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MEDICAL INSPECTION OF SCHOOLS

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Introduction

This volume is one of the by-products of the "Backward Children Investigation", a research supported by the Russell Sage Foundation for the purpose of studying so-called "retardation" among school children. The investigation was inaugurated in November, 1907. No small part of the study of the adaptability of the school and its grades to children has consisted of investigation into the effect of school life on the physical welfare of the child. In the course of this investigation it has been found necessary to accumulate information as to what was being done for the health of children, from both the pedagogical and medical standpoints, in the chief cities and countries of the world. The information relative to medical inspection was so scattered, and the desire for reliable information on the topic so general, that it was decided that it would be wise to publish the available matter at once.

This book aims primarily at results of a practical nature. We believe that it contains material of scientific value, but the form of presentation is intended to render it of service to all who are directly connected with, or interested in, the betterment and safeguarding of the health and vitality of the future citizens of America.

The importance of steps looking toward the health of our public school children is indicated by the following facts:

1. The school is the only governmental department that directly assumes control of children's lives.

2. At least nine out of every ten of all American children are subject to this control; and

3. Such control is maintained (roughly speaking) during the critical years of from seven to fourteen.

Because of the practical nature of our objects, there have been included in the bibliography titles of books, reports, and articles on

medical inspection, containing material not relevant, and hence not used or referred to, in our particular study.

There seems to be a general impression in America that medical inspection is still experimental and on trial, and that we are leading in this important work. The reverse of both of these impressions is true. With Brussels having a systematic inspection since 1874 and Paris since 1884, scientific journals in France and Germany devoted exclusively to this subject, and the movement a national one in France, England, Belgium, Sweden, Switzerland, Bulgaria, Japan, and the Argentine Republic, it is evident that, save in details, the matter is a settled one, and that America is one of the last of the civilized nations to seriously consider these problems.

This book aims, then,

1. To be of practical use.
2. To be a reliable source of information as to what is now being done and how it is being done.
3. To be frank in its admission of problems and difficulties not yet solved, as well as in the portrayal of stubborn and hitherto unsuspected and apparently unreconcilable facts, such as are discussed in Chapter XII.
4. To avoid all dogmatism saving that involved in the statement of actual experience.

L. H. G.
L. P. A.

NEW YORK, September, 1908

Significant Facts

Medical Inspection "is founded on a recognition of the close connection which exists between the physical and mental condition of the children and the whole process of education." It "seeks to secure ultimately for every child, normal or defective, conditions of life compatible with that full and effective development of its organic functions, its special senses, and its mental powers, which constitute a true education."—(*Extract from Memorandum of British Board of Education.*)

Medical Inspection is a movement national in scope in England, France, Belgium, Sweden, Switzerland, Bulgaria, Japan, the Argentine Republic, and practically so in Germany. In the United States seventy cities outside of Massachusetts, and all the cities and towns of that state, have systems of medical inspection.

Massachusetts has a compulsory medical inspection law. New Jersey has a permissive one, Vermont a law requiring the annual testing of the vision and hearing of all school children, and Connecticut one providing for such tests triennially.

As a rule, the work of medical inspection is underpaid in America. In England such services are compensated at the rate of from $1500 to $4000 per annum, while in America $200 has, in many quarters, come to be regarded as a standard salary for the services of the school physician.

Systems themselves vary so widely in scope and thoroughness here in America as to range in annual per capita cost from half a cent to a dollar and twenty-two cents.

Clear distinction must be made between medical inspection solely for the detection of communicable disease and that physical examination which aims to discover defects, diseases, and physical condition. The one relates primarily to the immediate protection of the community, while the other looks to securing and maintaining the health and vitality of the individual.

Medical inspection for the detection of contagious diseases can be adequately performed at an annual cost of about fifteen cents per capita, while physical examinations similarly performed, and including the inspection for the detection of communicable diseases, cost about fifty cents.

Effective medical inspection for the detection of communicable diseases can only be conducted by the Department of Health, or at least with its active co-operation, because of the necessity for legal authority for protecting the community, not only during epidemics of contagious diseases, but also to prevent them.

Effective physical examination can only be conducted by the Board of Education, or at least with its full co-operation, because it involves the following of the child from grade to grade and year to year. It involves the constant attention of the teacher with reference to seating the deaf where they can hear best, and those having poor vision where they can see best, as well as constant co-operation with the parents.

Physical examinations can be well made by an experienced school physician in from twelve to fifteen minutes per child. Vision and hearing tests demand from three to five minutes per child.

The conduct of medical inspection is such a technical matter and is so different from the work done by the practising physician as to demand special training and experience.

Investigations so far indicate clearly that physical defects of children decrease with age. That is, taking into consideration a sufficiently large number of cases, children of fourteen years of age show fewer defects than do those of thirteen years, and these, in turn, fewer than those

of twelve years. Hence older children have fewer defects in whatever grades they may be found, and so, from the very definition of the term, retarded children in any given grade have fewer defects than children of normal age in the same grade. This fact is in direct contradiction not only to the prevailing opinion, but also to the conclusions that have been emphasized in current professional discussion to the effect that children behind their grades were so because of the handicap imposed on them by physical defects. This important fact should not in any way lessen our endeavors to bring the aid of medical science to the service of the physically handicapped. It should rather give us renewed hope, for we find that the direct tendencies of normal growth make toward rather than away from those wholesome physical conditions that it is the aim of every physician and every educator to bring about.

Physical defects are not equally significant either from the medical or from the pedagogical standpoint. It is unfair and tends toward misleading conclusions to include in the same classification pediculosis and defective vision, club-foot and defective hearing, adenoids and ring worm. Therefore the effects of each kind of defect should be separately studied—*e. g.*, the effects of defective vision, hearing, adenoids, carious teeth, etc., upon school progress and upon health.

CHAPTER I

Nature and Aims of Medical Inspection

Two great forces have been making in America toward medical inspection of schools; forces that have hitherto been mutually unconscious and wholly unrelated as to source, objects and methods. It seems inevitable that the aims and objects of medical inspection are only to be accomplished by the coalescing of these two forces—each contributing what the other has lacked.

On the one hand is medical science operating to protect the community through its boards of health, while on the other is educational science operating through the great school systems of the world and expressing itself through its more or less scientific departments of physical training. Speaking historically, medicine has labored to cure and at best prevent disease and deformity, while education has aimed at the intellectual equipment of the individual. Pathology is prominent in the one case and development in the other.

That community protection has been a chief aim from the medical viewpoint is indicated by the facts that

(1) The detection of contagious disease has been uniformly the obvious and initial activity, and

(2) That the records are almost, if not entirely, those of disease or deformity.

That growth has been the chief aim from the educational standpoint is shown by the facts that where this work has had any scientific basis,

(1) Exercise, cleanliness, ventilation, the importance of suitable and adequate nutrition, sleep, etc., have been primary objects; and

(2) Records of height, weight, chest, girth, etc., have constituted the primary elements recorded.

The distinction between these two forces is a philosophic one. It would not be true, for example, that hygienic knowledge has been absent on the one hand or medical knowledge on the other. The best

medical inspection has included matters of personal hygiene and the best physical training has been directed by those having medical equipment.

Dr. John J. Cronin, of New York City, has made most wise, extensive, able and best known medical inspection from the standpoint of education, acting as an agent of the Department of Health, while George W. Ehler, of Cleveland, has put into operation a most effective educational program from the standpoint of medicine.

It is to the departments of physical training in our colleges and secondary schools that we have to look in the main for our most complete records of growth and development. Still the classic and monumental work of Bowditch in measuring and weighing Boston public school children, as well as the work of Porter in St. Louis, and Boas in Toronto and Worcester, must not be forgotten.

The forces that are compelling these two movements to coalesce consist in certain changes in the constitution of society which must now be sketched briefly. These changes must be examined from two points of view:

(1) From that of the welfare of the community as such.

(2) From that of the personal activities and functions, both physiological and social, of the individual.

Let us take first the changes affecting the welfare of the community as such, involving an enlarged conception of the duties and powers of the Department of Health.

We have to go back in our American history but a trifle over a century to discover that we were a set of rural communities—the urban population (cities of 8000 and over) at that time constituting but 3.3 per cent. of the total population. Now we are an urban nation; 33 per cent. live in cities. This percentage includes wide territories and vast sections that were not at that time a part of our country. When we examine the progress of the older and more advanced states, the direction in which we are moving becomes still more evident. New York has an urban population of 72 per cent.; Massachusetts 91 per cent.; Ohio 48 per cent.; Illinois 54 per cent., while Rhode Island has 95 per cent. This moving of the population toward centers has rendered essential attention by the communities to the cleanliness of water supply, to sewerage, street cleaning, problems of light and air in dwellings, the isolation of cases of contagious diseases, the transportation of food

and hence its preservation and guarantee of its purity, conditions and hours of labor and a thousand other matters which in a rural community were of importance to individual families only.

Of great importance also is the change that has taken and is taking place in our racial stock. This is important because standards of living, of cleanliness, of freedom from vermin, are being brought in by recent immigrants which are not only different from those that obtained under early American conditions, but which are inimical to those higher standards of life that are essential to the individuals in a democracy that is to endure. That this is a real and large factor is shown by the following figures taken from the last census:

City.	Per Cent. of Foreign Parentage.
Boston	71.6
Chicago	77.2
Cleveland	75.4
Milwaukee	82.7
New York	76.6
San Francisco	70.4

It is true that the percentage of foreigners in these cities does not represent that in the country at large. But these are among our largest and most important American centers, and the traditions that ultimately establish themselves in these cities are altogether more important to the country at large than would be indicated by the mere percentage of the total population that these cities contain.

Our school systems have developed enormously during this period —developed altogether faster than has the population. What schools there were, were widely separated, were carried on for but a small fraction of the year, and were attended by but an inconsiderable fraction of the children. That is, the schools as such did not present any special problem from the standpoint of community hygiene. Now the school year lasts for ten months, and in many cities vacation schools round out the calendar year. So the schools in their intimate commingling of children from practically all families for most, if not all of the year, afford by far the most extensive means for the spread of contagious diseases that exist.

Thus the community through its health boards has been forced not only to protect itself from the spread of disease in many ways quite

unnecessary in the earlier period, but has had to become (unconsciously even to itself) an agency for the establishment of American ideals. Boards of health have been compelled to lay forcible hands upon the school, time and again during epidemics, long before it became recognized that the school was permanently to be a possible focus and distributor of disease, and hence needed permanent and thorough medical inspection.

Let us turn now to a consideration of those changes in the constitution of society which have involved a readjustment of the physiological functions of the individual in his relation to the social organism.

In the earlier period, and indeed during all of that portion of man's history which preceded the last century, the bulk of the world's work was done by human muscle. It is true that man has made great use of the horse, camel and a few other animals, that windmills and water wheels and sails have long performed incidental service; but the general fact remains that human muscles have built the pyramids, dug the canals, erected the houses, tilled the fields, gathered the harvests, made the cloth, fought the battles, carried the water, hewn the wood, as well as written the books for mankind. It is to be remembered in this connection that it has not been a small fraction of the people that have been chiefly concerned in this muscular labor, but that most of the people have been so engaged for most of their years. We must not forget that even during the golden age of Greece—the age of Pericles—eight out of every ten of the people were slaves who labored.

These conditions have changed. This is not a matter that concerns itself with the city as contrasted with the country, and hence is to be cured by reverting to country life. It has changed for most of the people for most of the years of their lives.

It is not only in the city that one turns on the gas instead of chopping the kindlings. The bulk of the world's work is done, not by human or even animal muscle, and not by vagrant winds. Man has harnessed the great powers of nature. He breaks his land with the gang plow, illuminates his night world with electricity, carries himself and his goods with elevators, automobiles, steam vessels, railroad trains, submarines and in this century with flying machines. He no longer sows or reaps by hand; he makes his cloth and clothing, shoes, hats and even decorations by machines.

This change is important most of all to children, for it involves the two chief agencies that have been responsible for their development into adults having strong vitality and clean morals. I refer to work and to play.

The horrors of child labor are still with us, although sure to disappear, but the normal work with the parents, about and for the home has gone or is going.

The all-round farm where a boy learned the rudiments of a dozen trades has been displaced by the specialized farm. The girls can no longer work with their mothers in carding the wool, making the garments, managing the dairy or poultry. The small garden is disappearing save as a luxury, washing is better and more cheaply done outside the home, most of the cooking and "putting up" is done elsewhere.

It is perhaps unnecessary to further illustrate the fact that that element through which the children have come into and partaken of the family labor, and so gradually have learned to carry on the world's work, has gone or is going. But—of even greater importance from the standpoint of this present discussion—that muscular work which strengthened the muscles, enlarged the chest, and aided in giving the power to live is largely gone.

The other great source of muscular exercise and physical development which has been the heritage of all of the children of all of the world is play. This is being attacked from three sources, namely

Time for play
Space for play
Traditions for play.

School life has increased to cover six hours a day for ten months a year. The school has pressed its importance till "home work" takes from one to four hours of the rest of the day. Our children are busy most of the time. There is little time left for quiet play with dolls, wandering through the woods, or corresponding activities in which unconscious growth occurs.

We are already an urban country and are rapidly becoming more so. Not one city has been planned with the real object of human life in mind, that is, the rearing of healthy, happy children. Every other crop has been provided for but this one, and yet this one transcends them all

even in financial value. Our cities are being built up without playgrounds. Millions and millions have been spent on the Island of Manhattan to remedy this lack of forethought, but allowing a scant space of three yards square for each child, only one child in ten can be given play room south of Fourteenth Street in this city. This is one of the reasons for the prevalence of such games as craps. It takes but little space, is quiet, can be played with a varying number of players, is interesting, etc. In fact, it is an ideal game for city children, with a single reservation. It is bad for their morals and useless as a developer of muscle or physical stamina.

The great games of the world that have been handed down from child to child for hundreds or even thousands of generations, preserved in the amber of child tradition, do not in the main suit modern city conditions.

Children do not bring their play traditions with them. It would seem as if a dozen families from a dozen lands would form a little community with a wealth of childlore and games, but such is not the case. They only play what they have in common, and these are the most elementary games suited only to the younger children. This condition with reference to the absence of adequate traditions carrying suitable plays applies to the country and village districts as much as it does to the cities. The play of our country children is about as inadequate as is that of our city children. This is not a matter of poverty. The exquisitely dressed children led by the hand along Riverside Drive, New York, in order that they may "get the air" are a more pathetic sight than are the equally healthy though dirty children one sees playing on the East Side. That these conditions are actually resulting in decreased power to live is shown by several extensive studies made in Great Britain during the past decade.

We have massed here several groups of facts bearing more or less closely on the alterations of children's lives that have occurred or are occurring to show the situation that is back of the movement for physical training, playgrounds, etc., in departments of education.

The state provides for the education of all citizens as a measure of self-protection. The facts given show that the state must also take cognizance of their physical welfare for the same reason. Health and education belong hand in hand. This means that the existing educa-

tional agencies must ally with themselves expert medical officers who shall see that the health of children is conserved through the schools. This cannot be an incidental activity of some department, but must outrank all others in power, as it does in importance.

Medical inspection, then, aims at both the protection of the community and furnishing the physical conditions under which wholesome life can develop. It involves in this comprehensive aim the functions of both the departments of health and of education.

CHAPTER II

The Argument for Medical Inspection

Since the days of Juvenal, men have been quoting his much abused half-line, "A sound mind in a sound body"; and while making diligent provisions for schools in which "sound minds" were to be shaped, have felt that these schools needed little scrutiny as to their fitness for conserving and developing "sound bodies".

The famous Spanish voyager who lost his life in his futile search for the phantom fountain of youth was far from being the first or the last of the long line of seekers for a "cure-all" which should eradicate the ailments of old age and restore that buoyant health of youth which modern science is just beginning to teach us must be diligently conserved from childhood, if it is to be enjoyed in after-life.

To say that we have during all this time lost sight of the true source of a healthy old age would be an extreme statement, but it is certainly true that educators in general have given but scanty and fleeting attention to the problem of the physical well-being of their charges.

All too often the same complacent and care-free attitude of mind has been shared by the parent. All children had to have the "common children's diseases"—and the sooner, the better. If Johnny breathes through his mouth—"He always did that. He will outgrow it." The child's cough is only "a slight cold." "He always turns his head to one side when he writes or reads. It's a habit he has got into. He has always been pale. It is nothing unusual."

In cases of serious epidemics it has always been recognized that parents have the right to insist that the schools shall be safe places for them to send their children. This right has been recognized by the closing of the public schools during an epidemic; but despite the fact that it has long been recognized that the public school serves as a center of exchange for contagious diseases which pass from pupil to pupil,

the occasional closing down and the rare fumigation have constituted the sum total of preventive measures, with the single exception of the commonly insisted on requirement of vaccination.

Again, except in extreme cases, the school has taken little note of such defects of mind and body as might vitally affect the chances of success and happiness of the child, unless such defects were of the more directly alarming nature of contagious diseases.

The "lockstep" has been the rule in physical matters, as in the realm of the course of study. All the children have been received on an equality and have been treated equally, no matter what their mental endowments or physical condition. The quick and the slow, the sound and the sick, have been grouped together; and he who could not keep his place in his studies has been as unquestioningly left behind as has he who through illness could not retain his place in the school.

That such a course was poor business policy, based on the false assumption of a universal mental and physical equality which does not exist, has been pointed out times without number. As in all movements, the leaders have been far in advance of the rank and file; and in our own, as in other countries, the great majority of people have been too much engaged in their special interests to give heed to the great problems involved in the work of improving the educational and physical well-being of the young of the race.

With the great changes which have been coming over American life, former conditions have disappeared and this undisturbed indifference has become impossible. We have changed from an agricultural people to a race of dwellers in towns and cities. The school year has changed from a three months' winter term to one of five hours per day for ten months during the year. The number of years of school life has greatly increased. We have passed compulsory education laws. Going to school has become not only the normal, but the required occupation of all children for a considerable number of years.

The results of these changed conditions on the health of children have become so marked as to insistently demand attention. The parents, school authorities, and health authorities have been unable to avoid recognizing the fact that in the nature of the case the school has become the most certain center of infection in the community.

From these conditions grew up medical inspection, for the purpose

of detecting cases of contagious diseases and of segregating such cases for the protection of other children. Wherever established, the good results of medical inspection have been evident. Epidemics have been checked or avoided. Improvements have been noted in the cleanliness and neatness of the children. Teachers and parents have come to know that under the new system it is safe for children to continue in school in times of threatened or actual epidemic.

But medical inspection does not stop here, nor has it limited its activities to the field outlined. Other problems have been insistently forcing themselves on the attention of school men; and they, knowing something of the wonderful advances made in the field of medicine, have turned for aid to the physicians.

With the changes in the length of the school term and the increase in the number of years of schooling demanded of the child, has come a great advance in the standards of the work required. When the standards were low, the work was not beyond the capacity of even the weaker children; but with close grading, fuller courses, higher standards, and constantly more insistent demands for intellectual attainment, this has changed. Pupils have been unable to keep up with their classes. The terms "backward," "retarded," "exceptional" as applied to school children have been added to the vocabularies of the school men. Inquiries have been instituted into the causes underlying the phenomena of backward and retarded children, of those who are unable to keep up with their classes, or those who seem to be different from their companions in their ability to do the work demanded.

As a result of these inquiries, physical examinations have been conducted by the doctors connected with the schools. Surprising numbers of children have been found who through defective eyesight have been seriously handicapped in their school work. Many are found to have defective hearing. Other conditions are found which have a great and formerly unrecognized influence on the welfare, happiness, and mental vigor of the child. Attention has been directed to the real significance of adenoids and enlarged tonsils, of swollen glands and carious teeth.

Persistently, earnestly and quietly this work has been pushed to a successful experimental accomplishment, and as a result we have to-day medical inspection in its various forms—not only for the detection of

contagious disease, but also for discovering those physical defects which interfere with the child's ability to do his school work, or which, if neglected, will seriously affect his physical efficiency in after-life. The movement as a whole constitutes both a sign and a result of the gradual awakening which has developed into a wave of interest in matters that pertain to the health of school children that is now sweeping over the civilized world.

Communities are seeing the whole matter in a new light. Gradually they are beginning to ask—not whether they can afford to take steps to safeguard in schools the welfare of their children, but whether they can afford not to take such steps. The realization is dawning that it is unbusinesslike to count carefully the cost of the school doctor, but to disregard the cost of death and disease, of wrecked hopes and dependent families.

Teachers and parents are commencing to realize that from their viewpoint and from that of the school physician the problem of the pupil with defective eyesight may be quite as important to the community as that of the child who has some contagious disease. This child, placed in a school where physical defects are unrecognized and disregarded, is unable to see distinctly, and headaches, eye-strain, and failure follow all his efforts at study. He cannot see the blackboards and charts, printed books are indistinct or are seen only with much effort—everything is blurred. Neither he nor his teacher knows what is the matter, but he soon finds it impossible to keep pace with his companions, and, becoming discouraged, he falls behind in the unequal race.

In no better plight is the child suffering from enlarged tonsils and adenoids, which prevent proper nasal breathing and compel him to keep his mouth open in order to breathe. Perhaps one of his troubles is deafness. He is soon considered stupid. This impression is strengthened by his poor progress in school. Through no fault of his own he is doomed to failure. He neglects his studies, hates his school, leaves long before he has completed the course, and is well started on the road to an inefficient and despondent life.

Public schools are a public trust. When the parent delivers his child to their care, he has a right to insist that the child under the supervision of the school authorities shall be safe from harm and will at

least be handed back to him in as good condition as he was at first. Not only has the parent the right to claim such protection, but even if he does not insist upon it, the child himself has a right to claim it. The child has a claim upon the state and the state a claim upon the child which demand recognition. In the words of Dr. William H. Allen: "When the state for its own protection compels a child to go to school, it pledges itself not to injure itself by injuring the child." We are beginning to find out that many of our backward pupils are backward purely and simply because, through physical defects, they are unable to handle the work of the school program. What these defects are and the causes that lie behind them are things that we must know. If we do not know them, we must find them out and guard against them. Education without health is useless. It would be better to sacrifice the education if, in order to attain it, the child must lay down his good health as a price. Education must comprehend the whole man and the whole man is built fundamentally on what he is physically. Children are not dullards or defectives by the will of an inscrutable Providence, but rather by the law of cause and effect.

The objection that the state has no right to permit or require medical inspection of the children in the schools will not bear close scrutiny nor logical analysis. The authority which has the right to compel attendance at school has the added duty of insisting that no harm shall come to those who go there. The Massachusetts law, with its mandatory "shall," is certainly preferable to the New Jersey law, with its permissive "may." The exercise of the power to enforce school attendance would be dangerous if it were not accompanied with the appreciation of the duty of seeing that the assembling of pupils brings to the individual no physical detriment. When the subject is considered both from the standpoint of the individual and from that of the state, the wonder is not that medical inspection is now being agitated, but rather that it was not long ago put into practice.

Nor is the state, in assuming the medical oversight of the pupils in the public schools, trespassing upon the domain of private rights and initiative. American systems do not, like the feeding of school children (already resorted to in France and in parts of England), lessen the responsibility of the parent or tend to weaken or supersede the home. Under medical inspection absolutely nothing is done for the parent but to tell

him of the needs of his child, of which he would otherwise have been in ignorance. It leaves it to the parent to meet those needs. It leaves him with a larger responsibility than before. Whatever view be taken of the right of the state to enforce measures for the correction of defects discovered, the arguments for and against do not enter into the present discussion. It seems difficult to find a logical basis for the argument that the state has not the right to inform the parents of defects present in the child, and to advise as to remedial measures which must be taken to remove them.

The justification of the state in assuming the function of education and in making that education compulsory is to insure its own preservation and efficiency. Whether or not it is to be successful will depend on its individual members. But the well-being of a state is as much dependent upon the strength, health, and productive capacity of its members as it is upon their knowledge and intelligence. In order that it may insure the efficiency of its citizens, the state through its compulsory education enactments requires its youth to pursue certain studies which experience has proved necessary to secure that efficiency. Individual efficiency, however, rests not alone on education or intelligence, but is equally dependent on physical health and vigor. Hence, if the state may make mandatory training in intelligence, it may also command training to secure physical soundness and capacity.

Much time may elapse before there will be brought to bear in all schools the measures, now so successfully pursued in some, for conserving and developing the physical soundness of rising generations. But, nevertheless, the movement is so intimately related to the future welfare of our country and is being pushed with so great energy and earnestness by its advocates that it is destined to be successful and permanent.

Not alone our unwillingness to be outdone in this public service by foreign nations, not alone our sense of practical foresight, but our inherent feeling of obligation toward our children and our recognition of this service as one of necessity for the national well-being, are forcing upon us the incorporation of this phase of public activity as an integral part of our public education.

CHAPTER III

Historical

A Sketch of the Rise, Development and Present Status of Medical Inspection at Home and Abroad

Medical inspection of schools is a movement of recent growth, although it is by no means in its infancy and has long since passed its experimental stage.

In France the law of June 28, 1833, charged the school committees of the cities and towns with the care of keeping the school houses clean, while a royal ordinance of December 22, 1837, made it the special duty of the female supervisors of maternal schools (kindergartens) to watch over the health of the little children. In Paris separate governmental decrees were issued. The decrees of 1842 and 1843 ordered that every public boys' and girls' school should be visited by a physician who was to inspect the localities and the general health of the school children. This arrangement, while praiseworthy in purpose, had the great drawback of not being supported by the annual budgets. Hence an appeal to the generosity of the medical fraternity was necessary. Many physicians offered their services and gave them gratuitously for years.

In 1879 the General Council of the Department of the Seine voted to reorganize the medical service in the schools and passed an appropriation for the payment of salaries to the physicians. The department was divided into 114 districts, of which 88 were within the city of Paris. A physician was placed in charge of the work in a district, and each district contained from 20 to 25 school rooms. In January, 1884, the service was again reorganized. Needed regulations were drawn up and the districts were changed so as to give each inspector from 15 to 20 school rooms. It is from this year—1884—that the present institution of medical supervision of schools in Paris dates.

The organization there has served as a model for similar arrangements in other French cities. Through the school law of 1886, as well as through ministerial decrees and orders dated 1887, medical and sanitary inspection has been made obligatory in all French schools, public and private. To the city of Havre belong the honor and credit of having the first free public dispensary for children. It was founded in 1875.

Probably the first system of medical inspection in the full modern sense of the term was that inaugurated in Brussels in Belgium in 1874, when school physicians were appointed who were required to visit schools three times per month. So successful did the system prove that it was soon copied in Antwerp, Louvain, Liege, and other cities, and served as a model for systems in Switzerland. Moreover, in view of the favorable results in Brussels, dentists and oculists were likewise appointed to visit the pupils regularly.

In Germany, Leipsic and Dresden were the first cities to have medical inspection. A beginning was made in Dresden in 1867, when three physicians, formerly teachers of physical training, were intrusted with the examination of children in cases of epidemic eye disease; but these were not fully equipped school physicians. Not until 1889 was a system of true medical inspection established. The movement spread rapidly and was taken up by city after city. In Wiesbaden a system was developed providing for a careful and thorough physical examination of each child at the time of entering school, and for a re-examination in the third, fifth, and eighth years of the public school course. The system also provides for careful service for the detection of contagious diseases and for the inspection of school buildings and surroundings. In 1898 the Wiesbaden method of school inspection was generally adopted throughout Germany.

Wiesbaden Plan of School Inspection

With the introduction of the Wiesbaden method of school inspection began a new epoch in the development of the school systems of Germany. The chief characteristic of this method lies in a strong emphasis upon the hygiene of the school child, without in any way neglecting the hygiene of the school building. Medical inspection in the schools

of Germany, which previous to the introduction of this plan had lagged, has since its adoption gained rapidly.

Wiesbaden was the first German city to make a test examination of all pupils, whereby an unusually high percentage of defects was revealed, of which the pupil, the teacher, and the parents were wholly ignorant. It became apparent to the Wiesbaden authorities that a medical examination of at least all children entering school was of the utmost importance. The result of the trial examination led to the establishment of a system of regular examinations.

The provisions of the Wiesbaden plan are: systematic examination of heart, lungs, throat, spine, skin, and the higher sense organs (and in the case of boys also examination for hernia). The findings are entered on a report blank, which accompanies the child from grade to grade in his school life. Twice a year the teacher records the height and weight of individual pupils. Wherever it is deemed necessary, the school physician takes chest measurements. The records of children who seem to require the regular care of a physician are marked accordingly, and these children report at regular intervals to the school physician. A careful re-examination of all pupils must be made in their third, fifth, and eighth school years. It is the duty of the school physician to give advice to the teacher with reference to the child. In cases of defects requiring medical attention, the parents of the child are notified. It is not the function of the school physician to give treatment.

In Hungary the law of 1887 provided for school physicians to visit the institutions of learning. Their duties are: the hygienic supervision of school rooms, the detailed examination of all children entering school, and the giving of lectures in the schools with reference to hygiene.

In Austria medical inspection of schools is an affair of the state. In the different crown lands it is under the Provincial Councilor of Education, in the school districts under the district school boards, and in the different communities under the local school boards.

In Norway the instructions have been enforced since 1899, to the effect that with the consent of the local administration, a physician may inspect the health of school children; but by the decree of September 24, 1891, this regulation was extended so that the health of pupils

must be examined three times per year,—in May, August, and December,—and the report drawn up in prescribed form by the board of teachers and physicians, who are to give special attention to the causes of absences from school, headache, and fatigue.

Sweden is probably the country where the term "school physician" in the modern sense was first employed, though at first the duties of school physicians did not comprehend the work done by them at the present day. In 1863 they were only obliged to examine with reference to exemption from gymnastic exercises. In 1874 committees on health were given charge of the schools, especially with reference to ventilation, and since 1878 school physicians have been required to examine the health of children at the beginning of the term and to report the results.

