly common defect of girls of the grammar school grades on up through the high school. Many schools have attempted so-called corrective measures
for it under the department of physical education.

The nurse might well enlist the interest of the parents to the extent of taking the child to see a good gynecologist for an examination to discover the cause of the trouble. All treatments should be given by the physician. He is the only one who can determine the cause of the trouble and his early treatment and suggestions may mean the saving of untold pain in later life.

The school has splendid opportunities through the medium of the physical educator in hygiene and other classes or in personal conferences to inform children about the normal functioning of their various organs so that they may develop wholesome attitudes and desirable hygienic habits towards menstruation. Under the doctor's supervision and instigation, the physical education teacher may direct the child in educational procedures in the form of exercises which may also improve specific cases of dysmenorrhea. The diagnosis, treatment, and correction of this defect is, however, a strictly medical function.

**Cardiac Defects**

The first procedures to be undertaken in the correction of children with cardiac defects are those relating to the detection and diagnosis of the defects. It is quite impossible to get any adequate idea of the condition of a heart in the average school medical inspection, especially one in which the doctors are not allowed to examine children in the nude. There are many precision instruments which the modern doctor must have in order to make a reliable diagnosis.
Some of the needed instruments are: an electrocardiograph, a fluoroscope, and an X-ray. The most a medical inspector at school can hope to do is to discover with his stethoscope a variation from normal in the sound of the heart. This, of course, may mean nothing as to the functional condition of the heart, and an additional examination by a specialist, at his office or at the clinic, must follow.

After detection of the cardiac defect, scientific classification as to the type and kind of defect must be made as a guide to the procedures to be followed in the treatment of the case. Without doubt the most helpful classification so far in use, is that prepared by the Committee on Research of the American Heart Association.¹ Bainton² gives one of the best explanations of the American Heart Association's classification of hearts according to their functional capacity, as it applies to the school child. The classification and some of Bainton's comments on it are as follows:

The Classification

Class I. Patients with organic heart disease able to carry on ordinary physical activity without discomfort.

Class II. Patients with organic heart disease unable to carry on ordinary physical activity without discomfort.
  A. Activity slightly limited.
  B. Activity greatly limited.

Class III. Patients with organic heart disease and with symptoms or signs of heart failure at rest, unable to carry on any physical activity without discomfort.

Class IV. Possible heart disease. Patients who show abnormal signs and symptoms referable to the heart but in whom the diagnosis of heart disease is uncertain.

Class V. Potential heart disease. Patients without heart disease, whom it is advisable to follow because of the presence of a history of an etiological factor which might cause (in such cases the etiological factor should be stated).

Class I. These children have no symptoms and they are physically capable the same as healthy children. They can indulge in the same exercises and pastimes as other children but by way of precaution it is wise to place some limit on their physical activities. They should not be permitted to engage in competitive athletics or to indulge in games which demand sudden severe physical strain.

Class II. These children are capable of performing the ordinary activities of childhood, but extraordinary exertions such as fast running, vigorous play, hurrying upstairs, produce undue breathlessness and fatigue which are apparent to any attentive observer. Games and exercises which produce only temporary shortness of breath in healthy children are too strenuous for the cardiac children of this class. Running, skipping the rope, prolonged tiring drills should not be permitted. They may enter classes of physical culture but should be compelled to rest during any part of an exercise which unduly tires them.

Class II A. The physical ability of children in this class is noticeably limited. The vast majority have active heart infection as indicated by some degree of fever and a typical white blood cell count. They are sick children and though some of them may be physically able to attend school, they should be informed that these children are unfit for school, that they should be at home and under the care of a physician until all signs of activity of the heart infection have disappeared. After convalescence these children can return to school, being reclassified in Class II A or Class I.

Some children with congenital heart disease have a decided limitation of their physical ability, and occasionally a child with acquired heart disease may have had the heart so severely damaged that his limitation of physical activity is quite marked even in the
absence of active infection. Education is merely a passing event with such children. All of them will be unfit for any future occupation and their expectancy of life does not reach adult years. These children should not be permitted to climb stairs. If regularly present at school, they may be placed in a class with other children who are physically handicapped.

**Class III.** It is unnecessary to consider the children in this class more than to state that they should not go to school. They are compelled to remain in bed because of the degree of failure of their hearts. Exceptionally, when proper supervision is not maintained, a child in this class may manage to attend school at irregular periods. This is dangerous to the life of the child and should not be permitted.

**Reclassification**

Some children do not remain permanently in the same class. Children in Class I may revert to Class II A, III B, or III, or conversely children in the poorer classes may improve and require reclassification on a higher basis. The presence or absence of infection in the heart is usually the cause of change in symptoms which determine the altered classification. The child’s school activities should change in accordance with a reclassification.

**Class E. Possible Heart Disease.** It is impossible to outline any definite regulations for the physical activities of these children. Limitation may or may not be advisable. The necessary restriction should be determined by the physician of each individual child.

**Class F. Potential Heart Disease.** As a cause of heart disease in childhood, rheumatic fever stands preeminent. It has been estimated that as high as ninety-seven per cent of heart disease in childhood is due to rheumatism. It is also claimed that seventy-five per cent of children who have rheumatism develop organic heart disease. Chorea, or St. Vitus dance, and growing pains are but different manifestations of rheumatic infection. Scarlet fever is frequently followed by rheumatic symptoms. The actual presence of heart disease which have been caused by these conditions may not be manifested until several months or years later, but during all of this period it is essential that the child be under the observation of a physician and that its activities be regulated according to his orders.

According to Bainton, then, the only children with cardiac defects who should be permitted to attend school are those in Class I, Class II A, and Classes E and F.
These children can undertake the regular school work with slight modifications of the school regime and slight modification of the physical education program. Even with these there must be constant re-examinations to determine progress or regress and possible reclassification, and all this must be done by a physician—often, indeed, by a heart specialist with his more delicate precision instruments to aid him.

As far as correction is concerned there is nothing the school can do for the cardiac child. From the standpoint of education there is much that the school can do. The school can, of course, lead the child in the study of its regular curriculum. The physical educator can help the child become better acquainted with himself and his condition. He can teach the child to recognize his physical limitations and teach him only such activities as are well within these limits.

In Part V the educational program for cardias as well as for children with other defects will be discussed fully.

Relaxed Abdomen

This is a very common defect of school children, especially in girls. Of itself it is not a particularly serious defect, although it is unsightly and is thought to be a contributing cause of visceroptosis and inguinal herna. Seaver\(^1\) reports:

1. Seaver, Jay W., op. cit. p. 5.
In nearly every case of inguinal hernia, except the traumatic forms, the muscles of the abdominal wall are found to relaxed and soft. Even among workmen this condition will be found to obtain in such cases and an examination into the daily activity will show that much of the work has been done in a stooped posture. In a series of cases among farmers who might be supposed to get an even development from the variety of their work it was found that the poise in ordinary work was bad, the trunk being bent forward with the chest cramped and the abdomen relaxed. It will be noticed that the forward flexion of the trunk relaxes the external oblique and removes the tension over the inner ring and canal. Among these fourteen farmers, the average height is very much above the average for men, being five feet ten and one-half inches, and I am inclined to the opinion that this excess of height has induced more of a stooping posture than would be found among men of similar occupation who were two or three inches shorter.

Relaxed abdomen is not a defect which responds to corrective measures; in fact, it is uncertain whether it can be corrected at all. (See definitions of correction and of education as accepted for this study.) It is hardly conceivable that a physician would operate to shorten the rectus abdominus muscle or the transversalis and oblique abdominals. The doctor might order the wearing of a belt, but this would make the condition worse, for the muscles which should be doing the work of holding the abdomen in would be made progressively weaker.

Education, however, can do much for the child with relaxed abdomen. The physical educator can teach a number of specific exercises which involve the use of the abdominal muscles, can demonstrate these exercises to the child, and, through the physical education teachers' encouragement and wise direction, the child can greatly improve his own condition by strengthening and shortening the abdominal muscles. These are strictly educational procedures. The
child makes the changes himself. He does the exercising, and the teacher does the guiding, suggesting and demonstrating which are just such educational procedures as any teacher would use in teaching any other subject. Incidentally, if the general physical education teacher fosters in his physical education program from the elementary grades on up sufficient activities of an informal play and games type, in which there is plenty of running, jumping, kicking, and climbing, there will be less need for special educational procedures for children with relaxed abdomen.

Faulty Elimination

The same educational procedures of specific exercises mentioned in the above discussion concerning relaxed abdomen, can also be used to aid faulty elimination. Therefore, faulty elimination will not be discussed in detail but will be passed over. There are, however, additional procedures which the physical educator, nurse, or other school teachers should get across to students concerning proper diet, hours of sleep, the non-use of cathartic drugs, and a happy frame of mind.
Foot Defects

There are numerous different deformities of the foot which are found in school children. Some of these are: equinus, calcaneous, varus, valgus, weak foot, pronated foot, and flat foot. These last three Bowen rightly says are "successive stages of one and the same defect."

For the first four defects the only corrective procedures are surgical operations by an orthopedic surgeon, for in these cases the surgeon's task is partially to cut and stretch one group of muscles to give their weakened antagonists an opportunity to become stronger. The operations are followed by plaster cast treatment of the foot to keep it in the normal position. These, however, are problems of the physician, not of the physical educator who should make no recommendations in such matters.

In the case of weak foot, if there are no complications, the procedures are entirely educational. The anterior tibialis muscle and others associated with helping the ligaments hold up the longitudinal arch, are strengthened by carefully graded exercises.

If the weak foot condition is neglected, pronation is likely to result. Pronation and weak foot also are often caused by improperly fitted footwear. Education in the proper type of footwear, and in the proper methods of standing and walking, is valuable in preventing these defects. Pronation in severe cases will often need the corrective measures of an orthopedic surgeon in the way of special shoes, braces for the feet, or possibly plaster casts, although mild cases may with perseverance respond
to educational procedures alone.

The correction of flat feet as such is an anachronism. A flat foot without any other complications such as pain and pronation, should not be considered a defect at all. From a functional standpoint the flat foot just mentioned is many times stronger and better able to continue long hikes, and many hours in a vertical position, than is a foot with a very high arch.

It is likely that if all the feet of all the men of a particular large city were examined, and the heights of their longitudinal arches measured, it would be discovered that they could all be placed on a scale which would tend to simulate the normal curve of distribution. There would be a small percentage of very high arches at one end of the scale and a small percentage of very low arches or absolutely flat feet at the other end of the scale, and in between these two extremes would be found the rest of the feet, most of their arches being close to the average in height. It is safe to say all feet are normal feet regardless of the height of the arch if one can do a normal day's work of standing, walking, and running, without noticeable discomfort.

A flat foot accompanied by pain in the arch or in a related area of the foot, is a condition needing attention. If, on examination of the foot, it is found to be a structural or rigid flat foot, corrective measures by an orthopedic surgeon are necessary. The orthopedic surgeon may try to break up the adhesions in the arch forcibly under ether, and then put the foot in its proper position into a plaster cast and let it
heal in one correct position; he may attempt to perform a stabilization operation, resetting the bones of the foot and attempting to make them stay rigidly in the proper position; or he may attempt other corrective procedures.

If in the initial examination it is discovered that the foot condition is not a rigid or structural condition but a functional one, educational procedures by a properly trained physical educator are effective. In this case the teacher demonstrates exercises to strengthen the weakened muscles of the foot and to stretch the muscles that are relatively too short and strong. The teacher directs the work as it goes on, supervises it, makes suggestions to improve the child's technique, and stimulates the child's interest in doing the exercises faithfully in order to bring about desirable changes by himself. These procedures are strictly educational, not corrective. Educational procedures of a similar character are also of value for the child who has just had his tarsal bones properly set and held in a cast. After the cast is removed it is desirable to teach exercises to strengthen the muscles which will tend permanently to hold the bones in proper place. Without the use of these educational procedures the foot may revert to its former defective position.

Metatarsalgia or the stretching of ligaments and weakening of muscles holding up the metatarsal or transverse arch, is another common defect of the foot. There are educational procedures of value for it also, procedures involving suggestions as to footwear and specific exercises. But usually a phy-
sician's prescribing and fitting of special pads or supports
to be applied behind the metatarsal heads on the planter surface
of the foot is the treatment giving the most immediate relief.

Malnutrition

It would seem desirable to precede any account of the
technical procedures for correcting malnutrition by a brief
discussion of the following questions:

1. What is malnutrition?
2. What causes malnutrition?
3. How can it be measured?

It should be understood that malnutrition or malnourishment
is quite a different thing from underweight as such. It
is true that an underweight person may be suffering from mal-
nutrition. It is also true that an overweight person may be
malnourished.

Probably it would give a clearer picture of malnutrition
to give some of the symptoms of a child who is in good health
and well-nourished, and then describe the malnourished child
in contrast. Roberts describes a well-nourished child as
follows:

A well-nourished child, first of all, measures up to racial
and family standards of his age in height and weight. He
has good color, bright eyes — no blue or dark circles
beneath them — and smooth glossy hair. His carriage is
good, his step elastic, his flesh firm, and his muscles
well developed. In disposition he is usually happy and
good-natured; he is brimful of fun and animal spirits and
is constantly active both physically and mentally. His
sleep is sound, his appetite and digestion good, his bowels
regular. He is, in short, what nature meant him to be.
before anything else—a happy healthy young animal.

A malnourished child (Roberts continues) lacks several or all of these characteristics of a normal child, depending on the degree of undernutrition. He is usually thin but may be fat and flabby instead. His skin may have a pale, delicate, waxlike look, or be sallow, muddy, even pasty or "earthy" in appearance. There are usually dark hollows or blue circles underneath his eyes, and the mucous membrane inside his eyelids and in his mouth is often pale and colorless. His hair may be rough—like that often seen in poorly cared for farm animals—his tongue coated, and his bowels constipated. His skin seems loose, his flesh is flabby, and his muscles are undeveloped. Because of the lack of muscular tone, his shoulders are usually rounded, sometimes protruding to such an extent as to make the deformity known as "wings"; his chest is flat and narrow. Decayed teeth, adenoids, enlarged or diseased tonsils may also be present.

The animal spirits natural to all healthy young are apt to be lacking in the undernourished child. He may be listless in play and work, will probably tire easily, not care to romp and play like other children, and will often be regarded as lazy. There is likely to be a lack of mental vigor also. Little power of concentration and attention, and absence of a child's natural inquisitiveness and mental alertness are his common characteristics. The expression of his eyes, and of the entire face, is often lifeless and dull. In disposition he may be extremely irritable and difficult to manage, and he is often abnormally afraid of strangers. He may be nervous, restless, fidgety, and will probably sleep lightly and be 'finicky' about his food.

Of course malnutrition is a relative term and there are various degrees of it. From the foregoing it is easy to perceive that malnutrition is vastly more than a question of fluctuation from the average height and weight for one's age, although weight deviations are considered symptoms.

Some authors have used the term 'nutritional status' as being the particular syndrome to be looked for by a physician in attempting to determine whether a child is malnourished or not. "Nutritional status" is the term used by members of the American Child Health Association staff. Frazer has recently completed a monograph in which he deals with measurement and physical measures of growth and nutrition. Frazer, Raymond, "Physical Measures of Growth and Nutrition," Social Health Research, Monograph No. 11, Am. C. H. Assoc., 1929.
of nutritional status of school children. Palmer mentions some of the main points of Franzen's study which are quoted:

**Nutritional Status**

Nutrition, or to be more accurate, nutritional status is an ambiguous term. It awaits a specific definition.

In speaking of nutritional status, what we are really interested in is that manifestation of physical condition which is promptly responsive to food, sleep, and exercise.

**Weight an Index of Skeletal Framework**

Weight is not a satisfactory measure of this manifestation. It is too crude a measure. It is not sufficiently discriminating. Body weight includes the skeleton, the soft parts, the fluids and internal organs.

The size of the skeleton is the principle factor in determining weight.

**Skeleton Influenced by Heredity**

The skeleton is not promptly responsive to changes in food, sleep and exercise. It is the soft parts that respond promptly to these changes. The size of the skeleton is pre-determined largely by heredity.

From the standpoint of public health, therefore, it helps matters to reserve the term nutritional status as applying to the soft parts, and to speak of skeletal changes in terms of growth and development.

**Musculature and Subcutaneous Tissue Reflect Nutritional Status**

The basis for saying that nutritional status is reflected in the soft parts, in particular the musculature, is that physicians depend on the musculature in forming their judgments of nutritional status. When different physicians, independently and unknown to each other grade children in terms of nutritional status, it is found that the children rated good have large musculature and the children rated poor have small musculature. This is one of the signs on which physicians agree very well. The numerous other signs commonly associated with nutritional status, that is the signs which are judged subjectively, such as color of mucous membrane, brightness of eye, pallor, etc., physicians do not agree upon.

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Another nutritional sign that is important, and physicians all agree that it is important, is the thickness of the subcutaneous tissue. And yet when it comes to estimating the degree of thickness physicians do not agree.

Now the interesting point is brought out that both muscular and subcutaneous tissue are measurable with instruments, the former with a tape and the latter with calipers. When these two things are measured and, also the height, hip, and chest width, and chest depth are measured and age and sex are taken into account, then it is possible to classify children in nutritional status just as a group of physicians would classify them when limited to a single examination. In fact the agreement of these measures with the combined independent judgments of a group of physicians made after a single examination is greater than the agreement of a single physician with the combined judgments of a group of physicians.

The Physician

All of which opens the possibility of grading children in nutritional status by these measures. It is important to note that this does not mean that physicians can be dispensed with in diagnosing undernourishment in children. Not at all. These measures grade children in nutritional status better (that is, more uniformly when compared with the mean judgments of a group of physicians) than a single physician after a single examination can grade them by his judgment. But the interpretation of this finding and the decision as to what course of corrective action shall be taken with individual children is wholly a matter for the physician's judgment. The measures become a valuable tool in his service just as a clinical thermometer and the apparatus for determining blood pressure are valuable tools.

Roberts suggests as specific causes of malnutrition an insufficient and unsuitable dietary, insufficient sleep, and other faulty health habits, fatigue, defect, and disease. She gives some more basic causes which she says underlie all of the others, namely, poverty, ignorance, and lack of parental control. Clark gives a number of similar causes as follows:

1. The child does not get sufficient food.
2. He does not get the right kind of food. He spoils his appetite for simple foods needed for growth, such as milk, cereal, vegetables, etc., by excessive indulgence in candy,

I. Tallaferro Clark, "Nutrition in Childhood," Reprint No. 654 Public Health Reports, April, 1921.
sweets, pastry, and other indigestible food.
3. He eats irregularly between meals spoiling his digestion by cakes and trash.
4. He bolts his food never taking time enough at meals to chew his food properly, but washes it down with water.
5. He drinks tea and coffee instead of milk.
6. He does not get enough sleep; at ten or eleven years he does not get to bed until ten o'clock or after, when he should be in bed at nine o'clock and sleep with the window wide open.
7. He suffers from habitual constipation.
8. He gets too much stimulation and emotional excitement, motion pictures and other evening entertainments.
9. He plays too hard too many hours in too active and intense a manner.
10. He is overworked in school or out; sometimes he has too many extra lessons or classes outside of school hours.
11. Malnutrition may also be caused or aggravated by such things as decayed teeth, enlarged or diseased tonsils or adenoids and it may be the beginning of some serious disease.
12. In places where malaria or hookworm is present, malnutrition is often the result of these infections.

Another cause of malnutrition not discussed very much in the past is what Cannon would term "emotional indigestion."

There are many children going to school who are unable to digest what breakfasts or lunches they have been able to swallow because of unhappy home environments in which there are scoldings, whippings, quarreling, sorrow, and drunkenness. Doubtless there are other causes of malnutrition; the inheritance of dysfunctioning endocrine glands is probably one of these.

How can malnutrition be measured is the next item. In the past the age-height-weight tables of Wood and Baldwin have been the standard; one's weight and one's nutrition were supposed to be identical. Weight is no longer considered an adequate measure of nutritional status. Dublin says that not enough of the malnourished cases are found by the tables just

We may then conclude that the use of height and weight tables as a guide to the state of nutrition of children is not attended with success. The question is, what method is indicated? The answer is, We believe as follows: A diagnosis of nutrition should be made in every case only after a careful physical examination by a competent physician. We are all aware that there is still much lack of uniformity in the making of such physical examinations of children. But as we interpret the tendency of the best medical opinion, it is to make the examination as comprehensive as possible and to make the diagnosis not on any single item, but rather on a variety of signs or symptoms. As Sir George Newman says: "Thus in endeavoring to estimate a child's nutrition or its opposite (viz., malnutrition), we must think not only of bulk and weight of body, but of ratio of stature to weight; of the general balance and substance of the body and of its general balance and substance of the body and of its carriage and bearing; of the firmness of the tissues; of the presence of subcutaneous fat; of the condition and process of the development of the muscular system; of the condition of the skin and the redness of the mucous membranes; of the nervous and muscular system as expressed in listlessness or alertness, in apathy or keenness; of the conditions of the various systems of the body, and, speaking generally, of the relative balance and coordination of the functions of digestion, absorption, and the assimilation of food as well as of the excretion of waste products. It is obvious that these are data which are likely to lead to a much more reliable opinion than the consideration of any one factor or ratio, however, expeditiously obtained or convenient in form or practice, and these data will demand a wider as well as a more careful and accurate observation of the whole physique of the child. Nor can an ultimate opinion always be formed at one inspection at any given moment. For nutrition, like its reverse, malnutrition, is a process and not an event. In regard to diagnosis, therefore, the school medical officer has as yet neither an absolute standard of nutrition nor a single criterion to guide him. He must form a considered and careful opinion on all the facts before him.

Whitney also states that weight was found to be an inadequate measure of what physicians call nutritional status.

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in the research carried on by Mr. Franzen of the American Child Health Association, work which resulted in a monograph "Physical Measures of Growth and Nutrition."

Whitney quotes some of the questions the American Child Health Association is constantly being asked.

1. In what respects are the present practices of weighing and measuring out of harmony with these research findings?
2. Is there any value in weighing and measuring school children?
3. What association materials are being modified in the light of the above? (Physical Measures of Growth and Nutrition.)
4. Should the newer measures, as indications of nutritional status, be immediately introduced in school practice? If not, what do you advocate in the meantime?

Whitney suggests that question 1 and question 2 can be considered together and that an examination of the current uses of weight records in schools indicates that they may be classified roughly under three headings:

A. Weight records used for diagnostic purposes.
B. Weight records used as a means of checking individual growth and progress.
C. Weight records used educationally.

"The Research Data in Monograph II indicates:

1. That such procedure (See A above) is based on unscientific premises if 'underweight' is interpreted to mean poor nutritional status, as the average normal weight for height and age is not a reliable index of 'nutritional status'. Therefore classification of children as 'undernourished' on this basis is unwise.
2. That it is unscientific and unfair to set 'average weight' as a goal for all children or for an individual child.

It would seem most desirable to continue quoting from Miss Whitney's article in which she summarizes and explains the interpretations given for the findings of Mr. Franzen's research. Quoting again from Whitney:
Case II. The use of weight records of pupils in relation to average normal weight for height and age as a sole means of selecting children for special activities or special instruction aimed to improve nutrition, such as mid-morning lunches, special milk lunches, modifications of general activity program, nutrition classes, and so forth.

Recommendation: Since the research indicates that weight for height and age in relation to average normal weight is not a satisfactory index of 'nutritional status' these practices should be discontinued and the selection should be made on a physician's recommendations based on examination. Trends in the individual's weight records over several months may be used as indicating the desirability of bringing an individual child to the physician for consideration.

Case III. The inclusion of weight records on pupils' physical record forms by physicians, nurses or physical education directors.

Recommendation: This practice should be continued as a record of trends of individual growth which is of definite value in relation to other findings for the physician. Interpretation should be by a physician.

Case IV. The inclusion of average normal weight for height and age as a goal item in standards set for school children by states and communities as a basis of health recognition (the five point child, the Blue Ribbon child, the six point child, and so forth).

Recommendation: That this practice be discontinued as being unscientific and unfair as a goal for all children.

Group B. The use of height and weight records by lay people as a check as marking gross trends in child growth and development.

Recommendations: Continuous records of height and weight of a pupil as general landmarks of growth are valuable to administrators and teachers—provided trends are watched rather than the relation of any child's weight at a given time to that of the average weight for height and age. A continued loss of weight or a continued cessation of gain should be brought to the attention of parents that they may seek professional advice.

Group C. The use of weighing and measuring as an educational device.

Recommendations: That the educational use of weight and
height as measures of growth be continued by teachers in relation to health instruction, but that sound educational principles demand that the method of use does not violate scientific knowledge respecting the individual differences of children. Emphasis should be placed on individual gains made and not on the Child's so-called 'underweight or overweight status'. Weight charts, graphs and other classroom materials used should recognize this principle."

It is interesting that in answer to the third question, what association materials are being modified in the light of the above? Whitney continues:

The following changes will be made:
We have discontinued the sale of 'underweight tables'.
We are not republishing the classroom weight record in its present form.
We are not republishing the weight tag in its present form.
'The Scales - the Part They Play in the Child Health Program' will not be reprinted in its present form.
We shall seek suitable material for the teacher to use in keeping class records of weight and height and hope to publish such in the near future.
Some type of growth record will be developed for cooperative home and school use and we are seeking material suitable to accomplish this purpose satisfactorily.

The final question for which answers are sought is, "Should the newer measures, as indications of 'nutritional status' be immediately introduced in general school practice? If not, what is advocated?"

Whitney again speaking for her organization, the American Child Health Association, suggests that two steps are necessary before the Frazeren scale can be used by the schools in a widespread way:

1. In the first place it is necessary that they be submitted to further experience by pediatricians, general practitioners, and school physicians to test further their practicability and to permit those who use them to check the logic on which they are based. This phase of the work is now under way.

2. If this experience bears out the conclusions arrived
at by our research, then there is needed a period of trial in a few school systems to determine their adaptability to further school routine. If they are found suitable for routine school use, then only are they to be widely recommended for general use. . . . Whether or not future experience justifies the adoption of the newer measures does not affect the conclusions stated as to the limitations of weighing and measuring for diagnostic purposes.

In the meantime, our recommendation is that judgments on 'nutritional status' should be sought from the qualified physician.

This discussion of the work of the American Child Health Association seems best to summarize the answer to the question: "How can malnutrition be measured?"

The next question is, "What are the actual procedures for the malnourished child after he has been discovered?"

The treatment of malnutrition is not as simple as it was thought to be in the past, when it was simply a matter of attempting to raise or lower one's weight toward a particular standard. The logical treatment of malnutrition centers around the removal of the cause. This involves the following:

The removal of physical defects, possibly the removal of tonsils and adenoids, or the correction of certain dental defects, or the treatment of glandular dysfunctions.

The regulation of diet to see that the child is getting not only the requisite number of calories but sufficient and proper vitamins.

The regulation of sleep and rest to meet the specific needs of individuals.

The proper amount of recreative sport out of doors, with the proper amount of fundamental muscle activity.
Discovering the financial status, if poverty happens to be an underlying cause, and helping the child or his parents to make an adjustment.

Educating the child, parents and community, if ignorance is an underlying cause.

The eradication of undesirable emotional stress in the home environment.

Specifically, of course, the procedures of the removal of physical defects require such corrective treatment as a physician can give or a specialist, or an endocrinologist. The school has no function in this regard.

As to dietary treatment, here also the physician should prescribe the particular diet for the individual child.

Edwards gives an interesting resume of present-day knowledge of vitamins. From the standpoint of diet there is much educational work which the school can well do through many of its regular classes as well as through its hygiene sections. Also, schools having lunch rooms have wonderful opportunities in serving proper menu combinations and in encouraging a tradition of wise food choices.

The problem of sleep and rest offers great educational opportunities for teachers working with children and for nurses in helping to educate the parents. The school must also critically analyze its program to see if it is responsible for a child’s fatigued condition or whether the fatigue is due to other causes. The nurse can help in studying the influence of outside factors on fatigue.

The proper amount of recreative and other big muscle exercise can only be determined by individual study of each individual child. The doctor, nurse, physical educator, and other teachers, as well as the parents and the child, can shed light on this matter.

Discovering the financial status of the child's parents may be accomplished by visits of the nurse or social worker. It is possible that ignorance of the proper foods is a greater contributing cause to the malnutrition of a particular child than poverty, and suggestions from the nurse will go a long way towards improving the situation. Helpful material on how to make a little money go for the maximum amount of nutrition will be found in Sherman's article in the November, 1931, Child Health Bulletin. If poverty is really the basic cause, the family can be reported to the local charities or to social case workers for study and aid. The social case workers are also in a better position to cope with such problems as the causes of emotional dyspepsia in a child's home, and the possible educating of parents to its disastrous effects.

It is evident from the foregoing that the physician still has a key position in the diagnosis, treatment, and supervision of malnutrition cases of school children. The school likewise has tremendous responsibilities and opportunities, but all of them are of a strictly educational character.

Posture

Since Chapter X was devoted entirely to the discussion of postural deviations and to the technical procedures for improving them, posture will not be discussed here.

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Summary

The foregoing chapter dealt first with the general responsibilities of the home, school, and other community agencies regarding corrective and educational procedures for children with physical defects. The second part of the chapter discussed the common physical defects of school children and the specific responsibilities of the various agents, such as the home, school and physician, in dealing with the specific defects. It was clear that the school had certain educational responsibilities in every case. The school in the main is not meeting these responsibilities and should expand its program to embrace these educational procedures. It was also evident that the function of correction does not belong to the school but to the physician.
CHAPTER XV.

CONCLUSIONS

It would seem that there is considerable confusion among school superintendents as to just what the school’s responsibility is toward children with physical defects. Part of this confusion is because concepts of educators differ as to the range and scope of such words as correction and education. The rest of the confusion seems to arise from the fact that there are two conflicting educational theories, each one suggesting a procedure quite antagonistic to that suggested by the other. The conflicting educational philosophies are well championed and can apparently be traced to their sources in Plato and Aristotle. One philosophy of Platonic origin, advocates that the school should finance the correction of physical defects of school children and should construct various special school clinics which would give free service to school children, the money of course coming from school funds. The other philosophy, of Aristotelian origin, maintains that the child should be educated to take care of himself, to take increasingly more responsibility for his own health, and to grow in independence,—not in dependence which might result from school relief measures.

In order to forestall confusion in terminology, a distinct line is drawn between what is education and what correction. The definitions of education and correction which follow bring this out clearly:

Education from the standpoint of the school is the
organization and leadership of children in selected activities which will stimulate them to make changes within themselves resulting in their progressive integration in an everchanging world, to the extent of their native capacity.

Correction as dealt with in this study is such beneficial changing of an individual's physical condition as can be accomplished only by a human agent external to the individual. The main distinction is that in education the children make the changes while in correction an external agent accomplishes a change which the individual could not have accomplished by himself.

The conclusions follow:

**Function of School**

The function of the school is education. An education which is all expansion from within. An education for prevention of physical defects. And an education for ever increasing richness of living.

It is the school's responsibility that the physical environmental factors of its various teaching situations facilitate its function of education.

It is also the school's function to educate the child in such a way that as he develops he may be able intelligently to take increasing responsibility for his own health to the best of his ability.

**Health Examinations**

Every child should have at least one thorough health examination each year.

The school authorities after consultation with the municipal health authorities and the local medical society, should establish standards for the health examination of school children.
The examination shall include as a minimum the checking of the following items:

<table>
<thead>
<tr>
<th>History</th>
<th>Nose</th>
<th>Heart</th>
<th>Hernia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Throat</td>
<td>Nutrition</td>
<td>Spine</td>
</tr>
<tr>
<td>Nails</td>
<td>Neck</td>
<td>Lungs</td>
<td>Bones</td>
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<tr>
<td>Teeth</td>
<td>Lymphatics</td>
<td>Abdomen</td>
<td>Skin</td>
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<td></td>
<td></td>
<td></td>
<td>Genitalia</td>
</tr>
</tbody>
</table>

The school must require children to have completed their health examinations before allowing them to engage in the physical education program of the school.

The health examinations should be completed by the week previous to the opening of school in the fall and should be a requisite for registration.

It is the school's responsibility that the standards set up for governing health examinations be met.

It is the school's responsibility to see that such medical services as the following are provided:

(a) Re-examination of children
(b) Supervision of the follow-up program
(c) Supervision of physical environmental factors affecting the health of students and teachers, such as heating, lighting, ventilation, and sanitation.

Primarily and fundamentally the responsibility for the health of the child rests upon his parents.

It is not the function of the Board of Education or of the Department of Physical Education to correct the physical defects of school children.

Correction of defects is the function of the medical profession.

The physical defects of children of indigent parents should be corrected by some one of numerous agencies in the community outside of the school.
Costs

The board of education should use its entire budget for those purposes which are primarily educational. In other words, it is the function of the board of education to utilize all the money it can acquire in employing the best teachers, in paying them fair salaries, in keeping equipment up-to-date, in enriching teaching by adequate supervision and research, in educating the community, and in making the school environment contribute to the best health of the students and teachers. The municipal health authorities or other social agencies of the community outside of the school should pay for school medical service and for the correction of physical defects not financed by the parents of the child.

It is not economical or practical for boards of education to finance the construction and administration of school clinics, dental or otherwise.

Corrective procedures are much more expensive than educational procedures.

Posture

Posture has been over-emphasized in the past.

Posture is good to the extent that it facilitates function in the activity under way.

The best posture for a particular individual is the most appropriate and efficient posture the individual can assume in carrying out his specific purpose or activity.

It is natural and proper for one to change his posture periodically, even in sleep, in order to rest muscles, to relieve strain, and to secure more adequate relaxation.

It is undesirable to make children stand or sit in the same posture for long periods of time, no matter how good or
proper the posture is supposed to be.

A straight, stiff, and inflexible posture is not an efficient posture for the activities of life in an ever-changing world.

Professional training in physical education does not and should not fit a student to correct the physical defects of school children, but fits him rather to lead children in educational procedures which will help them to help themselves ever more efficiently.

Professional Training

Professional students in physical education should be trained in the use of educational procedures for children with physical defects. In other words, such students should be prepared:

To recognize certain physical defects of school children. To understand the causes of certain physical defects so that the physical educator can educate for prevention.

To know and understand many of the common procedures the medical man must use to correct these defects so that the physical educator can be of greatest service in securing contacts with the nurse or the physician, contacts which will result in the child's more rapid correction.

To talk intelligently and in correct technical terms about most of the common physical defects found among students, and to be able to follow the doctor's directions in the event that he recommends a special or individual physical
education program.

To formulate and teach exercises which will develop certain specific muscles or groups of muscles through the application of the sciences of physiology and kinesiology.

To teach an increasingly large number of those sports representing milder forms of activity which can be participated in by children with physical defects all their lives such as bait-casting, archery, badminton, horse-shoes, deck-tennis.

To give various tests of functional efficiency which can be used to classify, grade, and measure the progress of children with certain physical defects.
PART IV: SUGGESTED APPLICATION OF EDUCATIONAL PROCEDURES IN THE LIGHT OF THE GUIDING PRINCIPLES OR CRITERIA.

CHAPTER XVI.

OBJECTIVES OF THE EDUCATIONAL PROCEDURES TO BE USED IN A PROGRAM FOR PUBLIC SCHOOL CHILDREN WITH PHYSICAL DEFECTS.

The discussion leading up to the statement of the criteria and the criteria themselves have attempted to make plain that primarily and fundamentally the function of the school and the physical education department within the school is felt to be education. In addition there has been a distinction made between education and correction. It is believed that this distinction will be of help to school administrators in deciding the extent of their responsibility for the care and treatment of children with physical defects. Without indulging in heated controversy as to whether or not the school should attempt corrective measures, it is the purpose of this particular section of the dissertation to outline briefly what the school, and particularly what the physical education department of the school, must do in order to fulfill its responsibility of education in so far as this affects the children with physical defects. It is felt that when the school understands the educational implications involved in the following program and honestly attempts to fulfill its responsibility for the total education of the total child with physical defects, it will be so pre-occupied that the question as to who will do the
correction will be left in the hands of the medical profession whose fundamental responsibility it really is.

Before stating the objectives for the following program of the school it might be helpful first to review a few of the common defects of school children. Among the physical defects generally exhibited by school children are defects of teeth, tonsils, adenoids, endocrine dysfunction, vision, hearing, heart, lungs (tuberculosis), malnutrition, orthopedic variety (posture and spinal curvature, flat feet, bowlegs, etc.), hernia, skin, nervous system, post-operative cases and deformity due to infantile paralysis, birth injuries, and tuberculosis of the hip and spine.

Obviously if a child is so badly deformed or handicapped by his physical defect that the regular school would have deleterious effects upon him socially, mentally, physically, or emotionally, he should be sent to a special school for handicapped children until such time as he can get about by himself and make a sufficiently good adjustment to regular school life. The present (thesis) concerns those physically defective children who for better or for worse are accepted in the regular public schools.

Although this group will be found in the main to be low on the organic level, it may also be low on the other three levels as well (sensory-motor, interpretive-cortical and emotional-impulsive). Netherington makes a statement to the effect that when an individual participates in an activity
of any sort, the following things take place: thinking about or concerning a phase of the activity; feeling-tones concerning the activity present themselves in the person; neural connections are made and changes in metabolism take place. It is, then, easy to see that when an individual is so handicapped that his activity is restricted to any extent, to that same extent is his development retarded or inhibited. In this connection it should, however, be stated that all activities make contributions of varying degrees to the individual's development along the four lines previously mentioned, and no one activity contributes equally to these four phases of development. For example, one activity may contribute most to an individual's menti-motor development, while another activity especially increases one's interpretive-cortical power or development.

At this point it seems well to restate the fundamental objectives of physical education as a sort of introduction to more specific objectives for the Individual Physical Education program. Hetherington\(^1\), in inimitable fashion, has stated the fundamental objectives of physical education to be as follows:

1. The immediate objectives in the organization and the leadership of child-life as expressed in big-muscle activities.

2. The remote objectives in adult social adjustment.

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\(^1\) C.W. Hetherington, *The School Program in Physical Education*, p. 20.
3. The objectives in development.
   A. The development of the instinct mechanisms.
   B. The development of the intellectual mechanisms.
   C. The development of neuromuscular mechanisms and nervous power.
   D. The development of organic power.

4. The objectives in social standards.
   A. Health
   B. Character

5. The objectives in the control of health conditions.

The following specific objectives of the proposed program for school children with physical defects will be classified under Etherington's general objectives:

A. Immediate objectives in the organization and the leadership of child life as expressed in such big-muscle activities as are suitable. In a

1. To secure in each educational unit some regular member of the teaching force to have definite charge of Individual Physical Education.

2. To see that the person in charge of Individual Physical Education has the specific responsibility of integrating all factors of the school both physical and human that exert a wholesome influence upon children with physical defects. This person may be a particular teacher, the nurse, or the director of physical education (or one of his staff). The person in charge of Individual Physical Education may or may not, depending upon the size of the
school and the number of teachers employed, have additional school responsibilities.

3. To secure as director of Individual Physical Education a person who has an undergraduate major in physical education with graduate work in Individual Physical Education, in individual differences, and in abnormal psychology.

4. To convince educational administrators that they should employ for the physical education staff only individuals whose undergraduate training was received at institutions which include in their physical education professional curriculum courses which will prepare individuals in the following ways:

a. To recognize certain physical defects of school children.

b. To understand the causes of certain physical defects so that the instructors can educate for prevention.

c. To know and understand many of the common procedures the medical man must use to correct these defects, so that the physical educators can be of greatest service to the child in making arrangements with the nurse or the physician which will result in the child's more rapid correction.

d. To talk intelligently and in correct technical terms about most of the common physical defects found among school children, and be able to follow the doctor's directions in the event he recommends a special or individual physical education program.

e. To formulate and to teach exercises which will develop certain specific muscles or groups of muscles through the application of the sciences of physiology and kinesiology.
f. To teach an increasingly large number of those sports representing milder forms of activity which can be participated in by children with physical defects all their lives; such as bait-casting, archery, badminton, horseshoes, deck-tennis, and swimming.

g. To give various tests of functional efficiency which can be used to classify, grade, and measure the progress of children with certain physical defects.

5. To make all contacts between teacher and children as direct, personal, and individual as time and circumstance permit, although children meet in groups for much of the activity phase of the program.

6. To recognize that each child is a separate and distinct personality with individual needs, and to respect that personality.

7. To gain the child's confidence increasingly and to help him feel that no matter how large the school he is not lost and is free to come to you with personal problems at any time, knowing he will receive sincere and cheerful attention.

8. To determine first in every case if possible the cause of the child's physical defect. This information may be obtained from records of health examinations, conferences with parents of child, and from conferences with the family physicians, other doctors, and the school nurse.

9. To invent games, where they are lacking, physiologically and kinesiologically sound from the standpoint of the individual needs of the children.
B. The remote objectives in adult social adjustment.

1. To help children with physical defects to make recreational adjustments.

2. To teach children with physical defects so wide a range of physical education activities within their capacity and adapted to their needs that latent powers will have a chance to develop in the child and that later adjustments can be successfully made.

3. To find and teach to each handicapped individual one or more sports safely applicable to his specific condition. This should be a sport in which he can participate with great benefit throughout his entire life, and a means of counteracting the inferiority complex which tends to be prevalent in those physically defective.

4. Examples of games to be taught in connection with objective 3 might be swimming, horseshoe pitching, deck tennis, archery target shooting, archery golf, bait casting, hiking, modified bowling, and many other activities, some of lower organization available or to be invented, adapted to the individual's need in each case.

5. To help each child with a physical defect better to adapt himself to life conditions in and out of school.

C. The objectives in development

a. The development of the instinct mechanisms.

1. To teach sports and games which are interesting to the child with physical defects because of innate or instinctive urges or desires to participate in those activities.
2. To teach games and sports which exercise certain emotions, for in the exercising of emotions only can their control become established. The games must, of course, be suitably adapted to the individual child's need so that resulting energy used up will not be detrimental to health. One of the reasons crippled children are oftentimes more irritable and less stable than other children is that they have not had opportunities to exercise their emotions and bring them under control in the way the normal child can in his play periods.

3. Carefully to prescribe and teach game and sport activities which are within the capacity of the children with physical defects so that in the successive mastering of these activities confidence and courage may be developed.

4. To supervise so carefully the child's learning in activities that he may be helped with apparent difficulties in learning particular skills or coordinations so that anticipated failure with its lowering of morale is replaced by triumphant success.

5. To break down certain undesirable and unwholesome attitudes of the physically defective child toward people and life in general, attitudes which many children with physical defects have already built up, and to replace these with wholesome attitudes of interest and joy in life and its social contacts.
6. To substitute wherever possible game and sport activities in place of the artificial calisthenic exercises, since the former are found to be more valuable by kinesiological and physiological analysis, to be more intrinsically interesting, and to have more carry-over value.

7. To arouse sufficient interest of the children in the game, sport, and other prescribed activities at school that they will carry on these activities beyond the classroom - at home, and on the playground.

b. The development of the intellectual mechanisms.

1. To develop in all the children an intelligent understanding of their present defects, the causes of these defects, and the reasons for the particular activities prescribed.

2. To teach the children the rules of the various games and sports in which they engage and the proper technical terms describing their special equipment and techniques.

3. To teach children with physical handicap much of the rules and terminology of games they will never be physically able to play so that they may be better able to appreciate these games from a spectator's standpoint.

4. To teach games and sports adapted to needs and capacities of the children with physical defects, games which involve the making of strategic judgments as to
distance, space, and the speed of moving objects.

5. To teach games adapted to their needs and capacities that are rich in social contacts, so that the children will develop keenness in observing and in judging other children who are their human environment.

6. To teach children with physical defects not to be a burden to themselves or to anyone else, but rather to take care of themselves and become self-directing citizens.

7. To teach children to know themselves and how best to take care of themselves from a hygienic standpoint.

8. So to educate the children with physical defects as they develop that they may be able intelligently to take increasing responsibility for their own health to the best of their ability and resources.

9. The development of neuromuscular mechanisms and nervous power.

1. To develop in the child the kinaesthetic sense which will be a guide to him in assuming the most efficient positions for the various activities of life.

2. To develop neuromuscular power and motor adaptability through physical education activities of a wide range adapted to needs and capacities of children with physical defects.

3. To develop specific neuromuscular skills of the child with physical defects in games and sports which can be used with benefit all the rest of his life and can be made the basis of successful recreational adjustment.
4. To develop and improve through teaching certain neuromuscular skills and coordinations already established.

5. To teach more, better, and more effective means of locomotion to the children with physical defects according to their needs and capacities.

D. The development of organic power.

1. To give the children with physical defects sufficient general physical education activity to satisfy their capacities and needs, so that their organic development makes progress. A physician should at present decide how much physical activity the child can participate in with benefit.

2. To increase strength and endurance of children with defects by increasing very gradually the amount of activity allowed them.

3. To bring as many of the children as possible as soon as possible up to that standard of physical efficiency at which they may return to the regular physical education classes with other children. This applies only to children temporarily handicapped.

D. The objectives in social standards.

1. To see that children with physical defects have teachers whose ideals and standards for the children, in respect to health, character, and morals, are of the highest order.

2. To see that the teachers are alive to their responsibilities and possibilities in the development of desirable
character traits through their leadership of children in play activities.

5. The objectives in the control of health conditions.

1. To be constantly on the look-out to observe physical defects or other symptoms of abnormality in children and to help them make contacts with the proper medical authorities.

2. To see that the proper machinery is set in motion so that the physical defects will be corrected.

3. To provide facilities for children with physical defects to rest when their need for rest is evident.

4. To see that the physical environment factors of the various teaching situations in the school are such as aid and promote the school's function of education.

5. To discover the exercise tolerance of all children with physical defects before allowing them to participate in the physical education program. In this the doctor should be the authority.

6. To see that every child has a complete physical examination as a prerequisite for school registration in the fall.

7. To see that cumulative health examination records are kept on file at the school and made available for principal, teachers, nurses, physicians, and other administrative officers.

8. To see that these cumulative health examination records are kept up to date.
The achievement of these objectives will come as the result of the organization and carrying out of a program of appropriate activities under proper leadership. Leadership is essential in the Health Service program, in the Health Instruction program, and also in the program of Physical Education activities. These three programs compose the total responsibility of the department of Health and Physical Education, and since a program of Individual Physical Education is specifically related to all of these three phases of the main program, these relationships will be discussed separately in the pages immediately following.
CHAPTER XVII

PROCEDURES IN RELATION TO THE HEALTH SERVICE PHASE OF THE PROGRAM FOR THE SCHOOL CHILD WITH PHYSICAL DEFECTS

A. Classification of children.

Health examination procedures are classed under the school health service, and since the first step in a scientific program for school children with physical defects is the giving of a health examination these interrelationships will now be discussed.

As a result of the health examinations the children of the school are classified into a number of groups. Oberleuffer\(^1\) lists four groupings as follows:

"A. Those who are without physical defect and therefore able to carry a normal schedule of vigorous competitive activities.

B. Those who have one or more physical defects, none of which is serious enough, however, to curtail a normal program of activities.

C. Those whose physical status is such as to prohibit them carrying a normal schedule of vigorous activities. This group may, however, be assigned to classes or individual work in restricted or moderated recreational activities or in cases where the defects found are correctable within the means of the health and physical education department, they may be assigned to individual treatment in physical therapy or corrective exercise.

D. Those whose physical incapacities render them unfit for any program of physical activity but whose defects may yield to some treatment by the department."

The above system is a workable and valuable system. The present thesis, however, will recommend but three classes:

A. and B., the same as in Oberteuffer's classification above, and C., all those unable to carry the regular or normal schedule of the activities of the physical education program because of temporary or permanent physical handicaps.

It is felt unnecessary to have class D. as in Oberteuffer's classification, because no child should be accepted in school who cannot participate in a physical education program adapted to meet his needs as is the program of individual physical education. It must be remembered that simply going to school, attending classes, climbing stairs, withstanding the stimulation of being with hundreds of other boys and girls and competing with them in the classroom, etc., is a drain on a child's energy. If the child is well enough to stand these strains he is well enough to be helped to study his health problems, helped to learn ways of saving energy, and helped to get either a change in a mild recreational activity, or actually helped to get needed sleep and rest. These things Individual Physical Education can do and must.

The subdivision of group C. into smaller units of classification will be given in Chapter XX which deals with the activity program.

B. Suggested systems for the administration of Health Examinations.

The next thing to be considered is the kind of health examination to be given and methods to be used in the procedures. It will be remembered that in an earlier chapter of this thesis (p. 57) a long list of the evils and inefficiencies
of past and present systems of health examination administration were discussed. In order to eliminate as many of these evils as is possible, certain criteria covering health examinations were listed. The points listed in order are as follows:

1. Every school child shall have at least one thorough physical examination each year.

2. The examination shall include as a minimum the checking of the following items: (see page 67 of this thesis).

3. The school must require school children to have completed their physical examinations before allowing them to engage in the physical education program of the school.

4. The physical examinations should be completed by the week before the opening of school in the fall and should be a requisite for registration.

5. The school after advisement from the municipal health authorities and from the local medical society should establish standards for the school health examinations.

6. It is the school's responsibility to see that these standards are met.

It is believed that a system of health examinations which was based on these criteria would do away with most of our present inefficiency.

Criteria three and four are essential in the administration of an efficient program of individual physical education. Such work cannot logically begin until the health examinations have been completed.
Criterion five has been criticised by a school physician who said the equivalent of the following, "Why ask either the municipal health authorities or the local or county medical societies for any advice? They do not know as much about it as the board of education." It is justifiable, however, for the following reasons:

It is time that these other organizations did know something about the aims, purposes, and objectives of the board of education with respect to the giving of health examinations.

Also, there has always been in most communities much duplication or overlapping in the work of these three organizations mentioned. All of them have the interests of the same children at heart and cooperation will help them do a better job.

There must be cooperation between these three organizations and the only way to get cooperation is to get them all together on a common task. The setting up of standards for the school health examination is a suitable reason for getting them all together. The board of education is probably the one to take the initiative in the matter, for it is the organization most conscious of the needs. Possibly the municipal health authorities and the local medical board are not as conscious of the needs as is the board of education. That would seem to be all the more reason for informing them, taking them into your confidence, and making them feel they are having a genuine part in the setting up of standards. It is the conviction of the author that the municipal health authorities and the
local medical society can make many real contributions to the thinking of the board of education along these lines. The board of education should go into the project with an open mind and will learn some other valuable viewpoints. The board of education may at times have to concede a point to one or both of the other agencies. The other agencies should also concede points to the board of education. Only in this way can the essential cooperation come.

The school, in performing its function of seeing to it that the standards set up are met, can use almost any workable system they can organize. It is interesting, however, that in the main there have been no standards in the past, and, as has been brought out before, there have been no ideal methods of conducting the health examinations.

The writer will now present two different methods of handling the health examinations, ways which will meet the specifications of the criteria and be satisfactory as a basis for the individual physical education program. The first method outlined was originally offered as a criterion. It received, however, only fifty per cent agreement from the judges, and that was not sufficiently high for it to be accepted. However, it was thought not to be a criterion at all, but a method of achieving certain forerunning criteria. As a method, then, the agreement of fifty percent of the jurors would seem to make it worth considering. We shall allude to it as system A.
School health examinations shall be given only by members of a board of examining physicians. The number of physicians on the board will depend upon the school population to be served. The particular physicians serving upon this board will be agreed upon or elected yearly by representative officers of the board of education, the municipal health authorities, and the local or county medical society. This means that each physician on the board will have the approval and backing of the three organizations mentioned, and he in turn will have an understanding of the aims and purposes of each of them.

The school superintendent furnishes all his principals with a list of the names, addresses (both office and residence), and telephone numbers of the physicians on the examining board. The principals in their turn have mimeographed copies made of these lists and sent to the parents of all the children in their schools, just before the closing of school in June, with instructions that sometime between June and the opening of school in the fall the parents must make an appointment for one of the doctors on the examining board to give their child (or children) a health examination. This same notice appears in the local papers. Two reminders of this project are made, one in the middle of summer, and the other two weeks before the opening of school in the fall. In these letters it is brought to the attention of the parents that they should not let the matter go until the last minute, and also that the findings of the
health examination on a permanent health examination record card signed by a physician of the examining board is requisite for the child's entrance to school in the fall. It might be added that the child does not want to be handicapped and behind the rest of the class because of parental negligence in arranging for the health examination.

Some of the advantages of this system of health examination are:

Only the most competent physicians are secured for members of the examining board. Approved by the three different agencies aforementioned, they will deem it a high honor to be selected.

The examination is conducted in the physician's office. This means that all the necessary examination equipment is on hand (this not generally the case when examinations are conducted at school). The examination can be unhurried, the child and his parents can ask all the personal questions they desire to ask, and the physician will answer them cheerfully (that is the kind of examination the board of education wants and the physician has been approved by this board). He also points out interesting and valuable cause and effect relationships to the child and to the parents, thus making the examination a truly educational one.

By having the child go to the physician's office we help him make an important adjustment which he will have to make anyway sometime later in life. One of the objectives we have for school children is to make them self-reliant and intelligently self-directing. It is not in that direction to have
physicians brought to the school for them. They must be taught to go to the doctor periodically without fear and to place confidence in him.

If the physician finds after examining the child in his office that certain additional clinical procedures are indicated before an accurate diagnosis can be made, he can take care of this very quickly by making a definite appointment for the child at the clinic.

If the follow-up work is indicated, the initial contacts have already been made, and, if the parent is present, arrangements for correction can be made and treatments begun at once.

A modest practical fee will be charged each parent for the doctor's time in giving the examination and for his professional advice. Primarily and fundamentally the responsibility for the health of the child is with the parents. This procedure places that responsibility where it properly belongs.

If the child's parents are indigent and cannot pay the small fee, the doctor goes ahead with the examination exactly the same way except that the money is paid by some organization other than the school. This organization may be the state, county, a municipal health department, or some service organization such as the Kiwanis Club, Rotary Club, and others, or possibly the Parent Teachers Association. One way of handling it would be to have the doctor send all bills to the school. The principal could instruct the school nurse (or public health nurse with part-time school assignment) to make some personal
studies to ascertain the financial status of the parents of school children thought to be indigent before mailing the bills on to the parents. Another way would be for the doctor to withhold sending bills to families he thinks may be indigent and to turn a list of these over to a visiting nurse who will discover their financial status for him. Bills for indigent ones he then turns over to the organizations mentioned above.

The physician makes out the findings of the examination in triplicate. One copy he keeps on file, one copy goes to the parent and the other copy is mailed to the principal of the school where it is filed and made available for nurses, physical education staff, and teachers. If the examination is delayed so as to come just before school starts, the child may present the third copy of the examination findings himself at school, for it is his ticket for registration. The health examination record is an accumulative record which follows the child through all twelve grades. A chart of the health examination system "A" follows on the next page.
Chart of System A.

Examininng board of school physicians approved by three above agencies. Fifteen physicians, more or less, depending upon the school population to be served.

Children go to the office of one of the physicians on this board to have their health examination.

Accumulative examination records (with spaces for reexaminations throughout twelve school years) made out in triplicate and sent to the following places outlined below.

One record kept on file in doctor's office.
One record sent to school as entrance requirement for fall.
One record sent home to parents.

Chart 1.
The physicians of the school examining board are utilized in many other ways. They are on call in cases of emergency. The nurse, of course, has their names, addresses, and telephone numbers, and can quickly get in touch with them. If the school has no nurse, the principal or his assistant can call the doctor. Better than having a special full-time nurse, Wilkes recommends having a public health or district nurse with part-time school assignments, which seems more reasonable when one considers the depression, reduced school budgets, the relative smallness of the school nurse's full-time position, and the fact that the district nurse has information about the parents and others in the community of a school district which the special school nurse cannot easily get.

The fact that there are several physicians on the examining board means that if a particular doctor is on a confinement case or is out of town, the chances are good that one of the other doctors who is sympathetic with the school and its problems will come.

One of these doctors can take over the special function of periodically inspecting the school and its environs with the director of physical education or health coordinator to see that all of the environmental conditions of the various teaching situations are up to a high standard of sanitation and cleanliness. At this time the doctor can outline a

systematic program of sanitation to be carried out if necessary, and can answer such questions in this regard as may be asked by the physical educator. These doctors should have working agreements with the various nearby hospitals to accept immediately in their clinics and their emergency rooms school children referred there for isolation or clinical diagnosis, or to take care of serious accidents like fractures and dislocations which can not be treated at school by teachers.

Further types of health service which should be available to school children beside those already mentioned are:

Examinations or tests to determine the motor ability of the children of the school. This could be given by the director of physical education or his staff.

Examinations to determine emotional stability or the emotional status of the various school children. McDill, has devised an interesting test to determine the extent to which a child has become weaned away from the ties of home and parents, a test which would be useful along this line. This latter test could be administered by the physical education director or one of the other teachers. This work should be supervised by a psychiatrist who should give the outstanding problem children a thorough psychiatric examination.

The physical education director can also detect certain outstanding structural, anatomical, and anthropometrical individual differences of children. (See p. 254)

1. James McDill, in a conversation about this test which is his Ph.D. thesis at the University of Chicago.
Another system, System B, will also be described briefly, as it would seem to take care of practically all the inefficencies that system A. takes care of.

System B.

This system calls for the utilization of one week preceding the opening of school - perhaps it might be called "Registration Week." All children expecting to enter school in a given fall must report to the school Monday of this week and have a health examination which will be conducted in the main by such physicians of the examining board of school physicians (same as referred to in System A.) as can conveniently come to the school for this service (perhaps in relays of every three hours or less, so that as many of these busy physicians as possible can give their services). This health examination may be of the battery type with physical education staff and nurses aiding in the examination on some of the simpler techniques.

This examination will be given carefully but will in reality be but a screening of school children to pick out those with physical defects and others in addition whom it is felt should have a more careful and thorough physical examination at a later time when the examinations would not have to be so rushed.

All children found to have physical defects, or to need more careful reexaminations are then given appointments on Wednesday, Thursday, Friday, or Saturday of the same week, at
the offices of physicians who are members of the examining board for school children. These children are then given very thorough examinations and are referred to clinics, if necessary, for an accurate diagnosis of their condition, see Chart II, Page 255. Follow-up work can be initiated at once if needed, and the final results of the health examinations for these children are made out in triplicate just as in System A: one copy is filed in the doctor's office, another sent to the school, and the other sent to the parents of the child.
Screening of all children with physical defects by a battery type health examination conducted at school building by adequate staff of physicians of the examining board of school physicians aided by physical education teachers, nurses and others. This to be done the first two or three days of the week just preceding the opening of school.

Examining board of school physicians Approved by the three city organizations Ten physicians more or less depending upon size of school population.

Children with physical defects of any sort, or those who were felt to be in need of a reexamination or rechecking following battery examination, are required to make appointments with one of the physicians of the exam board who carefully recheck and start follow-up work last three days of same week.

Physicians of the board make out accumulative record cards in triplicate and send to following:

One record retained in office of M.D.  One sent to school as entrance requirement  One sent home to the parents

CHART 2.
Every school room teacher should know the individual differences (above described) of all the children of her room. Especially is it essential that the "c" group of students (found deficient in organic status) be analyzed from the point of view of their mental-motor and emotional status. They are likely to be found deficient in these respects as well as in the organic. The teacher who is a good observer and who notes the individual differences of her children may discover among them cases overlooked in the screening process used in system B and refer them to the examining physicians for a detailed reexamination.
CHAPTER XVIII.

PROCEDURES IN RELATION TO THE HEALTH INSTRUCTION PHASE OF THE PROGRAM FOR CHILDREN WITH PHYSICAL DEFECTS

A. General Health Instruction.

Health instruction should be a very definite part of the physical education program in all educational units of the public school. Particularly in the junior and senior high schools it is desirable that specific periods at least once a week be set aside for instruction in personal hygiene. In any or all of the school units where there appears to be no place in the school schedule to put in a regular one-day-a-week health instruction period, the physical educator should utilize some of the periods allotted him for physical education activities for definite health instruction.

The health coordinator of the schools, whoever he or she may be, has the responsibility of seeing to it that all the teachers who teach subjects that are rich in health instruction opportunities are conscious of this fact, and, furthermore, that they bring out this health content in the various regular lectures and discussions of these subjects.

It is also recognized that the elementary school teacher and the home room teacher (of the junior and senior high schools) will have countless opportunities to give valuable health instruction of the systematic incidental variety and through other methods of the personal relationship described by Hetherington. 1

It is not the purpose of this chapter to set up and discuss various methods of health instruction, but rather to insist that health instruction must be adequately provided for all children of the public schools, that it is just as much a function and responsibility of the school as instruction in any other subject in the curriculum, and that particularly it is the school's responsibility to see that children with physical defects have the benefit of this health instruction. It is well recognized that many of these physical defects are caused by the ignorance of parents and children who have been quite unaware of the cause and onset of the specific defects.

B. Health Instruction Adapted to Individual Needs.

Not only should physically defective children have the benefit of such general health instruction as the school offers to all of its children, but they should have specific and detailed instruction concerning their own particular defects, so that they can face their own health problems squarely and intelligently.

This instruction will probably be given best by the particular member of the physical education staff who is entrusted with the administration of the Individual Physical Education program of the school, since he is the one the children with physical defects will know best and respect most and is the staff member who best knows and understands this group of children. The director of Individual Physical Education will
have many opportunities to approach the children under his supervision on health matters in a very natural way. This may be done sometimes in personal conferences, and many times during, just before, or immediately after, participation in certain of the prescribed activities of the program. Further and more detailed examples of the health instruction offered these children with physical defects, will be found in the discussion on Administration in the following Chapter, pp. 266-269; 274-279.

C. Posture Education.

Postural education as a phase of health instruction deserves comment here. Probably the most important items to stress of the three educational units concerning good posture are its social and emotional values.

Good posture has been and still is associated very definitely with such desirable attributes as strength, beauty, poise, power, self-confidence, bravery, and optimism. It would seem desirable that this association of good posture with such desirable character traits continue, and furthermore be strengthened. This association can be, and many times is sufficiently strong to bring these aforementioned traits within our grasp when we assume good posture. However, we must not fool ourselves into thinking that this mental suggestion can remedy (for long) bad posture when its etiology involves such items as chronic fatigue, poor eyesight, malnutrition, and other insidious causes. We must always look for the cause of bad posture and see that this cause is treated by the proper authorities.

The approach to the child in postural instruction must be
a positive one. The negative approach of trying to scare the
child into the use of good posture by telling him all the
dangerous diseases he will fall heir to if his posture is
bad has not worked a bit better than the negative approach
to sex education or any other phase of personal hygiene.

We must show the child the relationships between good
posture and strength, power, beauty, bravery and self con-
fidence. We must attempt particularly to tie up good
posture with more efficient and greater achievement of the
child in the activities of life in which he is most inter-
ested. For example, it could be mentioned to childred in the
class room that it is an asset in trying to make the center
position on a basket-ball team to have height and to be able
to make use of this height. Some are not so tall as others
but all should take advantage of every bit of height they
have. Height is very essential also if one desires to make
a good service in tennis. Assumption of an erect posture at
frequent intervals is good training procedure for many sports.
Good form in archery demands a straight erect stance. Con-
sidering the position of the bones of the feet as a postural
problem, it can well be pointed out to would-be track stars
that one can take a longer step with the toes pointing straight
ahead rather than either in or out, that the fastest track
men always point their feet straight ahead, and that this is
the position of maximum strength.

There are many opportunities to associate strength with
good posture enlarging on the following illustrations;

A nail is strong only while it remains straight. Once
a nail which is being pounded starts to bend you must either pull it out, lay it on a hard flat surface and straighten it, or throw it aside and use a straight new nail.

The straightest posts are used for telephone poles because they are strongest and best withstand the rigors of stormy weather.

The blue-ribbon prize winning live-stock at a state, county or world's fair whether dogs, horses or bulls will have straight spines, for they are strongest and indicate thorough-breeding.

Pictures, hung about the school, of national and other heroes that held themselves in erect graceful posture, also help in building up the association between good posture and strength, power, beauty, bravery, and self-confidence. This approach is a positive one, and is in keeping with modern educational philosophy.
CHAPTER XIX.

PROCEDURES RELATED TO THE ACTIVITY PHASE OF THE PROGRAM FOR
PUBLIC SCHOOL CHILDREN WITH PHYSICAL DEFECTS

A. Introduction.

The recognition of individual differences is a relatively recent achievement in education. After it was discovered that individuals differed in intellectual capacity many different kinds of so-called intelligence tests were used in attempting to determine students' intelligence quotient and where they stood in this respect with relation to others of their group. In the general educational curriculum it was the inferior group who first reaped benefits from this discovery and many special classes were formed for these subnormal groups of children. The fact that there were superior individuals did not seem to impress educators at first, and therefore no special arrangements were made for them. It is believed that one of the reasons why so many of the superior men (who were expelled from college and later made good) got into situations which resulted in their expulsion, was simply that the program of the college was very simple and easy for them and did not challenge them to the heights of interest and expression of which they were capable.

In physical education, however, we have been for some time elaborately providing means of self-realization and self-expression for the athletically gifted by conducting varsity athletics. Only in the last eight or nine years have certain of these opportunities been made available for the masses through Intramural sports programs, and these are all too
few. In contrast to what has taken place in general education, scientific programs of physical education specifically adapted to meet the needs of the physically underpar group of students in educational institutions are so rare as to be almost non-existent. Of course there has been quite a goodly number of educational institutions that have provided so-called corrective physical education but such programs, consisting in the main of postural exercises, do not come anywhere near the fulfillment of the school’s responsibility and function of education through the medium of adapted physical education activities.

The present chapter hopes to set up a more adequate program for the physically defective public school child.

B. The Constituency of the group of children with Physical Defects.

It is maintained because of a school’s failure to have adequate health examinations for all children each year, as described in Chapter XIII, or of its failure to have any kind of health examination at all, it is sometimes possible that a child is accepted in school with such a serious defect that he or she has no business in school, because the school load will be just too much for him to stand successfully, and he would have to drop out sooner or later anyway. Nevertheless, if a child is once accepted in school he should not be excused from physical education classes no matter what his defect, for modern physical education recognizes individual differences and provides an adapted program of physical education for all. The Individual Physical Education Program
to be outlined in this chapter aims to provide for the needs of the child with physical defects. In this group of children will be found those who at the time of the periodic school health examination were classified into group "C", which was noted in Chapter XIV, page 240, as composed of "All those unable to carry the regular or normal schedule of activities of the physical education program because of temporary or permanent physical handicap."

Typical of the types of physical defects represented by these children are the following:

**Permanent Physical Defects.**
- Infantile paralysis deformities of long standing.
- Birth injuries (spastic paralysis).
- Amputated limb or limbs.
- Tuberculous joints.
- Ankylosed joints.
- Congenital dislocation of hip. #
- Structural cardiac cases.
- Chronically dislocating shoulders and knees. #
- Endocrine dysfunction. #

**Temporary Physical Defects.**
- Malnutrition.
- Functional Foot deviations.
- Weak abdominal muscles and ptosis.
- Post-operative thyroidectomy, appendectomy and herniotomy.
- Functional postural deviations.