In Roumania, by the decree of April 5, 1899, special physicians are required, either themselves or in the persons of district physicians, to examine all school children at least once a year; to inspect buildings with reference to construction and equipment (heating, light, cleanliness, drinking-water, privies, etc.); to supervise all that touches in any way on the subject of health, and to submit propositions to the proper authorities for supplying existing wants and remedying evils.

Moscow has had school physicians in her schools since 1888. It is the duty of these physicians to examine all the pupils once a year and to make reports on the "sanitary lists" of the children. Since 1895 six physicians have been in charge of health matters in the 72 elementary schools, and since 1888 two female physicians have been employed at the girls' high school. Besides their other functions, these physicians are required to vaccinate and revaccinate, to treat poor sick pupils free of charge, and to manage affairs in cases of epidemics.

In Switzerland medical inspection has become a national movement, although governed by different regulations in the several cantons.

In England the medical inspection act, which went into effect January 1, 1908, is national in its scope and applies to all the public elementary schools. It is thorough in its provisions for a complete system of medical supervision. Its high purposes are expressed in a memorandum of the Board of Education, in the following words:

> "It is founded on a recognition of the close connection which exists between the physical and mental condition

> of the children, and the whole process of education. It recognizes the importance of a satisfactory environment, physical and educational, and by bringing into greater prominence the effect of environment upon the personality of the individual child, seeks to secure ultimately for every child, normal or defective, conditions of life, compatible with that full and effective development of its organic functions, its special senses, and its mental powers, which constitute a true education."

For the purpose of putting into operation the provisions of this act, the county educational committees throughout England have been taking active steps in creating the necessary machinery and perfecting existing organizations of medical officers. Already there is a national Society of Medical Officers for Schools.

In France such a society has long existed and has now reached a degree of strength and importance which has prompted it to begin the publication of a monthly entitled, "*La Médecine Scolaire*," the bulletin of the Society of Medical Inspectors of Schools. Volume I, No. 1, appeared on February 10, 1908. The deep purpose which actuates the leaders of the movement in France is expressed in the introductory editorial of the first number of the magazine. The editorial is entitled, "Our Program," and begins as follows:

> "The purpose of protecting children and of assuring them their best physical and intellectual development has for several years been assuming an ever-increasing importance. In this movement in favor of all that pertains to conserving the health of children—in the work which Prof. Pinard has called 'puériculture'—France has taken an important part. Indeed, for France this has become a most important duty, because the study of these questions has a higher importance in this country than in more favored countries, where the question of the increase of population does not constitute one of the vital problems of the day."

After going on to describe the purposes of the Association of School

Medical Inspectors, and after studying some of the important work done by the society in the past, the publication of the new journal is introduced with the words, "To-day the Society of Medical Inspectors of Schools wishes to complete its work by the publication of the journal, '*La Médecine Scolaire.*'"

But Europe and America are not the only parts of the world that have been receiving the benefits of medical inspection. Since 1882 in Cairo, Egypt, a school physician has been employed at a salary of 12,000 francs, besides two assistants, each with a salary of 3600 francs, having the supervision of 5000 pupils.

In Chile in 1888 the supervision of schools was intrusted to a Provincial Council, including a physician as a member, and the supreme direction of sanitary affairs was given in charge of a superior board of public health, composed of seven members. School physicians in Chile are required to visit each school at least once a month, inspect the sanitary condition of buildings and surroundings, inform themselves of the condition of health among the children, make note of their observations, and hand in a monthly report.

In the Argentine Republic great interest in medical inspection has been manifested, and the system is credited with being one of the most complete and efficient in existence. It provides for the vaccination of school children, examination of the sanitary condition of school buildings, the visiting of sick children in their homes, the prevention of contagious diseases, the delivering of regular scientific lectures, and the giving of free medical advice to the teachers as well as to the pupils.

In Japan in 1898 the Minister of Education directed the nomination of salaried school physicians in all public schools. Frederick J. Haskin, writing of the work there in 1898, says:

> "The Japanese system of medical inspection extends all over the empire and reaches the most remote rural community. Thus the Japanese department of education is able to tell how many children are in school in the empire, how many are robust, medium, or weak, how many have defective eyesight, and what diseases are most prevalent at different ages of school life. The department can also tell how many children in school at the age of

> fifteen years were 150 cm. tall, how many weighed 40 kg., and how many had a chest measurement of 75 cm. They can also tell the averages of all these statistics and the percentages of robust boys or fat girls."

In the United States the first regular system of medical inspection seems to have been in Boston in 1894. Before this, however, in New York in 1892, Dr. Cyrus Edson, then Sanitary Superintendent, appointed Dr. Moreau Morse, Medical Inspector of Schools. Dr. Morse was probably the first public medical school officer to be appointed in this country.

In Boston the need of medical inspection of schools, for the purpose of detecting contagious and other diseases among the school children, was brought to the attention of the mayor and city council in 1892; and for this purpose an appropriation was then secured. A delay of several months was occasioned in securing the approval of the school committee, so that the plan did not finally go into operation until November, 1894, when the Board of Health selected 50 physicians for this purpose, divided the city into 50 school districts, and began school inspection.

In New York the Board of Health, at a meeting held March 16, 1897, appointed 134 medical inspectors for public schools. Dr. A. Blauvelt, formerly assistant chief of the Bureau of Contagious Diseases, was appointed chief inspector at an annual salary of $2500.

Chicago in 1895 was divided into nine districts for the purpose of the inspection of schools. One medical inspector was assigned to each district, giving each inspector an oversight of more than 20 square miles.

In Philadelphia the Bureau of Health passed the following resolution on June 7, 1898:

> "Resolved that the medical inspector be directed to have the 15 assistant medical inspectors visit one public school each day in their respective districts, who shall inspect each school according to the methods now employed in Boston, New York, and Chicago."

Since its first inception in Boston, the movement for medical inspection has rapidly spread in the United States, and in many states has developed from mere inspection for the detection of contagious diseases to systems embracing most thorough physical examinations.

Four state laws have been passed. In 1899 the legislature of Connecticut passed a law providing for the testing of eyesight in all the public schools of the State. Under this law the State Board of Education is required to furnish test-cards and blanks, and instructions for their use, to the school authorities. The superintendent, principal, or teacher in every school is required to test the eyesight of all the pupils during the fall term, and notify in writing the parent or guardian of every pupil who has any defect of vision, with a brief statement of each defect.

New Jersey has a statute which went into effect in 1903. It authorizes boards of education to employ competent physicians as medical inspectors of schools. It also defines the duties of the medical inspector. The law is permissive and not mandatory in its provisions.

Vermont followed in 1904, with a law requiring the examination of the eyes, ears, and throats of school children annually.

In 1906 the legislature of Massachusetts passed a law providing for a system of medical inspection throughout the State. According to its provisions every town and city must establish and maintain a system of medical inspection with competent physicians for the detection of contagious diseases. Examinations are conducted annually by the physicians for the detection of non-contagious physical defects, and eyesight and hearing tests are made each year by the teachers. The law is mandatory, not permissive, in its provisions.

Without authoritative and specific enactment, the State Boards of Health of New York, Utah, and California have conducted examinations of the eyesight and hearing of school children.

At the present time—1908—there are in operation, so far as can be ascertained, systems of medical inspection in some form in the following 70 cities outside of Massachusetts. (As in this State medical inspection is obligatory under the state law, systems exist in practically every city.)

CITIES OF THE UNITED STATES, OUTSIDE OF MASSACHUSETTS, HAVING SOME FORM OF MEDICAL INSPECTION OF SCHOOLS, JUNE, 1908

City.	State.	Controlling Authority.
Albany	New York	Albany County Medical Society.
Ann Arbor	Michigan	Board of Education.
Asbury Park	New Jersey	" " "
Atlantic City	New Jersey	" " "
Baltimore	Maryland	" " Health.
Buffalo	New York	" " "
Camden	New Jersey	" " Education.
Chicago	Illinois	" " Health.
Cincinnati	Ohio	" " "
Cleveland	Ohio	" " "
Dallas	Texas	" " Education.
Dayton	Ohio	Montgomery Co. Medical Society.
Detroit	Michigan	Board of Health.
Des Moines	Iowa	Polk Co. Medical Association.
Elgin	Illinois	Board of Health.
Englewood	New Jersey	" " Education.
Evansville	Indiana	" " "
Fort Dodge	Iowa	" " Health.
Fort Worth	Texas	
Galveston	Texas	" " School Trustees.
Grand Rapids	Michigan	" " Education (Nurses only).
Hackensack	New Jersey	" " Health.
Harrisburg	Pennsylvania	Dr. C. S. Rebuck, and Visiting Nurse Association.
Hartford	Connecticut	Board of Health.
Hazelton	Pennsylvania	Board of Education
Houston	Texas	Houston Association of Opticians and Aurists.
Jersey City	New Jersey	Board of Education (Nurses only).
Lansing	Michigan	Volunteer work
Lincoln	Nebraska	
Long Beach	California	
Los Angeles	California	Boards of Education and Health.
Milwaukee	Wisconsin	Milwaukee Medical Society.
Minneapolis	Minnesota	Associated Charities and Women's Club.
Montclair	New Jersey	Board of Health.
Mount Holly	New Jersey	
Newark	New Jersey	Boards of Health and Education.
New Haven	Connecticut	Board of Health.
Newport	Rhode Island	" " '

CITIES OF THE UNITED STATES, OUTSIDE OF MASSACHUSETTS, HAVING SOME FORM OF MEDICAL INSPECTION OF SCHOOLS, JUNE, 1908 (*Continued*)

CITY.	STATE.	CONTROLLING AUTHORITY.
New Orleans	Louisiana	Board of Education
New York City	New York	" " Health.
Norristown	Pennsylvania	
Ogden	Utah	
Orange	New Jersey	Board of Education
Pasadena	California	" " "
Passaic	New Jersey	" " "
Paterson	New Jersey	" " "
Philadelphia	Pennsylvania	" " Health
Plainfield	New Jersey	" " "
Port Chester	New York	
Portland	Oregon	
Providence	Rhode Island	Board of Health.
Reading	Pennsylvania	Volunteer work
Rochester	New York	Board of Health.
Salt Lake City	Utah	" " "
San Antonio	Texas	" " Education.
Schenectady	New York	
Seattle	Washington	" " Health.
Sioux City	Iowa	Volunteer work.
St. Joseph	Missouri	
St. Louis	Missouri	
Superior	Wisconsin	
Syracuse	New York	Board of Health.
Union Hill	New Jersey	" " Education.
Washington	District of Columbia	Board of Health.
Waterbury	Connecticut	" " "
Waverly	Rhode Island	
Westchester	Pennsylvania	
White Plains	New York	Board of Health.
Wilmington	Delaware	" " Education
Woonsocket	Rhode Island	" " "

The work in Massachusetts includes 32 cities and 321 towns. At the beginning of the present year it was reported from Massachusetts that boards of health had begun the work in 22 cities and 47 towns and boards of education in 10 cities. No reports were received from the remaining towns.

The foregoing brief account of the history of medical inspection and its present status serves to give an idea of the firm basis on which

the movement rests in other countries, and the prominent place accorded it in educational esteem. In America the movement has been somewhat tardy in arriving, but its spread has been rapid, and now that it has passed the experimental stage, its permanency is assured.

Statistics and observation have shown the great prevalence of contagious diseases among school children. Investigations have revealed the large percentage of children suffering from non-communicable physical defects. Whether or not the home is responsible for a large part of the conditions and how far they are aggravated by the conditions of school life are questions of ultimate importance, but not calling for immediate solution. The important condition confronting American educators and social workers is that the school furnishes an unrivaled opportunity for detecting and checking diseases and defects among children. The problem of caring for those found to be defective or ill, and of preserving the health of those who are physically sound, is one of the utmost importance. Given the importance of the problem and the good examples set abroad, there can be no doubt that rapid additions will be made to the list of American cities having systems of medical inspection of schools, and that those systems themselves will rapidly become broader in scope and more thorough in method.

CHAPTER IV

Inspection for the Detection of Contagious Diseases

Nearly all systems of medical inspection in America have had for their object at the time of their inception merely the detection in their early stages of cases of contagious diseases. To this simple aim has always been shortly added the detection and exclusion of parasitic diseases. Conducting examinations for the detection of physical defects is a further development of the work and is still far from general.

In towns and small cities medical inspection for the detection of contagious diseases is a comparatively simple matter involving few difficulties in organization or administration.

In such places the teacher who thinks she sees suspicious symptoms in one of her pupils and fears they may portend the beginning of some illness notifies the principal of her fears. He notifies the school physician by telephone or messenger and the physician goes to the school and examines the pupil, sending him home if necessary. Of course such simple systems require little in the shape of blanks or forms. Notification cards or blanks are used for informing the parent of the exclusion of the child, and weekly or monthly reports are made out by the school physician stating how many children he has examined, how many he has excluded and for what diseases, and what other diseases he has found which did not require exclusion.

A sample of such a simple exclusion card is the one in use in Brockton, Mass. (see p. 30).

The monthly report of the medical inspector of the same city (see p. 31) is also a good sample of the forms found satisfactory in simple systems and which might well be adapted for use in any town where the number of cases handled is comparatively small and the pupils are individually known to the school authorities and it is easy to keep track of them.

EXCLUSION CARD. BROCKTON, MASS.

Commonwealth of Massachusetts.

CONTAGIOUS DISEASE.

NOTICE TO PARENT OR GUARDIAN.

In accordance with Chapter 502 *of the Acts of* 1906, *you are hereby notified that*.....
has been examined by me as School Physician, and found to have symptoms of.....

This child is excluded from the schools until he brings a statement from a regular practitioner certifying his complete recovery.

.....*School Physician.*

.....190

As systems increase in size or it is found desirable to make them more thorough, difficulties increase and a more complex organization is found necessary. Probably the most complete and thoroughly organized system in the United States is that of New York City. While many of its features would be found unnecessary in other places, some of them would prove applicable anywhere. It therefore seems worth while to describe it at some length and to give as well a brief summary of its development since 1897, when the work was begun. The following account is largely taken from the report of the Department of Health of New York for the year ending December 31, 1906. The report was published November 30, 1907.

THE MEDICAL INSPECTION AND EXAMINATION OF SCHOOL CHILDREN

HISTORY

March, 1897: Appointment of one hundred and fifty Medical Inspectors, at a salary of $30.00 per month. Morning inspection only required.

September, 1902: System elaborated to include morning inspection,

Medical Inspection of Schools.

Monthly Report of Medical Inspector.

_____ *School.* *For the Month Ending* _____ *190*

	NO. EXAMINED.				CAUSE OF EXCLUSION.													OTHER DISEASES.							
DATE.	MALES.	FEMALES.	TOTAL.	Total Number Excluded	Measles.	Diphtheria.	Scarlet Fever.	Small Pox.	Whooping Cough.	Mumps.	Contagious Eye Diseases.	Vermin.	Ring-Worm.	Chicken Pox.	Syphilis.	Skin Diseases.	Suppurative Ear Diseases.	Adenoids.	Non-Contagious Ear Diseases.	Nervous Diseases.	Non-Contagious Eye Diseases.	Deformities.	Laryngitis. Pharyngitis.		
TOTAL.																								

Remarks or Suggestions:

BOARD OF EDUCATION.
BROCKTON, MASS.

Medical Inspector.

MONTHLY REPORT OF MEDICAL INSPECTOR. BROCKTON, MASS.

routine weekly inspection of children in the classrooms and visiting of absentees at their homes. Salary of Inspectors increased to $100.00 per month.

December 1, 1902: Appointment of a corps of Trained Nurses, at a salary of $75.00 per month.

December 16, 1902: Establishment of a Hospital and Dispensary for the exclusive treatment of cases of Trachoma.

March 27, 1905: Inception of complete physical examination of each school child.

OBJECTS

1. Repeated and systematic inspection and examination of school children to determine the presence of infectious or contagious diseases.
2. Exclusion from school attendance of all children affected with acute contagious disease.
3. Subsequent control of the case, with isolation of the patient and disinfection of the living apartments after termination of the illness.
4. Control and treatment of minor contagious affections, permitting the child to remain in attendance at school.
5. Information of unreported cases of contagious disease occurring in school children at their homes.
6. Exclusion from school attendance of those children in whose families there exists a contagious disease.
7. Complete physical examination of each school child for the purpose of determining the existence of non-contagious affections and advising treatment of same.

SCHOOLS VISITED

Public Schools, Parochial Schools, American Female Guardian Society Schools, Children's Aid Society Schools and Kindergartens.

FORCE

1. Assistant Chief Medical Inspector, in charge of work.
2. Corps of Medical Inspectors, all of whom are physicians.
3. Supervising Nurse, in direct charge of the nurses.
4. Corps of Trained Nurses.

WORKING PLAN OF THE SYSTEM

Duties of Medical Inspectors

Each Inspector is assigned to duty in a group of schools

1. Morning Inspection

Inspector visits each school in his charge before ten o'clock each morning, and examines, in a room set apart for this purpose, the following:

(*a*) All children isolated by the teachers as suspected cases of contagious diseases.

(*b*) All children who have been absent from school.

(*c*) Children returning after previous exclusion.

(*d*) Children previously ordered under treatment.

(*e*) All affected children referred by the school nurse for diagnosis.

(*f*) All affected children showing no evidence of treatment.

Cases to be Excluded

(*a*) Children showing signs or symptoms of smallpox, diphtheria, scarlet fever, measles, chicken-pox, whooping-cough or mumps.

(*b*) Cases of pediculosis, with live pediculi.

(*c*) Skin diseases, including ringworm of scalp, face or body, scabies, dormant pediculosis, in cases where the children have persistently refused to undergo treatment.

Cultures are taken in all cases of sore throat to determine the presence of the diphtheria bacillus.

Cases of smallpox, scarlet fever and measles are reported, by telephone, to the Central Office, so that a diagnostician may at once visit the case, confirm the diagnosis and order isolation. In these cases a postal card is sent from the Division of Contagious Diseases to the Principal of the school informing him, or her, of the presence of contagious disease, with instructions that no member of the family be allowed to attend school until the termination of the case. The following is the form used:

POSTAL CARD

Department of Health.

NEW YORK CITY.

DIVISION OF CONTAGIOUS DISEASES.

NEW YORK,.....190 .

The following-named children, pupils of your school, are exposed to the contagion of.....
.....at

Sec. 145. No principal or superintendent of any school, and no parent, master or custodian of any child or minor (having the power or authority to prevent) shall permit any child or minor having scarlet fever, diphtheria (croup), smallpox, or any dangerous, infectious, or contagious disease, or any child in any family in which any such disease exists or has recently existed, to attend any public or private school until the Board of Health shall have given its permission therefor, nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection of any contagious disease.

Respectfully,

.....

Chief Medical Inspector.

Reported by

.....

Medical Inspector.

Cases to be Referred to Their Own Physician, a Dispensary or to the School Nurses for Treatment

(*a*) Acute conjunctivitis.

(*b*) Pediculosis.

(*c*) Skin diseases, including ringworm of scalp, face or body, scabies, favus, impetigo and molluscum contagiosum.

These children are re-examined the following day and allowed to attend school as long as treatment is continued. Children affected with trachoma are referred to their own physicians or to dispensaries for treatment, and are allowed to attend school as long as evidence of treatment can be shown.

Each excluded child is furnished with an official exclusion card, properly filled out, as follows:

EXCLUSION CARD, SHOWING FACE

DEPARTMENT OF HEALTH,

BOROUGH OF MANHATTAN.

New York,.....190.....

Name.....*Age*.....

Address .....

IS ORDERED TO DISCONTINUE ATTENDANCE at School No....., *located at*.....

REASON :.....

.....

Medical Inspector.

(SEE OTHER SIDE)

EXCLUSION CARD, SHOWING REVERSE

NOTICE TO PARENTS.

The disease mentioned on the other side of this card is a contagious affection and liable to be transmitted to other children. The child should receive prompt treatment by any physician (or at any dispensary), and should return to school....., 190 .., for re-examination by the Medical Inspector of the Department of Health. If found free from contagion at this time, he may resume attendance at school.

Each pupil referred to the nurse for treatment receives from the medical inspector a slip on which is written the code number indicating the diagnosis of its affection.

CODE CARD, SHOWING NUMBERS INDICATING DISEASES

CODE

1. Diphtheria.
2. Pediculosis.
3. Tonsillitis.
4. Pediculosis.
5. Acute Conjunctivitis.
6. Pediculosis.
7. Trachoma.
8. Pediculosis.
9. Zero.
10. Scarlet Fever.
11. Measles.
12. Varicella.
13. Pertussis.
14. Mumps.
15. Zero.
16. Scabies.
17. Ringworm.
18. Impetigo.
19. Favus.
20. Molluscum Contagiosum.
21. Acute Coryza

Cases to be Readmitted

Children returning after smallpox, scarlet fever, diphtheria, measles and chicken-pox must present a certificate from the Division of Contagious Diseases before readmittance.

Children returning after mumps and whooping-cough may be readmitted at the discretion of the Medical Inspector.

2. ROUTINE INSPECTION

At the beginning of each term the Medical Inspector makes a routine examination of each child in the schools in his charge. The eyelids, throat, skin and hair of each pupil are examined. The Inspector is not allowed to touch the child, but the latter is required to pull down its own eyelids, open its mouth, show its hands, and, in the case of girls, lift up her back hair. Individual wooden tongue depressors are furnished by the Department.

INDEX CARD

CLASS_____ ROOM_____ SCHOOL No._____

NAME	Disease	Ordered under Treatment	Under Treatment	Excluded	Re-admitted	Remarks
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						

_____ Medical Inspector.

All cases of disease are recorded on index cards (see p. 37) with the proper data in appropriate columns. Code numbers are always used to indicate the character of the disease.

Cases requiring more extended examination are sent to the Inspector's room at a definite time for that purpose.

All cases of contagious disease discovered are dealt with as indicated in the description of Morning Inspection.

All children ordered under treatment are required to report to the Medical Inspector, at a definite time, the following morning for re-examination. If treatment has been instituted, the fact is recorded on the index card, the child ordered to report at regular intervals and, as long as treatment is necessary and continued, the child is allowed to remain in school. Children showing no evidence of treatment are excluded forthwith.

Each day a record of the number of children examined, with names, addresses and cause of exclusion of each excluded child, is mailed to the Central Office. A duplicate is kept on file at the school. The following is the form of card used for this purpose:

INSPECTOR'S DAILY REPORT OF EXCLUSIONS

MEDICAL INSPECTORS OF SCHOOLS

School No..... New York,.....190.....

Examined { Morning..... / Routine..... } Time of { Arrival..... / Departure..... }

	Diphtheria	Scarlet Fever	Measles	Chicken Pox	Pertussis	Mumps	Trachoma	Eye	Ringworm	Impetigo	Scabies	Favus	Pediculosis	Miscellaneous	Total
New Cases Found M															
New Cases Found R															
Cases Excluded M															
Cases Excluded R															
Found at Home															

No. of Vaccinations Performed. P.....R.....Total.....

No. of Physicals Made.....No. of Children Found Defective.....

.....Medical Inspector

3. Absentee Visiting

The Inspector obtains from the Principal of the school, each day, a list of all children who have been absent from school for several days for any unassigned cause. These children are visited at their homes, and a list of the names, ages and addresses of all cases of contagious disease discovered is sent, each day, with the school report, to the Central Office.

Large systems obviously require somewhat complicated organizations if thorough work is to be done. Efficiency and economy of labor demand that printed forms be used wherever their use obviates the necessity for any considerable amount of writing, and the same considerations demand that on these printed forms underlining or checking of printed words be used wherever possible instead of filling in of blank spaces. There is the greatest variation in the practice of different cities as to the amount of printed material used. Brockton, Mass., which is a city of over 40,000 population, uses the very simple blanks described earlier in the chapter and has only a very few other forms. Providence,

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INSPECTOR'S DAILY REPORT OF EXCLUSIONS, REVERSE

EXCLUSIONS

NAME	AGE	RESIDENCE	FLOOR	REASON
		ABSENTEES		

R. I., has a blank provided for almost every possible need. The following is a list of the printed material furnished by the Providence Board of Health as in use in connection with their system of medical inspection:

PRINTED MATERIAL USED IN CONNECTION WITH MEDICAL INSPECTION OF SCHOOLS. PROVIDENCE, R. I.

Rules for teachers.
Teacher's note to School Inspector.
Exclusion card.
Post card report of case of contagious disease.
Diagnosis card.
Post card excluding from Sunday School.
Permit to attend school while living away from home.
Permit to return to school.
Directions for using petroleum—English and Italian.
Directions for using white salve—English and Italian.
Directions for using petroleum—English and Yiddish.
Vaccination notice.
Post card excluding pupils—diphtheria.
Post card excluding pupils—measles.
Post card reporting on diphtheria culture.
Oculist report.
Diphtheria exudation report—post card.
Circular to teachers on referring children to Medical Inspector.
Circular to teachers on rules for children.
Rules for each child.
Notice to parents on eye defects.
Notice to parents on other defects.
Notice to principal of families having scarlet fever and diphtheria.
Circular on above.
Directions to principals on eye test.

In pursuing the ends of efficiency and economy of labor it is not sufficient merely to have a blank form for each necessity that may arise. The true object is to attain the desired results with the least possible amount of clerical work and this is especially true when the clerical

work is to be performed by a high-priced man, as in the case of the school physician.

Let us consider the case of the school physician who has examined a child referred to him and has found him to have unmistakable symptoms of a contagious disease. Some system is necessary by which he can so dispose of the case as to notify fully everyone concerned. This requires—

1. An exclusion notice to be sent to the parent.
2. A record for the school authorities.
3. A record for the Board of Health.
4. A record for himself.

The record for the Board of Health and the exclusion notice require, in addition to the name of the child and the disease, the name and address of the parent.

Under many systems these notices are made out on four separate cards or sheets, and often the work is still further increased by having a separate card for the record of exclusions from each room in the school. This makes it necessary to secure the appropriate card before the record can be made. Under such conditions the physician spends five or six times as much time in making entries on different cards as he does in inspecting the child.

A large part of this waste of time and money can be obviated by a carefully planned system of records. In the case in point, for example, the work can be greatly reduced by adapting a system similar to the one in use in Chicago. Instead of being furnished with supplies of cards for making the several records, each inspector is supplied with a book similar in size and shape to an ordinary check book. The leaves of the book are alternately of light and heavy paper and are perforated for separation and have stubs just like the leaves of a check book. The thin leaves and stubs are printed as shown on page 42.

The heavy sheet underneath this is an exact duplicate, except that in the lower left-hand corner, instead of the words "Hand to pupil excluded" it has the words "Mail this card to Chief Medical Inspector same day pupil is excluded."

When an exclusion case is found, the method of procedure is simple. The inspector inserts a piece of carbon paper between the two sheets

EXCLUSION NOTICE WITH DETACHABLE STUB. CHICAGO

CITY OF CHICAGO, DEPARTMENT OF HEALTH

MEDICAL INSPECTION OF SCHOOLS

.....19.....

School.....

Name of Pupil.....

Home Address.....Ward.....

The above named pupil is hereby ordered to discontinue attendance at school temporarily for the following reasons:

.....

.....

.....M. D.

(Hand to Pupil Excluded) Medical Inspector

MEDICAL INSPECTION OF SCHOOLS

RECORD OF EXCLUSION

Date.....19....

School.....

Pupil .....

Address.....

Cause of Exclusion:

.....

.....

.....

Readmitted..... 19....

and fills out the blank and its stub. The original blank is the exclusion notice and is taken home by the pupil. The stub is handed to the school authorities as their record of the case. The carbon copy on the heavy sheet is torn out to be sent to the Board of Health as their notification of the case and the stub of the carbon copy is left in the book as the inspector's record.

At the conclusion of his work the inspector encloses all of the carbon copies of the exclusion notices in an envelope and forwards it to the Board of Health. This envelope, besides being the holder for the exclusion notices, is the daily report of the inspector. On its face are blanks to be filled out as follows:

ENVELOPE DAILY REPORT OF MEDICAL INSPECTOR IN WHICH ARE FORWARDED TO BOARD OF HEALTH COPIES OF EXCLUSION NOTICES. CHICAGO

CITY OF CHICAGO, DEPARTMENT OF HEALTH

MEDICAL INSPECTION OF SCHOOLS

Inspector's DAILY Report of Number of Examinations and Exclusions

I have this day examined.....(NUMBER).....pupils at the .....School, made.....(NUMBER).....cultures for bacterial examination, performed.....(NUMBER).....vaccinations, and excluded.....(NUMBER).....pupils from attendance at school for reasons stated on the enclosed exclusion cards.

Date,.....19..... .....M.D.
MEDICAL INSPECTOR

(Place the Exclusion Cards in this holder, enclose whole in special envelope and mail to Chief Medical Inspector. Report must be made EVERY SCHOOLDAY, whether inspection has or has not been made.)

The saving effected by means of such a system as this is plainly seen by comparing the number of entries necessary under the separate card method with the number required by the "check-book and carbon copy" method.

ENTRIES NECESSARY BY THE CHICAGO METHOD AND THE CARD METHOD

Chicago Method.	Separate Card Method.
1. Notice and Stub.	1. Notice to Parents.
2. Envelope Daily Report.	2. Record for school.
	3. Record for Board of Health.
	4. Record for Inspector.
	5. Daily Report.