# These defects are not permanent with successful surgical intervention. (Continued)
Temporary Physical Defects Continued.

Inguinal hernia.
Severe strains and sprains.
Functional cardiac cases.
Fractures.
Hyper-susceptibility to chronic bronchitis and colds.
Torn ligaments and cartilages.

G. Administration of the Activity phase.

As soon as the health examinations are completed a meeting of the "Follow-up" committee should be held. This committee might consist of the instructor or physical education staff member in charge of Individual Physical Education, the Director of Physical Education, the School nurse if available or the district or Public Health nurse with part-time school assignments, and one or more of the members of the board of examining physicians.

This committee could meet in the room which contains all of the accumulative record cards from the health examination. The school nurse or physical education director (in the absence of a school nurse) has by this time been able to sort out from the file all of those record cards representing children with physical defects of any sort. These cards will include all children in groups "B" and "C". The agenda of this meeting of the "Follow-up" committee will contain the following items:

1. Separation of this group of children with physical defects into the two classifications "B" and "C". ("B" group contains those with one or more physical defects, none of which is serious enough to curtail a normal program of physical
education activities. "C" group is composed of those unable to carry the regular or normal schedule of activities because of the seriousness of their temporary or permanent defects.

2. Initiate the arrangements for definite follow-up procedures for group "B", the committee, especially the doctor or doctors present, discussing with the nurse the most effective measures for enlisting the parent's interests and energies in taking the child to the proper medical authorities for correction. In many cases this involves simply a check up to see if the parents have already attended to the defect which had been brought to their attention at the time of the health examination in the doctor's office.

3. Initiate follow-up procedures for the "C" group. Doctors and physical educators carefully go over each child's card and at least tentatively arrange them, after due discussion of the cases, into three groups: (1) Those whose activity should be very greatly limited; (2) Those whose activity should be slightly limited; and (3) Those whose activity is limited only by the anatomical nature of the defect (one arm missing, an ankylosed joint, etc.), but who from the standpoint of organic health need no restrictions. With this necessary help given to the physical educator in charge of Individual Physical Education by the doctor, the former can safely and intelligently go about planning the activities he will use for his "C" group in Individual Physical Education.

4. Set up immediate procedures for getting those children in "C" group whose corrective needs are not being met or have
not hitherto been met, to receive the necessary correction that may be possible. This means a program of visitation by the nurse or some other school representative to find out the financial status of the home if it cannot already be discovered from some other source. Visitation is desirable as it will give an opportunity to get acquainted socially with the home and all of its members and environment. Probably this visitation will be necessary only when a letter, calling attention to the child's defect and stating the essential procedures necessary for correction, has failed to move the parents to activity along this line. Much can be learned through the Individual Physical Education instructor's conference with the child.

These are in general the activities which fall to the duty of the follow-up committee. All of these items may not be taken care of in the first meeting, and several meetings may be necessary in the first day or two of the school year. This committee should remain intact throughout the school year and should meet at least once a month to check up on progress made and to discuss and take care of special problems that may arise from time to time.

In the junior and senior high school units one of the women staff members should be in charge of Individual Physical Education for the girls and one of the men staff members should be in charge of this program for the boys. In the elementary school this same division is desirable. If in a community there is a consolidation of buildings containing the junior
and senior high schools and the elementary school, the most satisfactory arrangement would be to have two members of the staff in charge of Individual Physical Education, each responsible to the director of physical education. One would have charge of the program for the boys and the other of the program for the girls. It would not be necessary to separate the sexes in the grades below the fourth, and either the boy's or girl's instructor of Individual Physical Education, depending upon their ability and training in handling younger children, could handle that group.

The instructor of Individual Physical Education must arrange with the principal and director of physical education a suitable schedule for his group. If this is the instructor's sole responsibility he can arrange more classes for himself or herself than if he has other duties. At any rate, all of the children in the group must have definite meeting periods with the instructor at least as many times a week as have the children in regular physical education sections, and preferably at the same time. Certainly these classes should meet during school hours. The number of children in the classes can vary considerably, depending upon the homogeneity of the group both as to defects and as to age interests. It should be large enough so that there will be certain social benefits forthcoming, but small enough for efficient supervision. The group should not ordinarily be larger than fifteen.

The first task of the instructor in individual physical education, after scheduling is over, is to arrange for personal conferences with everyone. The first meeting of the class.
should be one of happy informal introductions, an opportunity for all to get acquainted. At this time, also, the instructor in an appetizing way should tell something of the work to be accomplished in the class. He will dwell particularly on a description of the activities in which the children will be most interested. It will be pointed out to those old enough to absorb such philosophy that all children in the world have different abilities and different weaknesses, but that very few of them have opportunities to improve their weaknesses. These children at this school, however, are being given an opportunity to correct certain weaknesses or defects which they may have so that they will be better able to engage in more play and other interesting activities than they now can and also to do much better some of the interesting activities they attempt to do now. Let me emphasize again the desirability of taking about a number of play activities which you are sure they are interested in and which will be learned in the class. Also at the first meeting of the class appointments should be made with each child for individual conferences.

These conferences can be scheduled at the time of the next regular meeting of the class, and those not taken care of can be excused from class until all conferences have been held. Another plan would be to schedule the children for conferences at the time of their class meeting and have an assistant play some very simple and physiologically safe games with the others until their turn comes. Perhaps a still better way to handle
the conferences would be so to gain the principal's cooperation that he will allow the conferences for these special children to be scheduled one after another through the school day, excusing the child from whatever other appointments he may have for this short time.

At the time of these conferences the instructor mainly gets acquainted with the child and gains his confidence by asking about his special interests. He later draws the child out to tell as much specific information about his defect its history and cause as one child knows. He makes a careful examination of the specific defect because of which he was referred to group "C" and records this information on a special Individual Physical Education Record card which he keeps on file for reference. A similar record card, used for men at The Ohio State University, and easily adaptable for use in elementary and secondary schools, will be found in the Appendix, page.

At the time of the conference the instructor tactfully explains that there will be two phases of activity prescribed for the child's benefit. (1) An activity program or routine possibly containing a few very specific and somewhat formal exercises which are to be associated with his daily life routine at home, and these are to be done faithfully each day, Sundays included. (2) A program of sports activities. The first of these programs will now be discussed.

1. **Specific Exercises for Specific Defects.**

   It is pointed out that the small amount of prescribed activity of this sort which could be taken two or three times
a week at school would accomplish practically nothing towards the child's improvement. It would be like a drop of water in a bucket. Therefore, since they are anxious to improve, they will be very glad to follow out a special program of exercises for at least fifteen or twenty minutes every day. It would be of distinct advantage to all concerned if the parents (or one of them) could arrange to be present at the time of the individual physical education conference, for they could then cooperate better and would understand the reasons behind the suggestions.

A typical list of activities one might prescribe for a grammar school child with weak and painful longitudinal arches might include the following:

1. **Wave the flag.** Starting position: sitting on the floor with legs outstretched forward and feet two feet apart and toes pointing upward. Grasp handkerchiefs or other small cloths between the contracted toes. Exercise in three counts. (1) Lower toes straight downward and forward. (2) Carry toes vigorously inward as far as possible. (3) Still curling the toes and feet inward, raise toes to the starting position. Start movements slowly at first and gradually increase until handkerchiefs are circled like flags. Repeat the three-count exercise fifteen to twenty times.

2. **Tip-Up.** Starting position: Cross right foot over left knee, placing right hand on right ankle to hold leg steady. (1) Curl toes inward and raise toe of right
foot sideward upward. (2) Relax down to the starting position. Repeat this fifteen to twenty times and do the same with left foot crossed over right knee and with left hand on left ankle.

3. **Ground-Gripper.** Starting position: sitting on chair or bench with both feet flat on floor and one foot apart. (1) Curl toes down under feet raising inner side of foot and turning feet slightly inward as one tries to grasp or grip the floor with his feet. (2) Relax and stretch foot and toes out to starting position again. Repeat fifteen to twenty times.

4. **Inch-Worm.**

Starting position: sitting on floor, legs as far forward as they can go and still have both heels and the metatarsal heads touching the floor. (1) Keeping metatarsal heads firmly on floor, stretch heel and foot backward as far as possible along floor. (2) Keeping heel firmly on the floor, contract foot and curl toes down underneath, placing toes as close to heels as possible. (3) Keep toes firmly on floor; extend toes and feet backward, and place heels as far back towards buttocks as possible on the floor. (4) Repeat instructions under (2) and (3); repeat instructions for (3). Keep up this inchworm means of progress until the heels are resisted by contact with gluteal muscles of buttocks. When this point is reached, reverse the direction and start the inchworm progressing outward heels following
toes which lead until the initial starting position has been reached. Repeat this five or six times.

5. Stick-Flip. Child stands with one or more small sticks two inches long and the diameter of a pencil placed on floor or ground at right of his right foot; he picks up one of the sticks by grasping it in the toes of his right foot and flipping the foot smartly across his body to the left with an emphatic inward fling of the toes he releases the stick throwing it as far off to the left as possible, practicing for distance. After several turns with the right foot, he collects his sticks, faces in the opposite direction, and with the sticks on the floor at the left of his left foot he practices distance shoots with his left foot, shooting the sticks across his body as far down to the right as possible.

6. Can’t Keep it Down. This is the same exercise as No. 2, and uses the same starting position except that in addition, the left hand is placed on the right toe offering a lot of resistance to its upward rise, but the right toe is supposed to win out and reach the top after a struggle. Likewise in the second part of No. 2, the right hand offers resistance to the left toe and is overcome in a similar manner. Repeat with both feet fifteen or twenty times.
7. **Clap the Feet.** Starting position; sitting far back on a bench with legs out straight in front and both fists placed together between the knees. (1) Turn bottoms of feet inward so that the soles touch each other with as much of their sole surface as possible. (2) Relax back to the starting position. Repeat the exercise fifteen to twenty times.

8. **Raising Beans.** Starting position; stand erect with hands at sides and with a bean-bag placed on the floor at the right of the right toe. (1) Place right toes on the bean-bag, grasp it firmly by the toes, raise it up off the ground, carrying it upward and inward across in front of the body by turning the toe inward and place it in the left hand, which grasps it just to the left knee. (2) Replace right foot on floor while left hand drops bean-bag on floor at the left of the left toe. (4) Pick up bag with left toes and carry it to right hand which grasps it at a point to the right of the right knee. (5) Return left foot to floor while dropping bag to right of right foot, which is the starting position. Repeat this raising of the bag fifteen times with each foot.

9. **Chair Rising.** Starting position; stand with feet eighteen inches apart and toes turned inward and with both hands resting on the back of a chair for partial support and balance. (1) Rise on outside of feet and rock forward
upward high on to the toes. (2) Rock back on outside of the feet to the starting position. Repeat fifteen to twenty times.

These same exercises could also be used for the other educational units. The particular names of the exercises used are for the purpose of stimulating interest, and because names make for easier association and memory of the exercises on the part of students.

The suggested exercises are by no means an exhaustive list of exercises for the longitudinal arch. Anyone with a good knowledge of kinesiology should be able to make up his own exercises. In addition there are scores of books of so-called corrective exercises available for those who need help. Drew, Lowman, and Stafford probably offer the best sources of information now available in print (although there are many others).

The exercises listed attempt to show a progression from non-weight bearing exercises to weight bearing exercises, and from simple and relatively easy exercises to those more complex and vigorous.

Limiting the children with longitudinal arch defects to the practice of the first four or five exercises listed, for

a month or six weeks, and then adding the others would probably be a wise procedure to see that the tibialis anterior and other muscles to be strengthened are in very good condition and tonus before calling them to stand up under the added strain of weight-bearing exercises. Doing the exercises a greater number of times is an excellent way to increase the strength of the muscles concerned. In fact, doing each specific exercise until a mild fatigue is reached would be a good rule to follow in most foot cases, provided the child had an opportunity to rest his feet immediately afterwards.

Of course the instructor must first carefully and clearly illustrate the exercises by demonstration and then observe the child carefully to see whether he has the proper and accurate conception of the exercise and can perform it. Many times when there is a group of children with longitudinal arch defects who have finished their conferences the instructor can make the demonstration to the group rather than include the demonstration in each child's individual conference.

Another item of the individual conference is of course the examination of the child's foot-wear if he has foot defects. Point out relationships between his defects and the style of shoe or its tightness or its lack of support. Suggest proper foot-wear or show how a lift here or there would bring about a great deal of improvement in the condition of the foot.

The individual conferences will be identical in some phases but will differ very greatly according to the type of
defect the child represents. For example, the prescribed daily routine for a cardiac child will differ markedly from that of a child exhibiting a painful longitudinal arch. Instead of prescribing exercise of any sort, rest may be prescribed.

It would seem that some of the problems of the cardiac case which must be solved are:

1. Is his present school routine too great a burden or not?

2. If his present load is too great, what adjustments can be made to lighten the load to the proper extent?

3. How can he be helped to discover his limitations, and live comfortably within his energy income?

4. How can he outgrow certain inferiority complex attitudes toward certain activities when his parents have made him an invalid ever since they first discovered he had a heart abnormality?

5. What are the chances of gradually strengthening his heart?

6. What activities of a sports character are safe and will help him in making a happy recreational adjustment?

Of course the doctor present at the time of the follow-up committee meetings can help the instructor of Individual Physical Education a great deal on some of these questions and should be called upon for help from time to time. However, it will likely be routine for the instructor to do some of the following things: at the time of the conference to endeavor to conduct a pleasant, unhurried visit with the cardiac child, to
get his history, and if possible to gain additional light on the probable cause of the heart defect. At this time also, to give a stethoscopic examination, to determine blood pressure, to give a simple functional examination of the heart. (Take pulse rate before exercise, after exercise, and two minutes after exercise. No matter what exercise is here used, the child should stop at the slightest feeling of dyspnoea or other undesirable symptom.) To explain to the child certain simple fundamental principles of heart physiology, as well as to give a general discourse on some of the principles of exercise and its influence on the heart, so that the child may readily grasp the facts of his case and what he is attempting to do for himself.

An Individual Physical Education Observation Card is shown to the child and explained in detail. The card is to be taken home and he is to check daily on the card the following information: hours of sleep, number of blocks walked, flights of stairs climbed (approximately), recitation hours, study hours, sports recreation hours, regularity of meals, unusual symptoms, and emotional disturbances. Finally, at the end of the day, the student is to rate himself on his general feeling of efficiency for that day on a basis of ten, ten representing his feeling of highest efficiency, taking into consideration his feeling of health, fitness for work and play, success in studies, happiness, and general pep. A student sick in bed

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1. See Appendix page for illustration of this card.
would rate himself five or less, and one up and attending
classes would rate himself from six to ten. After four weeks
of recording such information, the records are returned to
the instructor for study and a similar card is given to the
student. This system might be used quite successfully with
the junior and senior high school student, but with children
in lower grades it will not be practical. In these cases a
special card should be mailed to the parents, giving them an
opportunity to cooperate by recording such things as: days
when the child had, in addition to his regular school work,
a music lesson or a dancing lesson, a down-town shopping ex-
cursion, out-door play (number of hours and kind), rest at
home beside sleep at night (number of hours), of sleep each
night (number of hours), work at home of a physical character,
company visiting the family, meals (regularity), emotional
disturbances (due either to discipline, quarreling at play,
or with brothers or sisters), and unusual symptoms. The
parents should also be asked to make, on a basis of one to ten
(as in the above illustration), a daily estimate of the child's
condition of physical efficiency for each day at the end of
the day.

The home room teacher or elementary school teacher can
contribute valuable information on a smaller and simpler card,
noting any emotional disturbances which the child may have been
subjected to in her presence or hearing, his reactions to the
school environment as she saw it, and her general estimate of
his condition of physical fitness.
After the instructor has had an opportunity to look over these various cards of a particular student and to find the various relationships there evident, he can, in another conference, point out to the child some very valuable learnings. He can prove to him, for example, that he is not getting enough rest because the times when his efficiency rating was low were in every case the days following loss of sleep or hard work or extra happenings. The student will be helped to discover the particular routine in which he functions most efficiently and happily and the load he can safely handle while in the school environment. From the particular routine which is proved safe for the child, a gradual increasing load may be attempted, under the doctor's guidance. The parents being drawn in to this cooperating scheme can help most in seeing that the child is helped to make a safe adjustment. Both the child's observation record and the parents' card have the following general principles printed as guides to the child's participation in all activities:

1. Stop when tired, or breathless, or when you have any other undesirable symptoms, -- and learn to stop before this.

2. Start all activities slowly and gradually.

3. Make any daily increases in the amount of a particular activity very gradually.

The instructor in Individual Physical Education also makes appointments for the cardiac child at regular intervals of two or three weeks with one of the members of the Examining Board
of School Physicians for rechecking of his heart.

The individual conferences have been explained in detail for two children with entirely different defects, and the prescribed activity program to be carried on in the home has been also pointed out in detail. It would seem unnecessary to give similar detailed explanations for all the various defects, and so the other phase of the Individual Physical Education program will presently be described. It should be said, however, that the latter part of the program is never initiated until after all conferences with the children are completed and the home educational program of prescribed activities for specific defects has become well established.

2. Program of Sports Activities.

It will be found that if a child is able to be in school, standing the strain of going to and from classes, studying, reciting, and bearing the constant and wearing stimulation of various types presented by his school-mates, there will at least be one or more of these game and sport activities which will be perfectly safe for his participation.

There is a tremendous need for the use of game and sport activities in the Individual Physical Education program first because of the tremendous educational value of games and sports in bringing about the four-fold development, adult adjustment, and desirable social standards, which are mentioned in the statement of objective found on pages 226-238. The so-called corrective physical education of the past has consisted almost entirely of formal exercises and drills with no educational
value and with no intrinsic interest for the child. Not only was this procedure unjustified educationally, but to make the crime more serious, children were taken out of a regular physical education program in which there was educational value in order to take part in these irrelevant, uninteresting, and time-wasteful procedures. The second reason for the need of game and sport activities in the Individual Physical Education program has already been hinted. Presumably it is desired that the child continue at home regularly his so-called corrective exercises which he learned at school. This desire, neither the child nor the most conscientious parents have been able to realize. We have been insulting the child's intelligence in expecting him to carry on regularly and beneficially such inane procedures, even though they would result in improvement if carried on faithfully and regularly. Our prescription of activities for home use must challenge the interest of the child by containing many elements of play activity. It must be informal in content and method. Children are not interested in health as such, says Hetherington. They are interested in activities of a wide range and scope. If they can be made to feel that the activities prescribed in the Individual Physical Education program either are interesting in themselves or will definitely contribute to their ability or likelihood of more successfully participating in activities in which they are vitally interested, then and then only will they engage in a prescribed program to the extent of gaining marked improvement. The activities then which must be taught to the "C" group must contain

1. C. W. Hetherington, in lectures on "The Teaching of Health."
in large degree game and sport activities. This is especially true in the elementary school. There, age and interest level demands a "Play Way" in stronger fashion than in the secondary schools. However, elementary school children are satisfied with games of lower organization, -- a fact which should be a boon to the individual physical education teacher in adapting activities to meet individual needs.

The activity phase of the Individual Physical Education program should contain the three following types of game and sport activities: 1. Certain game and sport activities already existing for their value in contributing to general educational objectives suitably selected with reference to specific defects. 2. Adapted game and sport activities with the same high educational value, specifically adapted to the physical defects, and affording a larger repertoire of available sport activities. 3. Specially invented game and sport activities with specific preventive and improvement value for the specific defects.

By No. 1 is meant game and sport activities suitable because of their educational value for the participation of students with specific physical defects. These activities counteract the inferiority complex and other undesirable attitudes, build up self-confidence and other desirable attitudes, develop under proper leadership a number of desirable social traits, develop organic power, neuromuscular skills, and ability better to interpret the physical and social environment, and help to make certain adjustments, particularly recreational, social, and protective adjustments.
These game and sport activities will be organized and adapted to meet the needs of the three groups of students mentioned on page 264 of this chapter, namely, (a) those whose physical activity should be greatly limited, (b) those whose activity should be slightly limited, and (c) those whose activity is limited only because of the anatomical nature or structure of the defect (and not because of low organic power or physical condition of health). A one-armed child, for example, cannot participate in archery, because archery requires the use of both hands. He can not do the pole-vault, for the same reason. A student with one leg can not successfully compete with others in basket-ball or soccer football, but he might be a very excellent performer on the high horizontal bar and rings. It is possible that these definite physical handicaps may be supplemented by poor organic condition as well. As a matter of fact it frequently happens that students minus certain limbs or with withered limbs are in very poor organic and emotional condition as well. The reason for this oftentimes is that, having become very sensitive about their handicaps, particularly in the elementary and secondary schools, they have steered clear of all physical activities and consequently are lacking in the development and adjustment inherent in physical education activities. If students of this type have overcome their sensitiveness and are ready to face their life handicaps squarely and are free from organic defects, they should ordinarily be encouraged to join a regular physical education class. A one-armed individual of this type can hold his own in volleyball, handball, track events, soccer, swimming,
and many other athletic sports. Many one-armed individuals have been known to play a better than average game of basketball.

However, if the child's organic condition is poor or his adjustment in facing life (as it relates to his particular handicap) is incomplete, he should be retained in the Individual Physical Education program where he will be helped to make these adjustments. This past year it was the author's good fortune to have the opportunity of teaching a student with only one arm and one leg to swim. Considerable time was spent in developing various special methods and skills for his special case. The outcome, however, was most satisfactory, for the student can now do with pride and ease the American crawl (with slight individual variation), the side-stroke, and the backstroke; can swim underwater, scull, and surface dive.

His organic development in the last five months has been amazing, his health is better than it has ever been before, and he has been able in recent weeks to make a social and economic adjustment which demonstrates infinitely more self-confidence than he originally manifested. In addition to all of this, he has become one of the department's best boosters.

The following chart, page 284, contains a partial list of educational sport activities suggested for use in Individual Physical Education and gives the investigator's opinion only as to their suitability for certain specific defects from the standpoint of energy cost. There will be a few exceptions to the rule here, and more specific adaptation may be made by the instructor.
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Chart of developmental sport activities suitable for early childhood and primary and secondary school children.
This table is merely suggestive. There is great likelihood that different authors would classify these activities and defects differently. The main reason for this situation at the present time is that it is a question of opinion, whereas it should be a question of scientific fact. However, before we can base our compilations on scientific facts there must be a tremendous amount of research done on the specific energy costs of comparable amounts of various physical education activities. So far the question of the specific energy costs of different physical education activities is a virgin field. A few physiologists like Hill,\(^1\) Hemlin,\(^2\) and Bainbridge\(^3\) have partially scratched the surface, but physical educators really have little right to prescribe activities formal or otherwise until further research has been made in this direction.

Not only should there be definite physical education instruction opportunities for each child in the public schools but there should be definite opportunities for all children to express themselves in interesting sport activities under proper leadership.

In this connection it may be noted that we have provided such opportunities for this expression of play in competition only for the group most gifted athletically, namely, those who can win places on the varsity teams. In recent years we have rapidly come to see that an intramural program of sports is essential and desirable for providing those same opportunities for the mass of students with average talent in athletics.

Athletics, or sports at least, are the most valuable part of physical education. Physical education makes tremendous and unique contributions to the objectives of education in general. Therefore, the school cannot hope to fulfill its educational responsibility until it adequately provides not only for the students represented on the varsity and intramural teams, but also for the students represented in the Individual Physical Education classes. The chart (page 28/) previously referred to, suggests a number of activities, some of which could well be used in intramural competition in which students from Individual Physical Education classes could participate under close supervision. Provisions for the participation of children in Individual Physical Education classes in game and sport activities must be made. The administration of these procedures demands that there be a close integration, under the department of physical education, of all of the athletic activities mentioned above. In this way not only instruction in regular physical education and Individual Physical Education but also opportunities for expression will be available for all.

3. Adapted Game and Sport Activities

Illustrations of Adapted Game and Sport Activities follow:

1. Bad-volley-ball.

Adapted from Badminton.

Purpose: To increase the number of players participating from two or four to eight, and to make the game less vigorous.

Equipment: a badminton court, four badminton racquets or tennis racquets, and one bird or shuttlecock.
Rules: Four players on a side: two of each side are up close to the net; the other two on each side are at the rear of the court. The two men in the rear of the court handle the racquets and are responsible for the rear half of their court. The net men on each side take care of the front half of the court but do not have racquets and have to bat the bird back with their hands. The scoring is similar to that in volley-ball in that only the individual serving can make points, and he serves from behind the right-hand third of the back line of his court. Rotation of players is clockwise as in volley-ball.

The game may be played until either side first scores fifteen points or twenty-one points. During a shift or rotation, the right front net man moves back to the right rear position, taking that man's racquet, while he in turn takes the racquet from left rear man who has shifted up to the front left net position while the man previously occupying this position has shifted over to the front right net position. The rear men always use the racquets and the net men always use their hands. Both positions are equal fun to play and the rotation provides that all take turns.

2. Racquet Volley-ball. Adapted from volley-ball.

Purpose: To have an interesting game using racquets, a game which is less vigorous than volley-ball and which can be used for students whose exercise
should be greatly limited.

Number of students who can play at one time: Six to fourteen (three to seven on a side).

Equipment: A Badminton racquet or tennis racquet for each student participating, and one Badminton bird.

Rules: Exactly the same as volley-ball. Caution each student about staying in his own territory so that there will be no danger of students on the same team hitting one another. With five to seven playing on a side, use a regular volley-ball court. With three or four on a side, it is well to use a smaller court, -- perhaps a badminton court.

3. Archery-Tit-Tat-Toe. (Three in a Row).

Purpose: To provide a game using the satisfying techniques of archery for students greatly limited in activity. While the main group of the class might be doing target shooting or archery golf, there might be two students for whom these two sports would be too strenuous but who would like to learn and participate in archery.

Equipment: For each pair playing; an archery target, on which is pasted or sewn tough paper, oil-cloth, or canvas marked in black lines so as to form nine squares within one big square. The small squares may vary from six inches to ten inches square, and look like the figure following:
Additional equipment would consist of one bow and approximately six arrows for each participant.

**Rules:** Participants stand approximately fifteen feet from target and shoot their arrows alternately, their object being to see who can first shoot three arrows in a row, -- each arrow to be in a different square. Many times neither participant will win but a tie will result as each tries to foil the efforts of the other in his object by placing one of his arrows where his opponent had hoped to establish a line of arrows. Each participant's arrows should be created or marked in such a way as to identify it easily. In this game one must not only anticipate where the opponent desires to make his straight line, but one must himself shoot straight. An arrow shot into a different square from the one intended may give the game away to the opponent if he is a sufficiently good shot to profit by the error.

The games listed above should be sufficient to suggest what is meant by adapted game and sport activities. There are countless ways and means of adapting or slightly changing well-
known games to meet the specific needs of the individuals in the class. Not only teachers of Individual Physical Education but all teachers in physical education should make a practice of enlarging their repertoire of game and sport activities by this type of adaptation. The time is past when teachers return to summer schools for material they can take right back to their local situations and use as it is. Institutions of graduate level are giving out or discussing with students fundamental basic principles involving the organization, administration, and methodology of their teaching responsibilities. The students are expected to do their own thinking and to make their own applications and adaptations to meet their particular local needs.

4. Invented Game and Sport Activities.

There remains yet another type of activity to be dealt with, -- one which is thought to be part of the educational responsibility of the department of Individual Physical Education, namely, the invention and prescribing of specific game and sport activities which have definite improvement value for specific defects. A few illustrations of these will follow.

Illustrations of specific games or sports designed for their definite improvement value for specific defects:

1. **Foot-Bean-bag-Toss.** Object: to strengthen arches of the feet.

   Place one or more empty boxes about one or two feet square against the wall. One or more pupils can compete, depending on the number of boxes and bean-bags available. The pupil competing stands from ten to fourteen feet away from the box which
is his target, and facing ninety degrees to the right of it (if using his right foot). At his right on the floor are placed five bean-bags which he grasps one at a time with the toes of his right foot and by swinging the leg to the left across in front of his body and by flipping his toe inward he flings the bag at the box. If he succeeds in throwing the bag so that it finally lodges in the box he scores five points; if the bag lodges on the edge of the box but fails to fall in, he scores three points; and if the bag hits the box anywhere but fails to lodge in or on the box, the toss scores one point. The sum of the scores for five tosses is his record. The class can be organized so that there are team scores and individual scores. The game has a great deal of interest. You can have left-footed scores, right-footed scores, and the scores of the two feet combined.


Three of more boxes are placed on the floor at various parts of the room. The boxes are numbered consecutively. The game is played like regular golf, in twosomes, threesomes or foursomes. Each child has his own bean-bag which he advances by throwing it with his toes as in the game previously mentioned. Standing at a particular starting point, or teeing-off place, he toe-tosses the bean-bag sideward and inward across the body in the direction of the first hole (box). Each child keeps a record of the number of tosses it takes for him to get the bag in the box. After the players in the group have all holed out, bags are placed on the floor near the last
hole and they throw towards hole number two. They can con-
tinue this way for nine or eighteen holes. Course records,
individual records, and team records, are kept for both the
left foot and the right foot.

3. **Swimming the American crawl.** Object: to strengthen the
longitudinal arch of the foot.

To swim the American Crawl stroke properly, one should
turn in his toes while maintaining a vigorous flutter. This
foot exercise strengthens the tibialis anterior muscle, which
is the main muscle to be educated and strengthened in the
improvement of the longitudinal arch. Swimming has the added
advantage of being an activity in which there is no weight
bearing responsibility for the feet, and this means that these
muscles can be built up without the hazard of being torn down
concomitantly. It is an ideal exercise for the improvement
of the foot.

4. **Swimming the side-stroke on the right side.**

Object: to strengthen the internal hamstring group of
muscles on the left leg, to tighten up the left knee-joint,
and partially to compensate for a tear and subsequent weakness
in the left internal lateral ligament of the knee.

To swim the side stroke properly, one always throws the
top leg forward for the scissors stroke (the characteristic
leg kick used in the side stroke) and thus the bottom leg
backward. In this stroke the power thrust or drive of the
legs involves the extensors of the knee on the right leg
(bottom) and the hamstring muscles of the left (top) leg, as
well as others. The strengthening of the hamstring as a group is desirable, but with the left leg on the left toe can be turned inward so that it points downward and in this position brings especially the inner ham-
strings group the strengthening and shortening which will bring about the most satisfactory results, as it particularly tightens and bolsters the inner side of the knee-joint which has been made weak.

5. Swimming the breast stroke (with head out of the water) and the over-arm back stroke. Object: to improve and help eliminate an individual's round shouldered condition.

Both the over-arm back stroke and the breast stroke use the adductors of the scapulae in the power stroke, and the breast stroke (the old-fashioned style with the head out of water) involves the stretching of the pectorals to a considerable extent. The style of breast stroke with the head out of water is preferable from a postural standpoint to the more modern technique of coasting forward with the face under-water and with the very quick recovery and forward thrust of the arms. This quick recovery is accomplished by a vigorous contraction of the pectoralis major muscle and the anterior deltoid muscle. The first of these muscles is ordinarily too much developed in round-shouldered conditions.

6. Swimming the crawl or a modified crawl in order very gradually to develop strength in the quadriceps extensor muscles of the legs in the after-care of infantile paraly-
sis. Swimming various strokes and with various modifications of form best for the particular case, is extremely valuable for the post infantile paralysis case. The body is sufficiently buoyant ordinarily so that it floats, and the various limbs of the body float, so there is little resistance to the slow, weak contractions of the partially crippled muscles. With an instructor who can supervise very closely and see that the child is not in the water too long, surprisingly good results can often be obtained.

Probably these exercises are sufficient to show what can be done in specific prescription of exercise from the field of game and sport activities. There are unlimited possibilities in prescription of activities with health improvement value if we only take the trouble to analyze the activities carefully.

One of the problems in the prescription of exercise, is the stretch reflex. Many of us have been taught that the way to strengthen a particular muscle was first to stretch its antagonist muscle, and then by exercise of the muscle we want strengthened develop it and shorten it. Orthopedic physicians and physiologists, however, now tell us that if we attempt to stretch a muscle we stimulate its stretch reflex which causes a very vigorous contraction of the very muscle we are trying to stretch, so that the end result is often the strengthening of the wrong muscle.

One of the very decided advantages of prescribing these sport activities which are for specific defects is that the
stretch reflex is not involved seriously for we contract the muscles we want for a particular activity and these are the muscles we want strengthened, and in contracting these muscles their antagonists are naturally inhibited or relaxed, since it is impossible to contract a muscle without first relaxing its antagonist.

There needs to be, however, a tremendous amount of research done in the fields of physiology and experimental psychology before we can prescribe such activity with a very high degree of accuracy. If the profession of physical education is to hold its own as a science, it must step out into the field of research along three lines in particular: physiology, kinesiology, and psychology. Too long have its arm-chair philosophers held the stage. With sufficient research all activities of a sport character can eventually be prescribed as carefully and accurately as other routine prescriptions.

One of the very important parts of the Individual Physical Education program which has been quite overlooked in the past is the need for the provision of facilities for rest. Our past conception of physical education has been hampered by associations of sweat and perspiration. Many of our programs in the schools and elsewhere have contributed to the over-stimulation, confusion, and exhaustion of the children, rather than raising the level of their health, strength, and stamina. We have in some cases been responsible (as a contributor at least) in bringing on the chronic fatigue which has resulted in bad posture. In some of the most prominent
teacher-training institutions of physical education for girls, these students have testified that they were forced to engage in so much physical activity that they were always exhausted and often became the easy prey of various epidemic diseases because of low resistance. This situation is not in keeping with the best in physical education.