This system has been described at length because the principle underlying it is fundamental. If medical inspectors are to do efficient work, they must not be over-burdened with complex clerical work. The aim in every case must be the *smallest possible number of original entries.*

One commendable time-saving device which has been adopted in some cities is that of having the different cards used of different colors so that the medical inspector can put his hand on the card he wants without a moment's delay. Utica and Syracuse, N. Y., have adopted this plan. Thus, in Utica the physical record card is white; the notice to parents of physical defects, salmon colored; the exclusion card, buff; the card of directions for ridding the hair of vermin, pink; and the card for the same purpose but with the directions printed in Italian is cherry color. The room record of pupils excluded and re-admitted is lavender.

In a number of cities it has been found necessary to print some of the cards which go to parents in several foreign languages.

There is only one feature which all American systems of medical inspection have in common. This is the supplying of printed directions in some form for ridding the hair of vermin. Quite the best of these plans seems to be that followed in Everett, Mass., where the pupil is not only given directions as to the treatment, but is furnished with a druggist's prescription for the materials required. Everett applies this idea not only in the case of pediculosis (lice), but also for the other common complaints of impetigo contagiosa, ringworm and scabies. The forms used are reproduced on pages 45 and 46.

In nearly all systems there are furnished to the medical inspectors printed regulations and instructions. While there is considerable

PEDICULOSIS.

(LICE.)

DIRECTIONS: Saturate the hair with crude petroleum. Keep it wet for three hours. Then wash the whole head with hot water and soap. Repeat this process on three successive days. Then comb the hair with a fine-toothed comb wet with vinegar. To make the treatment easier and more thorough, have the hair cut short before beginning treatment. While under treatment keep away from the fire or a lighted lamp.

TO BE FILLED AT A DRUG STORE.

℞

Crude Petroleum, . . 6 ozs.

M. Sig. Apply to the hair as directed.

IMPETIGO CONTAGIOSA.

DIRECTIONS: Wash the affected parts with warm water and soap. Apply the ointment morning and night until the disease has disappeared.

TO BE FILLED AT A DRUG STORE.

℞

Resorcin .15
White Precipitate .50
Adipis q. s. 15.

M. Sig. Apply a. m. and p. m. until disease is cured.

RINGWORM.

DIRECTIONS: Remove the scales with soap and warm water. Dry thoroughly and apply the medicine morning and night until disease is cured.

TO BE FILLED AT A DRUG STORE.

℞

Tincture of Iodine	10.
Alcohol	20.

M. Sig. Apply once a day until disease has disappeared.

SCABIES.
(ITCH.)

DIRECTIONS: Take a bath with warm water and soap, scrubbing oneself thoroughly. Then dry the skin by vigorous friction and rub into every diseased spot the ointment the prescription calls for. Continue the treatment daily until disease is cured.

TO BE FILLED AT A DRUG STORE.

℞

Sulphur	7.50
Beta Naphthol	7.50
Adipis q. s.	90.

M. Sig. Apply as directed.

variation as to detail, these are in the main similar in intent and provisions. They all provide that the inspectors shall examine pupils referred to him by the teachers. Some of them require in addition that at stated intervals the inspector shall make a routine examination of all the pupils. In some places this is done once in two weeks, in others once a month or once a term. In nearly all systems the inspectors are required to examine pupils who have returned to school after several days of unexplained absence. In most places there is a provision in the regulations to the effect that the physician shall not himself prescribe for any pupil, unless regularly called to do so by the parents.

There is considerable variation as to the diseases considered "excludable." In many places the rule is simply to exclude all cases of communicable disease. In other places specific lists are given. Some of these are given on page 48.

Where school nurses are employed it is found that the number of exclusions can be greatly reduced by treating many of the minor contagious ailments at the school.

It is almost impossible to get any reliable statistics as to the number of cases of contagious diseases found in different localities. Diligent examination of all of the printed reports obtainable from cities having systems of medical inspection yields very meagre results. In most cases the doctor's report shows how many cases of contagious disease were found, but not how many children were examined in finding the cases. Again, when the number of children examined is stated it is almost always found on investigation that the number given represents not the *number of children examined* but the *number of examinations of children.* Thus the boy who is examined ten times is counted as ten children. In this way the Board of Health of New York City reported 12,236,050 children examined in 1904, when the average attendance in all the public schools was only 487,000. One of the crying needs of medical inspection is the development for it of a rational system of statistics.

CONTAGIOUS DISEASES FOR WHICH PUPILS ARE EXCLUDED IN DIFFERENT CITIES

New York	Philadelphia	Waltham, Mass.	Detroit	Newark
Scarlet fever	Scarlet fever	Scarlet fever	Scarlet fever	Scarlet fever
Diphtheria	Diphtheria	Diphtheria	Diphtheria	Diphtheria
....	Tonsillitis	Tonsillitis	Tonsillitis	....
Measles	Measles	Measles	Measles	Measles
Mumps	Mumps	Mumps	Mumps	Mumps
Chicken-pox	....	Chicken-pox	Chicken-pox	Chicken-pox
Whooping-cough	Whooping-cough	Whooping-cough	Whooping-cough	Whooping-cough
Pediculosis	Pediculosis	Pediculosis	Pediculosis	Pediculosis
Smallpox	Smallpox	Smallpox	Smallpox	Smallpox
Ringworm	Ringworm	Ringworm	Ringworm	....
....	Impetigo	Impetigo	Impetigo	....
Scabies	Scabies	Scabies	Scabies	....
....	....	....	Rötheln	....
....	....	Tuberculosis	....	....
....	Trachoma	Trachoma	....	....
....	Acute conjunctivitis	Acute conjunctivitis	....	....
....	Acute coryza	Acute coryza	....	....
....	....	....	....	Croup
....	....	....	....	Con. eye disease
....	....	....	....	St. Vitus' dance
....	Favus	....	....	....
....	Molluscum contagiosum	....	....	....

After much labor the following brief figures as to exclusions in five cities in 1907 have been gathered:

EXAMINATIONS AND EXCLUSIONS IN FIVE CITIES

	Number Examined.	Number Excluded.	Per Cent. of Those Examined, Excluded.
Brockton, Mass. (3 months) ...	3,208	347	10.8
Lawrence, Mass. (3 months)...	1,424	139	9.8
Montclair, N. J.....	2,503*	242	9.7
Newark, N. J.....	21,299	2323	10.9
Springfield, Mass.....	8,759	1043	12.2

About the only conclusion to be drawn from this table is that under common practice in cities not employing school nurses about 10 per cent. of the children referred to the school physician will be found to be suffering from diseases serious enough in nature to warrant their exclusion.

In Massachusetts schools of the State having an average membership of 343,000 reported during the school year 1906–07 children suffering from diseases or defects as follows:

DISEASES AND DEFECTS REPORTED IN MASSACHUSETTS, 1906–07

Diphtheria	238
Scarlet fever	313
Measles	637
Whooping-cough	973
Mumps	367
Chicken-pox	548
Influenza	276
Syphilis	36
Tuberculosis	115
Erysipelas	17
Adenoids	2,525
Other diseases of the oral and respiratory tract	5,103
Otitis	407
Other diseases of the ear	363
Conjunctivitis	779
Other diseases of the eye	2,159
Scabies	1,054
Pediculosis	7,691
Impetigo contagiosa	1,568
Ringworm	715
Other diseases of the skin	1,170
Chorea	105
Epilepsy	41
Deformities (spinal and extremities)	142
Total of diseases and defects	27,342

* Average attendance.

Of course defects of vision and hearing are not included in the above table. However, even these incomplete figures show that the aggregate effect upon school attendance and school work is a subject for the most serious thought.

That the whole matter of the relation of contagious diseases to the school life of children is one for serious thought has been convincingly demonstrated. There is a mass of evidence showing conclusively that the schools are a principal means of disseminating disease throughout the community. This evidence can be readily secured by any one. Pupils are very apt to attend schools during the earlier stages of diphtheria and during the late but peculiarly infectious stage of scarlet fever, thus spreading the disease throughout the community. Medical inspection greatly reduces this danger. It is the testimony of Dr. Samuel H. Durgin, Chairman of the Boston Board of Health, that since the system of the medical inspection of schools was introduced in Boston, diphtheria has fallen off about two-thirds and scarlet fever about five-sixths. In the case of diphtheria, antitoxin has of course played a leading part. In the case of scarlet fever the starting of the new infectious ward at the City Hospital has had an important effect. But in both cases, medical inspection in the schools has also been important, as shown by the fact that before the inspection began some diseases, such as diphtheria, for instance, were more common during the school term than during the vacation period, but that after the inspection was introduced, they were less common during the school term than during vacation.

Again, extensive studies indicate that over 90 per cent. of the deaths from contagious diseases, such as diphtheria, scarlet fever, whooping-cough and measles, occur before the age of ten.

Contrary to popular opinion, there is great mortality from measles when this occurs in the early stages of life, and among the children of the poorer classes. Extensive statistics collected in the city of Munich show that the mortality from this disease between the second and fifth year was 4.55 per cent., while from the sixth to the tenth year it was only .4 per cent. These figures would indicate that if an epidemic occurs in the kindergarten period the deaths are likely to be 45 in 1000, whereas if the epidemic can be postponed until the primary school period, only 4 in 1000 will die.

In the face of such evidence as the above to argue for medical inspection is to argue for the promotion of efficiency in our schools, the protection of the community and the preservation of the lives of its children.

CHAPTER V

The Work of the Teacher in Detecting Contagious Diseases

There is considerable difference of opinion among physicians having charge of systems of medical inspection as to whether the medical inspector should visit the school room only when called on by the principal or teacher, or whether he himself should systematically inspect without such call. As the result of the non-agreement upon this point there is, of course, wide variation in practice in different localities.

Expressed in its simplest terms, the problem really resolves itself into the question,—Is or is not the room teacher competent to detect symptoms of disease among her pupils?

Among the important opinions which may be cited in support of the contention that the room teacher is competent to detect such symptoms are those of Dr. C. Koon, of Grand Rapids, Mich., Dr. Bert Nottingham, of Lansing, Mich., and Superintendent of Schools E. C. Moore, of Los Angeles, Cal.

Dr. Koon, in speaking of the Grand Rapids system, says:

> "We place the responsibility of sending pupils for inspection on the teachers. It is impossible to have 600 or more pupils examined every morning. It would discommode school work. We have the same rule as in Detroit. The teachers in each room simply ask if any pupils are feeling sick, and if so, they are sent to the principal's room. If any child is out of school for the day that child is sent to the principal's room and examined. That is the better way. The teacher knows all her pupils and knows easily whether any pupil is feeling sick by his actions."

In speaking of the Lansing system, Dr. Bert Nottingham says:

> "The system is a combination of the Ann Arbor and Detroit systems. The teachers detect the cases of disease. We hold classes of instruction with teachers and show them how to detect these diseases. We have a specialist on eye, ear, nose and throat, who gives them information about detecting weaknesses. Also we have the specialist on eye, ear, nose and throat as one of the inspectors."

In a similar tone, Superintendent E. C. Moore, of Los Angeles, Cal., says:

> "The best health officer is one who is present all the time and ever watchful for the welfare of the child. That ever-present health officer is the teacher."

On the negative side of the question may be cited Dr. Thomas F. Harrington, Director of School Hygiene of Boston, and Dr. Elliott Kent Herdman, Medical Inspector of Schools, Ann Arbor, Mich. In an address delivered before the national meeting of the Department of Superintendence of the National Education Association, held at Washington, D. C., February 25–27, 1908, Dr. Harrington expressed the following opinion:

> "An important fact in the method of medical inspection under the Board of Health is that the detection of cases of contagious diseases among the children is done by the teacher and not by the medical inspector; if the latter confirms the suspicion of the teacher, the child is excluded from school; if the inspector does not agree with the conclusions of the teacher, the child returns to his classroom. Non-agreement is very frequent, and it requires exceptional perseverance for a teacher to hazard the chagrin of a second mistake, yet disastrous consequences might result from such hesitation. In Boston during the year 1905, 21,111 children were referred to the medical inspectors; 9,241 were found free from any disease. In London

between 20 and 30 per cent. of the cases submitted by the teachers were not suffering in any way."

In a paper read before the Ninth General Conference of Health Officers in Michigan, Dr. Herdman said:

"In some cities the inspectors are required merely to take the daily reports of the various teachers. I am satisfied from my own experience that this is not enough. A school teacher, however excellent, is no more able to detect disease in the school room than in the home, and detection is all important."

"I go into the schoolroom and sit down to familiarize myself with the faces of the pupils. After a few times, they have become used to it and I can detect anything wrong. I think the doctor should go into the schoolroom at least once a week. The teachers simply cannot detect."

Despite the radically contradictory nature of these opinions, the problem has been solved satisfactorily in many localities. The solutions are in the nature of compromises between the system of relying entirely on the teacher for detecting symptoms of disease and that of insisting that the doctor alone shall make the inspection.

It is the verdict of experience that three general propositions hold true: First, it is impracticable to have the doctor inspect all the children every day. Second, he should see them all sometimes. In some systems such routine inspections of all pupils are made once in two weeks, in others once a month, and in still others once a term. Third, where school nurses are employed the problem largely disappears, as the teacher and the nurse together readily decide which pupils should go to the inspector.

In localities where systems have been carefully worked out, teachers are provided with printed directions as to the symptoms which they should notice and on account of which children should be referred to the school physicians. Probably the most carefully worked out set of such instructions is that given in the pamphlet issued by the Massachusetts State Board of Education, containing suggestions of teachers

and school physicians regarding medical inspection. This little book so well fills the need that it has been reprinted for use in many other localities. It is such a good example of what such a manual should be that it has seemed well to reprint it in its entirety in this volume. It will be found as Appendix I. Under the heading, "Some General Symptoms of Disease in Children which Teachers should Notice, and on Account of which the Children should be Referred to School Physician," it gives explanatory directions under each of the following headings:

Emaciation,
Pallor,
Puffiness of the face,
Shortness of breath,
Swellings in the neck,
General lassitude and other evidences of sickness,
Flushing of the face,
Eruptions of any sort,
Cold in the head with running eyes,
Irritating discharge from the nose,
Evidence of a sore throat,
Coughs,
Vomiting,
Frequent requests to go out.

In the Annual Report of the Superintendent of Schools of Albany for 1907 is found a list of symptoms for which teachers are required to refer children to the inspector. The list is not very different from that used in Massachusetts. It is as follows:

ALBANY LIST

Unusual pallor,
Unusual dullness or sleepiness,
Red or discharging eyes,
Reddened or discharging ears,
Deafness,
Discharge from the nose,
Mouth-breathing,
Enlarged glands in the neck,

Swelling of neck at angle of jaw,
All skin eruptions,
Constant scratching of any part of the body,
Children who maintain peculiar postures at the desk,
Children showing defective vision of either or both eyes,
Children returning to school with excuse alleging illness and without note from attending physician,
Children returning to school or attending regularly and living at the same time in houses in which there is, or has recently been, illness,
Children asking frequent permission to go to the toilet.

Providence, R. I., Syracuse and White Plains, N. Y., also furnish the teachers with similar printed directions. Providence, however, goes farther than this. There each teacher is furnished with a slip of paper to be pasted in her rollbook, where it will always serve for ready reference and as a constant reminder. This slip contains the following rules:

RULES FOR CONTAGIOUS DISEASES, PROVIDENCE, R. I.

RULES FOR CONTAGIOUS DISEASES.

The Teacher will please paste this in the register book.

Children with the following diseases must be kept out of School:

With chicken-pox until the crusts are all off.
With mumps two weeks, and longer if the glands are tender.
With whooping cough while the child whoops.
With German measles for two weeks.
With measles until two weeks from the beginning of the sickness.

When there is measles in a family, children who have previously had it may be allowed in school. Those who have not had it must be excluded for two weeks from the beginning of the last case.

Permits are not necessary for any of the above. The teacher can usually determine the duration of the sickness better than the medical inspector.

All children living in houses where there is diphtheria, scarlet fever or small-pox must be excluded from school until they present a permit from the health department.

Moreover, each teacher is furnished with a supply of sheets of paper on which are printed in simple language rules to be observed by the pupils and which the teacher is expected to teach and enforce. A copy is given to each child.

PRINTED RULES DISTRIBUTED TO ALL PUPILS IN PROVIDENCE, R. I.

REMEMBER THESE THINGS.

Do not spit if you can help it. Never spit on a slate, floor, or sidewalk.

Do not put the fingers into the mouth.

Do not pick the nose or wipe the nose on the hand or sleeve.

Do not wet the finger in the mouth when turning the leaves of books.

Do not put pencils into the mouth or wet them with the lips.

Do not put money into the mouth.

Do not put pins into the mouth.

Do not put anything into the mouth except food and drink.

Do not swap apple cores, candy, chewing gum, half eaten food, whistles or bean blowers or anything that is put in the mouth.

Never cough or sneeze in a person's face. Turn your face to one side.

Keep your face and hands clean; wash the hands with soap and water before each meal.

Another feature of the Providence system is that the principals are furnished by the Department of Health with printed lists of the families of the city in which scarlet fever or diphtheria has been reported, to the end that children living at locations named on the list may be excluded from school until permits for their return are furnished by the department.

The city of Wilkesbarre, Pa., goes even farther than does Providence, R. I., in the matter of giving each pupil a set of simple health rules. The scheme is rather novel. The school board has adopted six simple rules for promoting health. They are to be printed on the cover of every book used in the public schools. Here they are:

1. Fresh air and sunshine are necessary to good health.
2. Night air is as good as day air, and in cities where there is much dust, better.
3. Eat little fried food, pastry, candy, cake, and sugar.
4. Wash your hands before you eat.
5. Never lick your fingers when turning pages or when counting money.
6. Avoid spitting because it promotes consumption and other diseases.

There are several plans by which the teacher refers to the school physician the children she believes to show symptoms of some illness. The simplest and perhaps the most common is for the teacher to send the children to the principal's or the school physician's room without any note as to what trouble she suspects or any particulars as to the case. There are good reasons why this system is not satisfactory. Some of them are well stated by Dr. S. W. Newmayer, of Philadelphia, in "A Practical System of Medical Inspection with Trained Nurses, Adapted for Public Schools of Large Cities." Dr. Newmayer says:

> "Each morning the teacher fills out for each pupil she desires examined by the inspector that part of the card above the dotted line. This may seem as though more clerical work is being shifted on the already overworked teacher. But a moment's reflection will prove it saves her time, trouble, and responsibility. Many of the younger pupils do not know their name, address, and number of classroom, much less why the teacher sent them to the doctor. This necessitates the return of the pupil to his class with a note requesting the desired information, which is eventually written on any scrap of paper, to again be copied by the doctor, and a third time by the nurse. I have heard teachers say, 'Who wishes to go to the doctor?' There are a few shiftless pupils who are only too ready to accept such an invitation to get out of the classroom. With the teacher answering the question, 'Why sent to medical inspector?' this imposition is avoided."

A good specimen of a very simple card from the teacher, requesting the inspector to examine a child, is that used in the Providence, R.I., schools.

TEACHER'S REQUEST TO INSPECTOR, PROVIDENCE, R. I.

Note to School Inspector.

Name.....

Residence.....

School.....

Please examine this pupil for

.....*Teacher.*

When out of Blanks notify Health Department.

A card providing for a fuller statement, and in many ways a better one, is in use in the schools of Asbury Park, N. J. It is a standard 4 x 6 inch filing card and has the advantage of insuring future ready reference when filed in a card index drawer.

CARD OF REQUEST TO INSPECTOR, ASBURY PARK, N. J.

ASBURY PARK PUBLIC SCHOOLS.
DEPARTMENT OF MEDICAL INSPECTION.

The medical inspector will visit the school buildings each day at ten a. m.

Date_____

Name of pupil_____

Residence_____

Age_____ Class_____

Any cases of sickness at home ?_____

Symptoms noted by teacher :_____

_____Teacher.

This card is to be filled out by the teacher when any pupil appears to be ill. This card should then be sent to the doctor's desk.

REQUEST OF TEACHER AND STATEMENT BY INSPECTOR, WASHINGTON, D. C.

FORM A.

ORIGINAL.

HEALTH DEPARTMENT.

MEDICAL INSPECTION OF PUBLIC SCHOOLS.

Hour *..... Date.....190 .

.....School Building. Room No.....

REQUEST FOR MEDICAL INSPECTION.

Will the Medical Inspector please examine.....

....., residing at.....

to determine the advisability (1) * of exclusion on account of contagious disease; (2) * of exclusion on account of non-contagious disease; (3) * of readmission.

.....

Signature of Teacher.

* When inserting hour, state whether "a. m." or "p. m."
* Check whichever phrase indicates the purpose of the proposed inspection.

RESULT OF INSPECTION.

Date of inspection....., 190 . Hour.....

Tentative diagnosis.....

* Recommendations.....

.....

.....

.....

Signature of Medical Inspector.

* If exclusion is recommended, specify the section of the regulations under which such action is to be taken. If duration of proposed exclusion is not determined by these regulations, specify the duration thereof.

FORM A.

DUPLICATE.

HEALTH DEPARTMENT.

MEDICAL INSPECTION OF PUBLIC SCHOOLS.

Hour *..... Date.....190 .

.....School Building. Room No.....

REQUEST FOR MEDICAL INSPECTION.

Will the Medical Inspector please examine.....

....., residing at.....

to determine the advisability (1) * of exclusion on account of contagious disease; (2) * of exclusion on account of non-contagious disease; (3) * of readmission.

.....

Signature of Teacher.

* When inserting hour, state whether "a. m." or "p. m."
* Check whichever phrase indicates the purpose of the proposed inspection.

RESULT OF INSPECTION.

Date of inspection....., 190 . Hour.....

Tentative diagnosis.....

* Recommendations.....

.....

.....

.....

Signature of Medical Inspector.

* If exclusion is recommended, specify the section of the regulations under which such action is to be taken. If duration of proposed exclusion is not determined by these regulations, specify the duration thereof.

A third card of notification is a slip having space provided for the teacher's statement regarding the child and the physician's diagnosis and disposition of the case. Such a slip is in use in the schools of Somerville, Mass.

STATEMENTS OF PHYSICIAN AND TEACHER, SOMERVILLE, MASS.

No. 5)

.....190.....

KEEP ON FILE

TEACHER'S STATEMENT

(Name).....*Room No.*.....

.....*School*

Complaint.....

PHYSICIAN'S STATEMENT

Diagnosis.....

Advice.....

.....

.....

.....

The same plan is followed in Washington, D. C., but with a somewhat more complex blank and one possessing the additional feature of being so made as to provide for filling out at the same time an original and a duplicate copy. With this plan, one copy can be kept on file in the school and the other sent to the office of the Health Department; or one copy can be kept by the school physician and the other by the room teacher.

There are points in favor of each one of the systems described. A plan which unites in one simple system the greatest number of these points is that described by Dr. Newmayer in the paper above referred to. He advocates the use of a card of which the following is a reproduction.

CARD USED BY DR. NEWMAYER IN PHILADELPHIA, PA.

School.....Teacher.....Room No.....
Name.....Address.....
Date.....Sent to Medical Insp. for.....
Diagnosis.....
Referred to physician—Dispensary—Nurse.
Excluded—date.....Returned.....
Treatment by nurse—at home—at school.
Dates of treatment—
Results—Cured
Improved
Not improved
Medical Inspector.
Total number treatments—
Nurse.

The system is devised for use in localities where trained nurses are employed and is based on using but one card and one blank. Each morning before beginning the day's exercises each teacher goes through her class and notes the pupils she wishes to send to the principal. Each child is given one of the cards on which the teacher has filled in the three lines at the top, giving the school, the name of the teacher, the number of the room, the name and address of the child, the date, and the teacher's reason for sending the child to the inspector. On these cards the inspector underscores whether the pupil is to go to the nurse, dispensary, or family physician for treatment; or whether excluded from the class. Each pupil sent to the inspector for examination receives one of the following slips to take back to his teacher:

To Teacher:—

This child is referred for treatment to————

NURSE
DISPENSARY
FAMILY PHYSICIAN

This child is.....excluded from the classroom until you receive notice for his (her) return.

Medical Inspector.

This admits of no mistake by the teacher and aids her in knowing the exact nature and disposition of each case. The child cannot go home for the remainder of the day if he has been instructed to wait for treatment by the nurse, and, again, a child excluded cannot return to his seat in the classroom and the teacher remain ignorant of his exclusion by the inspector. It admits of the principal having a full, written record of the disposition of all cases sent to the inspector.

When the case is referred to the nurse, the inspector specifies on the card if the child is to be treated at home or at school, or both; also the treatments recommended. This concise written report makes mistakes impossible and may prove valuable if legal or other questions arise.

These cards are filed in the office in a box with three compartments: first, "New cases"; second, "Unfinished cases"; third, "Cured cases." Each of these compartments is arranged according to the number of classrooms. Dr. Newmayer states:

> "The nurse, on visiting the school, first takes all cards in the compartment of new cases, and sends for each pupil individually. The information on the card makes it possible for her to perform all her work without troubling the principal or teachers. After attending to the new cases and recording on them the date of treatment, she replaces them in the cabinet, in the compartments of unfinished or cured cases. She now looks over the unfinished cases and sends for those requiring treatment, again re-

> cording the date. She so proceeds each day until the child is cured or disposed of, when she records the date of cure, when the card is filed in the third compartment. Once a month all finished cards are sent to the Bureau of Health or Bureau of Education, where they are filed in a cabinet according to school and disease. One can readily see how easy it would be to refer to these records. For example, should one desire to know how many cases of defective vision were treated and obtained the necessary glasses, or the average number of treatments required at school to cure a certain skin disease, these facts can readily be obtained."

Each week the nurse makes out a report of her work, which is forwarded to the chief medical inspector. A reproduction of the blank used will be found on page 78 in the chapter, "The School Nurse." It is, of course, evident that the system described, using only one card and having a slip returned to the teacher, telling what disposition the school physician has made of the case, is just as applicable to systems where nurses are not employed.

From the viewpoint of efficiency it is a much mooted question whether teachers should or should not have the duty of attempting to detect signs of illness among the children. In established systems this question is a very real problem of administration and is probably best solved by such a compromise as was described earlier in this chapter. In places where systems of medical inspection do not exist and where their establishment depends on making a simple and inexpensive beginning the problem disappears. Conditions inevitably resulting in disaster to the physical well-being of the pupils exist in our schools as a consequence of grouping together children from all sorts of homes, from families of all sorts of standards of cleanliness and health. Under these circumstances the important thing is to construct the social machinery to deal with the problem that confronts us. The teacher, being present, available, and in direct contact with the children, is the one to whom we must look as the agency for the initial starting of the machinery.

CHAPTER VI

The School Nurse

Dr. S. W. Newmayer, of Philadelphia, terms the school nurse "the most important adjunct to medical inspection." Dr. John J. Cronin, of New York, in writing of the work of the school nurse in that city, says: "Instead of opposition to this work at school, it is most highly endorsed by teachers, principals, educators, parents, and children. Since this innovation many cities throughout the world have copied our nursing system as far as possible, up to the standard set by this city." Dr. Ernest J. Lederle, formerly Commissioner of Health of New York City, says, "The school nurse has been voted a success from the day she began work." Dr. Walter S. Cornell says of the school nurses in Philadelphia, "As a rule, in the foreign, poverty-stricken sections they are invaluable." Dr. Thomas F. Harrington, Director of the Department of School Hygiene of Boston, writes, "It does not seem possible to conceive a more satisfactory arrangement or a more effective piece of school machinery than the school nurse under school supervision."

Citations from the best authorities on the subject, similar in tone to those quoted, might be indefinitely multiplied. It may be said indeed that there is no division of opinion on the subject. The leading authorities without exception advise and recommend school nurses in connection with the work of medical inspection.

Although this feature of the work is recognized as being so important, its development in America has been comparatively recent. The first regular employment of trained nurses in connection with the work of medical inspection seems to have been in December, 1902, in New York City, when a corps of nurses was established at a salary of $75.00 each per month. Previous to this the experiment had been tried in a small way, but with great success, in London. The success of the experiment was immediate and the movement has spread rapidly.

New York still maintains the corps of trained nurses. Philadelphia and Boston have them. Baltimore, Los Angeles, Grand Rapids, New Haven, Orange, N. J., and Syracuse and Yonkers, N. Y., are among the other cities employing school nurses.

Indeed, experience has proved—especially in the largest cities, where systems of medical inspection have been in operation some time—that the employment of competent school nurses is almost a necessity. This comes to light first in dealing with the cases of children who have been excluded for minor contagious diseases. A child who has been sent home, say for pediculosis, receives no attention from his parents. After a few days' absence he returns to school in the same condition in which he left. This process may be repeated several times before the child is finally put into fit condition for resuming his school work. The result is that when he does return, he is behind in his studies; and while he has been absent, the city has been paying for his instruction and no instruction has been received. Such cases as this are typical and numerous. Again, there are many simple cases of minor ailments which, properly treated by the nurse in school, will not prevent the regular attendance of the child. Where such treatment is not possible, they compel his temporary exclusion. In many other cases the school nurse, by visiting the home and conferring with the parents, secures treatment of some ailment by the family physician which in the absence of such home visiting would be neglected.

Such considerations as this played a large part in bringing about the establishment of the first regular corps of trained nurses for work in the public schools. As before stated, this was in New York in 1902. Previous to that time there had been a system of medical inspection in operation for some eight years. Before the nurse began work it was found that many of the children that were excluded on account of contagious diseases received no home care whatever. The parents either failed to understand the printed card, or ignored it altogether. The child, instead of being attended to, was left to play in the street, and associated with the other children as they came out of school, thereby coming in contact with them almost as much as if he had remained in school. Contagion was not being greatly lessened in the community; the child was not receiving medical attention, but was losing his schooling.

That the employment of competent school nurses very greatly reduces the number of exclusions from school was conclusively proved by the experience in New York before and after their employment. For the quarter ending December, 1902, we have the following table of exclusions from the New York public schools:

Measles	18
Diphtheria	140
Scarlet Fever	13
Whooping Cough	61
Mumps	9
Trachoma	12,647
Pediculosis	8,994
Chicken-pox	172
Skin Diseases	661
Miscellaneous	1,823
Total	24,538

During this time there were sixteen diseases which were excluded. The corps of nurses was organized in December. A card index system was installed by which an absolute record of every case of contagious diseases in the schools could be kept, together with the dates of treatment and termination. Under this system the number of excludable diseases was limited to seven. These when found must be excluded at once. They are:

Diphtheria
Scarlet Fever
Measles
Varicella
Pertussis
Mumps
Acute Coryza

It will be readily seen that had this system been in use during the quarter ending December 31, 1902, there would have been the following exclusions only:

Measles	18
Diphtheria	140
Scarlet Fever	61
Mumps	9
Chicken-pox	172
Total	460

In other words, the number of exclusions under the old system of medical inspection, without the careful card record and trained nurses, was 24,538. After the installation of the card system and the employment of the nurses, this number would have been reduced to 400. The difference, representing the number of pupils who, although suffering from some minor contagious ailment, are allowed under the new system to continue in school, is 24,138. In addition it has been found necessary to add to this list cases of pediculosis, with live pediculi, and contagious skin diseases where the pupil has persistently refused to undergo treatment. While these additions reduce to some extent the proportion of those who are allowed to continue in school, it still remains true that the number of exclusions since the installation of the card system and the employment of the nurses has been immensely reduced.

A good idea of what may be accomplished by the trained nurse in the public schools is given by Dr. S. W. Newmayer, of Philadelphia, in a paper read at a meeting of the Medical Society of Pennsylvania, September 11–13, 1906. He describes the work of one nurse, Miss Annie L. Stanley, who was loaned to the city of Philadelphia by the Visiting Nurse Society to show the great value of the trained nurse in the medical inspection of schools.

In April, 1904, the schools of the Fourth Section, five in number, were assigned to the nurse. A well-organized system was worked out and closely followed. The nurse visited the schools daily, three in the morning session and two in the afternoon. The medical inspector diagnosed and excluded from the school cases of contagion and recommended for treatment children suffering from various ailments. Written instructions as to the disposal of each case, treatment recommended, and whether the case was to be visited by the nurse at its home, were left at the office of the principal. The nurse each day obtained from this office the instructions. She followed up each case and saw that the instructions and recommendations of the physician were brought to a speedy and successful termination. In each school a small room was set aside for the work of the nurses. Here she had a drug closet and all requisite supplies. When necessary, she visited the homes of the children to give treatment and instructions, and obtained the coöperation of parents, thereby assuring success and more

permanent results. Sometimes circumstances made it necessary for the nurse to personally take a child to the dispensary for treatment. These home and dispensary visits were made after school hours and on Saturdays. There were various problems to be solved in each case, and the nurse invariably found the remedy. The duties of the school nurse assured success to the work of the medical inspector in improving the health of the school children. She lessened the number of exclusions from the classroom for minor contagious diseases. She saw that all excluded cases were placed under treatment as soon as possible, so that there should be the least possible loss of time from school and education. She treated those cases which would for various reasons receive no attention at their homes. The medical inspector recognized and excluded from the school cases of contagion, and recommended for treatment children suffering from defects hindering them in their studies. These cases might or might not receive the necessary attention, but with the nurse all uncertainty was dispelled.

It was also found feasible to use the nurse during the summer months when there was no school, in the lessening of the great mortality rate among infants from summer diarrhea, due mainly to improper care and feeding. Again, she aided materially in the campaign to lessen the number of cases and spread of consumption.

The following is a report of the work of the trained nurse in the schools of the Fourth Section:

WORK OF THE TRAINED NURSE IN THE SCHOOLS OF THE FOURTH SECTION, PHILADELPHIA

From Sept., 1905, to June, 1906

Schools visited	5
Scholars in attendance	4800
Visits to schools	656
Old cases treated	3863
New cases treated	907
Total number of cases	4770
Cases cured	781
Taken to dispensaries	49
Visits to dispensaries	97
Cases treated at home	342
Visits to homes	533

CASES TREATED AT SCHOOL

Pediculosis	249
Impetigo	98
Ringworm of body	30
Ringworm of head	6
Eczema	85
Conjunctivitis	126
Stye	4
Favus	2
Pustular dermatitis	15
Infected wounds, contusions, etc.	113
Miscellaneous	55
Defective vision; glasses furnished	124

NURSE'S VISITS TO HOMES

From Sept., 1905 to June, 1906

DISEASE	NO. OF CASES	NO. OF VISITS	NO. CURED
Defective vision	138	172	124 procured glasses
Scabies	8	25	8
Favus	2	19	2
Acute conjunctivitis	5	30	4
Discharging ear	4	7	4
Not vaccinated	12	12	12
Pediculosis	121	143	78
Pustular dermatitis	14	25	14
Uncleanliness	19	27	19
Congenital deformity	1	3	Admitted to Widener Memorial Home
Ringworm	5	29	5
Improperly nourished	13	22	Proper nourishment obtained

CHILDREN TAKEN TO DISPENSARIES

DISEASE	NO. OF CASES	NO. OF VISITS
Defective vision	41	63
Favus	2	7
Acute conjunctivitis	3	14
Scabies	3	13

In explanation of the above report of the trained nurse, Dr. Newmayer submits the following:

> "The percentage of pediculosis existing in these schools when the nurse began work in April, 1904, was thirty

per cent. This has since been reduced to eight per cent. Most of these cases were absolute cures, as the disease has not recurred in the same scholars. This is mainly due to the influence at the homes by the nurse. There remain very few cases of ringworm and impetigo, which at first were prevalent in large numbers. Conjunctivitis and corneal ulcers received no attention from the parents, and were treated only after the children were taken in charge by the nurse. They were soon cured and the children able to resume their studies. These cases included several in which corneal ulcer threatened the sight. Weak, anemic children, unable to work or study, due to impoverishment from improper food, were visited in their homes, and the existing difficulties, whether extreme poverty, sick or drunken parents, corrected. Over two hundred children with bad, defective vision were treated and supplied with necessary glasses only through much persuasion and the most persistent efforts of the nurse. This often required many visits to the homes."

Wherever they are employed, the home visiting by the school nurses is recognized as one of the most important, if not the most important, feature of the whole system. Dr. H. W. Buckler, one of the medical inspectors of Baltimore, says that this feature of the work is the most efficacious in its direct results and the most far-reaching in its indirect influences. In the home the nurse has opportunities of detecting and correcting the causes that produce the trouble for which treatment was advised. Often entire families are found to be suffering from the same disease for which the child was excluded, showing how utterly useless the work in the school would be in such cases without the nurse to attack the root of the evil in the home. The nurse on her first visit explains why the child has been excluded and what has to be done, often giving a practical demonstration of the treatment needed. If the condition is one which calls for a physician's services, she urges upon the family the necessity of calling their regular doctor or, in the case of very poor families, she often takes the child to the proper dispensary and sees that it gets the treatment required. The nurse's

opportunities for advising the family are manifold, as are also her chances of noting unsanitary conditions and non-observance of the law and reporting the same to the proper authorities.

In Boston the nurses are under the Department of School Hygiene, which is an integral branch of the educational system.

The nursing division of the department is under the direction of one supervising nurse who has at present thirty-four assistants. The division is provided for by an additional special appropriation of $25,000 annually. Rooms are equipped at schools in each district, and each nurse has an assignment of approximately 2,700 pupils. These nurses are appointed from a certified list similar to that of other employees in the service. The following report of the work of the first twenty nurses appointed under this department for the period September 11, 1907, to February 1, 1908, shows what is possible under this adjunct to health and efficiency.

Diseases of: Ear, 1,492 cases cared for; Eye, 6,078 cases cared for, including 3,649 suffering from defective vision; of these 1,131 were corrected by oculists; Nose, 2,602 cases, of which 1,405 had adenoids, 423 of whom had the obstruction removed; Mouth, 1,765 cases, including 1,686 who had carious teeth; Throat, 1,695 cases, including 683 of hypertrophied tonsils, and 608 of tonsillitis; Skin, 10,139 cases, all of which were followed to their homes and the parent or guardian instructed how to care for the same.

In addition to the above, 2,563 pupils having abrasions and wounds received 9,144 dressings; 2,034 miscellaneous affections, including 350 septic wounds, 312 suffering from renal disease, 121 having rachitis, 207 suffering from malnutrition, 227 with epilepsy, 126 with chorea, and 548 with bronchitis, anæmia, and heart disease, were treated; 3,293 were taken to family physicians, resulting in 3,202 being cured and returned to school at the minimum of absenteeism; 4,773 were taken to hospitals on request of parents; and 3,223 of these were cured and returned to school; 7,559 home visits were made for the purpose of instructing or advising parents concerning the children, or in order to persuade the parents to seek proper medical or surgical aid for the child. There were also 2,882 affections looked after, of which there is no classification. These do not include the specific infectious diseases.

In New York City the following account of the duties of the school

nurses was given in a pamphlet published by the Department of Health in 1906:

Duties of Supervising Nurse

The supervising nurse has entire charge of all of the nurses. She assigns the nurses to duty at certain schools, sees that necessary supplies are furnished, instructs the nurses in their duties, inspects their work, receives their reports of work performed and keeps a record of all examinations, treatments and diseases treated by each nurse in each school.

Duties of School Nurses

Each nurse is assigned a group of schools. She reports each day at each school, at a certain specified time.

1. *Morning Inspection.*

In a special room, assigned for the purpose, the nurse receives all children ordered to report to her for treatment. These cases include pediculosis, ringworm, scabies, favus, impetigo, molluscum contagiosum and conjunctivitis. The treatment used for these conditions is as follows:

Pediculosis: Children are assembled in groups and are instructed orally, and by means of circulars printed in a language suited to the nationality of the child, as to the methods of home treatment. These cases are not treated in school.

Cases to be Visited by the Nurse at the Home of the Children

1. Flagrant cases of pediculosis. The nurse shows the mother how to treat the condition and encourages persistence.

2. Excluded cases who do not return at the appointed time.

3. Trachoma cases where treatment is not sought regularly. The nurse urges the need of treatment, and if necessary takes the child to a dispensary.

The nurse is not allowed to treat cases of trachoma. Children so affected must report to the nurse each week and show a physician's certificate card, properly dated, showing evidence that the child is continuously under treatment. Persistent failure to show such evidence is cause for exclusion.

2. *Routine Inspection.*

When morning inspection has been completed, the nurse visits the classrooms and makes a weekly routine inspection of the eyelids, hair, skin, and throat of each pupil.

The nurses keep a special set of index cards. All cases of contagious disease found are noted on these cards. Special cards are kept for recording all cases of pediculosis; these cases are under the exclusive care of the nurse. Other cases are noted and ordered to report to the medical inspector for the purpose of confirming the diagnosis. The nurse must exclude all children showing symptoms of diphtheria, scarlet fever, measles, whooping cough, chicken-pox, or mumps, and if the inspector is not in the school to confirm the diagnosis, telephone the name and address of each excluded child to the central office. An inspector is then sent to the home of the child and takes further charge of the case.

The nurse forwards each day to the supervising nurse a record of the work performed that day, including:

Number of children examined
Number of children excluded
Number of children treated
Number and character of diseases treated
Number of visits made to children at their homes

The nurse also sends to the supervising nurse, each week, a report giving the total amount and character of the work performed during the week.

Dr. Cornell gives the following account of the duties of the school nurse in Philadelphia:

> "Five nurses are maintained by the city for work in the congested quarters. Their duties consist in curing the numerous minor skin diseases existing coincidently with poor nutrition and unhygienic surroundings, looking after other minor cuts, sprains, etc., occasionally examining children for pediculosis, when several cases have occurred in a class, and in visiting the parents of children suffering from physical defects, for the purpose of urging treatment. Occasional visits are made to dispensaries with the children. The efficiency of these nurses depends largely upon their personality. As a rule, in foreign poverty-stricken sections, they are invaluable. It does not appear that their sphere would extend beyond the home visiting for the purpose of urging treatment, in the other sections of the city.
>
> "In those schools visited by both the medical inspector and the nurse, the nurse is subordinate to the medical inspector. The method of action and record in these schools is for the medical inspector to leave the small blue cards, each containing the record of some child's physical defect, for the nurse's enlightenment. The nurse sends for the children by means of these cards, and either treats them at the time or makes a note of home visits required. When the case is disposed of, she makes such disposition: 'eye-glasses, Pennsylvania Hospital'; 'sent to Dr. Schamberg,' skin specialist; 'glasses, City Hall'—meaning a case for free treatment and glasses by the city ophthalmologist, and returns these cards to the medical inspector, who finally files them at the central office."

FORMS USED IN CONNECTION WITH WORK OF NURSES

In the report of the work in Philadelphia quoted above, Dr. Cornell mentions the small blue cards made out by the medical inspectors which contain the record of some child's physical defect and are left for the nurse's enlightenment. The following is a reproduction of the card referred to:

CARD RECOMMENDING PUPIL FOR TREATMENT. PHILADELPHIA

RECOMMENDED FOR TREATMENT

School_____ **Section**_____

Name_____

Address _____

Cause_____

Date of Recommendation_____

Referred to { **Physician** / **Dispensary** / **Hospital**

_____

Result _____

_____

_____ **Medical Inspector**

Every nurse sends each week a report to the chief medical inspector of what she has done during the week. The following is a reproduction of the form used:

WEEKLY REPORT OF NURSE. PHILADELPHIA

A. A. Cairns, M. D.,
Chief Medical Inspector.

Dear Sir:—

The following is a weekly report of Nurse of Schools of Fourth Section.

Week Ending.									Diseases for which Pupils are Treated.																
	Date.	Schools Visited.	Old Cases.	New Cases.	Cured.	Visit to Homes.		Taken to Dispensary.		Pediculosis.	Ac. Conjunctivitis.	Scabies.	Ringworm.		Impetigo.	Favus.	Eczema.	Pust. Dermatitis.	Inf. Wounds.	Def. Vision.				Miscellaneous.	Totals
						Old	New	Old	New				T	C											
Monday ..																									
Tuesday ..																									
Wednesday																									
Thursday .																									
Friday																									
Saturday ..																									
Totals																									
Total number of cases cured..																									

CASES TREATED AT HOMES

Date.	Name.	Address.	Disease.

CASES TAKEN TO DISPENSARY

Date.	Name.	Disease.

Date_____ Nurse_____

A simpler form of weekly report on the nurse's work is in use in Baltimore.

WEEKLY REPORT OF NURSE. BALTIMORE

SCHOOL INSPECTION.

NURSES' WEEKLY REPORT.

No. of pupils inspected in school.....
(Work with School Inspector not included)
No. of pupils inspected at home.....
No. of pupils treated in school.....
No. of pupils treated at home .....
Schools Visited Nos. .....
No. of Homes Visited.....

DISEASES TREATED IN SCHOOLS:

.....
.....
.....
.....

DISEASES TREATED IN HOMES:

.....
.....
.....
.....

REVERSE OF BALTIMORE CARD

Difficulties, if any, at homes:

Difficulties, if any, in schools:

REMARKS:

Date,.....

.....Nurse.

To sum up the case for the school nurse—she is the teacher of the parents, the pupils, the teachers, and the family in applied practical hygiene. Her work prevents loss of time on the part of the pupils and vastly reduces the number of exclusions for contagious diseases. She cures minor ailments in the school and furnishes efficient aid in emergencies. She gives practical demonstrations in the home of required treatments, often discovering there the source of the trouble, which if undiscovered, would render useless the work of the medical inspector in the school. The school nurse is the most efficient possible link between the school and the home. Her work is immensely important in its direct results and very far-reaching in its indirect influences. Among foreign populations she is a very potent force for Americanization.

CHAPTER VII

Physical Examinations for the Detection of Non-Contagious Defects

The whole theory on which physical examinations conducted for the detection of defects are based rests on a different foundation from that underlying medical inspection for contagious diseases. The latter is primarily a protective measure and looks mainly to the present safeguarding of the community. The former aims at securing physical soundness and strength, and looks far into the future.

It has been brought into being by the great mass of evidence showing conclusively that a very large percentage of school children—probably from a quarter to a third of all of them—are defective in vision to the extent of requiring an oculist's care if they are to do their work properly and if permanent injury to their eyes is to be prevented. These conclusions are based upon examinations of hundreds of thousands of children in all parts of the world. There is no doubt as to the substantial accuracy of the results. More than this, a considerable per cent.—probably about five—of school children are so seriously defective in hearing that their school work is badly interfered with. Most important of all, *only a small minority of these defects of sight and hearing are discovered by teachers or are known to them, to the parents, or to the children themselves.* When children attempt to do their school work while suffering from these defects, among the results may be counted great injury to the eyes, sometimes resulting in blindness, permanent injury to the nervous system owing to eye straining, and depression and discouragement owing to inability to hear and see clearly.

But not only are eyesight and hearing important, there are many other defects far from rare among children and having an important bearing on their present health and future development which, if discovered early enough, may easily be remedied or modified.

The argument for the physical examination of school children is based on a recognition of the important bearing of the physical and mental condition of the children on the whole process of education. It recognizes the necessity of a favorable physical and educational environment, and by emphasizing the importance of the effect of surroundings upon the personality of the individual child seeks to secure for each pupil such conditions of life as will secure a full and effective development of its bodily strength and mental power.

In America comprehensive systems embracing thorough medical examinations of all pupils are still rare. The oldest such system in public schools is of comparatively recent origin. Partial examinations, however, have been made in many places and tests of eyesight and hearing are by no means rare. In the nature of the case there has been so great variation in the methods used in conducting these tests that the results found in different cities, where examinations have been conducted perhaps under radically different conditions, are not directly comparable with each other. Nevertheless an examination of the available data serves to emphasize the far-reaching importance of doing something to better existing conditions and to show that eyesight and hearing troubles are not confined to any one locality or to large cities only. In the table on page 83 are shown the results of different recently conducted eyesight and hearing tests.

In examining this table one is at once struck by the variations between the figures in the column giving the percentages of defective vision for the several places. Thus, Bayonne reports only 7.7 per cent. defective, while the congested districts of Cleveland report 71.7 per cent. Of course, such variations as this at once suggest what is undoubtedly the case, that the results are largely influenced by the methods employed by the examiners, and variations from this cause are apt to be even more important than those caused by the actual differences in existing conditions. Leaving out of account such extreme cases as those cited, it will be noticed that in a considerable part of the cases the children having defective vision are from 20 to 30 per cent. of the whole number examined.

In the two examinations conducted in Cleveland in 1907, the percentage of those having defective eyesight in the well-to-do district was 32.4, while in about the same number of cases in a congested dis-

trict it was 71.7. It is said that every endeavor was made to use just the same standards in the examinations in these two tests. Certainly this is interesting, and suggests the importance of conducting similar tests in other cities.

RESULTS OF VISION AND HEARING TESTS CONDUCTED IN PUBLIC SCHOOLS

Place.	Date.	Number Examined.	Defective Vision.	Per Cent.	Defective Hearing.	Per Cent.
Bayonne, N. J.	....	4,610	353	7.7	115	2.5
Camden, N. J.	1906	10,028	2,757	27.7	412	4.1
Cleveland	1900	30,045	6,221	20.7	....	..
Cleveland, well-to-do district	1907	668	216	32.4	34	5.2
Cleveland, congested district	1907	616	437	71.7	11	1.8
Dunfermline	1907	1,526	255	17.0	....	4.0
Edinburgh	1904	1,330	574	43.2	162	12.2
Massachusetts	1907	402,937	99,609	22.3	27,387	6.3
Counties of Mass. except Suffolk	1907	....	....	19.9	....	5.8
Suffolk County (Boston, Chelsea, Revere, Winthrop)	1907	....	....	30.7	....	7.7
Milwaukee	1907	1,960	293	14.9	....	..
Minneapolis	....	25,696	8,166	30.0	....	..
Minneapolis	1908	710	170	23.9	55	7.7
New York City	1906	79,065	24,534	31.3	1,633	2.0
Pawtucket, R. I.	1901	4,663	517	11.1	200	4.3
Utica, N. Y.	1897	6,113	667	10.9	406	6.6
Worcester, Mass	....	11,953	2,281	19.1	313	6.6

Another point which may be of significance is that in the state examinations of Massachusetts the percentage of defective vision of the counties of the state outside of Suffolk County was 19.9, while Suffolk County, which is almost entirely the city of Boston, reports 30.7 per cent. In corroboration of the suggestion that defective vision is more prevalent in cities than in country districts are also the figures from Scotland, where the city of Edinburgh reports 43.2 per cent. defective, while the town of Dunfermline reports only 17.0.

It is to be noted that a similar situation exists with regard to the

66 K—1908

DEPARTMENT OF HEALTH, CITY OF NEW YORK

253, '08, 300,000 (P)

Physical Record of ..... Sex ..... Born .....

Nationality of Father ..... Mother ..... Number in Family, Adults ..... Children .....

Number of Birth ..... History of Measles ..... Scarlet Fever ..... Diphtheria ..... Pertussis ..... Pneumonia ..... Grippe .....

Date of 1st Examination ..... in School .....

1. School year	1		2		3		4		5		6		7		8		9		
2. Term	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
3. Class																			
4. Revaccinations																			
5. Diseases during term																			
6. Date of physical examinations																			
7. Height																			
8. Weight																			
9. Nutrition																			
10 Anæmia																			
11. Enlarged glands																			
12. Nervous diseases																			
13. Cardiac disease																			
14. Pulmonary disease																			
15. Skin disease																			
16. Defect orthopædic																			
17. Defect of vision																			
18. Defect of hearing																			
19. Defect of nasal breathing																			
20. Defect of palate																			
21. Defect of teeth																			
22. Hypertrophied tonsils																			
23. Adenoids																			
24. Mentality																			
25. Conduct																			
26. Effort																			
27. Proficiency																			
28. Treatment necessary																			

INDIVIDUAL RECORD CARD, NEW YORK CITY

figures for hearing from these same localities. The counties of Massachusetts outside of Suffolk report 5.8 per cent. defective in hearing, while Suffolk reports 7.7 per cent. Dunfermline reports 4 per cent., as contrasted with 12.2 per cent. from Edinburgh.

In general, from 5 to 6 per cent. of children examined are found to have defective hearing.

Turning our attention now from tests for vision and hearing to more comprehensive physical examinations, we are at once attracted to the situation in New York. Up to the spring of 1903 the whole attention of the medical inspectors in New York had been directed against infectious and contagious diseases. In March of that year the system was so elaborated as to continue with the former work and at the same time to include the complete physical examination of each child.

Since that time there has been but little change in the list of defects examined for. Immediately after the morning inspection for contagious diseases has been concluded the inspector receives the children of a class in turn in a special room set aside for the purpose and examines them for sight, hearing and physical defects. The headings under which entries are made can be seen by referring to the reproduction of the individual record card in use in the New York schools.

In every case where a defective condition is found to exist the parent of the child is notified by means of a printed postal card form. The postal cards used are of the "reply" form. The postal card informing the parent that his child has some physical defect has on it the directions: "Take the child to your family physician for treatment and advice. Take this card with you to your family physician." Attached to this card is another which the family physician to whom the case is referred is asked to fill in, telling what action he has taken, and mail to the chief medical inspector. This system allows of following up the cases. If the reply card is received, the authorities know that action has been taken in regard to the case. If no reply is received, the case demands further attention.

The results of the New York examinations have attracted widespread attention, and a large number of newspaper and magazine articles have been written about this work in New York. There has been much discussion as to whether the conditions found by the doctors in New York were typical of conditions existing in other cities or were

POSTAL CARD NOTICE TO PARENTS, NEW YORK

"This Notice Does NOT Exclude This Child From School"

DEPARTMENT OF HEALTH

THE CITY OF NEW YORK

.....190

The parent or guardian of.....
of.....attending P. S.....
is hereby informed that a physical examination of this child seems to show an abnormal condition of the.....
.....
.....
Remarks.....
.....

Take this child to your family physician for treatment and advice. Take this card with you to the family physician.

THOMAS DARLINGTON, M. D.,
Commissioner of Health.

HERMANN M. BIGGS, M. D.,
General Medical Officer.

REVERSE OF CARD

TAKE THIS CARD TO YOUR PHYSICIAN

The Physician in charge is requested to fill out and forward this postal after he has examined this child.

I have this day examined.....
of P. S.....and find the following condition:

and advised as follows:

Respectfully yours,

.....

Date..... .....

exceptional. Unfortunately not enough work of a similar nature has been done in other places to furnish data for answering these questions, and where the work has been done the results are not usually in such statistical form as to allow of comparison. Almost the only available figures are from Minneapolis and are for a small number of cases. Nevertheless it is interesting to compare these figures with those for New York for the year 1906.

PHYSICAL EXAMINATIONS IN NEW YORK AND MINNEAPOLIS

	New York City, 1906.	Per Cent.	Minneapolis, 1908.	Per Cent.
Number examined	78,401	100.0	710	100.0
Bad nutrition	4,921	6.3	166	23.3
Anterior cervical glands	29,177	37.2	377	53.0
Posterior cervical glands	8,664	11.0	...	...
Chorea	1,380	1.7	2	0.2
Cardiac disease	1,096	1.4	15	2.1
Pulmonary disease	757	.9	30	4.2
Skin disease	1,558	1.9	12	1.6
Deformity of spine	424	.5	...	...
Deformity of chest	261	.3	...	...
Deformity of extremities	550	.7	...	...
Defective vision	17,928	22.8	170	23.9
Defective hearing	869	1.1	55	7.7
Defective nasal breathing	11,314	14.4	...	...
Defective teeth	39,597	55.0	309	43.5
Defective palate	831	1.0	2	0.2
Hypertrophied tonsils	18,306	23.3	221	31.1
Postnasal growth	9,438	12.0	91	12.8
Defective mentality	1,857	2.3	...	...
Where treatment was necessary	56,259	71.7	462	65.1

On the whole the figures in the per cent. columns show substantial agreement. It is to be supposed that the great difference under the heading "Bad nutrition" (6.3 per cent. in New York and 23.3 in Minneapolis) is due to a different standard rather than to any great difference in conditions. Under "Defective hearing," again, there is a striking difference, the New York figure being 1.1, while that of Minneapolis is 7.7. As so low a percentage as that given for New York is very

rarely found elsewhere, here again it must be concluded that the standard in New York must be less rigid than in other places.

Perhaps the most interesting figures of all are those for "Where treatment was necessary." The percentages are 71.7 for New York and 65.1 for Minneapolis.

This is a feature of interpreting the results of the work of physical examinations which has caused many misapprehensions. It has been stated again and again that the results of physical examinations in New York proved that two-thirds of all the school children were defective, and such statements have aroused much discussion and called forth some denials. The trouble is one of words rather than facts. To use the word "defective" as it has been used in this way is to give it a new meaning. What the figures really show is that more than two-thirds of the children are found to have defects serious enough to record them and which call for attention from a physician, surgeon or dentist. Nevertheless the defects so recorded may be nothing more serious than a carious tooth.

Judgment as to what constitutes a defect serious enough to warrant including the child in the class "defective" varies greatly in different places. Recently newspaper articles announced that examinations of school children in Sioux City showed that 80 per cent. were defective, while a little later they announced that only 18 per cent. were defective in Minneapolis. This latter figure represented the proportion the physicians in the latter city considered "seriously defective." Of course, it must be remembered in this connection that the perfect human animal is exceedingly rare. At a recent examination in Chicopee, Mass., out of 500 pupils examined only one was reported as having perfect teeth, and this one was found to have spinal trouble, so that not a single pupil was reported as being perfectly sound physically.

All this does not mean, however, that our schools are filled with physical wrecks. While the results of the examinations prove beyond doubt the need for finding out the facts and taking steps to have defects remedied, the need for moderation of statement in making public the results is no less apparent.

In any system of medical inspection which includes the feature of physical examinations the matter of keeping records is of the greatest importance. To begin with, a good system of individual records is

imperative. This is a field of work where general information will not do. There must be a complete individual record for each child. This record card or blank must have on it spaces for recording the results of subsequent examinations as well as the initial one. If the results of the work are to be of real practical value, there must be the closest connection between the records of the physical examinations and the classroom work. It does no good to have a record on a card in the principal's room or in the office of the board of health to the effect that Willie is stone deaf in the right ear, if the teacher knows nothing of the fact and still has Willie seated in the back left-hand corner of the room. It is also obvious that if the records do not follow the child from room to room, and school to school, in case of transfers, much of the work is soon rendered useless.

These are some of the reasons why a system of medical inspection with physical examinations is an entirely different problem, from the point of view of the school administration, from a system for the detection of contagious diseases only.

Experience proves that the latter sort of work can be handled satisfactorily by boards of health. In the system having physical examinations as an important feature the educational authorities must in any event have an active participation in the work, and will probably succeed much better if they have it entirely in their own hands.

The necessity for applying the information gained through the work of the school physician to the work of the classroom has been recognized in Los Angeles and some other cities by having the teacher's roll books so made that in case any child has a physical defect, the fact is entered in a space beside his name in the book.

Pasadena, California, recognizes the importance that the teacher's intimate knowledge of the child and his habits has for the school physician who is conducting physical examinations. In that city individual cards are used for recording the results of the physical examinations made by the school doctors, and on the reverse of the cards are blanks which the teacher fills in, indicating the points which her knowledge of the child leads her to believe require attention. Of course, the teacher fills in her side of the card first, and the physician uses the information as a guide and assistance in making the physical examinations.

RECORD CARD, SHOWING TEACHER'S COMMENTS ON HABITS AND PECULIARITIES OF PUPIL. PASADENA, CAL.