If these conditions exist among the mass of students, how much more essential must it be to see that the program of Individual Physical Education definitely provides for rest of students when it is needed. Many times a heart case will feel more like coming to class and lying down the entire hour than engaging in the mildest form of sport activity. If he feels the need of such rest, he should certainly be allowed to get it and indeed should be encouraged to get it rather than to be kidded or made fun of. After all, our fundamental objective for the student is that he become intelligently self-directing. To rest when in need of rest, is the intelligent thing to do. If the instructor is sincere in striving to be of greatest service to the student, the student will ordinarily be very fair with the instructor and not try to take advantage of him in any way.
Chapter XX.

SUMMARY OF SUGGESTED APPLICATION OF EDUCATIONAL PROCEDURES, AND SUGGESTED TERMINOLOGY TO DISTINGUISH THIS TYPE OF PROGRAM

The last four chapters of Part IV have dealt with the problem of setting up a program within the physical education program to fulfill adequately the school's function as specified in the criteria stated in Part II. A clear-cut distinction between what is involved in education, and what is involved in correction is made, following which objectives of this special program for group "C" students are stated. These objectives are stated in the light of the criteria. A program to realize these objectives is then set up and discussed under its three main divisions, namely, Health Service, Health Instruction, and the Activity phase of the program. This program for group "C" students is constantly referred to as the Individual Physical Education program. Individual Physical Education refers to that phase of physical education which deals with the organization and leadership of temporarily or permanently handicapped individuals, in activities specifically adapted to meet their needs so that they may make a happier, more efficient, and complete adjustment to life both in school and thereafter. It has been pointed out that never before has the school attempted adequately to adapt its physical education program to meet the individual needs of its physically under-par students. For years individual differences have been noted in athletic ability, and varsity athletics have given the athletically gifted students their
opportunity for expression and self-realization. The tremendous growth of the Intramural Sports programs all over the country show that the middle group of students has felt a very definite need for expression in athletic sports and has been championed quite generally by educators the country over. The purpose and plea of this study is that educators the world over must recognize the individual differences and needs of children with physical defects, and see that these defects are corrected by the proper agents. In addition they must provide for this group of children (if they are accepted in school) the advantages and opportunities available through game and sport activities properly supervised and adapted to their needs. This will result in their wholesome total education within the range of their capacities. When it is said that the Individual Physical Education program recognizes individual differences it is not implied that other phases of physical education do not recognize individual differences, for that is one of the specific objectives of the general program. However, the necessity for recognizing individual differences in the Individual Physical Education program is so much more obvious and detailed, and the program is so personal and individual even though the classes are met in groups, that the term used to designate this program is felt to be justified. Certainly the program as outlined is not corrective; it is educational all the way. The program is not one of gymnastics; neither is it solely a program of Individual Health.
Training. Its educational implications take it far beyond that.

The term Individual Physical Education is by no means thought to be a perfect one, but it expresses far better what is felt to be the service needed by the student than other terms heretofore used. We do not correct deformities; the surgeon and other medical men do that. As physical educators, we educate through the use of certain activities prescribed and led by us as teachers and leaders. To the extent that students participate in the prescribed activity program, they improve their condition (provided the program is good). We do not make the improvement, they do the work. We organize, guide, stimulate, coach, and supervise, — and that is all any educator can do in teaching or leading any subject of the curriculum. We are not interested in perpetrating another system of gymnastics. We do feel, however, the need of an educational program recognizing individual differences. This need is particularly evident in the case of the students with physical defects. It is felt that this program which takes the physically handicapped individual as he is with respect for what he may become, helps him to help himself, and contributes to the better health and efficiency of the total individual, might very appropriately be termed Individual Physical Education.

In conclusion it is felt that the school is best prepared of all institutions to carry out its function of Education, and is not prepared to undertake correction of defects; that is the function of the medical profession. The school will
never have time or money to dabble with the correction of physical defects of school children if it looks upward and moves ever forward toward its goal of adequately carrying out its unique function of EDUCATION.
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APPENDIX A-1.

QUESTIONS ON THE RESPONSIBILITY OF THE PHYSICAL EDUCATION DEPARTMENT FOR THE CORRECTION OF PHYSICAL DEFECTS OF SCHOOL CHILDREN

A. What are the functions of the school?

What are the functions of the department of physical education?

What are the functions of the school physician?

What are the functions of the school nurse?

What is the function of the medical profession?

What protective functions must the school assume?

What protective functions are assumed by the physical education department?

What protective functions do the medical profession assume for the school?

What functions of the school can the medical profession help to achieve?

What are the objectives of a program of correction of physical defects of school children?

B. What physical defects are found to exist among children of the public schools in grammar schools, junior high schools, and high schools?

What types of defects have been subjected to corrective measures either inside or outside of the schools?

What defects have agencies inside of the school attempted to correct?

What defects has the physical education department attempted to correct?

What agencies inside the school besides the physical education department attempt to correct physical defects?

What defects have these other agencies inside of the school attempted to correct?
What agencies outside of the school have been attempting the correction of physical defects of school children?

What are the defects, the correction of which these agencies outside of the school are attempting?

C. What percentage of the correction of physical defects by agencies outside of the school is financed by the public money?

D. What procedures are necessary in the correction of each of the respective physical defects found to exist among school children?

What facilities and equipment are essential in order that the necessary procedures may be carried on to a successful conclusion?

What are the respective costs of the necessary facilities and equipment needed to correct the specific defects?

What facilities and equipment of this sort do schools now possess?

E. What percentage of the children's parents cannot afford to pay for the correction of the children's physical defects?

What agencies are now available for the correction of the physical defects of children whose parents cannot afford a physician or specialist?

F. What training is necessary in order successfully to carry on a program of correcting the physical defects of school children?

What training have individuals had who are attempting to handle the program of correction of physical defects?

G. What objective means of measurement or tests of the various phases of corrective work are available?

H. What factors condition the effectiveness of the work of correction of physical defects in addition to the technical procedures, necessary facilities and equipment?
A. How should the correction of physical defects be classified? Under protective or under educational?

How far can the department of physical education go with the correction of physical defects and stay within their function not stepping on toes of the medical profession?

B. How extensively is the correction of physical defects being carried on in the public schools of this country?

How are the physical defects of school children detected?

How should the children needing correction of physical defects be selected?

How much time is necessary for the correction of the specific defects?

C. How much would it cost schools to provide the necessary facilities and equipment adequately to carry out a program for correction of physical defects?

How should a program of correction of physical defects of school children be financed?

D. How can the physical defects of school children best be corrected?

E. How can the necessary training to successfully handle a program of the correction of physical defects be obtained?

F. How long would such a training as this take on the average?

G. How generally are those measures used in conducting the corrective program?

How significant are the available objective measures of corrective work at present?

H. How many children should be in classes for the correction of physical defects at the same time?
How much time per week is allowed by the schools for the correction of physical defects?

How is the work of correcting physical defects allotted to teachers within the school?

APPENDIX A-2.

Criteria for
"The Responsibility of the Public School for the Establishment of Educational Procedures for Children with Physical Defects"

Explanation

Please read the definitions of Education and Correction with particular care as the distinction made between these two terms is a very important one, and frequent reference to the definitions will be made.

It is suggested that the entire list of Preliminary Statements and Criteria be read over at least once before checking agreement or disagreement with the Criteria.

Preliminary statements are made to make clearer the Criteria. Only the Criteria, however, are to be checked for agreement or disagreement.

Instructions

1. If you agree with the statement, place check ( ) after the word "Agree".

2. If you disagree with the statement, place check ( ) after the word "Disagree".

3. If you would like to have the statement re-worded, please indicate on the line provided for such changes.

__________________________________________________________________________

Definitions

1. Education from the standpoint of the school is the organization and leadership of children in selected activities which will stimulate them to make changes within themselves resulting in their progressive integration in an everchanging world, to the extent of their native capacity.
2. Correction as dealt with in this study is such beneficial changing of an individual's physical condition as can be accomplished only by a human agent external to the individual. He may or may not submit to it willingly, but has no active part in accomplishing the change. The external human agent accomplished a desirable change in the individual which he could not have achieved himself.

Education helps the child to help himself.

Correction makes the child better able to profit by education, or fits the child to participate in the educational process on a higher level. The physician through Correction helps those unable to help themselves up until such time as they are thought able to help themselves and profit by Education.

3. The Public School is a social agency of the community, supported by public taxation, and organized to give instruction to the community's children of school age.

Criteria

A. School

1. The function of the school is Education. *Agree_____. Disagree_____.

2. It is the school's responsibility to insure that the physical environmental factors of its various teaching situations facilitate its function of Education. *Agree_____. Disagree_____.

3. The school should educate the whole child by developing intelligent interests, informations and impulses concerning health and physical efficiency, as well as developing the other curricular subjects. Agree_____. Disagree_____.

*See definition of education on page .
B. Responsibility for Health of Child

Criteria

1. Primarily and fundamentally the responsibility for the health of the child should rest upon the parents. Agree____. Disagree____. ____________________________

2. It is the school’s function to educate the child as he develops in such a way that he may be able intelligently to take increasing responsibility for his own health to the best of his ability and resources. Agree____. Disagree____. ____________________________

C. Physical Examinations

Criteria

1. Every school child should have at least one thorough physical examination each year. Agree____. Disagree____. ____________________________

2. The examination shall include as a minimum the checking of the following items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Agree____.</th>
<th>Disagree____.</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lymphatics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lungs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdomen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hernia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genitalia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. The school must require school children to have completed their physical examinations before allowing them
to engage in the physical education program of the school. Agree____. Disagree____.

4. The physical examinations should be completed by the week previous to the opening of school in the fall and should be a requisite for registration. Agree____. Disagree____.

5. The school after advisement from the municipal health authorities and from the local medical society, should establish standards for the school physical examinations. Agree____. Disagree____.

6. It is the school’s responsibility to see that those standards are met. Agree____. Disagree____.

7. The physical examinations should be given only by members of a board of examining physicians agreed upon yearly by a joint committee representing the local or county medical society, and the municipal educational and health authorities. Agree____. Disagree____.

(This first necessitates the cooperation or getting together of representatives of the three parties most
7. contd.

concerned, board of education, municipal health author-
ities and the local or county medical society. Men
thus agreed on for the examining board will be above
bribery, conscientious and thoroughly familiar with and
zealously upholding the rights, purposes and unique
contribution of each of the three aforementioned agen-
cies. Superintendents can notify all parents that
their children must be examined at the office of one of
the examining board during summer or early fall and
present a carbon copy of the results of the examina-
tion as a requisite for school registration.

D. The Board of Education and the Correction of Physical Defects

Preliminary Statements

"The general public still likes the emotional uplift of
doing something for the 'unfortunate' but the unfortunate
asks only an opportunity to do things for himself."
Mary E. Chayer, "School Nursing", p. 162.

"All needy families should be referred to well-trained
social workers whose policy is not to distribute relief,
but rather to help the family build on its own resources
to the end that it may be more self-supporting."
Ibid, p. 145.

"It is not the function of the school to furnish material
relief."
Ibid, p. 145.

Criteria

1. The Correction (see definition of Correction, page ) of
physical defects of school children is a health service,
and if the parents (whose responsibility it is) cannot af-
ford to give their children this service through the
medium of private physicians, the service should be ren-
dered by the municipal health authorities, or the best
fitted agency outside of the school. Agree. Disagree.
2. It is not the function of the Board to correct any physical defects of children. Agree____. Disagree____.

---

5. Correction of Physical Defects by Physical Education Department

Preliminary Statements

Much of the better type of the so-called corrective work done in the past by physical educators for children with functional deviations of feet and spine has been entirely educational in character and not corrective. This instruction by the physical educator involves development of interests and informations concerning the child's defects, demonstrations of exercises which will improve the condition specifically and generally, and supervision of the activities while the child carries them out, to be sure he is learning them accurately. The physical educator also teaches ways of standing and walking of least strain, and suggests proper footwear, etc. These procedures are clearly educational, the child making the changes himself under the stimulation and inspiration of the teachers. (See definition of Education, P. ).

Criteria

1. Correction of physical defects is the function of the various branches of the medical profession. Agree____. Disagree____.

---

2. It is not the function of the department of physical education to attempt the correction of physical defects of school children. Agree____. Disagree____.
F. Medical Service

1. There shall be available throughout the school day service of the following nature:
   a. Re-examinations of children requiring it.
   b. Supervision of the follow-up program.
   c. Supervision of such physical environmental factors affecting the health of students and teachers as heating, lighting, ventilation, and sanitation.
      Agree____. Disagree____. _______________________

2. It is the school's responsibility to see that these services are carried out by competent agents.
      Agree____. Disagree____. _______________________

3. If you agree with the above criteria, indicate the ways this may be met:
   a. Full time service financed by the school. ____
   b. Full time service financed by some agency outside the school. ____
   c. Part time service financed by the school. ____
   d. Part time service financed by some agency outside the school. ____
   e. Clinic of some agency outside of the school. ____
   f. Hospital of some agency outside the school. ____

G. Concerning Costs

Preliminary Statement
If it is the function of the school to educate (See definition of Education, page ); is it not better that the board of education budget be used for educational purposes only and that money for the correction of physical defects (which has a strong popular appeal) be supplied by agencies outside the school?

Criteria

1. The board of education should use its entire budget for those purposes which are primarily educational; in other words, it is the function of the board of education to utilize all the money it can acquire in hiring the best teachers, paying them fair salaries, keeping equipment up-to-date, enriching teaching by adequate supervision and research, educating the community and making the school environment contribute to the best health of the students and teachers.
   Agree____. Disagree____. ____________________________
   ____________________________

2. The municipal health authorities or other social agencies of the community outside of the school should pay for school medical service and correction of physical defects not financed by the parents of the school child. Agree____. Disagree____. ____________________________
   ____________________________

3. It is not economical or practical for boards of education to finance the construction and administration of school clinics, dental or otherwise.
   Agree____. Disagree____. ____________________________
   ____________________________
II. Concerning Posture

(Since posture has received such tremendous emphasis in the physical education programs of the past, it is here given special treatment.)

Preliminary Statements

"Neither graduate students of physical education, posture experts, nor physicians can reach significant agreement in the classification of posture silhouettes or photographs using the Harvard scale, or any other thus far invented." (Suggested by the research of Dr. Franzen and Mr. Derryberry of the American Child Health Association.)

"There is ample evidence that, like all our other features, physical and mental, posture is an inherited trait bound up with the complicated physique handed down through millions of years and not to be tampered with lightly for artistic purposes." Dr. J. F. Rogers (Proceedings of the American Student Health Association, December 1930.)

"There is no evidence whatever that posture is essentially influenced either by general or by specific posture exercises." Ibid

"Students may be classified according to four or forty types as regards their general build but the usual law of distribution holds except as it may be affected by injury or disease, including occupational stress and strain." Ibid

Since all individuals are different, the posture of any two individuals cannot be exactly alike.

One's posture is indicative of one's total integrate condition at a particular time.

Bad posture is oftentimes a symptom of some chronic pathological condition such as chronic fatigue, or malnutrition.

One's posture may reflect one's mental state of elation or depression.

A successful conscious effort to assume a particular posture often brings with it by conditioned reflex, the particular state of mind associated with this particular posture.

"Postural patterns may be interpreted to be the various positions which each individual may assume, at the same time keeping to his specific configuration. Postural
patterns imply movements of parts within the configuration which are constantly adjusting to meet the forces playing upon them." Nabel E. Toed, "The Balancing of Forces in the Human Being", 1929.

Criteria

1. Posture is good to the extent that it facilitates function in the activity at hand. Agree_____. Disagree_____.

2. The best posture for a particular individual is the most appropriate and efficient posture the individual can assume in carrying out his specific purpose or activity. Agree_____. Disagree_____.

3. It is natural and proper for one to change his posture periodically even in sleep to rest muscles, relieve strain, and secure more adequate relaxation. Agree_____. Disagree_____.

4. It is undesirable to make children stand or sit in the same posture for long periods of time without change, no matter how straight, good, or proper the posture is supposed to be. Agree_____. Disagree_____.

5. A straight, stiff, and inflexible posture, is not an efficient posture for the activities of life in an ever-changing world. Agree_____. Disagree_____.

I. Professional Training
Criteria

1. Professional training in physical education does not and should not fit an individual to correct the physical defects of school children. (See definition of correction, page ). Agree____. Disagree____.

2. Professional students of physical education should be trained in the use of educational procedures for children with physical defects; in other words they should be prepared:
   a. To recognize certain physical defects of school children. Agree____. Disagree____.
   b. To understand the causes of certain physical defects so they can educate for prevention. Agree____. Disagree____.
   c. To know and understand many of the common procedures the medical man must use to correct these defects; so that the physical educator can be of greatest service to the child in securing contacts for him with the nurse or the physician resulting in the child's more rapid correction. Agree____. Disagree____.
   d. To talk intelligently and in correct technical terms about most of the common physical defects found among students, and be able to follow the doctor's directions in the event he recommends a special or individual physical education program. Agree____. Disagree____.
e. To formulate and teach exercises which will develop certain specific muscles or groups of muscles through the application of the sciences of physiology and kinesiology. Agree_____ Disagree_____.

f. To teach an increasingly large number of those sports representing milder forms of activity which can be participated in by children with physical defects all one's life; such as: bait-casting, archery, badminton, horse-shoes, deck-tennis. Agree_____ Disagree_____.

g. To give various tests of functional efficiency which can be used to classify, grade, and measure the progress of children with certain physical defects. Agree_____ Disagree_____.

APPENDIX A-3.

List of Jurors Evaluating Criteria

1. Allen G. Ireland, M.D., Director for Health, Safety and Physical Education, State of New Jersey, Trenton, N. J.

2. Fred Moore, M.D., Medical Director of Public Service Board of Education, Des Moines, Iowa.

3. Thomas D. Wood, M.D., Director of Health Education, Teacher's College, Columbia University.


5. James E. Rogers, Director National Physical Education Service, Director of National Recreation Association, New York, N. Y.


8. Frank S. Lloyd, Ph.D., Associate Professor Physical Education, School of Education, New York University, New York, N. Y.


10. Charles Scott Berry, M.D., Ph.D., Director Bureau of Special Education, Ohio State University, White House Conference.

11. Leroy A. Wilkes, M.D., Medical Director American Child Health Association, New York, N. Y.


14. Harry Scott, Ph.D., Director of Physical Education, Rice Institute, Houston, Texas.

15. Mary Ella Chayer, Department of Nursing, Columbia University, author of "School Nursing."

16. William Burdick, M.D., Supervisor, Physical Education for the State of Maryland, and Director of the Playground Athletic League, Baltimore, Maryland.
APPENDIX A-4

Equipment for the Correction of Dental Defects

Clark and Butler would include the following equipment in an itinerant school dental clinic for both operative and preventive work:

<table>
<thead>
<tr>
<th>Article</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid, trichloracetic</td>
<td>1 bottle</td>
</tr>
<tr>
<td>Alloy, copper</td>
<td>3 oz.</td>
</tr>
<tr>
<td>Alloy, true dental</td>
<td>6 oz.</td>
</tr>
<tr>
<td>Blowers chip No. 36</td>
<td>2</td>
</tr>
<tr>
<td>Blowers chip extra bulbs for numbers</td>
<td>3</td>
</tr>
<tr>
<td>Bottles, medicine, 1/2 oz., ground gladd stoppers</td>
<td>13</td>
</tr>
<tr>
<td>Bowl, plaster</td>
<td>1</td>
</tr>
<tr>
<td>Brushes, tooth polishing</td>
<td>3 gross</td>
</tr>
<tr>
<td>Burnishers, No. 30 and 34</td>
<td>3</td>
</tr>
<tr>
<td>Burs for straight hand piece, Nos. 1/2, 2, 6, 34, 35, 550, 558, 700, 702 (1/2 dozen each)</td>
<td>4 1/2 doz.</td>
</tr>
<tr>
<td>Burs for contra-angle handpiece, Nos. 1/2, 2, 4, 8, 33 1/2, 35, 557, 558, 560, 568, 702 (1/2 dozen each)</td>
<td>6 doz.</td>
</tr>
<tr>
<td>Campho-phenol</td>
<td>1 bottle</td>
</tr>
<tr>
<td>Cement, Ames copper</td>
<td>3 boxes</td>
</tr>
<tr>
<td>Cement, S. S. W., pearl gray</td>
<td>3 boxes</td>
</tr>
<tr>
<td>Chair, portable dental, with case number</td>
<td>1</td>
</tr>
<tr>
<td>Chisels, Nos. 3, and 85</td>
<td>2</td>
</tr>
<tr>
<td>Clamp, rubber dam, assorted</td>
<td>6</td>
</tr>
<tr>
<td>Cotton holder</td>
<td>1</td>
</tr>
<tr>
<td>Cotton rolls, 2, 3, (3 of each)</td>
<td>3</td>
</tr>
<tr>
<td>Composition modeling boxes</td>
<td>6</td>
</tr>
<tr>
<td>Covers, Aseptic paper</td>
<td>3</td>
</tr>
<tr>
<td>Gaspidor and stand, portable, and case</td>
<td>1</td>
</tr>
<tr>
<td>Disks, assorted</td>
<td>34 boxes</td>
</tr>
<tr>
<td>Engine belts</td>
<td>2</td>
</tr>
<tr>
<td>Engine, dental, all cord, foot power portable with case</td>
<td>1</td>
</tr>
<tr>
<td>Engine oil</td>
<td>1 bottle</td>
</tr>
<tr>
<td>Excavators, Nos. 37, 57, 59, 63, 64, 67, 69, 81, 83</td>
<td>9</td>
</tr>
<tr>
<td>Explorers, No. 5</td>
<td>1</td>
</tr>
<tr>
<td>Eugenol</td>
<td>1 bottle</td>
</tr>
<tr>
<td>Floss, Dental, waxed</td>
<td>12 tubes</td>
</tr>
<tr>
<td>Forceps, rubber dam clamp</td>
<td>1</td>
</tr>
<tr>
<td>Forceps, rubber dam punch, perfected</td>
<td>1</td>
</tr>
<tr>
<td>Forceps, tooth extracting, Nos. 150, 151</td>
<td>2</td>
</tr>
<tr>
<td>Handpiece, contra-angle</td>
<td>1</td>
</tr>
<tr>
<td>Handpiece, straight</td>
<td>1</td>
</tr>
<tr>
<td>Lamp, alcohol, with flame shield</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancets, Nos. 2, 5</td>
<td>12</td>
</tr>
<tr>
<td>Liquid for synthetic porcelain</td>
<td>1 bottle</td>
</tr>
<tr>
<td>Ligature, wire, angles</td>
<td>1 box</td>
</tr>
<tr>
<td>Mandrels, No. 303</td>
<td>1 doz.</td>
</tr>
<tr>
<td>Matrix retainer, ivory</td>
<td>1</td>
</tr>
<tr>
<td>Matrix retainer, extra bands for</td>
<td>24</td>
</tr>
<tr>
<td>Mercury holder</td>
<td>1</td>
</tr>
<tr>
<td>Mercury jugs, No. 1/2</td>
<td>1</td>
</tr>
<tr>
<td>Mirrors, mouth with L handle</td>
<td>6</td>
</tr>
<tr>
<td>Mortar and Pestle</td>
<td>1</td>
</tr>
<tr>
<td>Napkins, aseptic dental</td>
<td>3</td>
</tr>
<tr>
<td>Oil stone, Arkansas</td>
<td>2</td>
</tr>
<tr>
<td>Paper, bibulous</td>
<td>1 pkg.</td>
</tr>
<tr>
<td>Pliers, 4 inch, round nose, flat</td>
<td>1</td>
</tr>
<tr>
<td>Pliers, dressing, Nos. 3, 17</td>
<td>3</td>
</tr>
<tr>
<td>Pluggers, Woodson</td>
<td>3</td>
</tr>
<tr>
<td>Points, carborundum, mounted</td>
<td>1 box</td>
</tr>
<tr>
<td>Points, orange wood</td>
<td>6 boxes</td>
</tr>
<tr>
<td>Porcelain, synthetic shade 3</td>
<td>1</td>
</tr>
<tr>
<td>Porcelain, synthetic shade 3</td>
<td>1 lb.</td>
</tr>
<tr>
<td>Punice Stone, powdered</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Sandurac gum</td>
<td></td>
</tr>
<tr>
<td>Scalers, McCall's, Nos. 10, 11, 12</td>
<td>3</td>
</tr>
<tr>
<td>Scalers, pyorrhea</td>
<td>4</td>
</tr>
<tr>
<td>Scissors, gum curved on flat</td>
<td>1 pr.</td>
</tr>
<tr>
<td>Shears, 9 inch</td>
<td>1 pr.</td>
</tr>
<tr>
<td>Shears, small, plate (curved collar)</td>
<td>1 pr.</td>
</tr>
<tr>
<td>Slab, glass, mixing, No. 6</td>
<td>1</td>
</tr>
<tr>
<td>Spatulas, Nos. 22, 24</td>
<td>2</td>
</tr>
<tr>
<td>Spatulas, rubber</td>
<td>2</td>
</tr>
<tr>
<td>Sterilizer, small</td>
<td>1</td>
</tr>
<tr>
<td>Sticks, orangewood</td>
<td>4 bundles</td>
</tr>
<tr>
<td>Stopping, gutta-percha</td>
<td>3 boxes</td>
</tr>
<tr>
<td>Strips, finishing, assorted</td>
<td>2</td>
</tr>
<tr>
<td>Syringes, water</td>
<td>3</td>
</tr>
<tr>
<td>Syringes, water, no. 21A, extra bulb for</td>
<td>1</td>
</tr>
<tr>
<td>Trays, impression, assorted for children</td>
<td>4</td>
</tr>
<tr>
<td>Wax, impression, yellow</td>
<td>3 boxes</td>
</tr>
<tr>
<td>Wheels, carborundum, assorted</td>
<td>12</td>
</tr>
</tbody>
</table>

Clark and Butler outline the following equipment for those communities where work will be confined to purely preventive work:

- **Portable dental chair, with case**
- **Portable dental cuspidor, with case**
- **Portable dental engine, all cord, foot power, with case**
- **Engine oil**
- **Engine belt**
- **Hand piece, contra-angle**
- **Polishing brushes**

1. Loc. cit.
<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalers, periodontal</td>
<td>4</td>
</tr>
<tr>
<td>Mouth mirrors</td>
<td>6</td>
</tr>
<tr>
<td>Porte polisher</td>
<td>1</td>
</tr>
<tr>
<td>Wood points</td>
<td>6 boxes</td>
</tr>
<tr>
<td>Dappen glasses</td>
<td>3</td>
</tr>
<tr>
<td>Water syringes</td>
<td>1</td>
</tr>
<tr>
<td>Chip blowers</td>
<td>2</td>
</tr>
<tr>
<td>Pliers, dressing</td>
<td>2</td>
</tr>
<tr>
<td>Plied paper</td>
<td>1 pkg.</td>
</tr>
<tr>
<td>Absorbent cotton</td>
<td>1 roll</td>
</tr>
<tr>
<td>Sterilizer</td>
<td>1</td>
</tr>
<tr>
<td>Aseptic dental napkins</td>
<td>3 boxes</td>
</tr>
<tr>
<td>Campho-phenol</td>
<td>1 bottle</td>
</tr>
<tr>
<td>Eugenol</td>
<td>1 bottle</td>
</tr>
</tbody>
</table>
The school systems from the following cities were included in the study:

Alexandria, La.
Altoona, Pa.
Appleton, Wis.
Atlanta, Ga.
Atlantic City, N. J.
Augusta, Ga.
Bangor, Maine
Beloit, Wis.
Binghamton, N. Y.
Bloomfield, N. J.
Bloomington, Ill.
Butler, Pa.
Charleston, W. Va.
Chelsea, Mass.
Cheyenne, Wyoming
Chicago Heights, Ill.
Cicero, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas
Decatur, Ill.
Denver, Colo.
Dubuque, Iowa
East Chicago, Ind.
East St. Louis, Ill.
El Paso, Texas
Evanston, Ill.
Fall River, Mass.
Fargo, N. D.
Flint, Mich.
Port Purdue, Ind.
Fresno, Calif.
Gadsden, Ala.
Galesburg, Ill.
Greensboro, Conn.
Hartford, Conn.
Hibbing, Minn.
Houston, Texas
Huntington, W. Va.
Irvington, N. J.
Jersey City, N. J.
Juneau, Alaska
Kansas City, Kansas
Kearney, N. J.
Lancaster, Pa.
Lansing, Mich.
Lebanon, Pa.
 Lewiston, Maine
Long Beach, Calif.
Los Angeles, Calif.
Lynn, Mass.
Macon, Ga.
Mansfield, Ohio
Middletown, Conn.
Michigan City, Ind.
Middletown, Conn.
Milwaukee, Wisc.
Montclair, N. J.
Mt. Vernon, N. Y.
Muskogee, Okla.
Newark, N. J.
Newberg, N. Y.
Newark, N. Y.
Newport News, Va.
Newton, Mass.
New York, N. Y.
Norristown, Pa.
Oak Park, Ill.
Oklahoma City, Okla.
Omaha, Neb.
Orange, N. J.
Oshkosh, Wis.
Padiana, Kys.
Petersburg, Va.
Port Arthur, Texas
Provo, Utah
Pueblo, Colo.
Quincy, Ill.
Richmond, Va.
Riverside, Calif.
Rochester, N. Y.
Rockford, Ill.
Roswell, N. M.
Rutland, Vt.
Saginaw, Mich.
San Antonio, Texas
Santa Barbara, Calif.
Schenectady, N. Y.
Scranton, Pa.
Shamokin, Pa.
Sharon, Pa.
Sioux City, Iowa
Sioux Falls, S. D.
South Bend, Ind.
St. Cloud, Minn.
St. Paul, Minn.
Steubenville, Ohio
Taunton, Mass.
Waltham, Mass.
Washington, D. C.
White Plains, N. Y.
Winona, Minn.
Winston-Salem, N. C.
Woonsocket, R. I.
York, Pa.
APPENDIX B-2.

Questionnaire on the Administration of Individual Corrective Activities in American City Schools

1. Do you give health examinations to every child who comes to your school?

2. (a) Who gives this examination? Place check ( ) after correct dept.
   - Health Bureau?
   - Department of Special Education?
   - Volunteer medical men interested?
   - Board of Education?
   - If a combination of the above use 2 or more checks.
   (b) Agencies conducting examination.
   - Doctor on full-time basis?
   - Doctor on part-time basis?
   - School nurse?
   - Physical Education Director?

3. Where is the examination given? Place check ( ) in proper place.
   - At school? Always___ Usually___ Rarely___ Never___
   - At clinic? Always___ Usually___ Rarely___ Never___
   - At doctor's office? Always___ Usually___ Rarely___ Never___

4. Some schools have the children examined by their home or family physicians, and then they must bring the report of this examination with them upon entrance to school. Is this system ever used in your school? Check ( )
   - Always___ Usually___ Rarely___ Never___

5. Is your school equipped to give health examinations efficiently?
   (Yes or no in blank space).

6. Place check ( ) after the items of equipment that you have available in your school, that are listed below:
   - Rooms used solely for Ind. Cor. Activities. One____ Two____ Three____
   - One or more cots_____ Table____
   - Massage table____ Spot light____
   - Instrument cabinet____ Medicine cabinet____
   - First aid equipment____
   - Lavatory____
6. contd.
   Sterilizer
   Scales
   Spirometer
   Stadiometer
   Foot-O-Print machine
   Camera to take posture pictures
   Any other equipment

7. If the health examination takes place in the school does the
   director of physical education, or one or more of his
   department assist in the examination? (Yes or no).

8. Place check mark ( ) after each of the items covered in
   the health examination: height_____ weight_____ heart_____ lungs_____ nose_____ teeth_____ throat_____ enlarged
   glands_____ eyes_____ ears_____ hernia_____ blood pres-
   sure_____ skin_____ circulation_____ infections_____ history of patient and parents as to various diseases_____
   body mechanics (posture-hypothesis)_____ lordosis_____ scoliosis_____ relaxed or weak arches_____ relaxed ab-
   dome____ malnutrition____ elimination_____. Any other
   items not previously mentioned______________________

9. Are the recorded results of these examinations sent to
   the child's parents with the doctor's recommendation?
   (Yes or no)_______

10. Are these results interpreted to the parents? (Yes or
    no)_______
    Who makes the interpretation? Use check ( ) in proper
    places.
    School nurse? Always_____ Usually_____ Rarely_____ Never_____
    Director of Physical Education? Always_____ Usually_____ Rarely_____ Never_____.
    Home room school teacher? Always_____ Usually_____ Rarely_____ Never_____.
    Visiting teachers? Always_____ Usually_____ Rarely_____ Never_____.
    Principal? Always_____ Usually_____ Rarely_____ Never_____.