HEALTH DEPARTMENT, PASADENA PUBLIC SCHOOLS

Date_____

Pupil's Name _____

Parent's Name _____

Address _____

1	*Posture*
2	*Nutrition*
3	*Color*
4	*Activity, mental*
5	*Activity, physical*
6	*Teeth: crooked, prominent, decayed*
7	*Mouth breather*
8	*Frequent absences*
9	*Bad behavior*
10	*Inattention*
11	*Delinquency in studies*
12	*Squinting, or other eye symptoms*
13	*Deafness*
14	*Nasal voice*
15	*Frequent colds*
16	*Skin diseases or pimples*
17	*Twitching of eyes, face or any part*
18	*Offensive breath*
19	*Over development, physical*
20	*Under development, physical*
21	*Uncleanliness*
22	*Vicious personal habits*
23	*Signs of fever*
24	*Signs of any contagious disease*
25	*Cough*

The Teacher will please fill in the blanks at the top of this card, and check off the points which she thinks require attention.

REVERSE OF CARD, SHOWING BLANKS FILLED IN BY SCHOOL PHYSICIAN

PHYSICAL EXAMINATION No.____

Heart _____

Lungs _____

Eyes _____

Ears _____

Nose _____

Throat _____

Teeth _____

Contagious Disease _____

Skin Disease _____

Special Data

Recommendations

Results

Medical Examiner.

PHYSICAL RECORD CARD, LOS ANGELES, CAL.

HEALTH AND DEVELOPMENT EXAMINATION—LOS ANGELES CITY SCHOOLS

Name.....Age.....Grade....School.....

Date.....Residence.....Phone.....

School Report: Excellent—Fair—Poor—In what deficient....
Failure to be promoted—Time lost.....

Health: Good—Fair—Poor—Frequent colds, headaches—Lack of vitality. Has been sick a good deal.

Eyesight: Eyes inflamed or watering—Frequent headaches—Nervousness—Indigestion—Squinting—Scowling—Holding head one side or book too close to face—Blurring of print—Lack of application.

Visual fractions.....

Hearing: Good—Fair—Poor—Right—Left—Variable—Discharge from ears—More or less mental dullness apparently due to poor hearing.

Teeth: Excellent—Decayed—Filled—Crowded and irregular.

Nose and Throat: Mouth breather—Variable hearing—Nasal voice—Poor articulation—Stuttering—Lack of vitality—Indications of enlarged tonsils or presence of adenoids.

Chest Development: Flat chest—Stoop shoulders—Shallow respiration—Lack of vitality.

Heart Action: Shortness of breath—Fatigue—Pallor—Poor circulation—Lack of vitality.

.....
TEACHER.

Nervous Condition: Nervousness — Excitability — Poor control.

Vitality and Endurance: Good—Fair—Poor.

Physical Development:
Rapid—Slow—Arrested growth—Undergrown.

Mentality: Quick, slow, strong, weak—Precocity—Arrested growth.

Special Data:
Deformity.
Indications of incipient mental or nervous disorders, etc.

Teachers will underline words and phrases which express conditions observed or those thought to be present.

(REVERSE OF CARD)

PHYSICAL EXAMINATION

Eyesight: Practically normal. Error slight, needs no attention at present unless frequent headaches or blurring of print are present.

Approximately.

Myopia
Myopic astigmatism
Hyperopia
Hyperopic astigmatism

Esophoria.....Exophoria.....Hyperphoria.....
Needs glasses. Needs further examination by specialist.
Diseased condition present, needs treatment.

Hearing: Normal. Deficient—Right—Left—Middle Ear—Nerve deafness. Suppurating ears. Needs further examination by specialist.

Teeth: Excellent—Decayed—Filled—Crowded and irregular.

Nose and Throat: Enlarged tonsils—Presumably adenoids—Adenoids.
Examination for removal recommended.
Throat needs treatment.

Lung action: Breathing, Roughness, Bronchial.
Râles, Mucous, Sibilant, Sonorous, Pleuritic.

Heart Action: Irregular—Murmurs, Functional, Organic.

Special Data

Deformity.
Nervous or mental disorders
Sex Examinations.
(*Parents must be present*)
Whatever condition interferes with progress and advancement of pupils.

Recommendations

Results

.....

.....Examiners

A similar, but more highly developed, system is in use in the schools of Los Angeles, California. There a standard five by eight inch index card is used for the record of each pupil. One side is filled out by the teacher and the other by the school physician. Professor George L. Leslie, Director of the Department of Health and Development of Los Angeles City Schools, writes as follows concerning the use of this card:

> "We yoke the school teacher and the physician together as nearly as possible by the use of the record card. The plan is not too difficult for the teachers of the schools, and very materially aids the physicians in their work. It also emphasizes the fact that both teachers and parents ought to and must know more of the common developmental conditions of boys and girls as a matter of every day living, if physical excellence and not degeneracy is to show in the growth and development of the young."

A simple card for keeping the individual record of physical examinations is in use in Utica, N. Y. It has the shortcoming of not having spaces provided for recording more than one examination.

PHYSICAL RECORD CARD, UTICA, N. Y.

CITY OF UTICA—DEPARTMENT OF PUBLIC SAFETY

BUREAU OF HEALTH
DIVISION OF SCHOOL INSPECTION

PHYSICAL RECORD

*School*_____ *Class*_____ *Date*_____

*Name*_____ *Age*_____ *Address*_____

1 Nutr.	G. B.	7 Defective	Spine Y. N.	11 Teeth	G. B.
2 Enl. Cerv. Gl.	Y. N. / A. P.		Chest Y. N.	12 Deform. Palat.	Y. N.
3 Chorea	Y. N.		Extrem. Y. N.	13 Hyper. Tons.	Y. N.
4 Card. Dis.	Y. N.	8 Def. Vis.	Subj. Obj. / Y. N.	14 P. Nas. Growths	Y. N.
5 Pulm. Dis.	Y. N.	9 Def. Hear.	Y. N.	15 Mentality	G. B.
6 Skin Dis.	Y. N.	10 Def. Nas. Breath.	Y. N.	16 Treatment necessary	Y. N.
				17 Nationality	

*Remarks*_____

_____

_____

Medical Inspector.

On this card the letter G stands for "good," B for "bad," Y for "yes," N for "no," A for "anterior," P for "posterior." In filling the card out the letters are crossed out as required.

The physical record card now in use in the New York schools (see page 84) has spaces provided for records of annual examinations for nine years. A card having spaces for five examinations is in use in Asbury Park, N. J.

PHYSICAL RECORD CARD, ASBURY PARK, N. J.

ASBURY PARK PUBLIC SCHOOLS

DEPARTMENT OF MEDICAL INSPECTION

No. Date Class

Name Age

	19	19	19	19	19						
Weight						Height					
Inspiration						Expiration					
EYES R.						Naso-Pharynx					
EYES L.						Nasal Septum					
Gen'l Condition						Teeth					

	19	19	19	19	19
Heart					
Lungs					
Throat					
Color Sense					
EARS R.					
EARS L.					

Remarks

Date of Last Successful Vaccination

Two simple forms for notifying the parent of the presence of some physical defect in the child that requires attention are in use in Somerville, Mass., and Ann Arbor, Mich. Neither one has any "follow-up" provision such as that described in connection with the New York notification card.

The Ann Arbor form is made like a bank check with a stub and is perforated for separation. These forms are bound in a book. This plan has the advantage of providing, with but little additional work, a record of the notifications sent.

NOTIFICATION TO PARENTS, SOMERVILLE, MASS.

(No. 9)

THIS NOTICE DOES **NOT** EXCLUDE THE PUPIL FROM SCHOOL

Somerville Board of Health

Medical Inspection Department

Somerville,.....190

The parent or guardian of.....
at.....is hereby informed that a physical examination by the medical inspector seems to show the following abnormal condition:—

.....
.....
.....

You are advised to take this child to your family physician for advice and treatment.

Very respectfully,
BOARD OF HEALTH.

NOTIFICATION TO PARENTS, ANN ARBOR, MICH.

Ward.....Room.....

Pupil's Name .....

.....

Sent by .....

Address.....

Note .....

.....

.....

Date.....

Ann Arbor Public Schools

Date .....

Mr. .....

Dear.....

It has come to our notice that your.....
needs medical attention relative to.....
.....
and we would suggest that you place.....
UNDER THE CARE OF A PHYSICIAN AS EARLY AS POSSIBLE, *so that*.....*will be in a better condition, physically, to continue*
.....*studies.*

Respectfully,

ELLIOTT KENT HERDMAN, M. D.,
Medical Inspector.

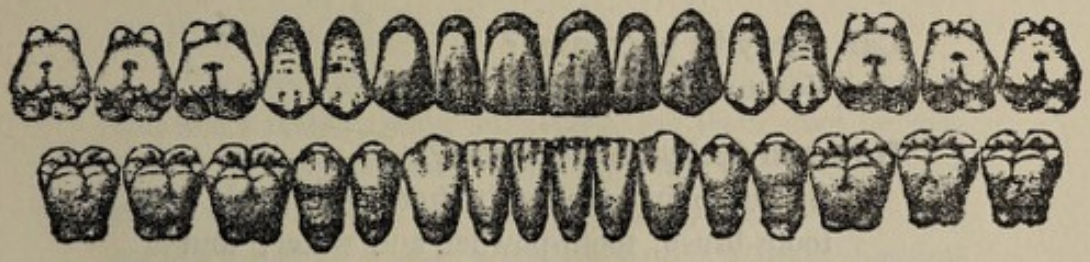
Board of Education.

There is one branch of medical inspection which has been given decided attention abroad, but until very lately has received very scant notice in this country. This is the care of the teeth of children. In Germany not less than thirty cities support free dental clinics where work is done on the teeth of school children. The records show that this has resulted in a great improvement in the health of the children and a decided diminution of absences. Wherever children's teeth are examined, a great majority are found to be suffering from more or less serious defects. In Germany, where account is taken of even the smallest imperfection, the per cent. of the defectives is reported to be as high as 96. In the examinations conducted in Dunfermline, Scotland, in 1907, the same result was found. Ninety-six per cent. of the children are reported as having defective teeth, and it is stated that among 2200 pupils of the schools not a single child was found who had had dental care or who had teeth filled or otherwise attended to.

There is some indication that the importance of sound teeth even in small children is commencing to be realized by medical inspectors in America. In the town of Northampton, Massachusetts, one of the blanks used by the medical inspectors is a small chart showing in outline a full upper and lower set of teeth. By making marks on these pictured teeth the medical inspector in making his examination indicates which of the teeth of the child are in need of attention.

TEETH CHART, NORTHAMPTON, MASS.

Name.....*Address*.....



New Bedford and Waltham are two other Massachusetts cities where attention is given to this subject. In New Bedford the children are supplied with leaflets containing a catechism on the care and use

of the teeth. The leaflet is endorsed by the Medical Academy of Dental Science, the Dental School of Tufts College, and the Dental School of Harvard University.

LEAFLET ON THE CARE OF THE TEETH SUPPLIED TO THE CHILDREN, NEW BEDFORD, MASS.

What are the teeth for?

Not merely for ornament. Their chief use is to prepare the food for the stomach—to grind the food and mix it with saliva. Food which is not thoroughly chewed causes indigestion and constipation.

How long should the teeth last?

To the end of life.

How do we lose them?

By decay and loosening.

What causes teeth to decay?

Bits of food and candy sticking to the teeth; also a poor physical condition.

Where does the food lodge?

All along the edge of the gums, between the teeth, and in the crevices of the grinding surfaces.

Can decay be prevented?

Yes, to a large extent.

How can decay be prevented?

By scrubbing the teeth thoroughly with a tooth-brush, tooth-powder and water; and by keeping up the general health.

How often should the teeth be cleaned?

At least twice a day—after breakfast and at bed time. Better after each meal.

Should the gums be brushed?

Yes. Moderate friction helps to keep them healthy.

How often should tooth-powder be used?

At least once a day—at bed time.

Twice a year at least a Dentist should carefully examine the teeth.

A bad condition of the throat, the nose and the ears is made worse by decayed teeth. They add to the chances of catching infectious diseases. Well cared-for teeth and a clean mouth help prevent TUBERCULOSIS.

Cleanliness is the best guard against disease.

Waltham distributes a leaflet on the care of the teeth to the parents of the school children.

LEAFLET ON THE TEETH AND THEIR CARE, WALTHAM, MASS.

To Parents:—

You are reminded of the necessity for early care of children's teeth. With such care, the teeth may be preserved throughout life. This will not only save much inconvenience and discomfort in later life, but it may enable the child in the meantime to live a more vigorous and hence a more successful life.

The condition of the teeth has much to do with the general health.

The following cautions, abbreviated from those

issued to teachers and school physicians by the Massachusetts board of education, are commended to your attention:

Unclean mouths promote the growth of disease germs, and cavities in the teeth are centers of infection.

Irregularities of the teeth, especially those which make it impossible to close the teeth properly, thus leading to faulty digestion and faulty breathing, should receive careful treatment.

The first permanent molars are perhaps the most important teeth in the mouth. They come at about the sixth year immediately following the temporary teeth, and are the most frequently neglected because they are often mistaken for temporary teeth.

It should be known that decay of the teeth is caused primarily by the fermentation of starchy foods and sugars, and that the greatest factor in preventing disease of the teeth is the removal of food particles by frequent brushing. Children should be prevented from eating crackers and candy between meals, and when possible the teeth should be cleaned after eating. Inspection of the teeth by a dentist should be made at least once or twice a year.

Your attention is also called to the prevalence of maladies of the nose and throat.

The health of a child and his ability to do his school work may be seriously impaired by the presence of adenoid growths. When a child shows obstruction of the nose by mouth breathing, snoring, continual discharge, or recurrent ear trouble, adenoids should be suspected.

Enlarged tonsils, recurrent tonsillitis, and enlargement of the glands in the neck also constitute a serious handicap to the child. Either condition must be remedied before he can have a fair chance in the world, and the earlier the better. The family physician should be consulted and the child given such treatment as he may advise.

Waltham, Mass.,
Jan. 1, 1908.

It is, of course, of the utmost importance that the physical defects disclosed by the examination of the school physician be given attention by the parents of the child, and through them brought before a physician and remedied if possible. It is of very slight practical utility to discover that a child has enlarged tonsils or defective vision if the discovery results merely in the addition of one to the statistical table of the defects discovered. Unless the cases are followed up, and unless parents can be persuaded or coerced into having their children given the necessary medical attention, it is obvious that a large proportion of the work of the school physician in making the examinations will be of scant utility. Nevertheless, despite the obvious importance of ascertaining whether physical examinations result in any good, attempts made to discover and report the number of cases where glasses have been supplied or medical attention given are few in number and ineffective in method.

A careful examination of the reports of the superintendents of schools of the 100 largest cities of their country, of the reports of the superintendents of schools of such other cities as are known to have systems of medical inspection, and of a large number of magazine and newspaper articles by recognized authorities, fails to bring to light a single official report giving the three essential factors, that is, total number of children examined, total number having physical defects, and total number of cases where the parents have taken steps to have remedied the defects discovered. Such information as is discovered is scant and indefinite. The search referred to above has brought to light solely the following information: The Superintendent of Schools of Newton, Mass., reports: "In every case in which the defect was considerable the parents of the child were notified and advised to consult a competent oculist or the family physician. Very many, if not all, responded, to the great benefit of their children."

The Superintendent of Schools of Somerville says, "At least 600 cases have been professionally treated and parents, as a rule, have gladly coöperated with the teachers." He does not state from how many defective children the 600 cases treated came. It seems probable, however, that among the 3753 cases of children reported examined in 1906, 600 received professional treatment. If this interpretation be correct, it means that 15.9 per cent. received the needed medical treatment.

The City Superintendent of Schools of New York City says in his

report for 1907: "Examinations for physical defects were made only in 248 schools, less than one-half the total number. In three-fourths of the cases in which defects were found the examinations conducted by the Department of Health serve only for the purpose of piling up useless statistics." If these statements are correct, the physical examinations as conducted in New York result in about one-sixth of the children being examined and about 25 per cent. of those examined receiving attention.

The most definite information is given in the report of the Superintendent of Schools of Cleveland for 1907. In this city the Department of Physical Training conducted an examination of 30,000 children in grades three to seven with respect to the condition of eyes, ears, nose and teeth. About 50 per cent., or 15,000, were found to be suffering from physical defects more or less serious. Strenuous endeavors were made to secure measures looking for the removal or alleviation of the defects discovered. By the coöperation of principals, teachers, dispensaries, physicians and parents corrections of the defects were secured in 3,388 cases, or 22.5 per cent.

In writing of the medical inspection of schools in Philadelphia Dr. Walter S. Cornell, Assistant Medical Inspector, says:

> "The obtaining of eye glasses by the children, after official recommendation, follows in about one-fourth or one-fifth of all cases in the better resident sections, where one would suppose professional advice would be thankfully followed. Among the poorer classes the proportion is about one-third—under vigorous urging, one-half. Among the foreign population, who receive official recommendations with great respect, owing to their ignorance of English, the proportion of children who obtain glasses, when this is supervised by the nurse, is in my own district at least nine-tenths. The treatment of enlarged tonsils and adenoids follows recommendations in about one-third of the cases. The better classes are more alive to the evil consequences following these conditions, and respond fairly with their coöperation. The middle and poorer classes appear extremely indifferent. The foreigners usually

> go to the nearest dispensary, but their dread of an operation deters many of them from allowing anything but simple local treatments, which are worthless. The other affections are remedied in probably one-third of the cases. The contagious cases, of course, are remedied, since action is necessary before the child will be re-admitted to school."

This reference to the proportionately better results obtained in poorer sections and among foreign people is certainly interesting and far from flattering to American pride. Testimony of somewhat similar nature is given in the report of School Nurses of Harrisburg, Pa.:

> "The white children of American parents are proportionately less cleanly in person and dress than any other class. The foreigners, especially the Hungarians, are the most cleanly. The negroes are almost without exception tidier than the white, and in exposed parts cleaner."

To sum up the matter of physical examinations of school children for the detection of physical defects, we are confronted by the great mass of evidence showing with convincing force that a large percentage of all school children are suffering from physical infirmities which prevent them from making adequate use of school facilities. The pity of it is, too, that practically all such conditions could be prevented or cured if detected early in life. In the physical examinations by trained physicians a means is offered for detecting these conditions, and with the campaigns of education now being vigorously pushed in so many parts of the country by so many earnest leaders, social machinery for remedying the defects discovered must soon be established.

CHAPTER VIII

Vision and Hearing Tests by Teachers

There is considerable divergence of opinion among authorities on medical inspection as to whether or not the room teacher is competent to detect signs of contagious diseases among her pupils. There is much less doubt expressed as to the ability of the room teacher, especially if she be given a little careful training, to successfully examine her pupils to detect the presence of eye troubles, defective hearing, and even the presence of the more easily detected nose and mouth defects.

Under the provisions of the Massachusetts statute (printed in full in Chapter XI on "The Legal Aspects of Medical Inspection") each teacher is required to examine her pupils at least once a year for the purpose of testing their sight and hearing, and to make a report on the results found. During the school year 1907–8, the New York State Department of Health is conducting a similar examination in the graded schools in incorporated villages of the State.

Somewhat similar work is being done by the State Board of Health of Utah.

In Connecticut the law provides that teachers shall test the eyesight of their pupils according to the instructions furnished by the State Board of Education. These tests are made triennially. The law provides that teachers shall notify in writing the parents or guardians of pupils found to have any defect of vision or disease of the eyes, and also that the results of the tests shall be reported to the State Board of Education.

As these four examinations are so extensive, are conducted under State authority, and are the result of careful thought and preparation on the part of well-qualified physicians of large experience, it seems worth while to give here a somewhat extended account of the Massachusetts system and to show also, although more briefly, what is being done under the State Boards of New York, Connecticut, and Utah.

The policy of the legislators of the State of Massachusetts in inserting into their statute mandatory provisions that the tests for sight and hearing should be conducted by the teachers themselves, rather than by specialists, has evoked many expressions of surprise and some of criticism. These provisions were inserted on the recommendation of the specialists themselves, who deemed that such tests were wholly within the capacity of the teacher. It was the opinion that the children would be subjected to a less nervous strain than if tested by a stranger and would, therefore, exhibit themselves in a more natural way. It is the intention of the Massachusetts law that a scientific examination by specialists shall be made in cases where defects are apparently revealed by the teacher's tests.

For this purpose there are furnished blanks on which the teachers notify the parents of apparent defects and advise consulting a specialist. During the first year that the law was in operation, the returns show that such notifications have been sent in 84,012 cases.

During the hearings before the State Committee on Ways and Means when the Massachusetts medical inspection bill was being considered, a mass of evidence was presented by experts bearing upon the question as to whether or not such examinations could be successfully conducted by teachers. The high standing of the three gentlemen who subscribed to it makes the following opinion particularly significant:

> It is the opinion of the undersigned, based upon professional experience, that school teachers, with the aid of printed directions properly prepared, are, because of their acquaintance with the individual children under their charge and their subsequent ability to communicate with them and to find out what is in their minds, more capable of making a satisfactory examination of the hearing of such children than a doctor other than a specialist called in for the purpose would be likely to be.
>
> (Signed) Clarence John Blake, M.D.
> D. Harold Walker, M.D.
> William F. Knowles, M.D.

The same opinion with regard to eyesight was emphatically expressed by Dr. Myles Standish, who represented the Massachusetts

Medical Society at the hearing, as it was also by Dr. Charles H. Williams and Dr. O. F. Wadsworth. It is the nearly universal testimony of experts. In "The Sight and Hearing of School Children," Dr. David W. Wells says in regard to such tests, "The lack of normal vision is quickly determined, and probably not more than 15 per cent. of those needing treatment would be overlooked."

In "The Necessity for the Annual Systematic Examination of School Children's Eyes, Ears, Nose, and Throats by School Teachers," Dr. Frank Allport says, "Concerning the incompetency of teachers, I have only to say that any one who is competent to be a teacher can make the tests with perfect ease. From three to five minutes a pupil is all the time that is required." A similar opinion is strongly expressed by Professor Leslie, who has conducted extensive and successful work in the Los Angeles public schools. In the Report of the Superintendent of Schools for 1906–7 he gives the following account of this work by the teachers:

> "In this work the schools have made a good beginning. Throughout the grades special instruction has been given to principals and teachers in eye and ear testing, detection of adenoid growths and enlarged tonsils; and corrective training for defective chest conditions and spinal curvature has been emphasized. Teachers have been urged to study with care the nutrition, vitality, and endurance exhibited by individual pupils, especially those who were failing or getting on poorly.
>
> "In the graded schools the only apparatus used has been Snellen's Test Types, Pray's Astigmatic Charts, and the multiple Maddox rod.
>
> "The eyesight has been tested and the visual fraction for each eye recorded. The hearing has been tested by either watch or voice test and the pupils seated accordingly.
>
> "In a part of the schools muscular imbalance has been tested in case of those pupils showing little endurance, who were easily fatigued, or otherwise seemed in poor working condition.
>
> "Reports of these tests for all the schools are recorded

in the teachers' registers. Examination of these reports justifies the statement that much excellent work has been done. The results in many of the schools tally well with results obtained in certain eastern cities, where such work has been done by persons who have had some special training along these lines.

"The results show that a fair degree of accuracy can be attained by the average teacher if she will give careful attention to the simple tests used.

"The difficulties experienced by many teachers largely disappear when simple demonstrations of the work are given.

"For this purpose, as far as time would permit, I have asked the teachers of different buildings to keep defective children at the close of school. The teachers remaining and working with me, we have tested these children. After such testing, teachers have completed their work in this line with much more certainty and assurance and with increased interest and good results.

"Time has not been at hand to carry out work in this particular as it ought to be done. That which is *most needed is personal help to the teachers*, in the study of pupils."

SIGHT AND HEARING TESTS IN MASSACHUSETTS

Vision and hearing tests are made in accordance with the following directions prescribed by the State Board of Health. The materials for the tests are distributed to all teachers by the State authorities.

COMMONWEALTH OF MASSACHUSETTS

Chapter 502, Acts of 1906

Directions for Testing Sight and Hearing (Prepared by the State Board of Health).

To Test the Eyesight

Hang the Snellen test letters in a good, clear light (side light preferred), on a level with the head. Place

the child 20 feet from the letters, one eye being covered with a card held firmly against the nose, without pressing on the covered eye, and have him read aloud, from left to right, the smallest letters he can see on the card. Make a record of the result. Children who have not learned their letters, obviously, cannot be given this eyesight test until after they have learned them.

(NOTE.—When not in use, the chart of test letters should be placed in the envelope in which it is sent, to keep it from becoming soiled and illegible. When damaged, a requisition should be made on the State Board of Education for a new chart.)

To Record the Acuteness of Eyesight

There is a number over each line of test letters, which shows the distance in feet at which these letters should be read by a normal eye. From top to bottom, the lines on the card are numbered respectively 50, 40, 30, and 20. At a distance of 20 feet the average normal eye should read the letters on the 20-foot line, and if this is done correctly, or with a mistake of one or two letters, the vision may be noted as $\frac{20}{20}$, or normal. In this fraction the numerator is the distance in feet at which the letters are read, and the denominator is the number over the smallest line of letters read. If the smallest letters which can be read are on the 30-foot line, the vision will be noted as $\frac{20}{30}$; if the letters on the 40-foot line are the smallest that can be read, the record will be $\frac{20}{40}$; if the letters on the 50-foot line are the smallest that can be read, the record will be $\frac{20}{50}$.

If the child cannot see the largest letters, the 50-foot line, have him approach slowly until a distance is found where they can be seen. If 5 feet is the greatest distance at which they can be read, the record will be $\frac{5}{50}$ ($\frac{1}{10}$ of normal).

Test the second eye, the first being covered with the card, and note the result, as before. With the second

eye have the child read the letters from right to left, to avoid memorizing. To prevent reading from memory, a hole 1½ inches square may be cut in a piece of cardboard, which may be held against the test letters, so as to show only one letter at a time, and may be moved about so as to show the letters in irregular order. A mistake of two letters on the 20 or the 30-foot lines, and of one letter on the 40 or 50-foot lines, may be allowed.

Whenever it is found that the child has less than normal sight, $\frac{20}{20}$, in either eye, that the eyes or eyelids are habitually red and inflamed, or that there is a complaint of pain in the eyes or head after reading, the teacher will send a notice to the parent or guardian of the child, as required by law, that the child's eyes need medical attention.

Method of Testing Hearing

If it is possible, one person should make the examinations for an entire school, in order to insure an even method. The person selected should be one possessed of normal hearing, and preferably one who is acquainted with all the children, the announcement of an examination often tending to inspire fear.

The examinations should be conducted in a room not less than 25 or 30 feet long, and situated in as quiet a place as possible. The floor should be marked off with parallel lines one foot apart. The child should sit in a revolving chair on the first space.

The examination should be made with the whispered or spoken voice; the child should repeat what he hears, and the distance at which words can be heard distinctly should be noted.

The examiner should attempt to form standards by testing persons of normal hearing at normal distances. In a still room the standard whisper can be heard easily at 25 feet, the whisper of a low voice can be heard from 35 to 45 feet, and of a loud voice from 45 to 60 feet.

The two ears should be tested separately.

The test words should consist of numbers, 1 to 100, and short sentences. It is best that but one pupil at a time be allowed in the room, to avoid imitation.

For the purpose of acquiring more definite information concerning the acuteness of hearing, one may have recourse to the 512 v. s. (vibrations per second) tuning fork and the Politzer acoumeter.

For very young children a fair idea of the hearing may be obtained by picking out the backward or inattentive pupils, and those that seem to watch the teachers' lips, placing them with their backs to the examiner, and asking them to perform some unusual movement of the hand, or other act.

The test card used is the familiar Snellen chart. A reproduction of the form used by the Massachusetts authorities is shown on page 111.

The results of the examinations are recorded by the room teacher on double sheets, having spaces for recording the results of the examination of fifty pupils. A reproduction of the sheet heading is given on page 112.

A report of the results for each school is forwarded to the superintendent by the teacher or principal.

REPORT OF SIGHT AND HEARING TESTS TO SUPERINTENDENT OF SCHOOLS, MASSACHUSETTS

Commonwealth of Massachusetts

Chap. 502, Acts of 1906

Report of Sight and Hearing Tests to Superintendent of Schools

Town or City } ..... School, ...

..... 190

Number of Pupils enrolled in the school.....

" found defective in eyesight.....

" found defective in hearing.....

" of parents or guardians notified.....

.....

Teacher or Principal.

SNELLEN CHART FOR TESTING EYESIGHT

(Printed on heavy white cardboard, size 11 x 14 inches.)

COMMONWEALTH OF MASSACHUSETTS.

CHAPTER 502, ACTS OF 1906.

SNELLEN'S TEST LETTERS FOR MEASURING THE ACUTENESS OF VISION.

50 FEET

T C L D

40 FEET

L O E D T

30 FEET

O T P E C L

20 FEET

P T O L D E C

Commonwealth of Massachusetts.

CHAP. 502, ACTS OF 1906.

RECORD OF SIGHT AND HEARING TESTS.

190.....

City or Town.....School.....Class.....

NAME. [If notice is sent to parent or guardian, star name.]	EXAMINATION OF EYES.		HEARING.		REMARKS.
	Eyesight.		Whisper heard (distance in feet).		
	Right Eye.	Left Eye.	Right Ear.	Left Ear.	

RECORD OF SIGHT AND HEARING TESTS, MASSACHUSETTS

In addition to these reports, the teacher is required to notify the parent or guardian of each child found to have some trouble with the ears or eyes. Notification cards for this purpose are furnished by the State Board.

NOTICE TO PARENT OR GUARDIAN

Commonwealth of Massachusetts

NOTICE TO PARENT OR GUARDIAN

In accordance with Chapter 502 of the Acts of 1906 you are hereby notified that the school examination of.....
shows that there is some trouble with the ears, eyes, which needs competent medical advice. Please attend to this at once.