11. Does the school check up at regular intervals to see if
    the recommendations of the doctor are carried out? (Yes
    or no)_______
    Time of follow up? Place check at proper place ( )
    Within a few weeks after the examination?_____ Sometime during the following year?_____
    Two check ups, once soon after the examination and
    then again later toward end of year?_____
    What other means of system of follow up?__________________________
12. Place check ( ) after the person who makes this check up
   School nurse?_____  Director of physical education?_____  Visiting nurse?_____  Assistant to Dir. of Physical Education_____  If some one different from above list, write in his title_____  

13. Place check ( ) after the item which you feel is the main cause of parents neglecting to follow out the recommendations of the doctor.
   Lack of confidence in the doctor?_____  Not able to afford the medical attention?_____  Lack of confidence in the school?_____  Ignorance of the consequences? _____  General indifference?_____  Religion?_____  

14. Are there items of the health examination which the school attempts to correct by means of organized classes? Answer yes or no._____  

15. Place check ( ) after the person who organizes and conducts these classes.
   School nurse? Always_____ Usually_____ Rarely_____ Never_____  Director of Physical Education? Always_____ Usually_____ Rarely_____ Never_____  Assistant to the Director of Physical Education? Always_____ Usually_____ Rarely_____ Never_____  A specialist in Ind. Cor. Act. hired expressly for that purpose? Always_____ Usually_____ Rarely_____ Never_____  

16. Place check ( ) after the items for which you conduct special individual corrective activities in your institution?
   Posture?_____  Relaxed or weak arches?_____  Exercises to aid in bowel elimination?_____  Cardiac?_____  Malnutrition_____  Dysmenorrhea?_____  Relaxed abdomen?_____  

17. Are the boys and girls separated into different class units for their corrective activities? Yes or no._____  

18. If you have the whole number of pupils taking corrective activities divided into smaller class units, how many students do you have in each of your corrective class units?_____  

19. How many times a week does each unit meet?_____
20. When are the classes held? Place check after proper place.
   During school hours?_____
   During physical education periods?_____
   During study hours?_____
   During recess time?_____
   During after school time?_____
   Place a star (*) above after the place you feel this should come irrespective of when it does come on your present schedule.

21. With what grade in the elementary school do you start individual corrective activities?_____

22. Check below the type of methods used in teaching these activities.
   Formal exercises done to count?_____
   Memetic exercises?_____
   Games, or game situations involving the use of muscle groups you want to strengthen?_____
   A combination of all of the above methods?_____

23. Do you find that the children are interested in these corrective activities? Yes or no_____. Are they interested in their progress?_____

24. Name or describe one or more of the games that you have found helpful in dealing with a specific remedial defect.

25. Do you measure your results by objective means? In other words do you know whether you are getting anywhere with your corrective program? Can you prove to the board of education, to the public, or to anyone that you are getting results? (Answer yes or no)_____

26. If you answered yes to the above question what objective tests do you use before course of corrective activities begins and at the end of the course to show that improvement has been made or has not been made. List these objective tests below in the order of their importance.

27. Does the child's interest in his improvement and in the corrective activities carry over to his home situation to the extent that he does special exercises at home? Answer yes or no_____

28. In finding out the situation mentioned in the above questionnaire are any of the methods indicated below used? Place check after the methods used.
   Telephone calls between school nurse and parents?__
   Visiting teacher calling at homes?__
   Written reports sent from parent to school nurse?__
   Monthly goal cards (with exercises written down on cards with the object of the exercise written down also, and spaces indicated for every day in the month where the child is to place a check every day he or she takes her exercises), given to the children to take home?__
   Any other methods__________________________

29. Do parents cooperate?____ (Yes or no)
   How do they cooperate? Indicate by checks below.
   By having special meetings in which the work is discussed with the director of these activities in charge?____
   By encouraging the children to do their exercises at home?____
   By having special conferences with the director?____
   By publicity of the work?____
   By any other ways?__________________________

Name__________________________Position held by person answering this Questionnaire________________________________________
REPORT OF ADMINISTRATIVE PROCEDURES
OF SO-CALLED CORRECTIVE ACTIVITIES
IN AMERICAN PUBLIC SCHOOLS

The following is a survey of existing conditions to
discover the prevailing policies and practices in the
individual or corrective phase of the physical education
program of American city schools.

Letters were sent to all superintendents of schools in
cities with a population of over twenty thousand. With
these letters (written to enlist the interest of the super-
intendents in the study) were enclosed questionnaires which
either the superintendents were to answer for their whole
system or arrange to have answered individually by each
school principal for his own school.

In this survey, an American city school is a school in
a city with a population over twenty thousand. However,
questionnaires¹ were sent to some cities with populations
ranging from ten thousand to twenty thousand since a sampling
or cross-section from all the forty-eight states was desired
if possible. Three hundred and forty-nine city school
systems were asked to participate. Returns were received

¹. The original questionnaire used will be found on p. 359
from one hundred and six city school systems, or thirty and thirty-seven hundredths per cent of the schools questioned. These cities represented thirty-four out of the forty-eight states.

The states from which reports were received and a frequency distribution of the city school reports from the respective states in rank order, will be found in Table I, page . A scrutiny of this table will show that in the main the greatest number of reports came from the states with the largest populations. The thirty-four states from which reports were received represent eighty-three per cent of the total population of the United States. The geographical distribution of cities making reports which will be found in Figure 1, page shows also that a fair sampling of American cities reported.

This survey covered the individual corrective activities of institutions representing a population of over 2,131,724 children, exclusive of the school population of New York City, which is 1,052,618 (kindergarten excluded) and from which only partial reports were forthcoming.

The school systems from the following cities were included in the study:

Appleton, Wis.  Cheyenne, Wyoming  Evanston, Ill.
Atlanta, Ga.  Chicago Heights, Ill.  Fall River, Mass.
Atlantic City, N. J.  Cicero, Ill.  Fargo, N. D.
Bengor, Maine  Cleveland, Ohio  Fort Wayne, Ind.
Beloit, Wis.  Dallas, Texas  Fresno, Calif.
Binghamton, N. Y.  Decatur, Ill.  Gadsden, Ala.
Bloomington, Ill.  Dubuque, Iowa  Greenwich, Conn.
<table>
<thead>
<tr>
<th>City</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hibbing</td>
<td>Minn.</td>
</tr>
<tr>
<td>Houston</td>
<td>Texas</td>
</tr>
<tr>
<td>Huntington</td>
<td>N. Va.</td>
</tr>
<tr>
<td>Irvington</td>
<td>N. J.</td>
</tr>
<tr>
<td>Jersey City</td>
<td>N. J.</td>
</tr>
<tr>
<td>Juneau</td>
<td>Alaska</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Kansas</td>
</tr>
<tr>
<td>Kearney</td>
<td>N. J.</td>
</tr>
<tr>
<td>Lancaster</td>
<td>Pa.</td>
</tr>
<tr>
<td>Lansing</td>
<td>Mich.</td>
</tr>
<tr>
<td>Lebanon</td>
<td>Pa.</td>
</tr>
<tr>
<td>Lewiston</td>
<td>Maine</td>
</tr>
<tr>
<td>Long Beach</td>
<td>Calif.</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>Calif.</td>
</tr>
<tr>
<td>Lynn</td>
<td>Mass.</td>
</tr>
<tr>
<td>Macon</td>
<td>Ga.</td>
</tr>
<tr>
<td>Mansfield</td>
<td>Ohio</td>
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<tr>
<td>Meriden</td>
<td>Conn.</td>
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<tr>
<td>Michigan City</td>
<td>Ind.</td>
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<td>Middletown</td>
<td>Conn.</td>
</tr>
<tr>
<td>Milwaukee</td>
<td>Wis.</td>
</tr>
<tr>
<td>Montclair</td>
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<tr>
<td>Mt. Vernon</td>
<td>N. Y.</td>
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<tr>
<td>Muskogee</td>
<td>Okla.</td>
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<td>Newark</td>
<td>N. J.</td>
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<tr>
<td>Newberg</td>
<td>N. Y.</td>
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<tr>
<td>Newport News</td>
<td>Va.</td>
</tr>
<tr>
<td>Newton</td>
<td>Mass.</td>
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<td>New York</td>
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<td>Norristown</td>
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<td>Oak Park</td>
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<td>Oklahoma City</td>
<td>Okla.</td>
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<tr>
<td>Omaha</td>
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<td>Orange</td>
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<td>Oshkosh</td>
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<td>Paducah</td>
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<td>Petersburg</td>
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<td>Philadelphia</td>
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<td>Richmond</td>
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<td>Saginaw</td>
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<td>San Antonio</td>
<td>Texas</td>
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<td>Santa Barbara</td>
<td>Calif</td>
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<tr>
<td>Schenectady</td>
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<td>Scranton</td>
<td>Pa.</td>
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<td>Pa.</td>
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<td>Sharon</td>
<td>Pa.</td>
</tr>
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<td>Sioux City</td>
<td>Iowa</td>
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<td>Sioux Falls</td>
<td>S. D.</td>
</tr>
<tr>
<td>South Bend</td>
<td>Ind.</td>
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<td>St. Cloud</td>
<td>Minn.</td>
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<td>St. Paul</td>
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<td>Steubenville</td>
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<td>Waltham</td>
<td>Mass.</td>
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<tr>
<td>Warren</td>
<td>Ohio</td>
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<tr>
<td>Washington</td>
<td>D. C.</td>
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<tr>
<td>White Plains</td>
<td>N.Y.</td>
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<tr>
<td>Winona</td>
<td>Minn.</td>
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<tr>
<td>Winston-Salem</td>
<td>N.C.</td>
</tr>
<tr>
<td>Woonsocket</td>
<td>R. I.</td>
</tr>
<tr>
<td>York</td>
<td>Pa.</td>
</tr>
<tr>
<td>Youngstown</td>
<td>Ohio</td>
</tr>
<tr>
<td>State</td>
<td>No. of Cities Reporting</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Alabama</td>
<td>1</td>
</tr>
<tr>
<td>California</td>
<td>5</td>
</tr>
<tr>
<td>Colorado</td>
<td>2</td>
</tr>
<tr>
<td>Connecticut</td>
<td>4</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>1</td>
</tr>
<tr>
<td>Georgia</td>
<td>3</td>
</tr>
<tr>
<td>Illinois</td>
<td>10</td>
</tr>
<tr>
<td>Indiana</td>
<td>4</td>
</tr>
<tr>
<td>Iowa</td>
<td>2</td>
</tr>
<tr>
<td>Kansas</td>
<td>1</td>
</tr>
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<td>Kentucky</td>
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<td>Louisiana</td>
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<td>Maine</td>
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<td>Massachusetts</td>
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<tr>
<td>Michigan</td>
<td>3</td>
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<tr>
<td>Minnesota</td>
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</tr>
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<td>Nebraska</td>
<td>1</td>
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<td>New Jersey</td>
<td>8</td>
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<td>Texas</td>
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<td>Utah</td>
<td>1</td>
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<td>Vermont</td>
<td>1</td>
</tr>
<tr>
<td>Virginia</td>
<td>3</td>
</tr>
<tr>
<td>West Virginia</td>
<td>2</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>4</td>
</tr>
<tr>
<td>Wyoming</td>
<td>1</td>
</tr>
</tbody>
</table>
It is manifest that a health examination of school children is necessary to discover the defects and conditions to be improved, and that this examination is the first step in a program of individual physical education or individual corrective activities.

**Health Examinations**

An average of eighty-six per cent of the 2935 schools represented in the study state that health examinations are given to all children who come to their schools (Table II and Figure 2, below)

**TABLE II**

The Number and Per Cent of Schools Giving Health Examinations to All Children

<table>
<thead>
<tr>
<th>Number of Schools Reported</th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2146</td>
<td>192</td>
<td>176</td>
<td>2516</td>
</tr>
<tr>
<td>Per Cent Answering Yes</td>
<td>85.66-</td>
<td>83.11-</td>
<td>89.44-</td>
<td>85.66-</td>
</tr>
<tr>
<td>No</td>
<td>291</td>
<td>26</td>
<td>15</td>
<td>332</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>68</td>
<td>13</td>
<td>6</td>
<td>87</td>
</tr>
</tbody>
</table>

*Figure 2. Bar Graph Showing the Per Cent of Schools Which Give Health Examinations to All Children.*
Since the giving of health examinations to school children is recommended by all, and considering the injustice and harm done students who do not receive periodic health examinations, it appears a deplorable state of affairs when fourteen per cent of the school systems reporting (including 298,441 children) are allowed to participate in the physical education program of the school or even the school's general educational curriculum without having had a health examination.

Parties Responsible for the Health Examinations

The board of education gives the health examination in the majority of cases (Table III and Figure 3, page 370). The health bureau or municipal health department is the other main organization under which health examinations are given. It will be observed that in a very limited percentage of cases the department of special education handles these examinations. Volunteer physicians also handle the health examinations in a very small per cent of the schools.

The status of the various individuals or agents giving the health examinations under the above mentioned departments will be found in Table IV, page 371. Here it is readily seen that most of the examiners are physicians whose relationship to the school is a part-time one. The next highest percentage of school health examiners is found to be school nurses. Next to the nurses rank the full-time medical men and lastly the directors of physical education.

The larger number of systems using part-time medical men instead of the full-time medical men seems more practical and
in accord with modern tendencies.

TABLE III
Organizations Conducting the School Health Examinations and the Number and Per Cent of Each

<table>
<thead>
<tr>
<th>Agencies</th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Health Bureau</td>
<td>945</td>
<td>39.29</td>
<td>46</td>
</tr>
<tr>
<td>Department of Special Education</td>
<td>83</td>
<td>3.45</td>
<td>0</td>
</tr>
<tr>
<td>Volunteer M.D.</td>
<td>93</td>
<td>3.86</td>
<td>10</td>
</tr>
<tr>
<td>Board of Education</td>
<td>1284</td>
<td>53.38-141</td>
<td>71.57</td>
</tr>
</tbody>
</table>

Fig. 3. Percentages of agencies giving health examinations in the respective educational units.

Figure 3. Percentages of Agencies Giving Health Examinations in the Respective Educational Units
TABLE IV

The Status of the Examiners, the Number and Per Cent of Each in the Three Educational Units, and the Agency or Agencies under Whose Direction They Function
It is interesting to note that all the nurses and physical education directors are working under the direction or supervision of some one or more of the following: volunteer, full-time, or part-time physicians. It will also be seen that in some cases the full-time and part-time physicians are in the main working under the board of education, although a large percentage are under the board of health and some are under both of these agencies.

Where Examination is Given

In over ninety-nine per cent of the schools reporting, the health examination for school children is conducted in the school (Table V, page 373). Two elementary schools and one junior high school reported that the health examination was usually given in the doctor's office. One junior high school also reported that the health examination was usually given at the clinic.

Health Examination Reports from Family Physicians

There are schools in which the children are examined by their home or family physicians from whom they must bring a report on entrance to school. Of the schools reporting, Table VI, page 374, only one per cent or less use this system. Were the examining physicians used in this system a group having the confidence and authority of the board of education, health bureau and local or county medical association and yearly agreed on by these organizations, the system would have much to commend it as the children could have a much more thorough
TABLE V

The Number of Schools Reporting Where Health Examinations are Usually or Always Given and the Per Cent of Always and Usually Combined

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elementary School</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>1414</td>
<td>280</td>
<td>99.91</td>
</tr>
<tr>
<td>Clinic</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Office</td>
<td>0</td>
<td>2</td>
<td>.09</td>
</tr>
<tr>
<td><strong>Junior High</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>80</td>
<td>118</td>
<td>99.00</td>
</tr>
<tr>
<td>Clinic</td>
<td>0</td>
<td>1</td>
<td>.50</td>
</tr>
<tr>
<td>Office</td>
<td>0</td>
<td>1</td>
<td>.50</td>
</tr>
<tr>
<td><strong>High School</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>101</td>
<td>87</td>
<td>100.00</td>
</tr>
<tr>
<td>Clinic</td>
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</tr>
<tr>
<td>Office</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>

examination at the doctor's office than would ever be possible in school.

**Equipment for Health Examinations**

The percentages of schools stating that they were equipped to examine children efficiently run from sixty per cent to sixty-nine per cent in the various educational units (Table VIII, page 374). When these percentages are compared with those of the number of schools giving health examinations (Figure 3, page 375) it is observed that thirteen per cent, twenty per cent and twenty-five per cent of the schools
TABLE VI

Number and Per Cent of Schools Using the System of Having Home or Family Physician Examine the Child Who Must Bring a Report of This Examination with Him to School

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Always</td>
<td>24</td>
<td>1</td>
<td>.52</td>
</tr>
<tr>
<td>Usually</td>
<td>50</td>
<td>2.52</td>
<td>3</td>
</tr>
<tr>
<td>Rarely</td>
<td>727</td>
<td>36.6</td>
<td>51</td>
</tr>
<tr>
<td>Never</td>
<td>1185</td>
<td>59.66</td>
<td>113</td>
</tr>
<tr>
<td>No. Reporting</td>
<td>1986</td>
<td>100.00</td>
<td>168</td>
</tr>
</tbody>
</table>

reporting from junior high, senior high and elementary schools respectively are not giving their health examinations efficiently. These facts warrant study and possible reorganization of the existing examining procedures.

TABLE VII

Number of Schools Stating That They Were Equipped to Give Health Examinations Efficiently

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
</tr>
<tr>
<td>Yes</td>
<td>1507</td>
<td>161</td>
<td>136</td>
</tr>
<tr>
<td>Per Cent Answering Yes</td>
<td>60.15-</td>
<td>69.69-</td>
<td>68.34-</td>
</tr>
<tr>
<td>No</td>
<td>359</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>639</td>
<td>43</td>
<td>34</td>
</tr>
</tbody>
</table>
Figure 3. Percentages of Schools that Were Equipped to Give Health Examinations Efficiently, Shown in Black. The Per Cent of Schools Which Give Health Examinations to All Children Shown Otherwise.
### TABLE VIII

Physical Examination Equipment Found in American City School Systems (Elementary, Junior High and Senior High Schools)

<table>
<thead>
<tr>
<th>Items of Equipment</th>
<th>Number of Schools</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Aid Equipment</td>
<td>2439</td>
<td>83.1</td>
</tr>
<tr>
<td>Scales</td>
<td>2429</td>
<td>82.8</td>
</tr>
<tr>
<td>Lavatory</td>
<td>1935</td>
<td>65.9</td>
</tr>
<tr>
<td>Medicine Cabinet</td>
<td>1857</td>
<td>63.3</td>
</tr>
<tr>
<td>One or More Cots</td>
<td>1274</td>
<td>43.4</td>
</tr>
<tr>
<td>Table</td>
<td>1248</td>
<td>42.5</td>
</tr>
<tr>
<td>Sterilizer</td>
<td>1125</td>
<td>38.3</td>
</tr>
<tr>
<td>Spirometer</td>
<td>1052</td>
<td>35.8</td>
</tr>
<tr>
<td>Stadiometer</td>
<td>946</td>
<td>32.2</td>
</tr>
<tr>
<td>Spot Light</td>
<td>856</td>
<td>29.2</td>
</tr>
<tr>
<td>Massage Table</td>
<td>813</td>
<td>27.7</td>
</tr>
<tr>
<td>Instrument Cabinet</td>
<td>631</td>
<td>21.5</td>
</tr>
<tr>
<td>Foot-C-Print Machine</td>
<td>513</td>
<td>17.5</td>
</tr>
<tr>
<td>Camera for Posture Pictures</td>
<td>445</td>
<td>15.5</td>
</tr>
</tbody>
</table>

Number of schools mentioning additional items of equipment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Item</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stall Bars</td>
<td>6</td>
<td>Audiometer</td>
<td>2</td>
</tr>
<tr>
<td>Exercise Pulleys</td>
<td>2</td>
<td>Walker</td>
<td>1</td>
</tr>
<tr>
<td>Eye-Testing Chart</td>
<td>2</td>
<td>Physiotherapy</td>
<td>1</td>
</tr>
<tr>
<td>Posture Machine</td>
<td>2</td>
<td>Violet Ray Machine</td>
<td>1</td>
</tr>
<tr>
<td>Complete Dental Equipment</td>
<td>2</td>
<td>Sphygomanometer</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete Physician's Equipment</td>
<td>1</td>
</tr>
</tbody>
</table>
One of the items classified under question of available equipment has to do with the number and per cent of the schools of the various educational units having none, one, two, or three rooms used exclusively for individual corrective activities (Table IX and Figure 4 below). With 53%, 57% and 41% of the Elementary, Junior High and High Schools respectively having no room used exclusively for corrective physical education, one cannot expect a high degree of efficiency in the program.

Table IX

Number and Percentage of the Various Educational Units Having None, One, Two, or Three rooms Used Exclusively for Individual Corrective Activities.

<table>
<thead>
<tr>
<th>No. Schools Reported</th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2505</td>
<td>231</td>
<td>199</td>
</tr>
<tr>
<td>No.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Room</td>
<td>694</td>
<td>27.70</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>25.34</td>
<td>27.63</td>
<td></td>
</tr>
<tr>
<td>Two rooms</td>
<td>350</td>
<td>13.97</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>12.12</td>
<td>22.11</td>
<td></td>
</tr>
<tr>
<td>Three rooms</td>
<td>125</td>
<td>4.99</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>5.62</td>
<td>9.54</td>
<td></td>
</tr>
</tbody>
</table>

Legend: Schools having one room
Schools having two rooms
Schools having three rooms
Schools having no rooms

Fig. 4 Showing percentages of educational units having one, two, three, or no rooms used exclusively for individual corrective activities.
7. The director of physical education and the health examination.

The physical educator has a very definite place in the giving of the health examinations in approximately one-half of all the schools reporting from all educational units. Table X below gives the specific results.

Table X

Number and Per Cent of Schools Which Have Either the Director of Physical Education or One of His Staff Assist at the Time of the Physical Examination

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>119</td>
</tr>
<tr>
<td>Yes</td>
<td>1239</td>
<td>98</td>
<td>114</td>
</tr>
<tr>
<td>Per Cent Answering Yes</td>
<td>49.46%</td>
<td>42.42%</td>
<td>57.28%</td>
</tr>
<tr>
<td>No.</td>
<td>1164</td>
<td>125</td>
<td>67</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>102</td>
<td>8</td>
<td>18</td>
</tr>
</tbody>
</table>

8. Items covered in the health examination.

A list of the particular defects covered in the health examination is shown in Table XI below, in rank order. It will be observed that blood pressure is being given the least attention. Only twenty-eight per cent of the schools are using it.
Table XI

Items Noted in the School Child's Health Examination Arranged in Rank Order According to the Number of Times Mentioned by All the Educational Units (Elementary, Junior High, and High School) Taken Together.

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>%</th>
<th>Item</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>2702</td>
<td>92.26</td>
<td>13. Body Mechanics</td>
<td>2252</td>
<td>76.72</td>
</tr>
<tr>
<td>Weight</td>
<td>2702</td>
<td>92.06</td>
<td>14. Infections</td>
<td>2235</td>
<td>76.14</td>
</tr>
<tr>
<td>Eyes</td>
<td>2689</td>
<td>91.61</td>
<td>15. Scoliosis</td>
<td>2205</td>
<td>75.12</td>
</tr>
<tr>
<td>Teeth</td>
<td>2680</td>
<td>91.31</td>
<td>16. Lordosis</td>
<td>2199</td>
<td>74.92</td>
</tr>
<tr>
<td>Enlarged Glands</td>
<td>2527</td>
<td>89.5</td>
<td>17. Relaxed or Weak Arches</td>
<td>1995</td>
<td>64.22</td>
</tr>
<tr>
<td>Nose</td>
<td>2606</td>
<td>88.35</td>
<td>18. History of Patient and Parent as to Various Diseases</td>
<td>1834</td>
<td>64.19</td>
</tr>
<tr>
<td>Throat</td>
<td>2604</td>
<td>88.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ears</td>
<td>2571</td>
<td>87.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td>2522</td>
<td>85.92</td>
<td>19. Hernia</td>
<td>1847</td>
<td>62.93</td>
</tr>
<tr>
<td>Heart</td>
<td>2444</td>
<td>83.27</td>
<td>20. Relaxed Abdomen</td>
<td>1824</td>
<td>62.14</td>
</tr>
<tr>
<td>Lungs</td>
<td>2429</td>
<td>82.75</td>
<td>21. Circulation</td>
<td>1698</td>
<td>57.35</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>2305</td>
<td>78.53</td>
<td>22. Elimination</td>
<td>1239</td>
<td>43.91</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>23. Blood Pressure</td>
<td>831</td>
<td>28.31</td>
</tr>
</tbody>
</table>

Total Number of Schools Reporting - 2935

9. Sending records of Health Examinations to Parents.

Since the responsibility for the health of the child rests primarily on the parents, it is logical and proper that the parents be notified of the child's health examination. Table XII and Figure 5 below show the extent to which parents are notified in the three educational units.
Table XII

Number and Percent of Schools Sending Records of the Results of Health Examinations of Children to Parents

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
<td>2935</td>
</tr>
<tr>
<td>Yes</td>
<td>2129</td>
<td>211</td>
<td>157</td>
<td>2497</td>
</tr>
<tr>
<td>Per Cent Answering Yes</td>
<td>84.99-</td>
<td>91.34-</td>
<td>78.89-</td>
<td>85.21-</td>
</tr>
<tr>
<td>No</td>
<td>267</td>
<td>12</td>
<td>11</td>
<td>290</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>109</td>
<td>8</td>
<td>31</td>
<td>148</td>
</tr>
</tbody>
</table>

Figure 5. Relative percentages of schools where parents receive results of child's health examination.
10. Interpretation of Health Examination Results to Parents.

The average per cent of schools in all three educational units interpreting the results of the health examinations to the parents is almost eighty-eight per cent. Table XIII below shows the percentages in the three separate educational units.

Table XIII

The Number and Per Cent of Schools of the Respective Units that Interpret the Results of the Health Examinations to the Parents

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported</td>
<td>1963</td>
<td>210</td>
<td>157</td>
<td>2330</td>
</tr>
<tr>
<td>Yes</td>
<td>1611</td>
<td>193</td>
<td>141</td>
<td>1945</td>
</tr>
<tr>
<td>Per Cent (Yes)</td>
<td>82.06</td>
<td>91.9</td>
<td>89.8</td>
<td>87.9</td>
</tr>
<tr>
<td>No.</td>
<td>352</td>
<td>17</td>
<td>16</td>
<td>385</td>
</tr>
</tbody>
</table>

One is not only interested in whether or not the school interprets results to the parents, but who of the school officers makes this interpretation, who contacts the parents? It will be observed in the table following (Table XIV, page 382) that the school nurse is the most likely person for this task.
Table XIV

Number and Per Cent of the Different School Officers Who Interpret Results of Health Examinations to Parents in the Different School Units

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Elementary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Nurse</td>
<td>1,099</td>
<td>55.96</td>
<td>643</td>
</tr>
<tr>
<td>Director Physical</td>
<td>64</td>
<td>3.26</td>
<td>32</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Room Teacher</td>
<td>34</td>
<td>1.73</td>
<td>24</td>
</tr>
<tr>
<td>Visiting Teacher</td>
<td>0</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Principal</td>
<td>8</td>
<td>.41</td>
<td>45</td>
</tr>
<tr>
<td>Junior High (210)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Nurse</td>
<td>60</td>
<td>28.57</td>
<td>100</td>
</tr>
<tr>
<td>Director of Physical</td>
<td>15</td>
<td>7.14</td>
<td>8</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Room Teacher</td>
<td>4</td>
<td>1.90</td>
<td>2</td>
</tr>
<tr>
<td>Visiting Teacher</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Principal</td>
<td>1</td>
<td>.47</td>
<td>3</td>
</tr>
<tr>
<td>High School (157)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Nurse</td>
<td>62</td>
<td>39.49</td>
<td>77</td>
</tr>
<tr>
<td>Director Physical</td>
<td>5</td>
<td>3.18</td>
<td>8</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Room Teacher</td>
<td>2</td>
<td>1.27</td>
<td>1</td>
</tr>
<tr>
<td>Visiting Teacher</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Principal</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
11. The check up at regular intervals to see if the recommendations of the doctor are carried out.

About seventy-one per cent of the schools reporting from all educational units check up at regular intervals to see if the doctor's recommendations have been carried out. The percentage of the schools checking up on this matter from the three educational units are shown in Table XV and Figure 6 below.

Table XV

Number and Per Cent of Schools Checking Up at Regular Intervals to See if Doctor's Recommendations have been Carried Out

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
<td>2935</td>
</tr>
<tr>
<td>Yes</td>
<td>1772</td>
<td>176</td>
<td>145</td>
<td>2097</td>
</tr>
<tr>
<td>Per Cent Answer Yes</td>
<td>70.73%</td>
<td>74.14%</td>
<td>72.86%</td>
<td>71.44%</td>
</tr>
<tr>
<td>No</td>
<td>280</td>
<td>24</td>
<td>12</td>
<td>316</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>453</td>
<td>31</td>
<td>42</td>
<td>526</td>
</tr>
</tbody>
</table>

Figure 6. Relative percentages of schools checking regularly to see if doctor's recommendations are carried out.
The time of check up is reported in Table XVI and Figure 7 below. Apparently the most frequently used time for the check up in all educational units is within a few weeks after the health examination.

Table XVI

The Time of Follow Up to See Whether Doctor's Recommendations Have Been Carried Out

<table>
<thead>
<tr>
<th>No. Schools Reported</th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
</tr>
</tbody>
</table>

| Within a Few Weeks after Examination | 1202 | 47.98% | 78 | 29.43% | 86 | 45.21% |
| During Following Year | 436 | 17.40% | 29 | 12.55% | 32 | 16.08% |
| Twice during that Year | 594 | 23.71% | 72 | 31.16% | 53 | 26.68% |

* Percentages are Based on the Total Number of Schools Answering questionnaire in each educational unit.

Figure 7. Chart of percentages showing the time of check up to see whether doctor's recommendations have been followed.
12. The agents making the check-up.

It is evident from a survey of Table XVII and Figure 8 below that the school nurse is the most important person in making the follow up after the health examination. Her percentages of service in this capacity are sixty-four and three tenths, forty-six and seven tenths, and sixty and five tenths per cent in the elementary, junior high, and high school units respectively.

Table XVII

<table>
<thead>
<tr>
<th>Special Agents Making the Follow-Up of Health Examinations</th>
<th>and the Number and Per Cent of These in the Various Educational Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary No. %</td>
<td>Junior High No. %</td>
</tr>
<tr>
<td>No. Schools Reported 2505</td>
<td>231</td>
</tr>
<tr>
<td>School Nurse 1707 64.31-</td>
<td>114 46.72-</td>
</tr>
<tr>
<td>Director of P. E. 371 13.97-</td>
<td>51 20.90-</td>
</tr>
<tr>
<td>Visiting Nurse 463 17.44-</td>
<td>51 12.70-</td>
</tr>
<tr>
<td>Assistant to Director of Physical Education 113 4.25-</td>
<td>48 19.67-</td>
</tr>
</tbody>
</table>

Figure 8. Percentages of Agents in the Various Educational Units Who Make the Follow-Ups
13. Reasons parents fail to carry out recommendations of the doctor.

It is not possible to determine this question objectively, as the answers can register only opinion. However, the expressed opinion of the schools (elementary, junior high, and high schools combined) on this subject is recorded in Table XVIII and Figure 9, below.

Table XVIII

Expressed Opinion as to Cause of Parent's Failure to Follow Doctor's Recommendations

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Indifference</td>
<td>1995</td>
<td>33.30-</td>
</tr>
<tr>
<td>Ignorance of Consequences</td>
<td>1714</td>
<td>28.77-</td>
</tr>
<tr>
<td>Cannot Afford Medical Attention</td>
<td>1311</td>
<td>22.00-</td>
</tr>
<tr>
<td>Lack of Confidence in School</td>
<td>499</td>
<td>8.19-</td>
</tr>
<tr>
<td>Their Religion</td>
<td>264</td>
<td>4.42-</td>
</tr>
<tr>
<td>Lack of Confidence in Doctor</td>
<td>165</td>
<td>2.76-</td>
</tr>
</tbody>
</table>

Figure 9. Percentages of various causes of parental neglect in following doctor's recommendations
14. Are there items discovered in the health examinations which the school attempts to correct by means of special organized classes?

It is common knowledge that a considerable number of schools have been attempting the correction of the school program. The percentages of schools doing such work at present are here listed in Table XIX and in Figure 10.

Table XIX

Number and per Cent of Schools Attempting Correction of Physical Defects by Means of Organized Classes

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
<td>2935</td>
</tr>
<tr>
<td>Yes</td>
<td>1421</td>
<td>162</td>
<td>123</td>
<td>1706</td>
</tr>
<tr>
<td>Per Cent Answering Yes</td>
<td>56.72-</td>
<td>70.12-</td>
<td>61.80-</td>
<td>58.12</td>
</tr>
<tr>
<td>No</td>
<td>550</td>
<td>31</td>
<td>31</td>
<td>612</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>534</td>
<td>38</td>
<td>45</td>
<td>617</td>
</tr>
</tbody>
</table>

Figure 10. Percentage of schools attempting correction by means of organized classes.

As noted above the schools answering yes were fifty-six and seven tenths per cent, seventy per cent and sixty-one and eight tenths per cent of the elementary, junior high and high schools respectively.
15. The agents conducting corrective classes.

It is a surprising and informing fact that at the present time the school nurse organizes and conducts the classes in the correction of physical defects to a slightly greater degree than the specialist in individual corrective activities. The various agents conducting individual corrective activities in the three school units are shown in Table XX and in Figure 11, page 389. The order is school nurse first, specialist in individual corrective activities second, director of physical education, third, and an assistant of the director of physical education last.