.....Teacher

....190

Commonwealth of Massachusetts

NOTICE TO PARENT OR GUARDIAN

In accordance with Chapter 502 of the Acts of 1906 you are hereby notified that .....
has been examined by me as school physician and found to have symptoms of

PLEASE SECURE COMPETENT MEDICAL ADVICE AT ONCE.

....School Physician.

....190

EYE AND EAR EXAMINATIONS AS CONDUCTED BY THE NEW YORK STATE DEPARTMENT OF HEALTH

In the examinations conducted by the New York State Department of Health, the sight test cards are similar to the ones used in Massachusetts. As the instructions issued differ somewhat from those in use in the New England State, they are reproduced in full, together with the blank used for notifying the parents of defects found and the heading of the blank used by each teacher for reporting the results of the examination in her room.

TEACHERS' INSTRUCTIONS FOR THE EXAMINATION OF THE EYES AND EARS OF SCHOOL CHILDREN, NEW YORK STATE

NEW YORK
STATE DEPARTMENT OF HEALTH
ALBANY

Teachers' Instructions for the Examination of the Eyes and Ears of School Children

EYES

1—Exceptions Children under 7 years need *not* be examined.

2-3—General Directions Children wearing glasses should be tested with their glasses properly adjusted to their faces.

Children should be examined singly and privately.

4—Abnormal Conditions Ascertain whether the child habitually suffers from inflamed lids or eyes or after study has weariness or pain in eyes or head or is suffering from squint (eyes crossed).

5—Test for Normal Vision Find whether the vision is normal by the large charts. Do not expose the charts except when they are in use, as familiarity leads to memorizing the letters.

6—Testing Distant Vision The chart should have a *good side* illumination and not be hung in range of a window which will dazzle the eyes. It should be on a level with the head and at a *measured* distance of 20 feet from the child, who should sit facing it. Examine each eye separately by holding a card or other screen close in front of one eye while the other is examined, but do not have the test made with one eye closed by pressure or otherwise. Test the right eye first by having the letters named in order from the top downward. For the left eye have the letters named from right to left to avoid repetition from memory.

7—Inability to Name Letters Where the child cannot name the individual letters although able to read, the chart of figures may be used. It may also be used as a control test. If the child does not know figures or letters use the chart of inverted E's,

asking the child to tell by the movement of the hand the side on which there is an opening in the E's in the different lines, *i. e.*, up, down, right or left.

8—Memorizing

If it is suspected that the answers are being made from memory a hole about one and one-half inches may be cut in a narrow strip of cardboard so as to allow only one or two letters to show through the hole, and by skipping around rapidly it is easy to break up the memorizing of the letters.

9—Recording Distant Vision

The lines on the 3 large charts are numbered 200, 100, 70, 50, 40, 30, 20. These indicate the distance the respective letters should be read by the normal eye. The record is made by a fraction, of which the numerator represents the distance of the chart from the child, and the denominator the lowest line he can correctly read. Thus if at 20 feet he reads the lowest line the vision is $\frac{20}{20}$ or normal. If he only reads the line above, the vision is $\frac{20}{30}$ or $\frac{2}{3}$ the normal. If he cannot read the largest letter he must go *slowly* toward the chart until he can. The distance he is from the chart when he can read the largest letter will be the numerator and 200 the denominator. Thus, if he could not tell the letter until he is 10 feet from the chart his vision will be $\frac{10}{200}$ or $\frac{1}{20}$ the normal.

10—Testing Near Vision or Focusing Power

The eyes should also be tested at the near point and separately as with the large chart, the scholar being seated with his back toward the light and with the small chart well lighted. Begin at 18 inches and steadily bring the chart nearer and nearer while the scholar continues to read aloud. When he can read no further measure the distance from his eye to the chart. If the child has difficulty in reading the chart he can spell the words, and the test will be determined by his failure to pronounce the letters correctly.

11—Recording Distant and Near Vision

The fractions $\frac{20}{20}$, $\frac{20}{40}$, $\frac{10}{200}$, etc., will record the distant vision (20 feet) of each eye. Reads right eye — inches up to — inches; reads left eye — inches up to —

inches will record the focusing power of each eye; as, R. E. = 16 up to 4 in.; L. E. = 15 up to $3\frac{1}{2}$ in.

EARS

1—Exceptions All children should be examined.

2—Directions Children should be examined singly and privately.

3—Abnormal Conditions Ascertain whether the child has frequent earaches, has pus or a foul odor proceeding from either ear, suffers from frequent "colds in the head," is subject to a constant catarrhal discharge from the nose or throat, or is a mouth-breather.

4—Testing Hearing Seat the child facing you near one end of a *quiet* room with the windows *closed* and begin the test of the hearing at a *measured* distance of 25 feet. The test is made by having the left ear tightly closed with the finger while you observe the ability of the child to repeat your *moderate* whispers of numbers between 21 and 99 inclusive, avoiding those with ciphers; as, 75, 55, 37, 22, etc. Test the left ear with the right tightly closed. Avoid having a wall behind you to act as a sounding board. The figures should have as nearly equal emphasis as possible, and the distance at which the child correctly repeats a series of 3 numbers gives his hearing distance for that ear. No further test is necessary if the child hears the numbers perfectly with each ear. If this test shows a slight defect of either ear, further tests may be made by observing how the child hears the tick of an ordinary watch, which should be heard normally at a distance of not less than 3 feet.

5—Recording Hearing The hearing is recorded by a fraction of which the numerator represents the distance you are from the child and the denominator is 25. If he repeats the numbers correctly at 25 feet his hearing is $\frac{25}{25}$ or normal. If he only repeats the numbers correctly when you are at 20 feet it is $\frac{20}{25}$ or $\frac{4}{5}$ the normal, and at 12 feet $\frac{12}{25}$, etc.

CARDS AND REPORTS

1—Time

These examinations should be made *annually* in October, and after the mid-winter examinations in the case of new pupils.

2—Charts

All the charts should be kept without rolling or being folded, in a clean dark place to prevent the yellowing of the paper.

3—Reports to Parents or Guardians

a Eye Conditions

Send at once a properly filled blank to the parent or guardian of all children whose vision is *less* than $\frac{20}{20}$, in either eye. Do not fail to report cases where the vision *is* $\frac{20}{20}$, if the child is backward in school work, suffers from any abnormal condition of the lids, inflamed eyes, has a discharge from either eye or *frequent headaches.*

b Ear Conditions

Report all cases where the hearing with either ear falls below normal, or the child suffers from any of the conditions mentioned under "ABNORMAL CONDITIONS —Ears."

4—Health Department Reports

Mail to the State Department of Health a report giving the name and age of all children examined. Where the distant vision is $\frac{20}{20}$, the focusing power 18 inches up to 4 inches, and there are no abnormal conditions of the eye or lids, or headaches; and where the hearing is normal in each ear, without any other abnormal condition, leave the spaces opposite such names vacant.

The vision and hearing are recorded in the proper spaces for each by fractions as explained above. *All* abnormal conditions of the eyes, lids, ears, nose, throat, and headaches are to be recorded by proper abbreviations under the respective headings.

This report must be filed with the Department within 10 days.

EUGENE H. PORTER, M.D.,
Commissioner of Health

NEW YORK STATE BOARD OF HEALTH,
REPORT OF TEACHER

Town..... **District**.....

No.	Name.	Age.	Distant Vision. (20 feet.)		Focusing Power. (Inches.)		Eyes. Inflam. Disch. Squint.	LIDS. Inflam. Scaly. Swollen.	Eyes. Pain. Fatigued after use.
			R. E.	L. E.	R. E.	L. E.			
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
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43									
44									
45									

School..... **Grade**.....

Head-ache.	Hearing.		Ear.	Ear.	Nose.	Throat.	Cases Reported to Parents or Guard-ians.	Gen. Health.
Daily Weekly.	R. E.	L. E.	Pain.	Disch. Odor.	Colds, Catarrh.	Mouth-breather.		Remarks.

BLANK USED FOR NOTIFYING PARENTS, NEW YORK STATE

PUBLIC SCHOOL NO.....

.....190.....

Mr.....

An examination of your *son / daughter / ward shows the *eyes / ears / nose / throat to be defective and below the standard required by the State Department of Health. This child cannot do *satisfactory* work in school until this defect is corrected.

You should consult with your family physician or with the health officer of the village as to the choice of an eye or ear doctor whom you are advised to consult about the trouble.

.....Teacher.

* Strike out the words not required.

EYESIGHT TESTS CONDUCTED BY THE STATE BOARD OF EDUCATION OF CONNECTICUT

Eyesight tests are conducted by the State Board of Education of Connecticut under the provisions of Section 2251 of the general statute. This section reads as follows:

> The State Board of Education shall prepare or cause to be prepared suitable test cards and blanks to be used in testing the eyesight of the pupils in public schools, and shall furnish the same, together with all necessary instructions for their use, free of expense, to every school in the state. The superintendent, principal, or teacher, in every school, during the fall term in the year 1904 and triennially thereafter, shall test the eyesight of all pupils under his charge according to the instructions furnished, and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or

disease of the eyes, with a brief statement of such defect or disease, and shall make written report of all such cases to the State Board of Education.

INSTRUCTIONS

The following instructions, prepared by S. B. St. John, M.D., of Hartford, give a method of intelligently making the tests required by the law and also indicate the form of reports to parents and the State Board of Education:

Separate Test for Each Eye

In testing the eyesight with the large chart (I), each eye should be tested separately, the other eye being covered with a screen and both eyes being open.

Light

The chart should be hung in a good light, preferably a side illumination, and *not* in range with a window (which might dazzle the eyes of the child).

Method

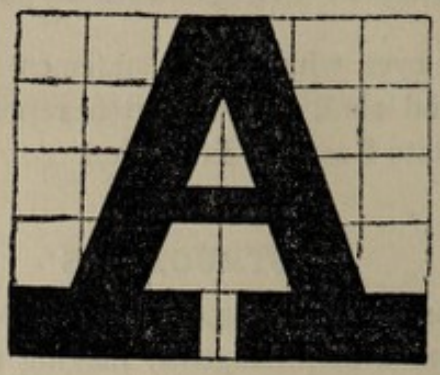
Seat the child at a measured distance of 20 feet from the chart and cover one eye with a pasteboard screen. Have him pronounce aloud the letters, beginning at the top, and reading from left to right, and note the lowest line that he reads correctly. Repeat the test for the *other* eye, but have him reverse the order and read from right to left (or backwards), to avoid the danger of repeating from memory.

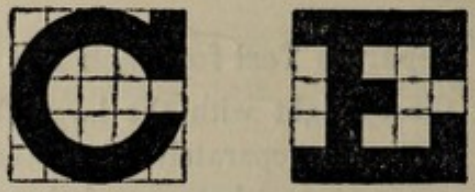
Record

To record the visual power thus obtained notice that the lines are numbered 200, 100, 70, 50, 40, 30, and 20. These numbers indicate the distances at which the respective letters should be read by a normal eye. The record is made by a fraction, of which the *numerator* represents the distance from the child to the card and the denominator the lowest line he can correctly read. Thus if at 20 feet

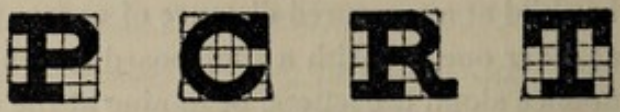
STATE OF CONNECTICUT, EYESIGHT TEST, CHART I

(Printed on heavy white cardboard, size 9 x 20 inches.)

200 

100 

70 

50 

40 

30 

20 

15 P R B D H K O F

he reads the lowest line the vision is $\frac{20}{20}$ or 1 = normal. If he only reads the line above, the vision is $\frac{20}{30}$ or $\frac{2}{3}$ normal. If he cannot read the largest letter at 20 feet, he must go *slowly* toward the card until he can read the largest letter. The distance from him to the card (as before) will be the numerator and 200 the denominator. Thus, if he could not tell the letter until he was 10 feet from the card his vision = $\frac{10}{200}$, or $\frac{1}{20}$ of normal.

TEST OF FOCUSING POWER
STATE OF CONNECTICUT, EYESIGHT TEST, CHART II

(Printed on heavy white cardboard, size 6 x 8 inches.)

State of Connecticut
EYESIGHT TEST
CHART II

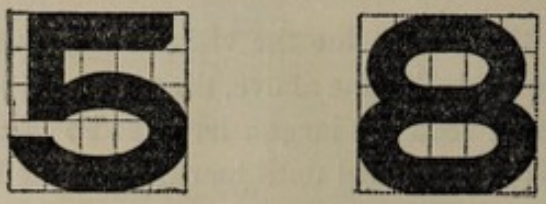
was born at York on the first of March in the sixth year of the reign of King Charles the First. From the time when was quite a young child, I had felt a great wish to spend my life at sea, and as I grew, so did this taste grow more and more strong; till at last I broke loose from my school and home, and found my way on foot to Hull, where I soon got a place on board a ship. When we had set sail but a few days, a squall of wind came on, and on the fifth night we sprang a leak. All hands were sent to the pumps, but we felt the ship groan in all her planks, and her beams quake from stem to stern; so that it was soon quite clear there was no hope for her, and that all we could do was to save our lives. The first thing was to fire off guns, to show that we were in need of help, and at length a ship, which lay not far from us, sent a boat to our aid. But the sea was too rough for it to lie near our ship's side, so we threw out a rope, which the men in the boat caught, and made fast and by this means we all got in. Still, in so wild a sea it was in vain to try to get on board the ship which had sent out the men, or to use our oars in the boat, and all we could do was to let it drive to shore. In the space of half an hour our own ship struck on a rock and went down and we saw her no more. We made but slow way to the land, of which we caught sight now and then when the boat rose to the top of some high wave, and there we

The chart (II) of fine type is for testing the focusing power. In normal eyes the focusing power varies with age. Up to 10 years the normal eye will read up to $2\frac{1}{2}$ inches; at 12, up to $2\frac{3}{4}$; at 15, up to 3, and at 20, up to $3\frac{3}{4}$. The focusing power may be affected by temporary conditions, and variations from the normal figures are important only when marked and constant.

The eyes should be tested separately, as with the large chart, the scholar being seated with his back toward the light, but not so much as to shade the card. Begin at 12 inches and steadily but slowly bring the card

CHART OF GRADUATED FIGURES, STATE OF CONNECTICUT, EYESIGHT TEST, CHART III

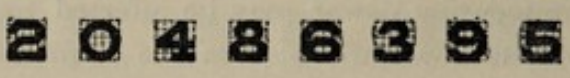
(Printed on heavy white cardboard, size 9 x 20 inches.)

100 

70 

40 

30 

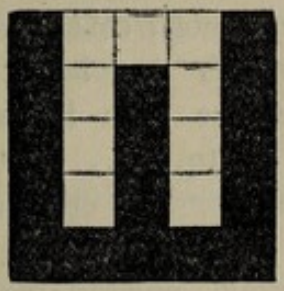
20 

15 6 2 3 0 9 4 5 3 8 2 6 0

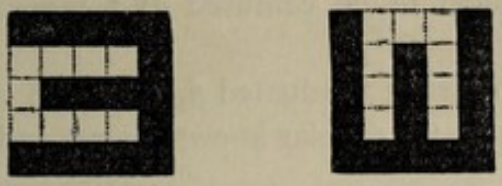
CHART OF E's, STATE OF CONNECTICUT, EYE-SIGHT TEST, CHART IV

(Printed on heavy white cardboard, size 9 x 20 inches.)

200

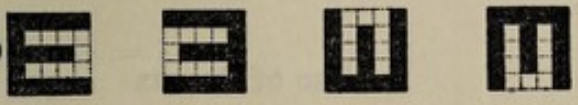


100



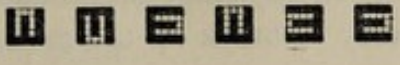
70

50



30

20



15

nearer while the scholar continues to read aloud; when his hesitancy shows that he is not seeing correctly, measure the distance from his eye to the card, and record "Reads up to.....inches with R. eye." Repeat this test for the other eye and then for both eyes.

If it is uncertain whether the hesitancy in reading arises from indistinct seeing or inability to pronounce the word, ask the scholar to tell the instant when the letters begin to be confused and measure the distance then.

The chart of graduated *figures* (III) is to be used in cases where the scholar knows figures and does not know letters.

The chart covered with E's (IV) is for those who know neither letters nor figures. The teacher should stand by the chart and point out the different characters, asking which is the "open side," *i. e.*, whether it opens up, down, right, or left. It is better to have the scholar indicate the open side by a gesture of the hand in the direction corresponding to that side. The details of the use of charts III and IV are the same otherwise as of that containing letters.

Use of Charts

The charts should not be hung in the schoolroom when not in use, as the scholars very readily memorize them, which vitiates the examination. If the teacher suspects that the answers are being made from memory, a hole about 1½ inches square may be cut near the end of a narrow strip of cardboard, and this may be used to cover the lines, exposing only one or two letters at a time through the hole. By skipping around rapidly with this device it is easy to break up the memorizing trouble.

REPORTS

The following are forms of reports:

Teacher's Report to Parent or Guardian, Blank i.

Eyesight test
blank i

REPORT TO PARENT OR GUARDIAN

BY TEACHER

Town..... District..... School.....

.....190....

To.....

.....

You are hereby notified that the examination of the eyes of

.....
[name]

shows that they are—[Here describe the condition in simple terms, whether sore, discharging matter, watery, or of strained appearance. If none of these conditions exist, cancel this section.]

.....

.....

.....

The examination of the eyesight shows that it is defective in { one / both } eyes. The defect is such that in the *Right* eye the sight power is [1] [give fractional form as determined by tests] of what it should be, while in the *Left* eye it is [1]

You are advised to take.....to a physician as soon as possible to ascertain what is the trouble, whether it can be remedied, and whether { he / she } should continue to go to school.

.....
Teacher.

Teacher's Report to State Board of Education, Blank ii.

Eyesight test
blank ii

REPORT TO STATE BOARD OF EDUCATION

BY TEACHER

Scholar.....
Town..... District..... School.....
.....190....
Name..... Age.....
General condition of health.....
General appearance of *eyes* [whether red, watery, or discharging material thicker than water], ...
.....
General appearance of eyelids [whether red, swollen, or covered with crusts], ...

RESULTS OF TESTING (at 20 feet with chart).

Vision of right eye =..... Vision of left eye =.....

RESULTS OF TESTING (with small type).

With right eye, nearest point at which the diamond type can be read is..... inches. With left eye.....inches. With both eyes reads up to.....inches

.....
Teacher.

Report to State Board of Education, Blank iii.

Eyesight test
blank iii

REPORT TO STATE BOARD OF EDUCATION

BY SUPERINTENDENT, PRINCIPAL OR TEACHER

School.....
Town ..... District.....
School ..... Department .....
Number enrolled in school.....
[schools]
Number tested.....
Number blanks sent to parents.....
Remarks.....
.....
.....
.....
.....
.....
.....
.....
Superintendent
Principal or
Teacher
Date,.....

SUGGESTIONS

Blank i should be sent to parents only when some defect of eyesight is discovered by the test. No blank is to be sent when the eyesight is normal.

When blank i is sent to parents, blank ii should be sent to the State Board of Education.

When the eyesight of all pupils in the school has been tested, superintendents, principals, or teachers are requested to send to the State Board of Education the general blank iii showing the whole number of scholars tested.

For blanks or information address

STATE BOARD OF EDUCATION,
Hartford.

EXAMINATIONS OF THE STATE BOARD OF HEALTH OF UTAH

In Utah, cards similar to those in use in Massachusetts and New York are furnished for the testing of eyesight. The instructions furnished teachers, together with a reproduction of the report blank filled in by the principal of the school and forwarded to the State Board of Health, follow.

Instructions for the Examination of School Children's Eyes and Ears, etc.

(After the Method Proposed by Dr. Frank Allport, of Chicago, Ill.)

For Use of Principals, Teachers, etc.

Do not expose the card except when in use, as familiarity with its face leads children to learn the letters "by heart."

First grade children need not be examined.

The examinations should be made privately and singly.

Children already wearing glasses should be tested with such glasses properly adjusted on the face.

Place the "Vision Chart for Schools" (Snellen's) on the wall in a good light; do not allow the face of the card to be covered with glass.

The line marked XX (20) should be seen at twenty feet, therefore place the pupil twenty feet from the card.

Each eye should be examined separately.

Hold a card over one eye while the other is being ex-

amined. Do not press upon the covered eye, as the pressure might induce an incorrect examination.

Have the pupil begin at the top of the test card and read down as far as he can, first with one eye and then with the other.

Facts to Be Ascertained

1. Does the pupil habitually suffer from inflamed lids or eyes?
2. Does the pupil fail to read a majority of the letters in the number XX (20) line of the Snellen's Test Types with either eye?
3. Do the eyes and head habitually grow weary and painful after study?
4. Does the pupil appear to be "cross-eyed"?
5. Does the pupil complain of earache in either ear?
6. Does matter (pus) or a foul odor proceed from either ear?
7. Does the pupil fail to hear an ordinary voice at twenty feet in a quiet room? Each ear should be tested by having the pupil hold his hand over first one ear, and then the other. The pupil should close his eyes during the test.
8. Is the pupil frequently subject to "colds in the head" and discharges from the nose and throat?
9. Is the pupil an habitual "mouth breather"?

If an affirmative answer is found to any of these questions, the pupil should be given a printed card of warning to be handed to the parent, which should read something like this:

Card of Warning to Parents

After due consideration it is believed that your child has some Eye, Ear, Nose and Throat disease, for which your family physician or some specialist should be at once consulted. It is earnestly requested that this matter be not neglected.

Respectfully,

.....

School.

If only an eye disease is suspected, the words "ear, nose and throat" should be crossed off; if only an ear disease is suspected, the words "eye, nose and throat" should be crossed off; if it is only a nose and throat disease, the words "eye and ear" should be crossed off.

It will be observed that these cards are non-obligatory in their nature. They do not require anything of the parent, who is at perfect liberty to take notice of the warning card or not, as he sees fit. They simply warn the parent that a probable disease exists, thus placing the responsibility upon the parent.

Nevertheless, if parents neglect the warning thus conveyed, the teacher should, from time to time, endeavor to convince such parents of the advisability of medical counsel. Teachers are urged to impress upon pupils and parents the necessity for consulting reputable physicians.

These tests should be made annually at the beginning of the fall term, and should include all children above the first grade.

Each teacher should examine all the children in his or her own room, and should report the results of such examinations to the principal, such report to be signed by the examining teacher.

The following simple form of report, to be filled out by the teacher and handed to the principal, is suggested and may be printed upon paper of any size and character that is deemed advisable by the local and school authorities, and should be distributed to the different room teachers:

No.	Name of Pupil.	Do the Tests Indicate an Eye, Ear, Nose or Throat Disease? Answer "Yes" or "No." If so, which?	Was the Pupil Given a Card of Warning?
1	John Doe	Yes; eye	Yes.
2	Robert Smith	Yes; ear	Yes.
3	Mary Brown	No	No.
4	Edward Hart	Yes; nose or throat	Yes.

Report to State Board of Health of Utah, of Eye, Ear and Throat Tests

Report to State Board of Health of Eye, Ear and Throat Tests of Pupils in Public Schools

Date.....

Place.....

Name or Number of School.....

Grade of Pupils.....

Name of Principal.....

Name of Teacher.....

Number of Pupils in room.....

Number of Pupils tested.....

Number of Pupils wearing glasses.....

Number of Pupils free from symptoms of eye, ear, nose and throat disease.....

Number of Pupils suspected of having defective sight or eye disease in addition to those wearing glasses.....

Number of pupils suspected of having defective hearing or disease of ears.....

Number of Pupils suspected of having disease of nose or throat.....

Has notification been sent to parents in each case where defect is suspected?.....

Remarks by Teacher or Principal.....

.....

.....

.....

.....

.....

NOTE.—This report should be mailed to the State Board of Health promptly after tests have been made.

In the city of Ogden there are three more interesting blanks used in connection with these tests.

The first is the report of the teacher to the principal.

Teacher's Report to Principal, Ogden, Utah

TEACHER'S REPORT TO PRINCIPAL.

No.	Name of Pupil.	Do the tests indicate an Eye, Ear, Nose or Throat Disease? Answer "Yes" or "No." If so, which?	Was the Pupil given a Card of Warning?

The results of examinations and tests are made known to parents by means of a card of warning:

Card of Warning to Parents, Ogden, Utah

CARD OF WARNING TO PARENTS.

As a result of examination and tests made under instructions from the State Board of Health, it is believed that your child has some Eye, Ear, Nose and Throat disease, for which your family physician or some specialist should be at once consulted. It is earnestly requested that this matter be not neglected.

Respectfully,

_____

Teacher

Many serious consequences result from uncorrected defects of sight and hearing in school children, also from mouth breathing, which is usually caused either by an obstruction in the nose or by the presence of adenoids. It is extremely important that defects of vision shall be corrected by properly fitted glasses and that any condition causing mouth breathing shall be promptly removed by proper treatment.

The third blank in use in the Ogden schools is of special interest because it is almost, if not entirely, unique among the blanks used in American school systems. It is a blank on which the teacher requests from the parent an explanation of the absence from school of a pupil and on which the parent writes the excuse. On the reverse are printed the rules governing absence and tardiness.

Teacher's Request upon Parent for Explanation of Absence of Pupil, Ogden, Utah

Ogden Public Schools

Ogden, Utah,..... 190

M .....

Your.....

has been absent from school as follows:

.....

.....

for which a sufficient excuse should be given.

.....*Teacher*

(WRITE EXCUSE BELOW)

.....*Parent*

SEE OTHER SIDE

Rules Governing Absence and Tardiness

7. Pupils are required in all cases of absence to bring, on their return to school, an excuse in writing from their parents or guardians, assigning good and sufficient reasons for such absence. The only valid excuses for such absence are: (1) Sickness of the pupil; (2) Sickness or death of some member of the family requiring the presence of the pupil at home or making it impossible to send the pupil promptly; (3) Inclement weather, when sending the pupil would endanger his or her health.

8. Pupils must bring written excuse from parent or guardian for tardiness, unless the cause of same be known to the teacher. Two times tardy is equal to one-half day's absence.

9. For violation of any of the foregoing rules the principal may temporarily suspend a pupil from school and thereupon shall immediately inform the parent or guardian of the fact and the cause therefor, and also report the case to the Superintendent. On second suspension of such pupil for the same offense, he shall not be permitted to return without a special permit from the Board.

The methods advocated by the State Boards of Health of Massachusetts, New York, and Utah, and the State Board of Education of Connecticut, by which teachers can test their pupils for defects of eyesight and hearing, have been described at length, because it is generally recognized that with slight training teachers are competent to conduct such tests. It is even claimed that there is an advantage in having them made by teachers, because parents will not accept the diagnosis as authoritative and will consult specialists as to the alleged troubles found. There can be no doubt, too, that making such tests awakens teachers to a quickened interest in the bearing of physical defects on school progress, gives them a closer insight into the charac-

teristics of their pupils, and stimulates them to further work in the field of child study. Where no form of medical inspection exists, such tests by teachers certainly constitute a useful and practical first step toward securing such a system. It is just as certain that work done by teachers does not and cannot render unnecessary the services of the trained medical expert.

CHAPTER IX

Administration

For the purpose of discussing different phases of administration, there may be distinguished four different classes of systems of medical inspection, all of them in force in different parts of the United States.

First: Examinations for the detection of physical defects conducted by teachers. Such examinations are generally limited to examinations of vision and hearing.

Second: Examinations conducted by physicians for the detection of contagious diseases only.

Third: Medical inspections conducted by physicians for the detection of contagious diseases, combined with physical examinations for the detection of physical defects.

Fourth: Systems combining the features of examinations by teachers for defects of vision and hearing, and examinations by physicians for the detection of contagious diseases and non-contagious physical defects.

Obviously, examinations of the first sort, that is, examinations conducted by teachers for the detection of defects of vision and hearing, are by far the least expensive. Such systems have been discussed at length in Chapter VIII. They are prescribed by state law in Massachusetts, Vermont, and Connecticut; and have been or are being conducted without specific legal enactment in some other states, notably New York, California, and Utah.

The only expenses incurred in conducting such examinations are for printed material, consisting of rules of instruction, test cards, record blanks, notification cards, etc. Even for a large number of children the expense is low. The Massachusetts statute has the following sentence in Section 6: "The State Board of Education may expend during the year nineteen hundred and six a sum not greater than fifteen hundred dollars, and annually thereafter a sum not greater than five hundred dollars, for the purpose of supplying the material required by the act."

In Massachusetts all the material used by teachers for the tests is supplied by the State Board of Education to all teachers. There are slightly over half a million pupils enrolled in the public schools of Massachusetts. At an annual cost of five hundred dollars, this means that the tests cost approximately one-tenth of one cent per pupil. The time necessary to conduct them is from three to five minutes per pupil. Thus it will be seen that both in time and in money the necessary expenditure is slight.

As has already been explained, such tests do not take the place of thorough examinations by competent, trained experts. That they are of great and real value, however, is not to be gainsaid; and it is greatly to be doubted if in the whole range of educational endeavor there can be discovered another field where so great returns for good are to be secured at so small an expenditure of time and money.

The second sort of medical inspection, that which has for its object to discover incipient cases of infectious diseases and by their removal from school to prevent the disease from becoming epidemic, is in reality merely an extension of the work which has been done by boards of health. It is, of course, not expensive. In most cities the doctors call every day or at least several times a week, and look over all the children referred to them by the teachers as seeming to be in ill health or who have returned to school after an unexplained absence. Chicago employs one hundred doctors under the Board of Health to do this work. The system was in vogue in New York for a number of years. Before the passage of the medical inspection law, many cities of Massachusetts had it. It is still the most common system in this country.

Under this plan the method of sending for the doctor varies in different towns. Usually in cities he comes at stated times without being notified, knowing that he is sure to find some children waiting for him to examine. In some places the principal hangs out a card as for the ice man, and the doctor, making his daily rounds, notices it and stops. A common method is for the principal or superintendent to notify the doctor by telephone.

The third system combines with the inspections for contagious diseases a purpose much more fundamental in its character and likely to be more far-reaching in its influence. This purpose finds expression in physical examinations to ascertain whether the pupil is suffering

from defective sight or hearing, or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results.

This system probably finds its highest exemplification in the schools of New York City. It is, of course, a much more expensive form of medical inspection than either of the other two systems described. It requires the employment of skilful physicians for considerable periods of time. It is a much more serious matter to make a fairly complete, even if somewhat superficial, physical examination of a child than merely to decide whether or not a child shows symptoms of some contagious disease. With a like expenditure of time, it is impossible for a doctor to look out for as large a number of children under this system as under the preceding one.

Of the worth of the complete physical examination there can be no doubt. The only disadvantage which can be alleged against the system is that it often results in divorcing the work of the medical examiners from the interests of the teachers and the school authorities. This is mainly a difficulty of administration, rather than inherent in the system, and can largely be overcome.

The fourth system, that of having teachers examine for vision and hearing, and physicians for contagious diseases and physical defects, is the one prescribed by the Massachusetts law. It is also in use in some places outside of that state, notably in the city of Los Angeles, California. It has the advantage of enlisting the interest and coöperation of the teachers, while utilizing the trained knowledge of the physician.

SALARIES OF MEDICAL INSPECTORS AND THE NUMBER OF PUPILS PER INSPECTOR

The foregoing description of the different systems of medical inspection has been necessary in order to discuss the question of salaries, on account of the great variation in different localities as to the work performed and the remuneration received. The following table gives the facts in regard to the number of inspectors, salaries, number of children per inspector, and *per capita* cost for salaries for seventeen cities:

FACTS IN REGARD TO MEDICAL INSPECTION IN SEVENTEEN CITIES

City.	State.	Average Attendance.	Medical Inspectors.	Children Per Inspector	Salaries of Inspectors.	Total of Salaries.	Per Capita Cost for Salaries Only.
Boston	Mass.	86,839	80	1085	$200	$16,000	$.184
Brockton	Mass.	7,781	7	1111	200	1,400	.179
Camden	N. J.	9,718	1	9718	2400	2,400	.247
Chelsea	Mass.	6,047	3	2015	200	600	.099
Detroit	Mich.	37,757	27	1398	250	6,750	.178
Lawrence	Mass.	7,530	1	7447	1500	1,500	.201
Montclair	N. J.	2,503	4	625	305	1,220	.487
Newark	N. J.	38,562	16	2410	400	6,400	.165
New Haven	Conn.	18,135	5	3627	240	1,200	.066
New York	N. Y.	523,084	166	3151	1200	199,200	.380
Paterson	N. J.	15,238	3	5168	1 at 1500 2 at 1200	3,900	.251
Seattle	Wash.	16,174	11	1470	1 at 1200 10 at 600	7,200	.445
Somerville	Mass.	11,166	7	1581	200	1,400	.126
Springfield	Mass.	10,605	11	964	250	2,750	.259
Woonsocket	R. I.	2,862	6	477	50	300	.104
Worcester	Mass.	18,273	15	1218	200	3,000	.164

A number of considerations are necessary to the understanding of the table. In the first place, the expense for salaries of inspectors is not the whole expense for medical inspection. In all of the cities expenditures for printing and incidentals are necessary, and in Boston and New York there is the very considerable added expense for paying large corps of trained nurses. It is further to be remembered that the inspectors in New York receive their salaries at $100 per month in return for their services as district physicians of the Board of Health and that their duties as school physicians constitute only a part of their work. Again, in cities where a considerable number of inspectors is employed, they are under the supervision of chief inspectors who receive higher salaries. These salaries do not appear in the table. Still another consideration is that in most of these cities the doctors conduct

examinations for the detection of contagious diseases only, while in a few they make the much more exacting physical examinations and consequently fewer of them. In short, conditions vary so that they are not comparable on a basis of equality in any two cities.

Bearing the above considerations in mind, a study of the table becomes possible. The number of children per inspector varies from 477 in Woonsocket, R. I., to more than twenty times that number, or 9,718, in Camden, N. J.; but the Woonsocket inspectors receive an annual remuneration of $50 per year apiece, while the inspector in Camden receives $2,400. These two cities also mark the extremes in the size of salary paid. In the matter of the *per capita* cost for salaries, however, New Haven, Conn., stands at the foot of the list, with an expenditure of 6.6 cents for each pupil, and Montclair, N. J., at the head with one of 48.7 cents per pupil.

Of course, many cities having systems of medical inspection do not appear in the table, and some of them represent still greater extremes. In many places the work is carried on by volunteer workers without remuneration. The towns of Shelburne and Littleton, Mass., pay their school physicians $25 per year. The committee appointed by the School Board of Harrisburg, Pa., to investigate and report on medical inspection reported in April, 1908, that twenty-four cities replied to their questions as to the *per capita* cost of medical inspection. The answers ranged from $.00½ to $1.22.

These facts and considerations lead to the conclusion that there has not yet been adopted in this country any recognized basis for the equitable remuneration of the services of the school physician. One thing seems certain—that the almost universal tendency is to so underpay this work as to give the whole movement an appearance of triviality and fail to attract competent and experienced men of the medical profession. There can be no doubt of the validity of the opinion expressed by Professor Osler in speaking of the work of medical inspection in England: "If we are to have school inspection, let us have good men to do the work and let us pay them well. It will demand a special training and a careful technique." It is certainly to be regretted that this point of view has not been more generally taken in America.

That the words of the eminent Oxford professor were heeded in his own country seems evident from the salaries paid to the medical

inspectors of schools in England. Almost without exception the tendency is to pay much higher salaries than in America and to make much more liberal provision for clerk hire and for meeting incidental expenses. Apparently by common consent the whole movement has been placed upon a higher plane than in the United States. The English law has but recently been put into operation, and the English newspapers have contained many accounts of the meetings of county councils where the new organizations were discussed and salaries decided upon. It is both interesting and instructive to note the results of some of these meetings.

In Northampton two inspectors have been appointed at salaries of $1500 apiece per year. In North Cumberland County it is estimated that there are 11,500 children to be examined. To do this work, two medical inspectors—one a man and the other a woman—have been appointed. They receive $1200 apiece, besides travelling expenses, and a clerk has been appointed to do the clerical work. An amendment introduced for the purpose of paying the woman doctor less than the man was defeated. The County of Guildford has employed a chief medical officer at $3000, to be increased by annual increments to $4000, and four assistants who are to receive $1250 each. Each of these officials receives in addition $200 for travelling expenses. Stafford employs a senior medical officer at $1515 and three junior women inspectors at $1250, to be increased by annual increments to $1500. These officers also receive $2.00 for subsistence for each night they are forced to spend away from home. They are also supplied with a clerk who receives $405. In the West Riding District it is estimated that there are 50,000 children to be examined. The total cost of this work has been calculated at $25,000. Of this sum, $17,500 is to be devoted to salaries, $4000 to expenses, and $1000 to equipment. Many advertisements have appeared in *The Lancet* of young surgeons with some experience in children's hospitals who are willing to undertake the work at salaries ranging from $1250 to $4500 per year.

It is to be remarked, too, in considering these English salaries that the amounts paid represent relatively greater salaries than would the same sums in America. The English law also requires but three examinations in the course of the school life of the child, whereas the statute of Massachusetts, where the standard salary of a school physician

is $200 per year, requires that such a complete physical examination of each child be made every year.

In view of the differences of the work locally and the great variations of the conditions under which medical inspectors work in different localities, it is impossible to lay down any rule as to the proper number of pupils for each inspector. Assignments of schools to inspectors should be governed by the consideration of such local conditions as the distances separating schools, the size of the schools, the age of the children, and whether or not the work presents special difficulties, such as, for instance, foreign race and nationality of the children.

Moreover, it is evident that the greater the number of children for each inspector, the less intimate will be the knowledge he has of the individual children. Where examinations are conducted for the detection of contagious diseases only and doctors examine only those children referred to them by the teachers as being suspicious cases, it is pretty generally the opinion that the proper number is two, three, or even four thousand children per doctor, depending largely on the distances to be travelled to reach the schools. In school systems where school physicians conduct formal physical examinations, besides inspecting for the detection of contagious diseases, it is not uncommon to have them work three hours each forenoon, from nine to twelve. Under these circumstances they receive, of course, much higher remuneration than under the system just mentioned, and can attend to fewer pupils. Dr. John J. Cronin, Assistant Chief Medical Inspector of the New York City Board of Health, is of the opinion that under these circumstances there should be one medical inspector and one nurse for each two thousand pupils. Where the doctors make physical examinations, the fact that each examination requires from twelve to fifteen minutes on the average must be used as a basis for deciding on an equitable remuneration, according to the local rates of remuneration. In smaller places where the doctors visit the schools only upon the request of the principal or superintendent, it is sometimes customary to pay them at the local rate per visit, considering the whole school as one patient.

New York pays its nurses $75 per month and employs them for twelve months in the year. Boston pays the supervising nurse $924 for the first year, which is increased by an annual increment of $48

to a maximum of $1116. The assistant nurses receive $648 per year and an annual increase of $48 until the maximum of $840 is reached. New Haven pays its nurse $600 per year.

In both England and Germany arrangements are often made in regard to payments for medical inspection which might well be studied with a view to their introduction in America. In England it is not uncommon to pay according to the work done, rather than to decide on any fixed amount. Thus physicians in Derbyshire submitted an estimate to the County Council for conducting physical examination of pupils at the rate of 2 s. 10 d. per head; in Worcestershire the price agreed upon was 1 s. 8 d. per head. In the County of Somerset the physicians receive 1 s. 3 d. for each pupil in the rural districts and 1 s. in the urban districts. In the North Riding and Yorkshire Districts the arrangement is that the medical officer shall receive 1 s. per child for physical examinations, with the addition of £1 a school in rural districts.

In "The Medical Inspection of Schools in Germany" ("*Das Schulartzwesen in Deutschland*"), Dr. Paul Schubert has the following to say regarding the salaries of school physicians:

> "As to the salaries of school physicians there are two methods—a fixed salary and payment according to work done. In many cities there is a combination of the two systems, that is, a certain addition is made to the fixed salary. For instance, in Wiesbaden the fixed salary of the school physician is 600 marks and a special remuneration is made for the examination of all children in their first, third, fifth, and eighth years of school life. In Leipzig the fixed salary is 300 to 500 marks, according to the size of the district, and an additional sum of 200 marks is paid for the examination of pupils entering school. In Aix-la-Chapelle each school physician receives out of the total appropriation of 6000 marks a fixed salary of 500 marks; the remainder is divided among the physicians at the end of the year, according to the number of children that each physician has examined."
>
> "In Mannheim the system of medical inspection is upon an altogether different basis. There one school physician

is in general charge (precluding private practice) with a salary of 10,000 marks. We await results of this arrangement."

A feature of the financial administration of medical inspection which has received adequate attention abroad, but which has been almost entirely neglected here, is that of furnishing medical inspectors with adequate clerical assistance. In the nature of the case, the work requires the making of a great many entries on individual record cards or sheets; and upon the thoroughness and system with which it is done depends to a large degree the efficacy of the work. Recent careful timing of work done by one of the most skilful examiners in the employ of the New York City Board of Health shows that it took him on the average about twelve minutes to make each physical examination. Almost exactly half of this time was employed in conducting the examination itself and the other half was spent in the purely clerical work of entering results on the sheets. The very writing of the names of the pupils on their individual record cards and those of the parents on notification postal cards often consumes a great deal of time in some quarters of the city, and constitutes a class of work which ought not to be foisted on to a trained physician. Here are some names taken more or less at random from the school registers in a Polish section:

Rzemieszkievicz,	Klymezynski,
Zdrojewski,	Wrzesimski,
Gorzelanczyk,	Guleszecwicz.

When a doctor is being paid at the rate of from one dollar to two dollars per hour, it is certainly a most unbusinesslike and inefficient policy to require him to spend half of his time doing work which a clerk at twelve or fifteen dollars a week could perform equally well. The doctor in question said in answer to a query that he felt sure he could examine twice as many children in the given time if he had the help of a clerk and that he would find the work much more agreeable. This is a matter which demands attention wherever systems of medical inspection are to be installed. It is at present one of the weak points of all American systems.

It is very difficult to gather reliable information as to the general

expenses of medical inspection outside of the matter of salaries in American cities. Apparently in most places no careful account has been kept. The expenses for printing, incidentals, etc., in connection with medical inspection have simply been included with the general expenses of the board of health or board of education. In only a few cases is information available. In Springfield, Mass., the average attendance of the public schools is 10,605. The expenses for medical inspection for the year 1907 were as follows:

MEDICAL INSPECTION OF SCHOOLS, SPRINGFIELD, MASS.

Receipts.		
By appropriation		$2000.00
Expenditures.		
Salaries of inspectors	$1970.00	
Printing	25.15	
Postage	4.00	
Total payments		1999.15
To contingent account		.85
		$2000.00

Montclair, N. J., has an average attendance in its public schools of 2,503. The following is an account of the expenses for the medical inspection for the school year ending December 31, 1907:

MEDICAL INSPECTION OF SCHOOLS, MONTCLAIR, N. J.

Receipts.		
On hand Jan. 1, 1907	$1018.60	
Appropriated by Town Council	1750.00	
		$2768.60
Expenditures.		
Salary of inspectors, Jan. 1 to July 1, 1907	990.00	
Salary of inspectors, July 1 to Dec. 31, 1907	660.00	
		1650.00
Supplies Jan. 1 to July 1, 1907	21.20	
Supplies July 1 to Dec. 31, 1907	47.93	69.13
		$1719.13
Balance on hand Jan. 1, 1908, to carry till July 1, 1908		1049.47
		$2768.60

In decided contrast to these meagre appropriations, and showing that the English policy is as much more adequate than the American in the matter of appropriations for incidentals as in that of salaries, is the estimate of cost of medical inspection at East Sussex, England. The district contains 176 schools and approximately 26,000 pupils, of whom 21 per cent., or 5,460, are to be examined the first year. The following is a financial estimate of the subcommittee of the East Sussex Education Committee:

MEDICAL INSPECTION OF SCHOOLS, EAST SUSSEX, ENGLAND

Salaries and travelling expenses	$3547.80
176 weighing machines at $6.06 each	1066.56
176 height measuring standards at 84 cents each	147.84
360 copies Snellen's test at $2.40 per doz	72.00
176 screens at $2.40 each	422.40
15,000 cards at $4.86 per thousand	73.90
240 card cabinets	437.40
15,000 notices to parents at $2.43 per thousand	36.45
Sundries	607.50
Total for appliances and incidentals	$2864.05
Total cost for first year	$6411.85

There are many other minor questions of administration which present themselves for discussion. Some of these are: Is it better to have medical inspectors devote their entire time to the work, or is it preferable that they give only part of their time and have outside practice? Should the doctor be allowed to prescribe for children? What should be done in the case of parents too poor or too indifferent to take measures recommended by the physicians? If, for instance, the child has defective vision and glasses are needed, who is to furnish them if the parents fail to do so?

It is difficult to answer these questions because in many, if not most, cases the answer depends on local conditions. It is the general opinion of the best authorities that medical inspectors should not devote their whole time to the school work. The work is exceedingly monotonous, and if the doctor is prohibited from having an outside practice

opportunities for increasing his skill and enlarging his experience are to a great extent cut off.

To the question as to whether a doctor should prescribe for children, the answer must be made that under no conditions should he lay himself open to the charge that he is using his official position for the purpose of enlarging his private practice. This is the basis for the almost invariable rule that except in cases of emergency the school doctor shall not prescribe.

It has been suggested that in cities of small size and in towns there should be employed one man, a physician, thoroughly trained in the science of modern preventive medicine, who should fill the offices of school medical inspector, director of physical training in the public schools, and director of physical training in the playgrounds during the summer months. By such an arrangement a salary could be paid that would attract the best men, without undue burden on the tax-payers, even in comparatively small places.

The problem of furnishing free eyeglasses for indigent pupils has been widely discussed. As far back as 1901 the city of Cleveland gave away 400 pairs to pupils needing them and whose parents claimed to be unable to meet the necessary expense. In a number of cities first class opticians have made offers to furnish glasses at a uniform price of $1 a pair to school children. A case in point is Lowell, Mass.

In Philadelphia there is a city ophthalmologist who prescribes for children found to have defective vision, and then glasses are furnished through his office at the cost price of eighty-five cents a pair.

In most places where the matter has been carefully studied it is found that careful follow-up work on the part of the school authorities will result in nearly all of the cases being taken care of by the parents of the children, and in the cases of families genuinely unable to meet the expense it has always been possible to arrange with charitable organizations to furnish the glasses. The percentage of cases where this has been found necessary or desirable is exceedingly small.

In summing up the problems of administration which relate to expense it can only be said that in this, as in all other branches of organized endeavor, cost varies with the extent and kind of work done. Examinations by teachers for the discovery of defects of vision and hearing involve only the added expense of the simple printed material required.

Inspection by physicians for the detection of contagious diseases is inexpensive and of great value in its results.

Systems of medical inspection which include careful physical examinations of all children cost the most and are by far the most valuable. From a social and economic viewpoint they are by far the cheapest in the better sense of the word, as they are the most far-reaching both in their immediate and in their indirect results.

If, however, a system of medical inspection is to be efficient and effective for any considerable length of time, it is clear that adequate salaries must be paid to those in charge of the work.

Efficient work can not long be expected from volunteers, and perhaps even less will it be given by physicians who receive a bare pittance in return for their time and skill. Neither can it be expected that first-class men will long be content to spend most of their time in doing the purely clerical work of filling out blanks in duplicate and triplicate.

Permanent efficiency will require skilled workers, careful administration and adequate remuneration.

CHAPTER X

Controlling Authorities

Under American systems of municipal government, the question as to whether medical inspection of schools is a proper function of the board of education or the board of health is bound to arise as soon as the organization of such a system is contemplated. Both sides of the question are certain to be warmly argued.

On the side of the board of health is the argument that the machinery of government already existing for the conservation of the health of the community may properly be extended to include new activities, and that another branch of the government should not duplicate social machinery already existing. It is further argued that an important feature of the medical inspection of schools is the detection and segregation of cases of contagious disease. This is a protective measure relating to the safety of the whole community, and as such should remain a function of the board of health.

On the side of the argument for keeping the work in the hands of the board of education it is claimed that the whole work, to be effective, must be so closely related to school work and school records that friction inevitably results when those in charge are in the employ of an outside body, neither responsible to nor perhaps in sympathy with those having schools in charge. This results in a loss of efficiency.

The further claim is made, and substantiated by referring to records of work done in many cities, that the exclusion of cases of contagious disease is after all a comparatively small part of the work of medical inspection, even where the work is confined to the examination for the detection of cases of contagious disease and physical examinations are not made. Thus in Haverhill, Mass., in 1907 the total exclusions amounted to 222 in a school membership of 5230, or about 4 per cent. In Newark, N. J., in the same year the exclusions were 1579 in a school

membership of 38,562, or again 4 per cent. In the State of Massachusetts in 1907, towns and cities having an average attendance of 342,000 reported something more than 15,000 exclusions during the year. Again the percentage is 4. In all of these cases a large proportion—in fact nearly half of the exclusions—are on account of one cause, pediculosis (lice). In cities where school nurses are employed, these cases are not excluded and thus the number of exclusions is greatly cut down. In New York in 1906 the exclusions amounted to 11,101 among a school membership of 505,000, or only 2 per cent.

A good idea of the feeling of those in charge of the work in localities where the question as to administration has been raised may be gained from reading some extracts, mostly taken from official reports, made by executive officers.

In his report for 1907, Dr. William H. Maxwell, City Superintendent of Schools of New York, says:

> "Dual responsibility in the school—that of the Board of Education and that of the Department of Health—always has resulted and always will result in confusion and inefficiency in the work effected. It is owing to this dual responsibility that the large annual appropriation made by the city for the physical examination of school children is to a great degree wasted. Efficient service will be obtained only when the Board of Education is made solely responsible for all the work that goes on in the schools.
>
> "The physicians employed by the Board of Health do not perform any of the functions which it is highly advisable should be performed by a truly educational department of hygiene, such as studying hygienic conditions in the schools and advising teachers regarding the pedagogical treatment of children in cases of fatigue and nervousness.
>
> "The nurses employed by the Department of Health have done good work in visiting the homes of sick children, in giving advice and assistance to mothers, and in looking after slight ailments in the school. The fact, however, that they are under the control of an outside organization is a

> constant hindrance to their work. It is another instance of the evil effects which arise from dual control or divided responsibility. I risk nothing in saying that the school nurses would do much more and better work if they were made responsible to the educational authorities."

Dr. Thomas F. Harrington, of the Department of Hygiene, Boston, says in speaking of the system of medical inspection by physicians in the employ of the Department of Health:

> "The greatest criticism against this system of inspection is that it lacks uniformity; that it excludes pupils, and does not provide any means of 'follow up' nor any guarantee that the child will receive medical care; that the duties of the inspector as an agent of the Board of Health bring him in contact with much contagion in the homes; and finally that the dual duties and divided responsibility are not conducive to the best in the health and efficiency of school children."

In speaking of the work of the school nurses, he says:

> "It does not seem possible to conceive a more satisfactory arrangement, nor a more effective piece of school machinery than nurses under school supervision. With a corps of medical inspectors under this same supervision, who would conduct a daily clinic in their respective school districts, there are no problems connected with the health and efficiency of school children which could not be quietly, rationally, economically and effectually solved. Until such an organization is perfected in part or in whole, little progress can result from the efforts to promote the health and efficiency of our school children."

The Superintendent of Schools of Boston in his twenty-seventh annual report, July, 1907, says in regard to the Massachusetts law making medical inspection compulsory:

"In this connection it should be stated that while the school physicians were concerned solely with contagious diseases, they were properly to be controlled by the Board of Health. Under the new law, the work of examining into any defect that interferes with the progress of the children in school is not in the main a question of public health. It is rather an educational question and is so directly allied to the work of the Department of Physical Training that the school physicians should be appointed by the school board and become a part of this department. The highest efficiency will be impossible until this action is taken."

The Superintendent of Schools of Cleveland says in his report for 1907, after making an able plea for the establishment in the schools of the city of a system of medical supervision:

"While it has been suggested that the kind of service here treated should be performed by the Board of Health, it is the belief that medical supervision is peculiarly a function of the Department of Physical Training and School Hygiene, and that the Board of Health's relation to the schools should relate to the matter of communicable disease."

In his report for 1907, the Superintendent of Schools of Newark, N. J., says that the medical inspection as conducted by the Board of Health has been satisfactory, but adds that the only objection that can be raised against it relates to the executive control of the staff of medical inspectors. He says:

"By additions to the staff, the number of medical inspectors now employed in the schools is 16. The direction and control of this large number requires some one who can give more time to it than is possible for the busy and overworked, but exceedingly efficient, health officer. It seems hardly fair to impose upon him in addition to

his other duties the duty of overseeing daily the work of sixteen medical inspectors.

Dr. Fred S. Shepherd, Superintendent of Schools of Asbury Park, N. J., says:

> "Again, if the system is to work harmoniously, the medical inspector should work under the direction of the Superintendent of Schools, as do the teachers. If the medical inspector should regard himself as not called upon to accept any suggestions whatsoever from the school officers of administration, such as superintendents or school principals, it is plain that friction might arise. In this connection we should not overlook the fact that medical inspectors are human and have a few of the faults common to humanity. It is possible for them, as it is for teachers and others higher in authority, to slight their duties or to perform them in an inefficient and unsatisfactory manner. School boards are not able to pass judgment upon these inner workings of the system, and somebody should have the responsibility for holding even medical inspectors, if necessary, to the letter if not to the spirit of their obligations."

It is to be noted that Superintendent Shepherd is speaking, not from the point of view of the theorist, but from that of one experienced with the workings of a school system, having a successful system of medical inspection under physicians appointed by the Board of Education. In telling of the workings of this system in actual practice, Dr. Shepherd goes on to say:

> "It has been suggested in some quarters that medical inspection of school children should be one of the functions of the local board of health, in order to prevent clashing of authority. As boards of health are organized in our own State, however, I can see no likelihood of such cross purposes. I presume it does devolve upon local boards of health to inspect for sanitary purposes all public build-

> ings, including the public schools. This, I judge, is also, or should be, one of the duties of the medical inspector. To have the public schools inspected intelligently by two such departments seems to me a good thing. What one might overlook, the other might see. Aside from this apparent overlapping of jurisdiction, I see little opportunity for any clashing of interest. On the contrary, it is possible for the very closest relations to be established between boards of health and the school medical authorities. How it might be in other cities of the State, I am not aware; but in the city of Asbury Park every case of contagious or infectious disease is reported immediately by the Board of Health to the school authorities, and *vice versa*."

That the fears expressed by Dr. Shepherd are not imaginary is shown by experience in cities where the dual system of control is in practice.

Such an example comes to light in the city of Lawrence, Mass. There medical inspection is, of course, conducted under the provisions of the State statute, which provides for the appointing of school physicians by either the school committee or the board of health. In Lawrence the threatened conflict came to a head in August, 1907, when the Board of Health appointed five physicians to inspect both public and private schools. By an order of the School Committee the principals and teachers were forbidden to extend official recognition to any but Dr. Bannon, who was appointed by the School Committee in August, 1906, for a term of three years. This continues and the schools are under a double inspection, with much consequent unavoidable friction.

One of the strongest arguments in favor of medical inspection under the authority of boards of education is that the efficiency of the work demands that there shall be the closest coöperation between the medical and the educational authorities. If the results of the work are to be profitable, if diligent effort is to be made to correct the defects found, if the physical conditions brought to view are to be used for the guidance of the teacher in the class-room, then certainly such intimate relationships are essential.

It has been claimed that where the work is done by the board of health this is difficult or impossible. Certainly an examination of the annual reports of some of the superintendents of cities where the medical inspection is conducted by the board of health would seem to indicate that the educational authorities know little of the work that is being done, and so regard it as of slight importance as a guide in the work of the class. Examples of such an attitude as this are found in reports of the Superintendents of Schools of Haverhill and Springfield, Mass., for 1907. The Superintendent of Schools of Haverhill, Mass., disposes in his report of the work of medical inspection with the following brief remarks:

> "The school physicians have continued their work on the same basis as last year, under appointment from the Board of Health. I am permitted to make the following summary of such portions of their work as admit of classification. A large proportion, perhaps the largest portion of their work, is not such as can be shown in the form of statistics."

Then follows a brief list of the diseases noted by the school physicians and of the statistics concerning vaccination. No details are given, nor is there any mention made even of the number of pupils examined. The report is confined to some ten lines. Such comment certainly does not seem to indicate intimate knowledge of the work being done or any intimate relationship between the work of the school physicians and that of the educational authorities.

A similar condition seems to be revealed in Springfield, Mass., where the sole comment of the School Board on the work of the physicians appointed by the Board of Health is, "So far as we can learn, the inspectors are fulfilling their requirements and parents generally follow the advice given."

In Massachusetts medical inspectors are appointed in some of the cities by the boards of health and in others by the school committees. After watching the operation of the two systems for more than a year under the State law, Secretary George H. Martin of the State Board of Education writes:

"The movement now in progress, which has reached different stages in different countries, seems to be shaping itself so as to include as necessary features the following elements:

"(1) Physicians. A sufficient number of trained physicians to carry on the necessary examinations and exercise the needed oversight of all the children in the public and private schools, these physicians to act under the direction of the local educational authority, but in coöperation with local health authorities. In the larger cities the physicians should act under the immediate direction of a chief medical officer, who should be a permanent member of the educational staff."

In Chapter I we have already traced the two sources of the movement that is leading to the medical care of school children; one developing from the standpoint of existing and recognized functions of the Department of Health, and the other from a less well defined or conscious relation of departments of education to the welfare of school children. The relation between these two functions is not an easily defined one. The fact that from a number of cities the percentage of cases needing exclusion is not over 4 per cent., while the number of children needing care with reference to defects, exercise, suitable seats and desks, type, paper, suitable hours of study, and the like, include all the children, shows that one is specific and limited, the other general and almost unlimited in its scope.

It is natural that those who have approached the problem from the standpoint of contagious disease or pathology are prone to regard the whole work as belonging as a natural function to the department of health. It is equally natural that those who are accustomed to look at growth and development as the ultimate object should fail to recognize the fundamental obligation supported by legal powers possessed by the boards of health with reference to community protection. This legal power and obligation cannot easily be transferred to any other city department, and should not be, even if it could.

In summing up, then, we may conclude as a result of the evidence presented:

I. The detection of contagious diseases in the schools, involving daily visits and the power of the law, is in the nature of an extension of the powers heretofore exercised by boards of health; and where medical inspection is to include nothing more than this work, systems may well be administered by boards of health, if care be taken to establish and maintain sufficiently close and friendly relations with the school officials.

II. Those activities which have to do with the child's physical condition as related to his school work—seating, exercise, hours of home study—that is to say all functions of the medical inspection of schools except those pertaining to contagious diseases—are in the nature of the case an integral part of school interests and must not be divorced from them. Moreover, the records of the examinations of school children for physical defects likely to interfere with proper growth and education must, if they are to serve their end, follow the child from grade to grade and from school to school, and each case must be followed up constantly; that is, they are an important part of the school records and must be so made and administered.

In brief:

(*a*) Medical inspection for the detection of contagious diseases may well be a function of the board of health.