16. Defects for which special individual corrective activities are conducted.

The types of physical defects for which special classes are organized and conducted are shown in Table XXI and Figure 12, on page 390. The relative emphasis placed on each defect in the schools is expressed by showing the number and percent of schools mentioning the particular defects. It is observed, for example, that posture has received by far the greatest emphasis, foot deviations and malnutrition having received the next greatest emphasis, and so on. This list of defects is by no means exhaustive but simply representative of the commoner ones for which work has most frequently been attempted in the schools.
TABLE XX

Number and Per Cent of Agents Conducting Corrective Classes

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th></th>
<th>Usually</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td><strong>School Nurse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>372</td>
<td>37.20</td>
<td>351</td>
<td>36.41</td>
</tr>
<tr>
<td>Junior High</td>
<td>59</td>
<td>48.76</td>
<td>26</td>
<td>35.61</td>
</tr>
<tr>
<td>High School</td>
<td>41</td>
<td>37.61</td>
<td>24</td>
<td>29.26</td>
</tr>
<tr>
<td><strong>Director of Physical Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>232</td>
<td>25.20</td>
<td>356</td>
<td>36.92</td>
</tr>
<tr>
<td>Junior High</td>
<td>23</td>
<td>18.00</td>
<td>25</td>
<td>35.35</td>
</tr>
<tr>
<td>High School</td>
<td>15</td>
<td>13.76</td>
<td>23</td>
<td>40.24</td>
</tr>
<tr>
<td><strong>Ass’t to Dir. of Phys. Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>55</td>
<td>5.5</td>
<td>256</td>
<td>26.55</td>
</tr>
<tr>
<td>Junior High</td>
<td>8</td>
<td>6.61</td>
<td>19</td>
<td>26.02</td>
</tr>
<tr>
<td>Senior High</td>
<td>17</td>
<td>15.58</td>
<td>25</td>
<td>30.48</td>
</tr>
<tr>
<td><strong>Specialist in Ind. Cor. Act.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>241</td>
<td>34.10</td>
<td>1</td>
<td>.10</td>
</tr>
<tr>
<td>Junior High</td>
<td>31</td>
<td>25.61</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Senior High</td>
<td>36</td>
<td>33.02</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure II. Per cent of agents conducting individual corrective activities in the three educational units.
Table XXI

Number and Per Cent of Items for which Individual Corrective Activities Are Conducted in the Various Educational Units

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior</th>
<th>High</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
<td></td>
</tr>
<tr>
<td>Posture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>1766</td>
<td>184</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>70.49</td>
<td>79.65</td>
<td>75.51</td>
<td></td>
</tr>
<tr>
<td>Relaxed or weak arches</td>
<td>1163</td>
<td>139</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>1163</td>
<td>139</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>47.22</td>
<td>59.36</td>
<td>51.75</td>
<td></td>
</tr>
<tr>
<td>Exercises for Elimination</td>
<td>633</td>
<td>58</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>633</td>
<td>58</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>25.26</td>
<td>25.10</td>
<td>22.11</td>
<td></td>
</tr>
<tr>
<td>Cardiac</td>
<td>495</td>
<td>56</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>495</td>
<td>56</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>19.76</td>
<td>24.24</td>
<td>18.09</td>
<td></td>
</tr>
<tr>
<td>Malnutrition</td>
<td>1343</td>
<td>117</td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>1343</td>
<td>117</td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>53.61</td>
<td>50.64</td>
<td>55.75</td>
<td></td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>441</td>
<td>67</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>441</td>
<td>67</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>17.60</td>
<td>37.66</td>
<td>24.62</td>
<td></td>
</tr>
<tr>
<td>Relaxed abdomen</td>
<td>535</td>
<td>66</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>535</td>
<td>66</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>21.35</td>
<td>26.57</td>
<td>24.62</td>
<td></td>
</tr>
</tbody>
</table>

Figure 12. Per cent of items for which individual corrective activities are conducted in public schools.
17. Separation of boys and girls for individual corrective activities.

A scrutiny of Table XXI, (below) shows that in the majority of cases boys and girls are separated for their individual corrective activities. It will be noted that sixty per cent of the elementary schools said yes whereas eighty-three per cent and eighty-four and six tenths per cent of the junior high and high schools respectively said yes. It would be natural that there would be less separation in the elementary schools than the other units since it is not ordinarily thought necessary to separate the sexes for physical education in general until the fourth grade.

Table XXII

Number and Per Cent of the Various School Units which Separate Boys and Girls for Corrective Classes

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Reported</td>
<td>1355</td>
<td>69.08</td>
<td>159</td>
<td>83.02</td>
<td>117</td>
</tr>
<tr>
<td>Yes</td>
<td>814</td>
<td>60.09</td>
<td>132</td>
<td>83.02</td>
<td>99</td>
</tr>
<tr>
<td>No</td>
<td>541</td>
<td>39.92</td>
<td>27</td>
<td>16.98</td>
<td>18</td>
</tr>
</tbody>
</table>
18. The average enrollment in separate corrective sections or classes.

The average number of students in each corrective class and the number and per cent of the schools reporting the same will be found in Table XXIII below. Schools report classes with attendance ranging from one to twenty-five students. It is interesting to note that throughout the three educational units the median number of reports shows six to ten as the average number of students in their corrective classes. Furthermore, in both the elementary schools and high schools the largest percentage of reports specified six to ten. The largest percentage of junior high schools, however, specify an attendance of from one to five.

| Table XXIII |
| Number of Students in Each Corrective Class and the Number and Per Cent of the Schools Reporting the Same |

<table>
<thead>
<tr>
<th>Elementary Schools</th>
<th>Junior High School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Students in Each Class</td>
<td>No. Sels.</td>
<td>No. of Students in Each Class</td>
</tr>
<tr>
<td>1 - 5</td>
<td>167</td>
<td>20.29</td>
</tr>
<tr>
<td>6 - 10</td>
<td>305</td>
<td>37.05</td>
</tr>
<tr>
<td>11 - 15</td>
<td>80</td>
<td>9.72</td>
</tr>
<tr>
<td>16 - 20</td>
<td>74</td>
<td>8.99</td>
</tr>
<tr>
<td>25</td>
<td>197</td>
<td>23.03</td>
</tr>
<tr>
<td>Total</td>
<td>823</td>
<td>116</td>
</tr>
</tbody>
</table>
19. The number of times per week each corrective section meets.

Answers indicating the number of times a week corrective sections met for classes range from once a week to five times a week. The largest percentage of the schools from both elementary, junior high and high schools specified once a week.

The median number of schools in the elementary and high school units specify once a week. The median number of schools in the junior high schools, however, report twice a week. The detailed reports on this question are given below in Table XXIV.

Table XXIV

The Number of Times per week each Corrective Class Meets, with the Number and Per Cent of Schools Listing a Particular Number of Times of Meeting

<table>
<thead>
<tr>
<th>Elementary Schools</th>
<th>Junior High School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Times per Week No.</td>
<td>Times per Week No.</td>
<td>Times per Week No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>378</td>
<td>128</td>
</tr>
</tbody>
</table>
20. Times of day classes in individual corrective activities are scheduled.

Taking the three educational units together approximately sixty-five per cent schedule these classes during school hours. Practically one-half of the schools state that the classes come during the regular physical education periods. This is, of course logical since physical education is a recognized part of a modern school's curriculum.

A much smaller group of schools report the scheduling of these classes during study periods, and a number of schools so small as to be insignificant report the scheduling of these classes during recess and after school. This is to be deplored since children in these classes need relaxation and recreation even more than do children not in these special classes. The details of the report on this question will be found on Table XXV and in Figure 13 on the following page.

There is considerable and growing opinion that unless the child has some very serious physical defect his period for corrective activities should be scheduled in addition to his physical education period. Where the corrective class takes the place of the physical education period the child misses the benefits in organic, social, and other developments which under proper leadership are the natural results of the latter. This decision, however, should depend on the condition of the individual child.
Table XXV
Times of Day Corrective Classes are Scheduled

<table>
<thead>
<tr>
<th>No. Schools Reported</th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>2505</td>
<td>231</td>
<td>199</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During school hours</td>
<td>1650 65.86</td>
<td>152 65.80</td>
<td>128 64.32</td>
</tr>
<tr>
<td>During P. E. periods</td>
<td>1024 40.87</td>
<td>115 49.79</td>
<td>111 55.77</td>
</tr>
<tr>
<td>During study periods</td>
<td>509 20.31</td>
<td>17  7.92</td>
<td>32 16.09</td>
</tr>
<tr>
<td>During recess time</td>
<td>140 5.54</td>
<td>3  1.22</td>
<td>3  1.50</td>
</tr>
<tr>
<td>After school time</td>
<td>77  3.07</td>
<td>8  3.46</td>
<td>11 5.52</td>
</tr>
</tbody>
</table>

Figure 13. Various times of day corrective physical education classes have been scheduled and the percentage of schools using these times.
21. School grades in which individual corrective activities start.

In the main, corrective classes are most often started in the first grade. The report on this question is shown in detail in Table XXVI below. In this table the first column representing reports from elementary schools, is the most significant. It is here evident that during the first three or four grades seems to be the vital time to start individual corrective activities. It is thought that the sooner such work is started, the more effective it will be in the life of the child.

Table XXVI

Number of Schools in the Various Educational Units Starting Work in Correctives at Particular Grades, Arranged in Rank Order

<table>
<thead>
<tr>
<th>Rank Order in All of the School Lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>331 - 1st grade</td>
</tr>
<tr>
<td>275 - Kindergarten</td>
</tr>
<tr>
<td>241 - 3rd grade</td>
</tr>
<tr>
<td>63 - 2nd grade</td>
</tr>
<tr>
<td>43 - 4th grade</td>
</tr>
<tr>
<td>33 - 7th grade</td>
</tr>
<tr>
<td>19 - 5th grade</td>
</tr>
<tr>
<td>8 - 6th grade</td>
</tr>
<tr>
<td>0 - 6th grade</td>
</tr>
</tbody>
</table>
22. Methods used in teaching individual corrective activities.

Among the methods used in teaching individual corrective activities are formal exercises, mimetic exercises, and game situations. According to reports shown below in Table XXVII and Figure 14, a combination of the above three methods is most used. It is thought significant that as high as percentage as sixteen reported the use of game situations. This would not have been the case fifteen years ago.

Table XXVII

Methods Used In Teaching Individual Corrective Activities

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. School Reported</td>
<td>2505</td>
<td>251</td>
<td>199</td>
</tr>
<tr>
<td>No. %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal Exercises</td>
<td>710 29.32</td>
<td>56 21.87</td>
<td>49 25.12</td>
</tr>
<tr>
<td>Mimetic Exercises</td>
<td>370 15.28</td>
<td>43 16.79</td>
<td>29 14.87</td>
</tr>
<tr>
<td>Game Situations</td>
<td>400 16.52</td>
<td>43 16.79</td>
<td>31 15.89</td>
</tr>
<tr>
<td>Combination of All</td>
<td>3-940 39.84</td>
<td>114 44.53</td>
<td>86 44.10</td>
</tr>
</tbody>
</table>

Figure 14. Percentages of methods used in teaching corrective activities in American city schools.
23. Interest in so-called corrective activities.

A surprisingly high percentage of the schools reported yes on this question. In fact, the junior and senior high schools reported in the affirmative one hundred per cent as can be seen in Table XXVIII below.

The same high optimism and confidence is illustrated in Table XXIX (below) where over ninety-nine per cent of the schools reported that pupils are interested in their own progress.

### Table XXVIII

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Reported</td>
<td>1688</td>
<td>119</td>
<td>133</td>
</tr>
<tr>
<td>Yes</td>
<td>1571</td>
<td>93.07</td>
<td>119</td>
</tr>
<tr>
<td>No.</td>
<td>117</td>
<td>6.93</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table XXIX

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Reported</td>
<td>1063</td>
<td>104</td>
<td>90</td>
</tr>
<tr>
<td>Yes</td>
<td>1061</td>
<td>99.88</td>
<td>104</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>.99</td>
<td>0</td>
</tr>
</tbody>
</table>
24. Games found helpful in dealing with specific defects.

There follows a list of games found to be helpful in dealing with postural defects. The list is meager probably because of the fact that the use of games in dealing with remediable defects is a comparatively recent venture. The fact that all the games listed refer mainly to postural defects is an indication of the over-emphasis posture has received and is still receiving in comparison with other physical defects. Twenty-two schools representing all educational units listed games as follows:

I. Kyphosis

1. Touch Ball, for arm stretching.
2. Stretching and bending relay.
3. Relays carrying books on head.
5. Volleyball.
6. Interpretive dancing.
7. Archery.
8. Overhead relay.
9. Over and under relay.
10. Monkeys. Go across ladder with hands on outside, trying to keep to the music.

II. Lordosis

1. Creeping exercises.
2. Kick ball in supine position.
3. Imitation exercises such as animal circus, etc.
4. Elephants. Children do lax-stoop standing exercise and remain in stoop position. The arms are swung back and forth like an elephant's trunk while the children slowly step to the music.

III. Feet

1. Sifting marbles with toes.
2. Pulling towels with toes.
3. Race, holding marbles in the toes.
4. Walking Indian, monkey feet.
5. Bears. Children walk on outer border of feet with toes curled under. "We call this the bear game because the foot forms a cane when the exercise is done properly.

---

1. Los Angeles City School District, Department of Health and Corrective Physical Education.
25. Objective measurement of results.

Educators have become more interested in the results of their work, and in seeing and being able to demonstrate their accomplishments to others. Boards of education, Parent-Teacher organizations and others insist on seeing and measuring results. For this reason the question was asked as to whether the results of corrective activities were objectively measured. The answers given to this question by the various school systems are found in Table XXX and Figure 16 on the following page. Forty and six tenths per cent, fifty-eight and four tenths per cent, and forty-six and seven tenths per cent of the elementary schools, junior high schools, and senior high schools respectively, answered this question in the affirmative.

It will be recalled, however, that fifty-six and seven tenths per cent of the elementary schools, seventy per cent of the junior high schools and sixty-one and eight tenths per cent of the high schools conduct corrective activities. (Table XIX and Figure 10 on page 387.)

This would indicate that sixteen per cent, eleven and eight-tenths per cent and fifteen per cent of the elementary schools, junior high schools, and senior high schools, respectively, are not achieving results which can be objectively measured.
Table XXX

The Number and Per Cent of Schools which Claim Results In Individual Corrective Activities which Can by Objectively Measured

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Schools Reported</td>
<td>2505</td>
<td>231</td>
<td>199</td>
<td>2935</td>
</tr>
<tr>
<td>Yes</td>
<td>1017</td>
<td>135</td>
<td>93</td>
<td>1245</td>
</tr>
<tr>
<td>Per Cent Answering Yes</td>
<td>40.59%</td>
<td>58.44%</td>
<td>46.73%</td>
<td>42.41</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>21</td>
<td>13</td>
<td>128</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>1394</td>
<td>75</td>
<td>93</td>
<td>1562</td>
</tr>
</tbody>
</table>

Figure 15. The Percentages of the schools which claim to achieve results which can be measured.
26. Objective tests used to demonstrate achievement of results in individual corrective activities.

Thirty-two schools listed objective tests which they used to test the progress of their so-called corrective work. Twenty of these schools were elementary schools, four were junior high schools, seven were high schools, and one special school.

There follows the list of specific tests mentioned by these thirty-two schools and the rank order of the number of times each was mentioned.

<table>
<thead>
<tr>
<th>Test</th>
<th>No. of Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bancroft triple posture</td>
<td>10</td>
</tr>
<tr>
<td>2. Height, weight, and age</td>
<td>7</td>
</tr>
<tr>
<td>3. Foot imprints</td>
<td>7</td>
</tr>
<tr>
<td>4. Physical examination by M.D.</td>
<td>7</td>
</tr>
<tr>
<td>5. Camera pictures</td>
<td>6</td>
</tr>
<tr>
<td>6. Posture silhouettes</td>
<td>3</td>
</tr>
<tr>
<td>7. Exercise tolerance</td>
<td>3</td>
</tr>
<tr>
<td>8. Schematographs</td>
<td>2</td>
</tr>
<tr>
<td>9. Physical capacity tests</td>
<td>2</td>
</tr>
<tr>
<td>10. Complete muscle test</td>
<td>1</td>
</tr>
<tr>
<td>11. Tests of endurance</td>
<td>1</td>
</tr>
<tr>
<td>12. Tests of rhythm</td>
<td>1</td>
</tr>
<tr>
<td>13. Ability in performance</td>
<td>1</td>
</tr>
<tr>
<td>14. Mirror test</td>
<td>1</td>
</tr>
<tr>
<td>15. Dental inspection</td>
<td>1</td>
</tr>
</tbody>
</table>
27. Carry over of child's interest in improvement to home.

The report on this question is found in Table XXXI below. It is here seen that the percentage of schools answering in the affirmative in the elementary, junior high and high schools are eighty-one per cent, sixty-nine and eight tenths per cent and ninety-three and five tenths per cent, respectively.

Table XXXI

Number and Per Cent of Schools in Various Educational Units Reporting Their Children Sufficiently Interested in the Corrective Program of the School that They do Their Special Exercises at Home

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior High</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Reported</td>
<td>1279</td>
<td></td>
<td>159</td>
</tr>
<tr>
<td>Yes</td>
<td>1041</td>
<td>81.39</td>
<td>111</td>
</tr>
<tr>
<td>No</td>
<td>238</td>
<td>18.61</td>
<td>48</td>
</tr>
</tbody>
</table>
26. Methods of discovering home interest.

Various ways in which the school discovers whether children are carrying over to the home environment their interest in the school's corrective program is shown in the following Table XXXII. Specifically, is the child carrying out certain of the prescribed activities at home?

There is seen to be comparatively even distribution among the first three methods: telephone calls from nurse to parents, calls of visiting teacher at the home and reports from parents to school nurse. In the elementary schools, the monthly goal cards are reported by a high percentage.

Table XXXII

Number of Schools Where Various Methods are Used to Discover Interest of the Home in the Corrective Program as Expressed by the Three Educational Units

<table>
<thead>
<tr>
<th>Method</th>
<th>Elementary</th>
<th>Junior</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>Telephone Calls from Nurse to Parents</td>
<td>644</td>
<td>25.45</td>
<td>55</td>
</tr>
<tr>
<td>Visiting Teacher Calls at Home</td>
<td>695</td>
<td>27.47</td>
<td>38</td>
</tr>
<tr>
<td>Reports from Parents to School Nurse</td>
<td>555</td>
<td>21.94</td>
<td>52</td>
</tr>
<tr>
<td>Monthly Goal Cards</td>
<td>485</td>
<td>19.56</td>
<td>11</td>
</tr>
<tr>
<td>Other Methods</td>
<td>151</td>
<td>5.97</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>2530</td>
<td>180</td>
<td>236</td>
</tr>
</tbody>
</table>

Parents cooperate in helping the child to carry out the exercises prescribed for him at school to a very high degree as can be seen from the affirmative answers in Table XXXIII. (below)

Table XXXIII

Number and Per Cent of Schools Reporting that Parents Cooperate with the Instructor of Individual Corrective Activities

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Reported</td>
<td>1144</td>
<td>100.00</td>
<td>87</td>
</tr>
<tr>
<td>Yes</td>
<td>1153</td>
<td>99.03</td>
<td>96</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>0.07</td>
<td>1</td>
</tr>
</tbody>
</table>

Table XXXIV

Number and Per Cent of Schools Reporting Different Methods by Which Parents Cooperate in Program of Individual Corrective Activities

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Special Meetings with Phys.Ed.Dir.</td>
<td>629</td>
<td>24.49</td>
<td>60</td>
</tr>
<tr>
<td>Encouraging Children in Exercises</td>
<td>1160</td>
<td>46.16</td>
<td>93</td>
</tr>
<tr>
<td>Special Conferences with Director</td>
<td>548</td>
<td>21.36</td>
<td>74</td>
</tr>
<tr>
<td>Publicity of the Work</td>
<td>228</td>
<td>8.88</td>
<td>21</td>
</tr>
</tbody>
</table>
30. **Summary.**

From 106 cities, with a widespread geographical distribution and populations of twenty thousand or more, covering a school population of over 2,131,724, children, certain information concerning individual corrective activities in the schools have been reported. Among the outstanding information was the following:

In too many schools (fifteen per cent) health examinations are not given to all students coming to the schools.

Health examinations are in the main conducted by the board of education, although many of them are conducted by the board of health.

The examinations are most often given by part-time physicians.

The examinations are given at the school.

Nearly twenty per cent of schools reporting are not equipped to give health examinations efficiently.

The director of physical education or some of his staff assist in the health examination in fifty per cent of the schools.

Fifteen per cent of all schools reporting do not notify parents of results of examinations of their children.

Only seventy-one and four tenths per cent of all schools reporting check up at regular intervals to see if the doctor's recommendations are carried out.

The school nurse is the strategic person in interpreting of results of examinations to parents and in the following
up of cases to see what has been done about the doctor's recommendations.

Less than sixty-three per cent of all schools reporting conduct special classes in which they attempt to correct some of the physical defects found in the health examinations.

The school nurse somewhat more often than the specialist in individual corrective activities conducts these classes.

Posture is being over-emphasized in the corrective program in comparison with other more deleterious defects.

In slightly over seventy-five per cent of all the schools boys and girls are separated for their corrective work. The greatest amount of separation comes in the junior and senior high schools.

The most popular number of children in a corrective class ranges from one to ten per section.

Once a week is the median time the classes in individual corrective activities meet.

Classes in individual corrective activities are scheduled during school hours and during physical education periods.

In most schools individual corrective activities start in the lower three or four grades.

The utilization of games with specific corrective and educational value as a part of the individual corrective activity program of schools is a growing tendency.

Less than one-half of the schools report that their work in individual corrective activities can be objectively measured.
The pupils in the individual corrective classes apparently are interested in the program taught, interested in their progress, and the interest carried over to the home. Parents are found to cooperate in many ways to a very high degree.

The term Individual Corrective Activities is not ideal. It was used only because it would more surely suggest to readers the so-called corrective phase of the physical education program than the much preferred term Individual Physical Education. Individual Physical Education suggests an educational program of activities adapted to meet the individual needs of temporarily or permanently handicapped school children. It has no place for correction as the school’s function but emphasizes: prevention, improvement, demonstration, explanation, guidance, supervision, inspiration and other purely educational measures.
APPENDIX C

NEW YORK UNIVERSITY
SCHOOL OF EDUCATION
DEPARTMENT OF PHYSICAL EDUCATION

QUESTIONNAIRE TO ADMINISTRATORS AND
TEACHERS SPECIALIZING IN THE
CORRECTIVE FIELD

1. Should health examinations including detailed orthopedic
and postural examinations be given in the beginning of
each term of the school year to all pupils entering any
of the elementary, or secondary school grades? (yes or
no)_______

2. Who should be responsible for these examinations and pay
for them? Place cross (X) after correct department.
A. Board of Education?_______
B. Board of Health?_______
C. Volunteer medical men interested?_______
D. Any other department of city or school, and give the
name of such department?_______
E. Any combination of the above? Check such combinations
with two or more crosses in the appropriate places.

3. How should the above examinations be conducted? Indicate
with cross (X).
A. Have one or more reliable doctors in conjunction with
the director or supervisor of physical education, and
with the help of his staff, and the school nurse, give
these examinations intensively so that all examinations
for the entire school system are completed during the
first month of school?_______
B. Use the same organization as above, or a similar bat-
tery organization but insist that the examinations be
held the week just preceding school opening, and make
the completed examination a requisite for school reg-
istration?_______
C. Have a full-time doctor hired by the board of Education
for school districts of a certain number of schools
(depending on the number of schools in the system)
spend his entire time giving examinations throughout
the school year?_______ Suggest how this can be done to
make this work more effective _________

D. Have part-time doctors hired by the board give certain
amounts of time at regular periods to examining chil-
dren?_______
E. Have the director or supervisor of physical education
and his staff, with the help of the school nurse, give
the examination?

F. If you would endorse none of the above systems, state below the systems that you believe to be best, keeping in mind these considerations: no vigorous physical education activities should be given by the school, nor can any corrective work be scientifically planned or executed until these examinations are given, and that the latter activities require lots of time to gain results.


4. If a typical large city school should commence Sept. 15th by what date should all initial examinations have been completed?


5. Where should these examinations be given? Use cross (X). At school?___ At Clinic?___ At Doctor's office?___ Under what circumstances would it be advisable to vary from your above checked procedure?


6. Place H, after equipment needed in H. S. Bldg., J, after items needed in J. H. S. Bldg., and K, after essentials for Elementary School, after minimum essential items of equipment you would consider necessary that a school have in order to conduct physical examinations and the follow up work efficiently?

Rooms
Waiting room with nurses office?___
Two dressing rooms, one for boys, one for girls?___
Two rest rooms with one or more cots?___
In place of the items mentioned in the two above lines, two rooms which could be combination dressing and rest rooms?___
A dispensary?___
A toilet and lavatory adjoining each dressing-room?___
A toilet and lavatory adjoining the dispensary only?___
A toilet and lavatory adjoining each of the combination rooms in case they are indicated?___
Any other rooms thought necessary?___


Other items of equipment thought essential. Use cross (X)
Table___
Massage table___
Spot-light___
Instrument cabinet___
6. contd.

First aid equipment
Lavatory
Sterilizer
Scales
Spirometer
Stadiometer
Foot-C-Print machine
Camera to take posture pictures
Desk
Filing cabinet for records
Stall bars
Eye-testing instruments
Cardiograph
Snellen's Eye charts
Schematograph
Silhouettograph
Any other equipment that you consider essential

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

7. A. Should the director or supervisor of physical education be the person authorized by the board to make all necessary arrangements for the organizing, conducting, and supervising of these physical examinations? (yes or no)

B. If you said no to the above, who should be the one to handle this job best?

8. Indicate with a cross (x) the listed objectives of the physical examination that you can accept.

(1) To detect any contagious diseases.

(2) To reveal the condition of children so that they can be classified according to their development and placed in physical education activities suitable to their needs and capacities.

(3) To detect the presence of physical defects that can be remedied by medical, surgical, or dental treatment in early stages and make the child free to learn without handicap such as: defects of eyes, ears, nose, throat, teeth, etc.

(4) To detect the presence of certain weaknesses improved upon by activity which if allowed to persist will result in serious defects but if intelligently considered by a teacher skilled in making special adaptations of activities can be prevented from becoming serious or eradicated.
8. contd.

(5) To detect the presence of certain remediable defects such as faulty bodily mechanics, malnutrition etc., which if handled by an expert skilled in making adaptations of activities in corrective procedures, can remedy the defects.

(6) To detect serious organic conditions in children which would make their participation in the regular activities of the school program (without specific modification) dangerous to their health.

(7) To show children that there are certain cause and effect relationships in health conditions, and to bring them face to face with their own health problems.

(8) To show children the effect of unhygienic living in their own health condition and point out the means of improvement by hygienic living.

(9) To check up periodically on children and reveal to them improvement and connect this improvement with their own efforts for encouragement in their Health Practices.

(10) Any other objectives.

9. Notifying the parents. Place cross (X) after the statements with which you agree.

(1) A statement of the results of the examination suitable to go to the parents should be sent them with special attention called to the defects found, and with specific recommendations and suggestions made as to the procedures in their correction.

(2) The parents should only be notified in case the examination reveals defects or deviations from the normal. In this case the notification to the parents should contain the specific recommendations and suggestions as in (1) above.

(3) The parent should be notified of any improvement in the child's condition at every possible opportunity. The parent as well as the child should be commended and encouraged because of this. Also specific suggestions for continued work should be outlined if necessary.

10. The interpretation to the parents of the results of health examinations in cases where the parents can not understand the report from the school nurse. Indicate procedure you think best with a cross (X).

(1) All parents of children with defects should be asked to report to the school nurse for a personal interpretation of the results of the examination.
10. contd.

(2) The nurse should make a call at the homes of such parents to make this interpretation soon after the examination has been given.

(3) At the bottom of the original report that goes home to the parents of children who have defects, a detachable note (perforated line) with these words should be printed:

I have read the report of my child's condition as revealed in the physical examination and I understand conditions described and what do not understand should be done about it.

Name (of parent)____________________________Address____________________________

This detachable blank can be filled out by the parent and mailed back to the school nurse in a self-addressed envelope (which had been enclosed to the parent in the original report). In case the parent replies that she does not understand, the school nurse calls on her.

(4) What other methods of making this interpretation?

________________________________________________________________________

________________________________________________________________________

11. Who should make this interpretation to the parent? Indicate with a cross (X).

A. The school nurse?____
B. The visiting teacher?____
C. The home-room teacher?____
D. The principal?____
E. The physical educator?____
F. Who else?____________________

12. Should the school check up at regular intervals to see if the doctor's recommendations have been carried out or are being carried out? (yes or no)____

13. Should the examining physician or a physician specially trained for the purpose give to all children with remediable defects revealed in the Health examination, certain definite tests of metabolism, to investigate their nutritive power, before attempting to prescribe certain activities for their improvement? (yes or no)____
14. If you answered yes, state which tests would be necessary?

15. When should the time of check up come? Indicate with (X).
   A. Within the first month after the examination?_____
   B. Sometime during that term?_____
   C. Two checks, or more in case nothing had been done about it the first time, e.g. one during the first month and every month thereafter till the matter is definitely being taken care of?_____
   D. Before a child is promoted to another grade or retained?
      What other systems of check up would be better?_____

16. If poverty on the part of the parents makes it impossible for them to carry out the doctor's recommendations, and this is clearly known to the school authorities, indicate with X the best procedures.
   A. The school nurse should see that such cases are taken to free clinics?_____
   B. Free clinics for such purpose should be established and paid for by the board of education?_____
   C. Free clinics for such purpose should be established by the board of health and thus paid out of the city budget?_____
   D. Such free clinics should be established and paid for partly by the board of education, partly by the city, and in part by the state?_____
   E. If best procedure is not represented by any of the above plans please give your suggestion as to what it is below._____

17. As a function of the physical education program should a school attempt to organize and conduct special classes for the correction of certain remediable defects revealed in the examination?_____(yes or no)

18. If you answered yes to the last question, place H, J, or E, or any two or all three after those activities listed below that the school should conduct special classes for. Place H, if answering from High school viewpoint, J, if from the J.H.S. viewpoint, E, if from Elem. sch. standpoint, and if applicable to all three mark it H,J,E.
18. contd.
(1) Posture
A. Kyphosis
B. Lordosis
C. Scoliosis 1. Structural 2. Functional
D. Relaxed abdomen
E. Foot deviations
   (a) Flat foot
   (b) Pronated feet
   (c) Relaxed arches
(2) Exercises to aid in bowel elimination?
(3) Cardiac cases?
(4) Malnutrition?
(5) Dysmenorrhea?
(6) Neurasthenia?
(7) Any other conditions?

19. If you answered NO to question 17, please give your reasons below.

20. If you answered yes to question 15, what department of the school should be responsible for organizing and conducting this work? Place H, J, or E, after best plan for particular school unit.
   (1) A part-time assignment for one of the physical education staff trained in corrective procedure responsible to the director of Physical Education?
   (2) A part-time assignment for the school nurse or one of her assistants trained in corrective procedure responsible to the director of Physical Education?
   (3) Same system as above but nurse responsible only to principal or superintendent?
   (4) A person hired full-time for corrective activities only responsible to the director of physical education?
   (5) A specially hired full-time person responsible to the school doctor?
   (6) One or more school clinics (depending upon the school population) to which children with defects report regularly one or more times a week and there receive instruction under a trained expert hired by the board of education?
   (7) What other organization of this work would be best and indicate whether for high school, junior high school, or elementary school, by use of H, J, and E?
21. After the defects listed below place either a C or an S. Put C, if you think such work can best be administered in a clinic outside of school. Put S, if you think such work can best be administered inside of the school. (C for clinic, S for school)

   **Elementary school considered alone.**

   **Junior high school considered alone.**

   **Senior high school considered alone.**

22. In cases where parents have neglected to have the recommendations of the doctor carried out with their children, place numbers after the list of possible reasons for this neglect. Place figure 1 after the main reason, 2 after the next reason, and 3 after the next etc. Thus giving a rating to the three greatest reasons for neglect.
   (1) Not able to afford medical attention.____
   (2) Ignorance of the consequences.____
   (3) General indifference.____
   (4) Religion.____
   (5) Other causes.____

23. Do you believe that children with remediable defects of the type mentioned before can be helped most effectively by purely individual work on the part of the instructor? Answer yes or no this question as it applies to the school unit listed below.
   A. Elementary school?____
   B. High School?____
   C. Junior high school?____

24. Do you believe these same children could be helped most effectively if they were in small groups (homogeneously) classified according to their specific defects) since the instructor could utilize the social situations by bringing in competition, desire for approval, and other things that would give the work more interest? Answer yes or no as the question applies to the following school units:
   A. Elementary school?____
   B. Junior high school?____
   C. Senior high school?____
25. Do you feel that your answers to questions 23 and 24 depend also upon the type of defect? (yes or no)____

26. Place I (Individual) after the defects best administered individually, and G (Group) after the defects best administered in small homogeneous groups. Answer with respect to each school unit.
   (1) Posture (including feet)? H.S.____ J.H.S.____ Elem.____
   (2) Defective bowel elimination? H.S.____ J.H.S.____ Elem.____
   (3) Cardiac cases? H.S.____ J.H.S.____ Elem.____
   (4) Malnutrition? H.S.____ J.H.S.____ Elem.____
   (5) Dysmenorrhea? H.S.____ J.H.S.____ Elem.____
   (6) Neurasthenia? H.S.____ J.H.S.____ Elem.____
   (7) What other factors condition the results of this work besides school units and size of group. Please be specific in answering this question.________________________

27. Should boys and girls be separated into different units for these corrective activities? Answer yes or no according to the educational units listed below?
   (1) In High school?____
   (2) In junior high school?____
   (3) In elementary school above the third grade?____
   (4) In elementary school the third grade and below?____
   (5) What exceptions to above might you state?________________

28. If you answered yes to question 24, state the maximum number you would have in a group so that the work could be carried on most efficiently by children. Indicate by number in space after below listed defects as it may vary according to the specific defect.
   (1) Posture (including foot deviations)? H.S.____ J.H.S.____ Elem.____
   (2) Defective Bowel Elimination? H.S.____ J.H.S.____ Elem.____
   (3) Cardiac Cases? H.S.____ J.H.S.____ Elem.____
   (4) Malnutrition? H.S.____ J.H.S.____ Elem.____
   (5) Dysmenorrhea? H.S.____ J.H.S.____ Elem.____
   (6) Neurasthenia? H.S.____ J.H.S.____ Elem.____

29. For the types of defects which require active exercise of specific muscular groups, place cross (x) after methods you believe most valuable in the long run (the kind of thing that the child will want to carry away with him and do in his home situation as well as the school one)?
   (1) Formal exercises or calisthenic exercises?____
   (2) Mimetic exercises?____
   (3) Games, game situations, or individual athletic activities which involve the use of the muscle groups you want to strengthen?____
   (4) Dancing or rhythmic activities specially organized for localized development?____
29. contd.
If developing this particular program, please give details as to its character and administration.

(5) If a combination of above, which combination (state numbers)?________

30. At what time should children be scheduled for these activities? Place X after proper time.
A. During the physical education period?____
B. During school hours but not at physical education period?____
C. During the cooperatively best time during schoolhours for the expert in charge and the other school teachers?____
D. During school hours and at the most advantageous time for the child regardless of what other classes of the schedule may be occurring at the same time?____
E. During a school study period?____
F. During recess time?____
G. During the after school time?____
H. Before school?____
Rate the above periods of meeting by placing 2 after next best time to one marked X, and 3, after next best time to one marked 2, above.

31. Place after the listed defects the games, game situations, or individual athletic activities you have found useful in strengthening the particular muscle groups involved.
A. Posture
   (1) Kyphosis__________________________
   (2) Lordosis__________________________
   (3) Scoliosis
      1. Structural________________________
      2. Functional________________________
   (4) Relaxed abdomen____________________
   (5) Foot deviations
      (a) Flat foot__________________________
      (b) Pronated feet________________________
31. contd.
   (c) Relaxed arches

B. Defective bowel elimination

C. Cardiac cases

D. Dysmenorrhea

E. Neurasthenia

32. A. Should it be possible to objectively test the progress of a child in corrective activities? (yes or no)____
   
   B. Is it possible to objectively test results now? (yes or no)____

33. If you answered yes to the last question, place after the defects listed below, specific objective tests which measure objectively the progress or regress of the defects concerned.

A. Posture
   (1) Kyphosis
   ____________________________
   ____________________________

   (2) Lordosis
   ____________________________
   ____________________________

   (3) Scoliosis 1. Structural
       2. Functional

   (4) Relaxed abdomen
   ____________________________
   ____________________________
33. contd.
   (5) Foot deviations
       (a) Flat foot

       (b) Pronated feet

       (c) Relaxed arches

B. Defective bowel elimination

C. Cardiac cases

D. Dysmenorrhea

E. Neurasthenia

F. Malnutrition

34. Is it possible to so organize a program of Individual Corrective Activities in a school that it will carry over into the home situation, so that the child will be wanting to carry on such a program at regular periods at home? (yes or no)

35. List below a way of organizing such a program which the child would take home from school and continue after school, Saturday, and Sundays at brief regular periods at home.
36. Do you consider that the best way to enlist the interest of the parents in these corrective activities for the child, would be to enlist the child's interests? (yes or no)_____

37. List below means of enlisting the parents' interest and cooperation other than the one mentioned above.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

38. Would you be interested in the results of this study?____

Name________________________Position________________________

Street________________________City________________________State_______

Return completed Questionnaire to   R. G. Metcalf
School of Education
New York University
Washington Square
New York, N. Y.
EXPERT OPINION ON THE ADMINISTRATION OF
INDIVIDUAL OR CORRECTIVE PHYSICAL
EDUCATION ACTIVITIES

There follows the report of a study of the opinion expressed by thirty-eight experts on a number of administrative policies concerned in the so-called corrective phase of physical education. The present study is concerned with what a carefully selected group of experts feel should be the practices and policies in force in the so-called corrective phase of the physical education program for American public schools.

In order that there might be a well balanced group of experts representing different viewpoints these experts were selected from the following groups: medical men, state directors of physical education, city directors of physical education and prominent teachers and administrators in the so-called corrective phase of physical education. Two of the medical men are orthopedic surgeons, one of the others is the former medical director of the American Child Health Association, and the other doctor is the former psychiatrist for the board of education for the city of Cleveland.

In every case these experts were first asked by the author in conference or by personal letter whether they would answer a questionnaire if sent to them. In these conferences and
letters the content and objectives of the questionnaire study was discussed so that they were familiar with it and sufficiently interested in it that thoughtful answers to the questions were practically guaranteed.

In the following report, unless there are significant differences, all the answers of the various groups of experts together, will be reported as one group.

Health Examinations

To the question: "Should health examinations, including detailed orthopedic and postural examinations be given in the beginning of each term of the school year to all pupils entering any of the elementary or secondary grades?" eighty-nine and four tenths per cent answered yes while ten and six tenths per cent said no.

Responsibility for Health Examinations

Considering the question of the responsibility for these examinations and for their cost, ninety-five per cent of the experts said it belongs to the board of education. It is evident that a considerable number of those who checked the board of education also felt that the board of health and other organizations should have this opportunity if not responsibility. For example, of the seven experts checking the board of health, all seven had also checked the board of education. Of the four checking Volunteer Medical Men, three had also checked the board of education. Of seven experts listing other departments not listed on the questionnaire, six also
listed the board of education. Two of this latter group listed the corrective department, two more listed the department of physical education, and one of the group mentioned physicians on the school staff.

**Conducting Health Examinations**

In reporting answers to the question: "How should the health examination be conducted?" five different methods will be listed, and the number and per cent of the experts checking the same indicated.

A. Have one or more reliable doctors in conjunction with the director or supervisor of physical education and with the help of his staff and the school nurse give these examinations intensively so that all examinations for the entire school system are completed during the first month of school? 
   29 or 76 per cent answered yes.

B. Use the same organization as above, or a similar battery system, but insist that the examinations be held the week just preceding the opening of school and make the completed examination a requisite for school registration? 
   4 or 10.5 per cent answered yes.

C. Have a full time doctor hired by the board of education for school districts of a certain number of schools (depending on the number of schools in the system) spend his entire time giving examinations throughout the school year? 
   2 or 5.26 per cent answered yes.

D. Have part time doctors hired by the board of education give certain amounts of time at regular periods to examining children? 
   5 or 15 per cent answered yes.

E. Have the director or supervisor of physical education and his staff with the help of the school nurse give the examination? 
   2 or 5.26 per cent answered yes.

The experts were asked to keep in mind the following facts: No vigorous physical education activities should be given by the school nor can any corrective work be scientifi-
ically executed until the examinations are completed. Corrective activities also require plenty of time for good results. In the light of this, if certain of the experts felt that none of the above methods were satisfactory, they were asked to mention the systems they thought best. Among the methods suggested as improvements were the following:

Train the health education teacher to conduct preliminary inspections, thereby screening doubtful cases for the board of health doctors to follow up.
V. S. Blanchard

For the general health examination I would suggest that a staff of doctors give the initial examination at the beginning of each school year. That there be part-time doctors available at any time during the year to (1) check on the follow up work, (2) check on heart and lung cases, (3) examine all players on inter-school teams.
Dorothy Yenger

Although seventy-six per cent of the experts checked method "A" favorably, it is significant that nearly eleven per cent checked method "B", whose distinctive difference from "A" is that the examinations must be completed before school commences in the fall. Another expert in addition to the eleven per cent says, "B is the best scheme for entering students but it has not yet to my knowledge been accomplished except in a few colleges." This opinion might indicate a possible trend of the future.

On the question concerning the time when all initial physical or health examinations should be completed, the curve of distribution of the answers was a fairly normal one. There were twenty-three experts who answered the question and their answers ranged from the week before school starts to
the thirty-first week after school starts. The median number of answers would indicate that in the opinion of the experts, examinations should be complete by the end of the fourth week of school in the fall. Thirty-five per cent of the answers gave this same period as the time when all examinations should be over. Although seventeen per cent suggested the end of the sixth week, seventy-four per cent of the experts stated that the examinations should be completed either on or before the end of the fourth week of school in the fall.

**Place to Conduct Health Examinations**

Where should the examinations be given, at school, clinic, or doctor's office? Answers to this question were as follows:

<table>
<thead>
<tr>
<th>Place</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>34</td>
<td>89.19</td>
</tr>
<tr>
<td>Clinic</td>
<td>4</td>
<td>10.25</td>
</tr>
<tr>
<td>Doctor's office</td>
<td>1</td>
<td>2.56</td>
</tr>
</tbody>
</table>

The one expert checking the doctor's office also voted for the school as the place to conduct the physical examination. He may have had in mind that different cases would require different places. However, to take care of this point the following question was asked: Under what circumstances would it be advisable to vary from your above checked procedure? Nineteen of the experts made comments on this question and they suggested not giving the health examination at school under the following circumstances:

- When the arrangements at school are not adequate.
- Where cases require more detailed examination, and the specialized services of the clinic.
When the cases from previous records are known to be chest suspects or orthopedic cases they should be examined at the clinic. When the cases require special attention such as blood analysis, special cardias, etc., they should be examined at the clinic. When there are severe cases of deformity. When there cases with extreme deviation from the normal necessitating special equipment for accurate testing. When there is a lack of funds at school. When "completeness" requires a more intensive examination. When specialists are needed but not available in the school. Where laboratory services are needed but not available in the school. When students are late entering school, they should go to a clinic or to a doctor's office for the examination. When examinations are to be completed before school opens they should be given at the clinic. When defects are serious, they require further examination at clinic or doctor's office.

This is an extensive list of reasons why the examinations should be held at the clinic or doctor's office rather than the school.

Rooms and Additional Equipment for the Examinations

"What rooms should a school have in order to conduct health examinations and the follow up work efficiently?" is the next question discussed by the experts. Table XXXVI, page 430 gives the answers in detail. Sixty-eight per cent of the experts felt that a waiting room with nurses office was necessary for the high school, although only sixty-five and fifty-two per cent felt it necessary for the junior high school and elementary school respectively. It will also be noted that the separate dressing rooms for boys and girls, and two rest rooms with cots appear to be only one-half as essential to the elementary schools as to the junior and senior
high schools, whereas the combination dressing room and rest room would seem to be twice as essential for the elementary school as for the other two school units. In general, the discussion as to the essentialness of these various rooms is lukewarm compared to some of the additional equipment also listed in Table XXXVI of the next page following. The aforementioned additional equipment is listed in rank order according to the number of times each item is checked by the experts as essential for a particular school unit. There appear to be no significant differences as to the need for a piece of apparatus in one of the three school units rather than in the others.

By listing the additional equipment thought essential for the efficient administering of the health examination in rank order the relative importance given to the various items by the group of experts as a whole is shown. The weight scales are thought most essential since they are mentioned by ninety-two per cent of the group. It is particularly interesting that the silhouettograph and the schematograph lack one of being thought the least important.

Other essential equipment reported by experts but not originally listed on the questionnaire was as follows:

- Plumb lines
- Tape measure (steel preferred)
- Flashlight
- Tongue depressors
- Audiometer
- Blankets, sheets, and pillows
- Paper towels
- Mats
- Mirrors
- One piece swim suits for examining junior and senior high-school girls
<table>
<thead>
<tr>
<th>Rooms and Equipment</th>
<th>High School</th>
<th>Junior High</th>
<th>Senior High</th>
<th>Elementary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting room with nurses office</td>
<td>26 68.00</td>
<td>25 65.8</td>
<td>20 52.6</td>
<td>14 36.8</td>
</tr>
<tr>
<td>Separate dressing rooms for boys and girls</td>
<td>25 65.8</td>
<td>23 60.5</td>
<td>12 31.6</td>
<td>14 36.8</td>
</tr>
<tr>
<td>Two rest rooms with cots</td>
<td>22 57.9</td>
<td>21 55.2</td>
<td>12 31.6</td>
<td>14 36.8</td>
</tr>
<tr>
<td>Combination dressing and rest room</td>
<td>9 23.6</td>
<td>9 23.6</td>
<td>9 23.6</td>
<td>9 23.6</td>
</tr>
<tr>
<td>Dispensary</td>
<td>14 36.8</td>
<td>12 31.6</td>
<td>8 21.</td>
<td>9 23.6</td>
</tr>
<tr>
<td>Toilet and lavatory (adj.) each dressing room</td>
<td>20 52.6</td>
<td>18 47.3</td>
<td>13 34.2</td>
<td>14 36.8</td>
</tr>
<tr>
<td>Toilet and lavatory adjoining each of combination dressing room and rest room</td>
<td>8 21.</td>
<td>7 18.4</td>
<td>11 29.</td>
<td>14 36.8</td>
</tr>
<tr>
<td>Additional Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight scales</td>
<td>35 92.</td>
<td>35 92.</td>
<td>36 94.7</td>
<td></td>
</tr>
<tr>
<td>Filing Cabinet for records</td>
<td>35 92.</td>
<td>35 92.</td>
<td>36 94.7</td>
<td></td>
</tr>
<tr>
<td>First aid equipment</td>
<td>34 89.47</td>
<td>34 89.47</td>
<td>35 92.</td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td>31 81.58</td>
<td>31 81.58</td>
<td>32 84.2</td>
<td></td>
</tr>
<tr>
<td>Desk</td>
<td>30 79.</td>
<td>31 81.58</td>
<td>31 81.58</td>
<td></td>
</tr>
<tr>
<td>Snellen eye charts</td>
<td>30 79.</td>
<td>31 81.58</td>
<td>31 81.58</td>
<td></td>
</tr>
<tr>
<td>Lavatory</td>
<td>28 73.68</td>
<td>28 73.68</td>
<td>29 76.3</td>
<td></td>
</tr>
<tr>
<td>Eye testing instruments</td>
<td>26 68.</td>
<td>25 68.</td>
<td>25 65.8</td>
<td></td>
</tr>
<tr>
<td>Camera</td>
<td>25 65.8</td>
<td>25 65.8</td>
<td>22 57.9</td>
<td></td>
</tr>
<tr>
<td>Foot-O-Print</td>
<td>24 63.16</td>
<td>23 60.5</td>
<td>22 57.9</td>
<td></td>
</tr>
<tr>
<td>Spirometer</td>
<td>23 60.5</td>
<td>20 52.6</td>
<td>18 47.37</td>
<td></td>
</tr>
<tr>
<td>Stell bars</td>
<td>23 60.5</td>
<td>23 60.5</td>
<td>23 60.5</td>
<td></td>
</tr>
<tr>
<td>Instrument cabinet</td>
<td>22 57.9</td>
<td>23 60.5</td>
<td>21 55.26</td>
<td></td>
</tr>
<tr>
<td>Sterilizer</td>
<td>22 57.9</td>
<td>23 60.5</td>
<td>22 57.9</td>
<td></td>
</tr>
<tr>
<td>Stadiometer</td>
<td>20 52.6</td>
<td>18 47.37</td>
<td>18 47.37</td>
<td></td>
</tr>
<tr>
<td>Spotlight</td>
<td>19 50.</td>
<td>19 50.</td>
<td>17 44.7</td>
<td></td>
</tr>
<tr>
<td>Massage table</td>
<td>17 44.7</td>
<td>17 44.7</td>
<td>17 44.7</td>
<td></td>
</tr>
<tr>
<td>Silhouettograph</td>
<td>16 42.1</td>
<td>14 36.8</td>
<td>13 34.2</td>
<td></td>
</tr>
<tr>
<td>Schematograph</td>
<td>14 36.8</td>
<td>14 36.8</td>
<td>10 26.3</td>
<td></td>
</tr>
<tr>
<td>Cardiograph</td>
<td>12 31.6</td>
<td>13 34.2</td>
<td>13 34.2</td>
<td></td>
</tr>
</tbody>
</table>
Organizing the Examination

The following question was next raised: "Should the director or supervisor of physical education be the person authorized by the board to make all necessary arrangements for the organization, conduction, and supervision of these health examinations?" Twenty-five or seventy-one and four tenths per cent of the experts said yes to this, while twenty-five and seven tenths per cent said no. On this particular question those experts who were state directors voted no and answered the follow up question of who should organize and conduct the health examinations if not the physical educator with the following actual statements:

Use best administrator, whether doctor, nurse, or recreation director.
Director of health and physical education should have administrative direction of health service, health education and physical education.
School physician or director of physical education.
Would vary in different places.
Makes little difference who administers plan for getting students to the examination and away.

Objectives of the Health Examination

There follows a list of objectives of the health examination and the percentages of experts who could accept these objectives as justifying the examinations:

1. To detect any contagious diseases. 86.3 per cent

2. To reveal the condition of children so that they may be classified according to their development and placed in physical education activities suitable to their needs and capacities. 86.3 per cent

3. To detect the presence of physical defects that can be remedied by medical, surgical, or dental treatment in the early stages and make the child free to learn without handicaps such as defects of eyes, ears, nose, throat, teeth, etc. 100 per cent
4. To detect the presence of certain weaknesses improved by activity, which if allowed to persist will result in serious defects but if intelligently considered by a teacher skilled in making special adaptations of activities can be eradicated. 86.8 per cent

5. To detect the presence of certain remediable defects such as faulty bodily mechanics, malnutrition, etc., which if handled by an expert skilled in making adaptations of activities in corrective procedures, can remedy the defects. 100 per cent

6. To detect serious organic conditions in childhood which would make participation in the regular activities of the school program (without specific modification) endanger health. 100 per cent

7. To show children that there are certain cause and effect relationships in health conditions, and to bring them face to face with their own problems. 86.8 per cent

8. To show children the effect of unhygienic living in their own health condition and to point out the means of improvement by hygienic living. 76.3 per cent

9. To check up periodically on children and reveal to them improvement and to connect this improvement with their own efforts for encouragement in their health practices. 92.1 per cent

Other important reasons for the health examination mentioned by the experts were as follows:

To protect the child which is the school’s investment.
To protect the school as an institution.
To educate parents, technicians and teachers.
To offset vicious propaganda and quackery.
To promote spirit of cooperation between medical man and public.
To examine athletes.
To select pupils for special classes (the problem child).
To relieve worry that is unfounded.
To satisfy the instructor.
To help parents assume their real responsibility.
To discover causes of handicaps, and to reveal the necessity of controlling the child’s environment.

**Notifying Parents of Health Examinations**

Concerning the question of how best to notify the parents of the results of the health examination, three different
suggestions were referred to the experts. The gist of them was as follows:

1. Results of examination sent to parents with specific recommendations.

2. Notification of parents only when defects are found.

3. Notification of parents if an improved condition is seen since the previous examination.

Methods one and three scored highest as seventy-nine percent of the experts checked both of these. Method number two was frowned on as only thirty-six percent checked this method and none of the orthopedic or medical men were in this group.

**Interpreting Results to Parents**

Three methods of interpreting the results of examinations to the parents, in case the report submitted is not understood, were submitted to the experts. These three methods are listed below:

1. All parents of children with defects should be asked to report to the school nurse for a personal interpretation of the results of the examination.

2. The nurse should make a call at the homes of such parents to make this interpretation soon after the examination has been given.

3. At the bottom of the original report that goes home to the parents of children who have defects, a detachable note (perforated line) with these words should be printed:

   I have read the report of my child's condition as revealed in the physical examination and I do not understand conditions described and what should be done about it.

   Name (of parent)_________ Address_________
This detachable blank can be filled out by the parent and mailed back to the school nurse in a self-addressed envelope (which had been enclosed to the parent in the original report). In case the parent replies that she does not understand, the school nurse calls on her.

<table>
<thead>
<tr>
<th>Method</th>
<th>Number of Experts</th>
<th>Per Cent Saying Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>52.6</td>
</tr>
</tbody>
</table>

The number and per cent of the experts answering yes to the various methods of interpretation is shown above. The small percentage answering this question would seem to indicate that the problem of interpretation to parents either is not an important one or that the methods suggested were not particularly good ones. In foreign districts, of course, this is a much greater problem than in the native districts. Some valuable comments concerning methods of interpretation were made by the experts and they are listed below:

It is a grave question whether the average school nurse can properly interpret the findings in all cases that are advanced, pathological, or questionable. She ought simply to recommend the reference to the proper medical channels.

Others say the best methods in interpreting are:

Follow up of pupils.

Have parent present at physical examination.

Have visiting teacher when such is employed.

If the parents do not respond, the nurse should visit the home.

The general tenor of these comments seems to indicate that the need of a set up for interpreting the results of
the health examinations to parents is not great. Who is to make this interpretation if it is to be made? Table XXXVII, below, gives the expert opinion on this question.

**TABLE XXXVII**

<table>
<thead>
<tr>
<th>Agent</th>
<th>Number of Experts Replying</th>
<th>Per Cent of Experts Favoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>School nurse</td>
<td>31</td>
<td>81.6</td>
</tr>
<tr>
<td>Visiting teacher</td>
<td>8</td>
<td>21.0</td>
</tr>
<tr>
<td>Home room teacher</td>
<td>3</td>
<td>8.0</td>
</tr>
<tr>
<td>Principal</td>
<td>2</td>
<td>5.2</td>
</tr>
<tr>
<td>The physical educator</td>
<td>10</td>
<td>25.3</td>
</tr>
</tbody>
</table>

It is easily seen that the school nurse is thought to be the key person for this service. To the question, "Who else should make this interpretation?" the experts give the following:

- Any intelligent person.
- The doctor, where referred.
- The doctor if he or she desires to do so.

**Checking Up to See Whether Doctor's Recommendations Have Been Carried Out**

The experts all agreed one hundred per cent that the school should check up at regular intervals to see if the doctor's recommendations are being carried out. As to the time when the check up should be made there was no such uniform agreement.

Eighteen per cent said that a check up should come before a child is promoted to another grade or retained.
Thirty-four per cent checked "Sometime during that term."

Thirty-nine per cent checked "Within the first month after the examination."

Fifty per cent said, "Two check ups, or more in case nothing had been done about it after the first time, e.g., one during the first month and every month thereafter until the matter is definitely being taken care of."

It is interesting at this point to consider a comment made by one\(^1\) of the experts. Dr. W. S. Cornell of Philadelphia reports after a study of a number of years that ninety-five per cent of all defects which are corrected within a year are corrected within three months after the diagnosis is made by the physician.

This speaks well for Dr. Cornell's work in Philadelphia. Much mutual cooperation between various agents of the city and school is necessary for the accomplishment of satisfactory results.

**Problem of Indigents**

When poverty on the part of the parents makes it impossible for them to carry out the recommendations of the physician, and this is clearly known to the school authorities, the experts were asked to check the best procedures from a list presented to them in the questionnaire. The opinions of the experts follow:

Eighteen per cent of the experts felt that "free clinics should for such purpose be established and paid for by the board of education."

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1. Wilkes, LeRoy A., Medical Director, American Child Health Association. From personal correspondence.
Twenty-nine per cent felt that "such free clinics should be established and paid for partly by the board of education, partly by the city and in part by the state."

Thirty-four per cent felt that "free clinics for such purpose should be established by the board of health and thus paid out of the city budget."

Sixty per cent (and this is the largest group) felt that "the school nurse should see that such cases are taken to free clinics."

It is readily seen that there is no great unanimity of opinion here expressed by the experts although sixty per cent favored the school nurses taking the children to the proper clinics. One of the experts commented here that "Leading medical authorities as well as leading sociologists disagree."

This is true, of course, and it is felt that each case is individual and its circumstances are unique and should be given individual study; in the majority of cases the school nurse or visiting nurse is in a better position than any other school agent to study the individual case and see that the appropriate thing is done.

**Special Classes for So-Called Correction.**

One of the most important questions in the whole survey is the fundamental one of "Should the school attempt to organize and conduct special classes for the correction of certain remediable defects revealed in the examination as a function of the physical education program?"

One hundred per cent of the thirty-five who answered this question said yes. It is then very evident that the experts feel that something of a corrective nature should
very definitely be done in the public schools.

**Defects Needing Attention**

The next question asked concerned the defects for which the school should conduct special activities, also the question of which activities should be conducted in each of the various school units. A study of Table XXXVIII, below, and of Figure 16, page 438, will show the particular defects which were listed in the questionnaire, the percentage of experts who felt that special corrective classes should be conducted for the improvement of the same in the various educational units.

**TABLE XXXVIII**

Percentages of Experts Who Feel that Special Classes for the Correction of Defects Should Be Carried On in Particular Educational Units of the School

<table>
<thead>
<tr>
<th>Defect</th>
<th>High School</th>
<th></th>
<th></th>
<th>Elementary</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Kyphosis</td>
<td>34</td>
<td>89.4</td>
<td>34</td>
<td>89.4</td>
<td>32</td>
<td>84.2</td>
</tr>
<tr>
<td>Lordosis</td>
<td>32</td>
<td>84.2</td>
<td>32</td>
<td>84.2</td>
<td>30</td>
<td>79.</td>
</tr>
<tr>
<td>Structural Scoliosis(a)</td>
<td>18</td>
<td>47.4</td>
<td>17</td>
<td>44.7</td>
<td>17</td>
<td>44.7</td>
</tr>
<tr>
<td>Functional Scoliosis(b)</td>
<td>17</td>
<td>79.</td>
<td>17</td>
<td>79.</td>
<td>27</td>
<td>76.3</td>
</tr>
<tr>
<td>Relaxed Abdomen</td>
<td>31</td>
<td>81.6</td>
<td>31</td>
<td>81.6</td>
<td>28</td>
<td>73.7</td>
</tr>
<tr>
<td>Flat Foot</td>
<td>33</td>
<td>86.8</td>
<td>33</td>
<td>86.8</td>
<td>30</td>
<td>79.</td>
</tr>
<tr>
<td>Pronated Feet</td>
<td>33</td>
<td>86.8</td>
<td>33</td>
<td>86.8</td>
<td>30</td>
<td>79.</td>
</tr>
<tr>
<td>Relaxed Arches</td>
<td>33</td>
<td>86.8</td>
<td>33</td>
<td>86.8</td>
<td>30</td>
<td>79.</td>
</tr>
<tr>
<td>Exercises to aid bowel</td>
<td>31</td>
<td>81.6</td>
<td>29</td>
<td>76.3</td>
<td>25</td>
<td>65.8</td>
</tr>
<tr>
<td>elimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac Cases</td>
<td>30</td>
<td>79.</td>
<td>30</td>
<td>79.</td>
<td>30</td>
<td>79.</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>31</td>
<td>81.6</td>
<td>31</td>
<td>81.6</td>
<td>31</td>
<td>81.6</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>25</td>
<td>65.8</td>
<td>25</td>
<td>65.8</td>
<td>18</td>
<td>47.3</td>
</tr>
<tr>
<td>Neurasthenia</td>
<td>22</td>
<td>58.</td>
<td>17</td>
<td>44.7</td>
<td>17</td>
<td>44.7</td>
</tr>
</tbody>
</table>
It would seem from the following figure that there are no significant differences among the high school, junior high school and elementary school with respect to the need for the correction of the physical defects listed, with the possible exception of dysmenorrhea, neurasthenia, and constipation. These differences are small, however, smaller than one would expect. The elementary school on the average has about six and eight tenths per cent less need for these classes, according to the experts, but there is ample need nevertheless.

Figure 26.1. Bar Graph Showing the Defects and the Percentages of Experts Who Felt that Special Classes for the Correction of Some Should be Conducted in the Three Educational Units.
The experts were also asked to list other physical defects for which the school should conduct special classes. The following comments were made on this question:

All cases mentioned must be individualized and not put on a standard routine.

Post-operative cases.

Crippled children.

Cases of poor motor control.

Any individual condition that can be improved through adapted activities such as paralysis, etc.

These are very sensible and valuable comments. One of the outstanding things about them is the recognition that all cases must be dealt with as distinct individuals, and that activities must be adapted to their particular needs.

Organization Plans for Classes

Those experts who answered yes to the question as to whether it is a function of the physical education program of the school to organize and to conduct special classes for the correction of certain remediable defects revealed in the examination, were then asked how this particular phase of the work was to be organized in the school. They were also asked to check from a given list of possible organization schemes the one they thought best. The various plans as listed are given below.

(1) A part-time assignment for one of the physical education staff trained in corrective procedure responsible to the director of physical education?

(2) A part-time assignment for the school nurse or one of her assistants trained in corrective procedure responsible to the director of physical education?
(3) Same system as above but nurse responsible only to principal or superintendent?

(4) A person hired full-time for corrective activities only responsible to the director of physical education?

(5) A specially hired full-time person responsible to the school doctor?

(6) One or more school clinics (depending upon the school population) to which children with defects report regularly one or more times a week and there receive instruction under a trained expert hired by the board of education?

The number and per cent of the experts checking particular plans as their choice is given in Table XXXIX, below. The expert has also expressed his opinion as to the relative appropriateness of a plan for a particular public school unit.

**TABLE XXXIX**

<table>
<thead>
<tr>
<th>Plan</th>
<th>High School</th>
<th>Junior High</th>
<th>Elementary School</th>
<th>Experts Voting Against</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>(1)</td>
<td>12 31.6</td>
<td>12 31.6</td>
<td>11 29</td>
<td>2 5.26</td>
</tr>
<tr>
<td>(2)</td>
<td>2 5.26</td>
<td>2 5.26</td>
<td>3 7.89</td>
<td>2 5.26</td>
</tr>
<tr>
<td>(3)</td>
<td>0 0</td>
<td>0 0</td>
<td>1 2.6</td>
<td>3 7.89</td>
</tr>
<tr>
<td>(4)</td>
<td>16 42.1</td>
<td>15 39.4</td>
<td>14 36.8</td>
<td>1 2.6</td>
</tr>
<tr>
<td>(5)</td>
<td>4 10.5</td>
<td>4 10.5</td>
<td>4 10.5</td>
<td>1 2.6</td>
</tr>
<tr>
<td>(6)</td>
<td>10 26.3</td>
<td>10 26.3</td>
<td>10 26.3</td>
<td>3 7.89</td>
</tr>
</tbody>
</table>

It will be seen above in Table XXXIX that the plan for which the greatest per cent of the experts voted (Plan Number 4) states that there be a full-time person hired for the teaching of corrective activities and that he be responsible to the director of physical education. The second highest
per cent of experts favored Plan (1), a part-time assignment for one of the physical education staff trained in corrective procedures and responsible to the director of physical education. Next to Plan (1) ranks Plan (6) in the estimation of the experts, which is that children with defects should report regularly one or more times a week to school clinics where they will receive instruction under a trained expert hired by the board of education.

Comments on other organization plans suggested by the experts which were not to be found in the questionnaire are as follows:

This depends entirely on the local conditions.

A man hired full-time by the board of education but who probably can handle two or more schools giving part of his time to each elementary school, junior high school and high school.

Each high school and junior high school should have its own corrective department a part of the physical education department. The elementary school could have centers caring for certain major schools - by groups, during school, after school, and on Saturdays.

A full-time assignment for both nurse and orthopedic teacher in the high school and junior high school, or for nurse and health counselor in the high school.

A full-time assignment for the nurse in elementary schools with the supervision of the director of physical education for the work.

Probably the most helpful comment here is the first one stating that the particular organization scheme will depend on the local conditions. This is again borne out by the fact that there is relatively little agreement of the experts on this question.
Clinic versus School for Certain Defects

The next question raised in the questionnaire was concerned with whether there were some physical defects in the so-called corrective program which were better taken care of at the clinic and some which were best handled at school. Six defects were listed and the experts were asked to designate whether they thought each defect could best be handled in school or clinic. Table XL, below, and Figure 17, page 103, give the detailed results.

TABLE XL

Physical Defects and the Relative Number and Per Cent of Experts Who Would Have Them Corrected in School or Clinic Respectively

<table>
<thead>
<tr>
<th>Defects</th>
<th>Schools Number</th>
<th>Per Cent</th>
<th>Clinics Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Posture</td>
<td>30</td>
<td>79.5</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>(2) Defective Bowel Elimination</td>
<td>18</td>
<td>47.37</td>
<td>14</td>
<td>36.84</td>
</tr>
<tr>
<td>(3) Cardiacs</td>
<td>12</td>
<td>31.6</td>
<td>22</td>
<td>58.6</td>
</tr>
<tr>
<td>(4) Malnutrition</td>
<td>21</td>
<td>55.3</td>
<td>12</td>
<td>31.6</td>
</tr>
<tr>
<td>(5) Dysmenorrhea</td>
<td>11</td>
<td>29.2</td>
<td>19</td>
<td>50.6</td>
</tr>
<tr>
<td>(6) Neurasthenia</td>
<td>7</td>
<td>18.4</td>
<td>25</td>
<td>65.8</td>
</tr>
</tbody>
</table>

It is readily seen from Figure 17, page 103, that postural defects are thought to be best handled in the school. The clinic, however, is a decisive favorite as a place of correction for cardiac cases, neurasthenia, and dysmenorrhea. This seems logical as it is the specialists in heart cases, psychiatry and gynecology respectively who must make the
Figure 17. Bar Graph Showing Relative Per Cent of Experts Who Feel That Particular Defects Should Be Corrected in School Compared with the Per Cent of Experts Who Feel That Defects Should Be Corrected in the Clinics

diagnosis and decide whether the particular defects mentioned are represented by cases that can or cannot profit by activity of a specified amount. Malnutrition seems to be a defect with which the school can readily undertake to deal, according to the experts' views. In the case of defective bowel elimination and exercises for the same, the experts are almost evenly divided in opinion with a slight balance in favor of the school. One of the experts made the very valuable comment that in the case of any of the defects mentioned the best results will be obtained only where there is a high degree of cooperation between the school and the doctors. There will be varying amounts of service which each can render in the case of
different defects but there will probably always be something which each group (school and physician) can and should contribute.

What are the main reasons for parents neglecting to carry out the recommendations of the doctors made at the time of the health examination? Of thirty-four experts answering this question, fifty-seven per cent felt that ignorance of the consequences was the main reason. The list of reasons given follows:

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Per Cent of Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ignorance of consequences</td>
<td>57</td>
</tr>
<tr>
<td>2. Inability to afford treatment</td>
<td>20</td>
</tr>
<tr>
<td>3. General indifference</td>
<td>17</td>
</tr>
<tr>
<td>4. Religion</td>
<td>2.85</td>
</tr>
</tbody>
</table>

One interesting reason mentioned by one of the experts but not previously listed in the questionnaire was "The feeling against surgery; or against alterations of nature's creations."

It is, of course, realized that the answers to the above question cannot be reliable or authentic since the experts would have no means of getting this information objectively. The answers to this question can be looked upon only as guesses or poorly grounded opinion. These answers are, however, very interesting, and even though the question of which reason is the most likely one cannot here be accurately answered, the fact remains that a certain number of parents are neglecting
to care for the physical defects of their children and that some one of these reasons is the basic cause. When one considers what can then be done to secure ultimate correction of the defects, two lines of activity are indicated; first, a case study of the individuals concerned to determine economic status, and any pertinent information; and second, education of the parents both through education of the children and by adult education measures. The first procedure will help to determine whether inability to afford treatment is the reason for neglect and the second procedure if effective will break down the barriers of ignorance, indifference and the prejudiced attitudes against surgery. One must also bear in mind that reasons for neglect will vary in different communities.

**Individual or Group Work**

The experts were next asked whether they felt that children with the type of remediable defects before mentioned could be helped most effectively or not by purely individual work on the part of the instructor.

For the elementary school work sixty-nine and seven tenths per cent of the experts said yes and thirty and three-tenths per cent said no.

For the work in the junior high school sixty-six and seven tenths per cent said yes and thirty-three and three tenths per cent said no.

For the work in the high school seventy-one per cent said yes and twenty-nine per cent said no.

In the case of each school unit two-thirds of the experts
felt that more effective work could be done with individual work on the part of the instructor stressed.

However, there are some significant differences of opinion among groups of experts on this question. For example, even though all the medical group and the majority of both the state directors and the city directors of physical education express opinion in favor of individual instruction as giving the most effective results, the group of teachers and administrators actually doing this work in the field are fairly evenly divided on the question. Considering the elementary school, fifty-four per cent of this group said yes while forty-six per cent said no to the question of individual instruction. Considering the junior high school, fifty per cent favored individual instruction and fifty per cent favored the group method. Only thirty-eight per cent of the teachers and administrators of the corrective phase favored individual instruction in considering the work in the high school while sixty-two per cent favored the group method.

Small Groups

The experts were next asked whether they did not feel that the same children could be most effectively helped if they were in small groups (homogeneously classified according to their specific defects) since the instructor could utilize the social situations by bringing in competition, desire for approval and other things that would give the work more interest. The answers are outlined below.
School Unit | Yes | Per Cent | No | Per Cent
---|---|---|---|---
Elementary | 27 | 79.4 | 7 | 20.6
Junior High | 28 | 82.35 | 6 | 17.65
High School | 28 | 84. | 5 | 16.

It would seem evident that the group method is a practical one since four-fifths of the experts said yes to the above question as it applies to all three of the educational units.

Relation of Physical Defects to Group

The experts were asked whether they felt that their answers to the last two questions depended also upon the type of defect. Eighty-eight and six tenths per cent reported yes while eleven and four tenths reported no. The table below (Table XLI) shows which of the defects the experts felt should be taught individually, and which defects should be taught in groups.

**TABLE XLI**

Percentages of Experts Advocating Group or Individual Instruction for Particular Physical Defects in the Three Educational Units

<table>
<thead>
<tr>
<th>Physical Defects</th>
<th>High School</th>
<th>Junior High</th>
<th>Elementary School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Posture</td>
<td>66</td>
<td>13</td>
<td>71</td>
</tr>
<tr>
<td>2. Defective bowel elimination</td>
<td>45</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>3. Cardiac cases</td>
<td>34</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>4. Malnutrition</td>
<td>45</td>
<td>32</td>
<td>45</td>
</tr>
<tr>
<td>5. Dysmenorrhea</td>
<td>29</td>
<td>39</td>
<td>24</td>
</tr>
<tr>
<td>6. Neurasthenia</td>
<td>18</td>
<td>50</td>
<td>18</td>
</tr>
</tbody>
</table>
It is evident from Table XLIX on the previous page that the experts feel that physical defects Number 1, 2, and 4 can be well handled in group instruction because of their inherent nature. However, cardiac defects, dysmenorrhea, and neurasthenia the experts feel should be handled individually.

Many of the experts listed other factors which condition the results of this work as follows:

- Type of child.
- Preparation and ability of teacher.
- Condition of subject-environment.
- Size of staff and equipment you have to work with.
- Type of child, home cooperation, school cooperation.

Two of the most valuable suggestions were felt to be:

- Consider the individual within a small group of students with similar difficulties.
- Individual attention must be applied within each group.

These two suggestions bring out two points: one, that where possible students should be organized into homogeneous groupings of individuals with similar difficulties or problems; and two, that no matter what organization of children or how large the groups, each student in the group is attended and treated as a separate and distinct individual with a unique background and problems entirely different from any other student in the group.

**Separation of the Sexes**

The next question asked of the experts concerned whether or not boys and girls should meet in separate sections for their instruction in corrective activities, and if so at which stage in their educational career should the division of this
sort take place. Four different division periods were suggested for the experts to check: In the high school, in the junior high school, in the elementary school above the third grade, or in the elementary school at the third grade and below. The report of the experts on this question is outlined below in Table XLII.

**TABLE XLII**

Percentages of Experts Indicating the Educational Stages at Which Children Should Be Separated for Their Instruction in Corrective Activities

<table>
<thead>
<tr>
<th>Educational Stage</th>
<th>Per Cent Reported Yes</th>
<th>Per Cent Reported No</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Junior High School</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Elementary School above Third Grade</td>
<td>94</td>
<td>6</td>
</tr>
<tr>
<td>Elementary School below Third Grade</td>
<td>16</td>
<td>84</td>
</tr>
</tbody>
</table>

It is apparent from a glance at Table XLII, above, that the experts feel that boys and girls should be separated for their instruction in corrective activities in all grades above the third, or in other words, from the fourth grade on up. The great majority of experts feel that such separation of the sexes is unnecessary in the third grade and below.

**Relation of Size of Group to Defect**

It was previously mentioned that four-fifths of the experts felt that children with physical defects could be most effectively helped if they were in small groups homogeneously classified according to their specific defects. This group
of experts were asked to state the maximum number that should be allowed in such groups in order that the work be carried on in the most effective manner. Considering all the six defects and the administration of corrective measures for these in the three educational units, the most popular number of students suggested for the group was six to ten. The median numbers of students mentioned by the experts for each defect in each educational unit will be found in Table XLIII below. It is interesting that experts feel that groups of malnutrition cases may be larger than the groups representing other defects. The medians for malnutrition in the high school, junior high, and elementary school are 11 - 15, 10, and 6 - 10 respectively. The smallest groups should be used in dealing with neurasthenia. The median here was 6 - 10 in the cases of the high school and the junior high school, and six for the elementary school. Dysmenorrhea ranked next to neurasthenia in the need for small groups.

**TABLE XLIII**

<table>
<thead>
<tr>
<th>Defect</th>
<th>Median Numbers in Class Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High School</td>
</tr>
<tr>
<td>Posture</td>
<td>10</td>
</tr>
<tr>
<td>Defective Bowel Elimination</td>
<td>10</td>
</tr>
<tr>
<td>Cardiac Cases</td>
<td>6 - 10</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>11 - 15</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>6 - 10</td>
</tr>
<tr>
<td>Neurasthenia</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>
Types of Activity in Corrective Program

The experts were asked which of the following four types of exercises used in corrective programs were thought to be the most valuable in the long run (the kind of thing that the child will want to carry away with him and do in his home situation as well as at school). The answers in their order of importance, with per cent of experts voting for each, are as follows:

Games and game situations involving use of muscles needing strengthening. Seventy-one per cent of the experts felt were of the most value.

Dancing, or rhythmic activities specially organized for localized development, thirty-seven per cent of the experts felt were the most valuable.

Formal exercises, or calisthenic exercises, twenty-three per cent of the experts felt were the most valuable.

Mimetic exercises, thirteen per cent of the experts felt were the most valuable.

It is interesting that the orthopedic and medical men and the group of state directors voted only for the use of the games and rhythmic activities.

Concerning the use of dancing as an adapted activity with use in the corrective program the following comments were made:

Adapted dancing for correction of foot deviations; for developing weak leg muscles; for developing cardiaics; and general metabolic power, can be administered like any other adapted activity program.

Rhythmic activities for the improvement of faulty posture, including foot deviations, have worked out very satisfactorily. We vary our program by giving our corrective exercises to music in small groups.

There should be a "combination of stretchings with a follow up of the rhythmic activities."
Thirteen of the experts, or thirty-four per cent, felt that a combination of the listed activities should be used. The most frequent combinations used were:

- A formal exercise and games program.
- A formal exercise games and dancing program.
- A program of games and dancing only.

The use of adapted games in the program was therefore mentioned in each case. This suggests a new and significant trend in the so-called corrective phase of the physical education program.

**Listed Games for Specific Defects**

The following games were listed by some of the experts for use in dealing with certain specific physical defects.

**Game Activities for Kyphosis**

- The breast stroke in swimming
- Self-testing activities involving stretching of the pectoral muscles
- Volleyball
- Chinning with overhand grip and elbows held sideways
- Racing back stroke in swimming
- Overhead relay, and other games with arms overhead
- Archery
- Rope climbing and hanging exercises of all sorts
- High horizontal bar activities
- Hand traveling on the high boom
- Character dancing
- Dramatization for small children
- Tennis
- Fencing

Activities most often mentioned by the experts:
- Swimming the breast stroke and back stroke, archery, volleyball, and various overhead relays and games where arms are held overhead.

**Game Activities Suggested for Lordosis**

- Natural dancing
- Over and under relay
Circle stride ball
Foot juggling
Rope climbing and pole climbing
Any games that might be done from a sitting position on the floor
Bicycle exercise while lying on the back with feet in air
Stunts such as touching toes to floor over head from back-lying position
Bowling
Horseback riding
Cricket
Activities on the horizontal bar

Games for Functional Scoliosis

Natural dancing
Playing monkeys
Ladder relays
Side stroke in swimming (the side on which the swimming is done depending upon the particular scoliosis found)
Reaching and hanging
Archery (whether subject shoots right or left-handed depends on particular scoliosis found; sport must be adapted)
Adapted swimming
Climbing and hand traveling
Adapted ball throwing
Volleyball (one arm)

Adapted Games to Strengthen Relaxed Abdomen

Kicking games
Leapfrog
Tennis
Volleyball
Riding bicycles
Pretending to ride bicycles from supine lying position with legs in the air
Pretending to be scissors from supine lying position
Horizontal bar activities

Games most often mentioned: leap frog, tennis, and bicycle riding, either real or pretended from supine lying.

Adapted Games for Flat Foot

Marble games and contests using the toes
Toe writing
Bean bag throw with toes
Short sprints in good form
Pulling chair towards student with toes
Competition in picking up marbles
Making piles of sand with toes, or making imaginary piles
Towel tug of war using the toes
Dancing
Tight rope walking

Games most often mentioned by experts: marble games using toes and dancing.

**Adapted Games for Pronated Feet**

- Peas porridge hot
- Skipping rope on toes
- Duck walk with ankle grasp
- Pigeon walk relay
- Floor hockey or foot hockey
- Marble games
- Stunts and contests on the slanting balance beam
  (throwing weight on outer borders of feet)
- Ball rolling with inverted foot

**Adapted Games for Relaxed Arches**

(Practically the same games as those in the two preceding lists with a few additional ones which follow below.)

- Ladder climbing
- Rope climbing
- Soccer
- Dribbling small ball with inverted foot

Games most often listed: various marble games and relays where marbles are picked up by the toes, also dancing.

**Adapted Games for Defective Bowel Elimination**

- Tumbling stunts such as rocking chair, human ball, cartwheels
- Dancing
- Jumping
- Climbing ropes
- Bowling
- Horizontal bar activities
- Swimming

Games most often mentioned: tumbling stunts and climbing
Adapted Games for Cardiacs

Quiet games
Bait casting
Very gradually increased amounts of walking or hill climbing if the slope is very gradual
Activity most often mentioned, bait casting.

Adapted Games for Dysmenorrhea

Horseback riding in moderation
Hiking in moderation
Dancing in moderation
Golf in moderation
Swimming

Adapted Games for Neurasthenia

Self-testing activities and stunts if not too vigorous
Outdoor hiking
Simple games and hobbies
Swimming

Cautions to avoid "shock games," competitive games, and emotional fatigue. Rest very important.

It is noted from the foregoing lists of game activities that for most of the defects mentioned there seems general agreement that game activities can be of value. In the case of cardiacs, dysmenorrhea and neurasthenia, however, notes of grave doubt about the value of the game program are sounded by the experts who give many cautions in connection with games mentioned and suggest the need of games of a quiet nature or low energy cost and the need for adding other game elements if any in a gradual manner. It was generally felt by all of the experts that in the case of these three defects the physician should always be first consulted, and the physical educator's responsibility commences only at the doctor's invitation and under his supervision.
Time to Schedule So-Called Corrective Classes

The best time to schedule children for the so-called corrective activities is during the physical education period, according to forty-two per cent of the experts. Twenty-nine experts say, however, that the best time is during the cooperatively best period during school hours for the expert in charge and the other teachers. Twenty-one per cent feel that these special classes should come at the best time for the child regardless of what other classes of the school schedule may be occurring at that time. Eighteen per cent voted for the use of school hours but not the physical education period. The other times suggested for the consideration of the experts, such as during a school study period, during recess time, during after school time and before school received very insignificant support.

Testing Progress

Eighty-two per cent of the experts say that it should be possible to test objectively the progress of a child in corrective activities but only fifty per cent feel that we are able to test objectively our results in corrective activities at the present time.

Some of the objective tests given by experts in proof that progress in corrective activities can be measured follow under the specific defects to be tested.

Tests for Kyphosis

"All static situations may be judged by the degree of self-correction demonstrable as recorded by photographs."
Silhouettograph
Photograph
Shadograph

"Ability to raise arms overhead and assume the A position."

Test most often mentioned, the Silhouettograph.

Tests for Lordosis

Same as for kyphosis, and the most commonly mentioned test was the silhouettograph also.

One additional test mentioned was having the subject lie on the back and measure the distance of the small of the back from the floor.

Tests for Structural Scoliosis

Use of pencil to mark the spinous processes, photographing these at regular periods of time and comparing the successive photographs.

The use of the X-ray

The X-ray and photographic tests were most often mentioned.

Tests for Functional Scoliosis were the same as those listed for Structural Scoliosis.

Tests for Flat Feet

Footprints

Foot-C-Print machine

Records of the strength of various intrinsic and extrinsic muscle of the foot.

The most commonly mentioned test of flat foot was the foot-c-print machine.

Tests for Pronated Feet

Examining heels of shoes
Photographs of rear of feet in weight bearing position
Foot-prints
Foot tracings

Tests for Relaxed Arches
Footprints
Measurement of distance of arch to floor
Foot-prints machine
Records of strengths of various foot muscles

Tests for Defective Bowel Elimination
Daily records on a bowel movement chart
Medical inspection
Testimony of the child

Tests for Cardiacs
Records and examinations of the physicians
Observation of symptoms
The ease or difficulty with which tasks involving effort above a resting level are done
The stethoscope
Recording of pulse before and after mild exercise
The most frequent answer, "Medical examination"

Tests for Menorrhage
Records and examinations of the physician
Child's testimony
Presence or absence of pain
Most frequent answer, "Refer to physician."

Tests for Neurasthenia
Habits in school and at home
Medical examination
Mental and physical reactions
Tests for Malnutrition

Weight records and general improvement in health, appearance and endurance

Height and weight curve
Muscle tone (grip)
Fatiguability
Skin elasticity
Posture tests
Tests most often mentioned, "Weight records."

Brief Summary with Respect to Objective Tests for Various Physical Defects Mentioned

There were opportunities given for the listing of objective tests for twelve different physical defects. Of the thirty-eight experts, the average percentage listing tests at all was only eighteen per cent. This is a very small per cent when you consider that fifty per cent of the experts said that it was now possible to test objectively for the various physical defects considered in corrective physical education.

One of the outstanding findings in this list of objective tests was its extreme paucity of range and the scarcity of actual tests mentioned as well as considerable inaccuracy or discrepancy in the lists. The greatest variety of tests and the greatest accuracy was noted in the answers of the group of physicians on these tests. The question naturally arises: How effective can programs of individual corrective activities be when organized and
conducted by people unable to test objectively or measure
the progress or regress of their work?

**Carry-Over to the Home**

According to seventy-nine per cent of the experts it is
possible to so organize a program of individual corrective ac-
tivities in a school so that it will carry over into the home
situation where the child will want to carry on such a program
at regular periods.

There follow below ways suggested by some of the experts
for organizing this program so that the child takes it back in-
to the home from the school:

"Any simple health program with a few self-corrective
exercises, provided that the idea can be sold to the child and
the continuing tradition of good posture and good health is es-
tablished and kept alive in the school.... this is helped or
hindered by the attitude of the faculty."

"Sending cards home to parents showing child's improve-
ment."

"Inviting parents to the school to see the program."

"Visiting the parents at home."

"Prescribing exercises for the child which the mother can
supervise."

"Pictures, posters, and typed copies of exercises."

"The use of games, stunts and self-testing activities in
the program adapted to meet individual needs of course."

"Appeal to the child's pride and desire to please."

"Make out an individual home card for each pupil, listing
home exercises and health habits required. Carry on a contest enlisting the interest and cooperation of the parents."

"A project—an achievement to be tested and measured at regular intervals. Point systems can be used."

The whole question of the carry-over value of the program of individual corrective activities into the home is of course very closely related to the amount of interest taken in this program by the parents of the children concerned. The question was raised in the questionnaire as to whether or not enlisting the interests of the child was not after all the best means of enlisting the interest of the parents. Thirty-five of the experts answered this question and of these, thirty-three, or ninety-four per cent answered in the affirmative.

Other ways of enlisting the interest and cooperation of the parents in this individual program suggested by some of the experts are listed below:

"Consultation with parents at least once a semester."

"Talks to children and parents at the time of the health examination."

"Occasional illustrated lectures by prominent authorities to which parents are invited."

"Showing the parents that the school is interested in the child's health development, taking the parents into their confidence at times and asking the parents' help and advice at certain times."

"Keeping accurate and objective records of the child's progress and showing these periodically to the parents."
"Educating parents as to the results of not attending to the physical defects of the child as soon as possible."

"Have parents present at the time of the health examinations."

"Advising parents of the results of all check up examinations."

"Sending letters home to the parents and inviting the visits of parents."

"School demonstrations of activities for the parents."

"Have parents organized or in a club where they can be readily approached and made familiar with the children's problems."

"Urging parents to visit classes for observation."

"Talks at Parent-Teacher Association meetings."

**Summary**

Thirty-eight carefully selected experts contributed their opinions on certain stated questions and policies concerning the so-called corrective phase of physical education as it relates to the public school. There follows a brief summary of some of the outstanding information received:

Eighty-nine per cent agreed that health examinations, including detailed orthopedic and postural examinations, should be given at the beginning of each term of the school year to all pupils entering any of the elementary or secondary school grades.

Ninety-five per cent of the experts said that the board of education should be responsible for the health examinations
and should pay for them. That other agencies have the same responsibilities for the health examination is evident in as much as seven experts cited the board of health as well as the board of education.

Of five different listed methods of conducting health examinations, seventy-six per cent of the experts favored the following one:

"Have one or more reliable doctors in conjunction with the director or supervisor of physical education and with the help of his staff and the school nurse give these examinations intensively so that all examinations for the entire school system are completed during the first month of school."

Nearly eleven per cent favored a similar system but one in which all children would be examined previous to the opening of school and their completed examination records used as prerequisites for fall registration.

Thirty-five per cent of the experts said that health examinations should have been entirely completed by the fourth week of school in the fall. Although the range of time for this as suggested by the experts was from the first week before school until the thirty-first week after school had commenced, the median was also found to be the end of the fourth week of school.

Over eighty-nine per cent of the experts felt that the health examination should be given at the school.

Separate dressing rooms for boys and girls, and two rest rooms with cots appear to be only one-half as essential for the
elementary school as for the other two school units; whereas the combination dressing room and rest room would seem to be two times as essential for the elementary school as for the junior and senior high schools.

That the director or supervisor of physical education should be the person authorized by the board to make all arrangements for the organization, conduction and supervision of these health examinations was agreed by seventy-one per cent of the experts. The state directors as a whole were not inclined to state who should make these arrangements but to make a more general statement to the effect that the best administrator of health examinations, whether doctor, nurse or physical education director, is the one the board should authorize to make these arrangements for the giving of the health examinations.

Considering equipment thought to be essential for the efficient administration of the health examination it is interesting that ninety-two per cent of the experts felt that the weight scales were essential while only forty-two, thirty-seven and thirty-one per cent respectively felt that the silhouetteograph, schematograph and cardiograph were necessary, these three receiving the lowest rating of some twenty pieces of apparatus.

Seventy-nine per cent of the experts checked the following two methods of notifying the parents concerning the results of the physical examination.

1. Results of the examination to be sent to the parents with specific recommendations.
2. Notification of parents if an improved condition is shown over the time of the previous examination.

If any results of the child's health examination need interpretation to any of the parents it is felt that such interpretation should be given by the school nurse, according to eighty-two per cent of the experts.

That the school should check up at regular intervals to see whether the recommendations of the doctor are being carried out or not was agreed to one hundred per cent.

Concerning the time of check-up, fifty per cent of the experts said there should be two check-ups, or more, in case nothing has been done about it after the first time, e.g., one during the first month and one every month thereafter until the matter is definitely being cared for.

The experts were unanimous in stating that as a function of the physical education program the school should attempt to organize and conduct special classes for the correction of certain remediable defects revealed in the examination.

Experts were asked to state which types of physical defects should receive attention in the public schools. Defects receiving a high rating in this regard were functional kyphosis, functional lordosis, functional scoliosis, functional flat foot and relaxed arches, pronated feet, relaxed abdomen, malnutrition, functional cardiac cases and faulty bowel elimination. Defects receiving a low rating were structural scoliosis, neurasthenia and dysmenorrhea.

There was found to be relatively little agreement on the part of the experts as to the best ways of organizing the so-
called corrective work in the public schools. So much of the organization will depend upon the existing local conditions.

Over eighty per cent of the experts said that a method of instruction for small homogeneous groups of students was a practical one and more effective than strictly individual instruction, or instruction in large groups. It was felt, however, that the particular defect concerned made a difference. For example, it was felt that the defects of posture, defective bowel elimination, and malnutrition could be well handled in small groups, but that cardiaes, dysmenorrhea cases and neurasthenics can best be handled individually.

The most significant contribution of the experts at this point was the idea that no matter what organization of children, or regardless of the size of the group, each student in the group should be attended to and treated as a separate and distinct individual with a unique background and problems entirely different from those of any other student in the group.

That boys and girls should have separate instruction in individual corrective activities in the fourth grade and above was agreed to by nearly one hundred per cent of the experts but that in the third grade and below separation of the sexes is unnecessary.

Concerning the size of the group in relation to the particular defects for which corrective activities are to be administered, eleven to fifteen students was the median number recommended for work with malnutrition which was allowed the largest group; while one to five was the size of the group of students recommended for work with neurasthenia subjects,
which was the smallest group. The median size of groups listed for use with other defects was six to ten.

Seventy-one per cent of the experts felt that adapted games and game situations involving the use of muscles needing strengthening were the most valuable type of exercise in the long run for the so-called corrective program, the kind that the child would be willing to carry away with him back into his home situation. The above activities were contrasted with dancing and rhythmic activities, formal exercises and mimetic exercises. Thirty-four per cent of the experts also felt that a combination of some of the above activities would be most valuable. Interestingly enough, adapted games and game situations featured each combination listed. The use of adapted games is, therefore, seen to be a new and significant trend in the modern programs of so-called corrective physical education. Numerous games and game activities were suggested for use with specific physical defects.

As to the best time for scheduling the corrective physical education class, seventy-one of the experts say either during the physical education periods or the cooperatively best period during school hours for the expert in charge and for the other teachers.

Eighty-two per cent of the experts say that it should be possible objectively to test the progress of students in corrective activities, but only fifty per cent feel that we are able to do this at the present time. Some objective tests were mentioned for specific defects, but the inaccuracy of the lists and the scarcity of actual tests mentioned were out-
standing.

The program of individual corrective activities of a school can be so organized and taught that it will carry over into the home situation in such fashion that the child will want to carry on this program at regular periods at home, according to seventy-nine per cent of the experts. To this end a number of helpful suggestions concerning the program were made.

Ninety-four per cent of the experts agreed that enlisting the interests of the child was the best method of enlisting the interests of the parents in the program of individual corrective activity, although a few other methods were listed.
ABSTRACT OF THESIS

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Education of New York University, 1934

Sponsor, Professor Frank S. Lloyd

THE ESTABLISHMENT IN THE PUBLIC SCHOOLS OF EDUCATIONAL PROCEDURES FOR CHILDREN WITH PHYSICAL DEFECTS

BY HARLAN G. METCALF

THE PROBLEM

So-called corrective gymnastics or corrective physical education has been conducted in some of the public schools of the United States for a long time. This work has been carried on in general by the departments of physical education. The extent, if any, to which it is the school's function to attempt the conducting of procedures designated as "corrective" for school children with physical defects is a moot question with school superintendents and physical educators alike. Some school superintendents have erected special school clinics, dental and otherwise, and have assayed the correction of children's physical defects at the expense of the board of education, others have in a modest way attempted the correction of certain minor orthopedic defects through the physical education department. Many other school superintendents have attempted no corrective measures whatsoever.

The school must face the problem of how best to deal with its children with physical defects or how best to insure that the school's responsibility of education will be fully met in the case of these handicapped children.

The statement of the problem then, is, "The Establishment in the Public Schools of Educational Procedures for Children with physical defects."
A definition of the school's function is here involved, and a setting up of educational procedures for improving the condition of children with physical defects so that this function can be fulfilled.

The problem of establishing educational procedures for children with physical defects necessitated among other things:

An acceptable modern definition and philosophy of education.

A definition of correction and a clear distinction between it and the definition of education.

A knowledge of the common physical defects of school children and the procedures used to overcome them.

An application of the philosophy of education, or the fulfillment of the school's function in relation to the child with physical defects and a determination as to which community agents are responsible for the correction of the school child's physical defects.

**METHODS**

The needed information was secured from the following areas: libraries, courses of instruction, clinical and surgical observations, personal conferences, convention programs, teaching experience and two extensive surveys. The information was then condensed into thirty-four definite statements or criteria. These criteria were grouped under eight larger classifications and were used as chapter headings in that part of the study entitled, "The Development of the Criteria as a Basis for the Educational Procedures."

The thirty-four criteria were sent to a carefully selected unbiased jury for evaluation. The criteria accepted by the jury were then used as the basis for the educational procedures.

Having established the criteria, the investigator criticized existing conditions related to the problem (as gleaned from a survey of corrective physical education in the public school systems of one hundred
and six of the largest cities of the United States.) in the light of the criteria. In the same light were criticized also the findings from the investigator's study of expert opinion on the administration of the corrective phase of physical education in the public schools.

From the foregoing material, conclusions were drawn, and recommendations made in keeping with the criteria.

FINDINGS

I. Establishment of the Criteria

1. Establishment of Definitions.

The following definitions were established:

**Education** from the standpoint of the school is the organization and leadership of children in selected activities which will stimulate them to make changes within themselves resulting in their progressive integration in an ever-changing world to the extent of their native capacity.

**Correction** as dealt with in the study is such beneficial changing of an individual's physical condition as can be accomplished only by a human agent external to the individual.

The distinction is that in education, the children make the changes, while in correction an external agent accomplishes changes which the individual could not have accomplished by himself. With this terminology in mind other conclusions follow.

2. Function of the School.

The function of the school is found to be that of education, and as such, among other things, it must so educate the child that as he develops he may be able intelligently to take increasing responsibility
for his own health to the extent of his capacity. It is the school's further responsibility to see that the physical environmental factors of its various teaching situations facilitate its function of educa-
tion.

3. Health Examinations.

Every child should have at least one thorough health ex-
amination each year.

The school authorities after consulting with the municipal health authorities and the local medical society, should establish standards for the health examination of school children.

The school must require children to have completed their health examinations before allowing them to engage in the physical educa-
tion program of the school.

Health examinations should be completed by the week previous to the opening of school in the fall and should be a requisite for registra-
tion.

4. Correction of Physical Defects.

Primarily and fundamentally the responsibility for the health of the child rests upon the parents.

It is not the function of the Board of Education or of the department of physical education to correct the physical defects of school children. (See definitions of correction and education previously given.)

Correction of defects is the function of the medical pro-
fession.
The physical defects of children of indigent parents should be corrected by some one of numerous agencies in the community outside of the school.

5. Costs

The board of education should use its entire budget for those purposes which are primarily educational.

The municipal health authorities outside of the school should pay for the correction of physical defects not financed by the parents of the school child.

It is not economical or practical for boards of education to finance the construction and administration of special school clinics dental or otherwise.

6. Posture

Posture has been overemphasized in the past, to the neglect of many much more significant and serious physical defects.

Posture is good to the extent that it facilitates function in the activity under way.

The best posture for a particular individual is the most appropriate and efficient posture the individual can assume in carrying out his specific purpose or activity.

It is natural and proper for one to change his posture periodically, even in sleep, in order to rest muscles, to relieve strain and to secure more adequate relaxation.

It is undesirable to make children stand or sit in the same posture for long periods of time, no matter how good or proper the posture is supposed to be.
A straight, stiff, and inflexible posture is not efficient posture for the activities of life in an ever-changing world.

7. Professional Training

Professional training in physical education does not and should not fit a student to correct the physical defects of school children, but fits him rather to lead children in educational procedures which will help them to help themselves more efficiently.

Professional students in physical education should be trained in the use of the following educational procedures for children with physical defects:

To recognize certain physical defects of school children.

To understand the causes of certain physical defects so that the physical educator can educate for prevention.

To know and understand many of the common procedures the medical men must use to correct these defects so that the physical educator can be of greatest service in securing contacts with the nurse or the physician; contacts which will result in the child’s more rapid correction.

To talk intelligently and in correct technical terms about most of the common physical defects found among students, and be able to follow the doctor’s directions in the event that he recommends a special or individual physical education program.

To formulate and teach exercises which will develop certain specific muscles or groups of muscles through the application of the sciences of physiology and kinesiology.

To teach an increasingly large number of those sports representing milder forms of activity which can be participated in by children with physical defects all their lives such as bait-casting, archery, badminton, horse-shoes, swimming, etc.
To give various tests of functional efficiency which can be used to classify, grade, and measure the progress of children with certain physical defects.

II. Evaluation of Present Conditions and Expert Opinion in Terms Of the Criteria.

1. Over 65% of the 2,935 schools reporting state that health examinations are given yearly to school children. The experts agreed that these yearly examinations should be given, but differed from the criteria in that the majority felt that the end of the fourth week was sufficiently early for their completion.

2. The report of existing conditions indicates that parents are regarded as being responsible for the health of the school child.

3. Experts agree that special classes should be conducted for the correction of physical defects of school children. The report of existing conditions states that 56%, 70% and 61% of the elementary schools, junior high schools and high schools respectively are attempting such classes.

It is evident however in the case of both surveys that both experts and school superintendents have in mind some of the procedures that the criteria would term educational and not corrective at all. Also in the great majority of cases such improvement measures as are termed in the survey material as corrective is directed against posture defects, and the posture eulogized is looked upon not in the light of the criteria, but from a traditional standpoint; a stiff, inflexible, correct posture with standards uniform for all regardless of their individual structural and other differences.

4. Concerning the correction of the defects of children of indigent parents the majority of experts felt that the school nurse should direct such cases to free clinics already established in the community. This procedure agrees with the sense of the criteria.
5. Games and game situations involving the use of muscles needing to be strengthened were considered the most valuable activities for use in the so-called corrective program by 71% of the experts.

6. Eighty-two per cent of the experts said it should be possible objectively to test the progress of a child in so-called corrective activities but at the present time only 50% of the experts felt it to be possible. The survey of existing conditions showed 42% of the school systems claiming objective tests of their corrective work in operation but when asked to list the tests only one per cent complied.

7. The training of teachers for the so-called corrective phase of physical education found very inadequate.

8. The report from schools, of existing conditions, gave evidence of both ignorance of and indifference to such fundamental issues as the responsibility of the school, parents or municipal health authorities in dealing with children with physical defects.

EDUCATIONAL APPLICATIONS

Part IV of the thesis suggests in some detail a program of educational procedures based on the guiding principles or criteria established.