(*b*) Physical examinations for the detection of non-contagious defects should be conducted by the educational authorities, or at least with their full coöperation, because they are made for educational purposes.

(*c*) The records of physical examinations must be constantly and intimately connected with school records and activities.

(*d*) They do not need to be connected with other work of the board of health.

CHAPTER XI

Legal Aspects of Medical Inspection

On Friday, April 17, 1908, Mr. Almuth C. Vandiver, counsel for the Medical Society of the County of New York, read a paper on "Statutory Enactments relating to the Medical and Sanitary Inspection of Schools" before the Second Congress of the American School Hygiene Association, then in session at Atlantic City. Most of the facts presented in the following chapter have been through the courtesy of Mr. Vandiver taken from his paper.

There are few legislative enactments under which the views and beliefs, and results of experience, of educators and physicians have been crystallized in Europe and America in the field of medical inspection of schools. There are but two important statutes. The English statute, which became a law on January 1, 1908, and that of the State of Massachusetts. This commonwealth, always foremost in pioneer and progressive legislation, placed upon its statute books in 1906 a mandatory medical inspection law far more comprehensive in its provisions than the English law.

The English law, known legally as "Section 13 of the Administrative Provisions of the Education Act of 1907," in its entirety is as follows:

> 13. (1) The powers and duties of a local education authority under Part III of the Education Act, 1902, shall include: (a) Power to provide for children attending public elementary schools, vacation schools, vacation classes, play centers, etc. (b) The duty to provide for the medical inspection of children immediately before or at the time of or as soon as possible after their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of

> Education for attending to the health and physical condition of the children educated in public elementary schools: Provided, that in any exercise of powers under this section the local education authority may encourage and assist the establishment or continuance of voluntary agencies, and associate with itself representatives of voluntary associations for the purpose.
>
> (2) This section shall come into operation on the first day of January, nineteen hundred and eight.

The English lawmakers are not quite so verbose and prolix in statute drafting as are their American contemporaries, and the interpretation and construction of this short act was comprehensively treated by the Board of Education in a memorandum issued on November 22, 1907, before the act became effective, for the guidance of the administrative officers charged with the execution of the statute.

This course differs somewhat from the American system. In the United States the construction and interpretation of statutes is left finally to the courts. This procedure is a lengthy and involved practice. In view of the fact that the memorandum referred to has the practical effect of a parliamentary enactment in the execution of the law, it may be well to quote from it somewhat extensively.

It will be observed that the burden of executing the provisions of the statute is specifically laid upon the education authorities. This is a distinct departure from the established course heretofore pursued in matters relating to the public health.

In the view, however, of the London Board of Education the present act is not intended to supersede the powers which have long been exercised by sanitary authorities under various public health acts, but is meant to serve rather as an amplification and a natural development of previous legislation.

In order that friction between the education and health authorities may be avoided, if possible, the Board of Education in this memorandum advises a thorough and friendly coöperation with such authorities in the administration of the law.

The second most noticeable feature about the act is that it makes medical inspection compulsory. Theretofore medical inspection had

been more or less in vogue in various localities under the supervision of the education authorities, sometimes in conjunction with the health authorities. The central authority for the execution of the law is the Board of Education. The board's instruments are the local education authorities. In country areas this authority is the county council. It is suggested in the memorandum that the county council confer with and coöperate with the county medical officer. It is also suggested that the county medical officer have an assistant appointed by the county council, whose duty shall be the inspection provided for by the statute.

In county boroughs the town council, which is at the same time both the local authority for public health, and also the local education authority, is counselled to instruct their medical officer of health to advise the education committee. Where no medical officer has been appointed, it is suggested that his appointment be made by the education authorities. Where there is already a school medical officer, it is suggested that his appointment remain undisturbed.

Although there is no provision for school nurses in the act, the Board of Education advised that wherever practicable such nurses be employed.

The Board decided that not less than three inspections during the school life of a child will be necessary to secure the results desired. In certain areas, the Board may from time to time require inspection at shorter intervals and of a more searching character.

The inspection of the sanitation of school buildings, the prevention of the spread of contagious diseases, and the supervision of the personal and home life of the child are also suggested.

Finally, it should be observed that there is in the act no section whatever providing that parents of school children, found diseased or defective after such inspection, shall provide proper medical attention at the hands of their own physician or of the hospital authorities.

"Every authority which has so far undertaken medical inspection," says Dr. Hackworth Stuart, commenting upon the new law, "has experienced great difficulty in overcoming parental indifference and neglect in very many defective cases. In some cases it is at present impossible to persuade the parents to act on the notification made after the visits of inspection. Legal proceedings against the parents for neglect would not prove a very helpful custom for general adoption."

Dr. Stuart suggests that inspection would become more fruitful in

its results if the education authorities were empowered to secure treatment of cases where recommendations of the inspectors are repeatedly neglected and to recover the costs from the parents.

In this view it is difficult to coincide so far as the United States are concerned.

In this country a penal provision seems essential for the proper execution of any law imposing a duty upon the people or any part of them.

Prior to the adoption of the English statute, the education authorities in various localities carried on a system of notification to parents of defects found to exist in their children by school medical inspectors. In these notifications, the parents were advised to secure medical attention without delay, and explanations for the necessity of such action were included, but there was no legal authority existent to compel the parents to secure such medical attention if the same was neglected.

It was found by the school authorities in Hanley that the segregation of defective pupils during school hours and during play-time had a more satisfactory effect upon the parents than any other method adopted.

Let us now consider for a comparison with the English statute the only legislative enactment existing in the United States making medical inspection mandatory. As it was the initial legislative effort in America along this line it seems worth while to quote it *in extenso*. Legally it is known as Chapter 502 of the Acts of 1906, and became a law of the State of Massachusetts on the 1st day of September, 1906. It provides:

> Section 1. The school committee of every city and town in the Commonwealth shall appoint one or more school physicians, shall assign one to each public school within its city or town, and shall provide them with all proper facilities for the performance of their duties as prescribed in this act: provided, however, that in cities wherein the board of health is already maintaining or shall hereafter maintain substantially such medical inspection as this act requires, the board of health shall appoint and assign the school physician.
>
> Section 2. Every school physician shall make a prompt examination and diagnosis of all children referred to him

as hereinafter provided, and such further examination of teachers, janitors, and school buildings as in his opinion the protection of the health of the pupils may require.

Section 3. The school committee shall cause to be referred to a school physician for examination and diagnosis every child returning to school without a certificate from the board of health after absence on account of illness or from unknown cause; and every child in the schools under its jurisdiction who shows signs of being in ill health or of suffering from infectious or contagious disease, unless he is at once excluded from school by the teacher; except that in the case of schools in remote and isolated situations the school committee may make such other arrangements as may best carry out the purposes of this act.

Section 4. The school committee shall cause notice of the disease or defects, if any, from which any child is found to be suffering to be sent to his parent or guardian. Whenever a child shows symptoms of smallpox, scarlet fever, measles, chickenpox, tuberculosis, diphtheria or influenza, tonsillitis, whooping cough, mumps, scabies, or trachoma, he shall be sent home immediately, or as soon as safe and proper conveyance can be found, and the board of health shall at once be notified.

Section 5. The school committee of every city and town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. The tests of sight and hearing shall be made by teachers. The committee shall cause notice of any defect or disability requiring treatment to be sent to the parent or guardian of the child, and shall require a physical record of each

child to be kept in such form as the state board of education shall prescribe.

Section 6. The state board of health shall prescribe the directions for tests of sight and hearing and the state board of education shall, after consultation with the state board of health, prescribe and furnish to school committees suitable rules of instruction, test cards, blanks, record books, and other useful appliances for carrying out the purposes of this act, and shall provide for pupils in the normal schools instruction and practice in the best methods of testing the sight and hearing of children. The state board of education may expend during the year nineteen hundred and six a sum not greater than fifteen hundred dollars, and annually thereafter a sum not greater than five hundred dollars for the purpose of supplying the material required by this act.

Section 7. The expense which a city or town may incur by virtue of the authority herein vested in the school committee or board of health, as the case may be, shall not exceed the amount appropriated for that purpose in cities by the city council and in towns by a town meeting. The appropriation shall precede any expenditure or any indebtedness which may be incurred under this act, and the sum appropriated shall be deemed a sufficient appropriation in the municipality where it is made. Such appropriation need not specify to what section of the act it shall apply, and may be voted as a total appropriation to be applied in carrying out the purposes of the act. (Repealed in 1908.)

Section 8. This act shall take effect on the first day of September in the year nineteen hundred and six. (Approved June 20, 1906.)

It will be noted that the provisions of section 7 enabled any city council or town meeting to render ineffective the whole medical inspection law, by refusing to grant a proper appropriation therefor. A few cities and towns availed themselves of this opportunity, and in order to avoid this possibility the legislature of 1908 repealed the section.

Observe that the English statute and the Massachusetts statute each make medical inspection compulsory.

Neither includes a penal provision providing for procedure against neglectful parents of defective children.

In these two essentials, the acts are similar.

In the English act, the education authorities are charged with the administration of the law. In Massachusetts, the school authorities in every city or town appoint medical examiners, except in cities where the board of health is already maintaining or shall hereafter maintain such medical inspection as the act requires. In this latter class the board of health appoints.

In the Massachusetts statute, an examination of each pupil is provided at least once in every school year for defective sight or hearing, or any other disability. The tests are given by the teachers, but the board of health prescribes the directions for tests. Notices of defects must be sent to the parents.

In the English statute, there is no expressed provision for the number of medical examinations, but as has hereinbefore been stated, the London Board of Education has prescribed three examinations during a school life as necessary.

These are the leading statutes in Europe and America upon this subject. The American statute has been in effect for less than two years, the English statute a little over one-half year. Neither, therefore, can be considered as yet away from the experimental stage of legislation.

Let us now consider the work of medical inspection done without specific mandatory legislative enactment, and done under the existing permissive provisions of the Public Health Laws of the State of New York, in the most populous city of America.

New York state has no specific statute making medical inspection compulsory. Such inspection is conducted in the city of New York by the Department of Health under the general authority of the Public Health Laws, authorizing local health boards to guard against the introduction of contagious and infectious diseases by the exercise of proper and vigilant medical inspection, and the control of all persons and things arriving in the municipality from infected places, or which from any cause are liable to communicate contagion. This statute is Section 24 of Article 2 of Chapter 661 of the Laws of 1893 and amendments thereto.

Section 210 of Article 12 of the same statute makes the vaccination of school children compulsory.

To show the attitude of the people of New York, it may be said that the enforcement of this section was bitterly contested to the Court of Final Appeal, where its constitutionality was affirmed in October, 1901.

Although no legislative enactment yet appears upon the statute books of New York in regard to compulsory medical inspection of school children, more consideration has been displayed in section 213 of Article 12 of the same law, in regard to the examination and quarantine of children admitted to institutions for orphans, destitute or vagrant children, or juvenile delinquents.

This section provides:

> "Every institution in this state, incorporated for the express purpose of receiving or caring for orphan, vagrant or destitute children or juvenile delinquents, except hospitals, shall have attached thereto a regular physician of its selection duly licensed under the laws of the state and in good professional standing, whose name and address shall be kept posted conspicuously within such institution near its main entrance. The words 'juvenile delinquents' here used shall include all children whose commitment to an institution is authorized by the penal code. The officers of every such institution upon receiving a child therein, by commitment or otherwise, shall, before admitting it to contact with the other inmates, cause it to be examined by such physician, and a written certificate to be given by him, stating whether the child has diphtheria, scarlet fever, measles, whooping cough or any other contagious or infectious disease, especially of the eyes and skin, which might be communicated to other inmates and specifying the physical and mental condition of the child, the presence of any indication of hereditary or other constitutional disease, and any deformity or abnormal condition found upon the examination to exist. No child shall be so admitted until such certificate shall have been furnished, which shall be filed with the commitment or other papers

on record in the case, by the officers of the institution, who shall, on receiving such child, place it in strict quarantine thereafter from the other inmates, until discharged from such quarantine by such physician, who shall thereupon indorse upon the certificate the length of quarantine and the date of discharge therefrom."

"Section 214. Monthly examination of inmates and reports.—Such physician shall at least once a month thoroughly examine and inspect the entire institution, and report in writing, in such form as may be approved by the state department of health, to the board of managers or directors of the institution, and to the local board of the district or place where the institution is situated, its condidition, especially as to its plumbing, sinks, water-closets, urinals, privies, dormitories, the physical condition of the children, the existence of any contagious or infectious disease, particularly of the eyes or skin, their food, clothing and cleanliness, and whether the officers of the institution have provided proper and sufficient nurses, orderlies, and other attendants of proper capacity to attend to such children, to secure to them due and proper care and attention as to their personal cleanliness and health, with such recommendations for the improvement thereof as he may deem proper. Such boards of health shall immediately investigate any complaint against the management of the institution or of the existence of anything therein dangerous to life or health, and, if proven to be well founded shall cause the evil to be remedied without delay."

The penal provisions of the Health Law in regard to violations thereof provide:

"Section 397. Wilful violation of Health Laws.—1. A person who wilfully violates or refuses or omits to comply with any lawful order or regulation prescribed by any local board of health or local health officer, is guilty of a misdemeanor.

"2. A person who wilfully violates any provision of the

> health laws, or any regulation lawfully made or established by any public officer or board under authority of the health laws the punishment for violating which is not otherwise prescribed by those laws, or by this code, is punishable by imprisonment not exceeding one year, or by a fine not exceeding two thousand dollars or by both."

The Public Health Laws of the State of New York are sufficiently broad and comprehensive in their general authorizing provisions to warrant the establishment and maintenance by the health authorities of an adequate system of medical inspection of school children. Hearty coöperation on the part of the education authorities is essential, however, to make the work effective.

In 1892, medical inspection in the parochial schools of Philadelphia was established and was soon discontinued on account of much opposition thereto.

In 1890, Boston ordered such medical inspection, but did not enforce it until 1894.

In 1895, Chicago followed suit.

The principle upon which medical inspection of schools was established in these cities, and in fact the principle upon which medical inspection has proceeded in all of the states in the Union, has been the prevention and elimination of infectious and contagious diseases, and not upon the high intellectual plane upon which the Board of Education of London in the memorandum before referred to have placed the reasons for the enactment of their legislation in the following words:

> "The Board desires, therefore, at the outset to emphasize that this new legislation aims not merely at a physical or anthropometric survey, or at a record of defects disclosed by medical inspection, but at the physical improvement, and, as a natural corollary, the mental and moral improvement, of coming generations. The broad requirements of a healthy life are comparatively few and elementary, but they are essential, and should not be regarded as applicable only to the case of the rich. In point of fact, if rightly administered, the new enactment is economical in the best sense of the word. Its justification is not to be measured

in terms of money, but in the decrease of sickness and incapacity among children, and in the ultimate decrease of inefficiency and poverty in after life arising from physical disabilities."

In 1897, 150 physicians were appointed by the Department of Health of New York to inspect schools.

In 1907, there were 166, together with 50 trained nurses, at work.

From 1897 to 1902, the efforts of these physicians were directed to excluding children with infectious and contagious diseases.

In 1902, each child was personally examined once a week.

In 1905, the examination of each child thoroughly to ascertain the existence of any contagious affection was instituted.

No child was treated whose parents were able to employ physicians.

The fundamental principles in force at that time were:

1. Repeated and systematic inspection of all school children for the purpose of early recognition of contagious diseases.

2. Exclusion from school attendance of all children affected with an acute contagious disease.

3. Subsequent control of case with isolation of patient and disinfection of the living apartment after termination of illness.

4. Control and enforced treatment of minor contagious ailments with the purpose of diminishing the number of children excluded from school attendance.

5. Knowledge of unreported cases of contagious diseases.

6. Complete physical examination of each school child with reference to the existence of any physical or mental abnormality.

The working officers consisted of a chief medical inspector, a corps of physician inspectors, a supervising nurse, and a corps of trained nurses.

In the English statute there is no provision for the employment of school nurses, but such employment is recommended wherever feasible.

It seems to be the general opinion of hygienic experts that admirable results in the furtherance of medical inspection, especially in the home treatment of defective children, have been obtained by the employment of school nurses.

Under the regulations of the New York Health Department, each

physician inspector visited a group of schools before ten in the morning and examined:

1. All children isolated by the teachers suspected of contagious diseases.

2. All children who had been absent from school for any reason.

3. All affected children neglecting treatment.

4. All cases referred by the school nurse for diagnosis.

Upon diagnosis of contagious disease, the child was sent home and could not return to the school except on the certificate of the Department of Health as to the termination of the disease.

Children suffering from skin diseases were ordered to go to their family physician, or to dispensaries, or to the school nurse for treatment.

The nurses were assigned to schools in crowded tenement districts, and treated such pupils as were sent to them by the medical inspectors.

Routine weekly inspections were also made by the nurse.

All doubtful cases were referred for diagnosis.

In 1905, the nurses treated 976,092 cases.

Two dispensaries and one hospital for trachoma were established.

Absentees were visited by the physicians and by the nurses.

The Superintendent of Schools of New York in his annual report for 1907, has recommended legislation establishing a Department of Hygiene, to be placed under the sole and exclusive jurisdiction of the education authorities as the most important and necessary work to be accomplished at the present time by the Board of Education.

Here is food for expert thought.

Specific, compulsory legislation authorizing the education authorities in the city of New York to conduct medical inspection is suggested by the chief executive officer of the city schools, in the greatest city in the country. Dual responsibility is deprecated.

On the side of the sole jurisdiction of the education authorities stands the English statute.

The tendency of the Massachusetts statute is to put the jurisdiction in the education authorities. In the latter, however, there is co-ordinate reference to the health authorities.

It will be interesting to observe the measure presented for enactment in the state of New York, after due and proper discussion on the subject from all points of view.

None of the other states of the Union have specific statutes making medical inspection mandatory.

New Jersey has a statute making medical inspection permissible. This statute went into effect on October 19, 1903. It is Section 229 of Article 27 of the School Laws, and is as follows:

> **"Medical Inspector. Duties.**—229. Every Board of Education may employ a competent physician to be known as the medical inspector, fix his salary and define his duties. Said medical inspector shall visit the schools in the district in which he shall be employed at stated times to be determined by the board of education, and during such visits shall examine every pupil referred to him by a teacher. He shall at least once during each school year examine every pupil to learn whether any physical defect exists, and keep a record from year to year of the growth and development of such pupil, which record shall be the property of the board of education and shall be delivered by said medical inspector to his successor in office. Said inspector shall lecture before the teachers at such times as may be designated by the board of education, instructing them concerning the methods employed to detect the first signs of communicable disease and the recognized measures for the promotion of health and prevention of disease. The board of education may appoint more than one medical inspector."

Vaccination is compulsory under the same statute, as it is in most states.

The superintendent of the city schools of Newark is authority for the statement that there has been medical inspection in Newark for seven years last past.

The weak point in the New Jersey law, in his opinion, consists in the lack of authority vested in the Board of Health or in the Board of Education to compel parents to give suitable treatment to those children excluded from school because of physical defects needing surgical treatment, etc.

He also says:

> "It is the purpose of the Board of Education of this city to take over the full control of medical inspection of pupils combined with the approval of the Board of Health, which until now has shared responsibility. There are several important reasons with us why it is desirable that the Board of Education should have the sole responsibility in the matter of medical inspection and treatment of school pupils."

In Newark medical inspectors are by Section II of the Board of Education instructions at all times under the immediate direction and control of the Board of Health in all matters pertaining to the performance of their duties. They are required to make a daily report to the Board of Health.

The matter of more thorough inspection is now under consideration in New Jersey.

In the belief that the legal status of medical inspection in the more progressive states of the Union, and the lack of the same in other states, might be interesting and perhaps helpful, an attempt has been made to collate the information relating thereto furnished by the health and education authorities of the various state governments.

In Maryland there is no statutory requirement for individual inspection and medical treatment of school children. In Baltimore there is medical inspection under the city ordinances.

Section 5 of Article 43 of the Code of Public Health Laws of Maryland provides, in reference to the duties of the Secretary of the State Board of Health, that "He shall when requested by local boards visit their respective districts, cities or villages, investigate the cause of any existing disease, and shall from time to time and whenever directed by the Governor or legislature make special inspections of public hospitals, asylums, prisons and other institutions, and shall. . . . . when required by the Governor or other proper authorities advise in regard to the location, drainage, water supply . . . . . and ventilation of any public institution . . . . ."

Section 22, same article, provides that "the board of County Commissioners in the several counties in this State shall ex officio constitute a

local board of health for their respective counties and shall have and exercise all the duties of a board of health as provided in this article. . . . . ."

The general authority to make such inspections under the Public Health Laws is given to the state and local boards of health.

The secretary of the State Board of Health does not believe it expedient to provide special legislation for the purpose of sanitary inspection of schools if the general statutes give the necessary power.

He is also of the opinion that individual attention to the health of school children is best provided for by local ordinances or regulations.

In Pennsylvania there is no legislation relative to medical and sanitary inspection of public schools.

In the rural districts the State Department of Health has considered that, in its duty to protect the health of the public generally, it should make sanitary inspections, inasmuch as this matter appeared to be entirely neglected. In Philadelphia the local Board of Education has taken up the matter with the assistance of the local Board of Health.

In Philadelphia school nursing has also received some attention, but so far as the action of the State Legislature is concerned, nothing has been done.

The view of the Assistant Commissioner of Health in Pennsylvania is that sanitary inspection, referring to construction, location, etc., is a proper function of the Board of Education, and that the medical inspection, which involves the examination of pupils by physicians, should be undertaken by the Board of Health.

The chief of the Bureau of Health of the city of Philadelphia says that the work in Philadelphia was the outcome of an agreement between the Bureau of Health and the Board of Education, and approved by City Councils, who furnished the means for the conduct of the work.

In so far as the treatment of children found in the schools suffering from disease is concerned, the great majority of them are looked after by their parents. Those who cannot be looked after by their parents, are attended by the district physician or by some one or another of the hospitals in the city.

Children having defective vision, who are in such destitute circumstances that their parents cannot provide necessary relief, are relieved by this Bureau at the city's expense.

The Bureau has an expert ophthalmologist making examinations, and money is provided for the purchase of glasses.

The chief is an advocate of school inspection. He believes it is only partially successful.

He thinks it is unsatisfactory, that continuously, in the schools of their city, children are found who should be under the care of specialists; some of them requiring orthopedic corrections, some of them mentally enfeebled, and some epileptic, and others suffering from similar afflictions. These cases cannot be properly looked after by the means at the Bureau's disposal. He suggests special schools for children who are abnormal in any particular.

The Bureau has no difficulty with children who are acutely sick. If their parents pay no attention to their condition, it is within the power of the Bureau to convey them to one or another of the hospitals under the Bureau's control.

In Illinois there is no specific legislation relative to sanitary and medical inspection of public schools.

The local boards of health throughout the state are legally empowered to inaugurate and carry on such inspections. There is no law legalizing inspection of pupils in schools. Chicago has city ordinances under which sanitary inspection of school buildings is carried out. Also medical inspection of school pupils for the purpose of keeping out infectious diseases. There is no examination for physical or mental defects at present. The law does not authorize such. The medical inspector of the Department of Health, however, states that the Department of Health expects to try making such examinations and to endeavor to show results which will justify making laws legalizing such work.

In the District of Columbia there is medical inspection under rules formulated by the health officer in 1903, and approved by the Board of Education, in accordance with an act making appropriations to provide for the expenses of the government of the District of Columbia. They were amended in 1907.

These rules have the full legal force and effect of law.

In regard to inspection, the health officer says:

> "School nursing has not yet been provided in this District, but the Commissioners have recommended that an

appropriation be made for the services of two nurses to operate in connection with the medical inspectors of schools. The only present means of enforcing the parental obligation to provide treatment for school children after exclusion from school is through the truancy act. If a child is excluded and a parent does not adopt such measures as may be necessary to permit it to return to school, it might, if the measures to be adopted are reasonable and within the reach of the parent, be possible to compel action by the parent by prosecution for failing to send the child to school. This procedure has, however, not yet been tried in court, although the possibility of it has been a weapon effectually used in certain cases.

"In my judgment, it is quite as important for the state to look after the physical welfare of its children as it is for it to provide for their mental training, and I feel that justification could be found in the laws of most jurisdictions for every proper means toward that end; not necessarily existing statutes or regulations, but, if not, then warrant in the constitution, federal and state, for the enactment of such statutes and the promulgation of such regulations. The supreme authority which the state may exercise with respect to the physical welfare of pupils in attendance on public schools is shown, I believe, by the general trend of decisions in cases in which vaccination has been required as a condition precedent to school attendance."

The regulations governing the medical inspection of public schools in the District of Columbia provide for an examination by the teacher, and if any indications of defects or disease are discovered by her lay mind, the medical inspector must be summoned.

The medical inspector is required also to make perfunctory routine visits to the schools.

No physical examination of the pupils of any entire room or building is to be undertaken except so far as may be necessary for the detection of communicative diseases and defects of sight and hearing, without the consent of the Board of Education.

California.—There is but one law on the statute books of this State for medical attention to be bestowed upon public schools children.

Many years ago a special act providing that no Board of School Trustees or Boards of Education shall permit any child to attend the public school who fails to show satisfactory evidence of vaccination, was enacted. The law met with much opposition. At each session of the Legislature its repeal is attempted. At Berkeley (site of State University) the anti-vaccinationists operate a school for their own children at their own expense.

This information is from R. H. Webster, Deputy Superintendent of the Schools of San Francisco.

Mr. Webster thinks there should be systematized medical inspection of children attending the public schools, and further that necessary treatment be provided in case that the parent or guardian of a child is in indigent circumstances.

The matter is being considered in some cities, notably Los Angeles.

A bill will be introduced into the next Legislature.

Colorado.—There are no laws relative to medical and sanitary inspection of schools by boards of health.

General statutes creating the state and local boards of health give necessary power.

The local health officers of the various towns and counties maintain supervision over the schools in their districts for the prevention of contagious and infectious diseases.

The Health Department at Denver arranges for an examination of the pupils in the various schools at stated times.

The Health Board of the state has insufficient funds to go into the work as thoroughly as they should.

Connecticut.—The Legislature of Connecticut, in 1899, passed a law providing for the testing of eyesight in all the public schools of the state. Under the law, the State Board of Education is required to furnish test cards and blanks and instructions for their use to the school authorities. The superintendent, principal, or teacher in every school is required to test the eyesight of all the pupils during the fall term and notify in writing the parent or guardian of every pupil who has any defect of vision, with a brief statement of each defect. The tests are made triennially. The boards of education and school committees

in the several towns of the state, under the authority granted in the general statutes, may appoint physicians to act as school inspectors.

Florida.—There are no statutes looking to the protection of school children either in the construction of school houses or in the examination of the pupils.

In 1907, an effort was made by the State Board of Health to obtain some general legislation in regard to health and sanitary matters, but, in the language of the secretary, who is the State Health Officer: "A difficulty exists always in trying to acquire legislation of this kind which has no political significance or interest to the politicians, and the failure of the State Board of Health to better the sanitary and health condition of the people in this direction through legislative enactment was due altogether to these causes, and not to any interest or efforts on the part of the Board to effect the same."

Georgia.—No legislation. The secretary of the Health Board says:

> "The matter of public hygiene has been given practically no consideration in this part of the country as yet, though I trust that in the future it will receive more attention. There is no question of the fact that there is great need of such legislation, but I see very little hope of anything being done in that line in the near future in this state."

Idaho.—The State Board of Health was organized in 1907. There is a local board of health in each county, consisting of the county physician and the county commissioners. The State Board requires the inspection of public school houses as to their sanitary condition twice a year.

There is no law covering the inspection of school children.

Indiana.—The secretary of the State Board of Health tells Indiana's story in the following words:

> "Your letter received asking information concerning Indiana's Statutes which refer to the medical inspection of school children. There is not a single statute relative to this subject in Indiana. We simply let our defective and

> sick children die, and all pleas heretofore made to our legislature have been rejected. We hope some day that Indiana will rise above this barbarism by the people sending men to the legislature who are intelligent and progressive enough to take hold of this great and important subject.
>
> "We are sorry that Indiana cannot make a better report. Indianapolis, at one time, had medical school inspection, but just now, there is a quarrel between the City Council and the school board, as to who shall pay the bill, and nothing is being done. Between looking after the health of our children and having the pleasure of a quarrel among politicians, we know which way it will go."

Indiana boards of health, however, may make medical inspection of schools under the general statutes.

Kansas.—No legislation requiring medical and sanitary inspection of schools by boards of education.

In 1906, the State Board of Health made a rule requiring a critical sanitary inspection by county health officers of every public school building in their jurisdiction, and during the summer vacation requiring that each school house be thoroughly and efficiently fumigated before the fall term of school began. This rule has been quite generally and effectively put into execution during the past two years, and many unsanitary and unwholesome conditions found and rectified.

The Board of Health considers that there is much need for special legislation along these lines.

In 1907 a bill providing for medical inspection was defeated.

Kentucky.—No provision has been made by the state or city for medical and sanitary inspection of public schools.

At the last meeting of the Legislature a bill was introduced providing for medical inspection in cities of the first, second and third classes. This bill failed of passage in the rush of business at the end of the session.

Michigan.—No specific laws relating to the medical and sanitary inspection of schools. No obligation upon the parents or municipality to provide treatment when a child having some contagious disease that is dangerous to public health has been excluded from school.

Detroit and one or two other cities have inaugurated medical inspection of schools, and the results are most satisfactory.

The secretary of the Board of Health believes that there should be not only medical inspection of the pupils, but a general supervision of buildings and grounds, toilets, heating, ventilating, and all the conditions under which a child is obliged to acquire an education.

A general revision of the health laws at the next session of the Legislature is being advocated.

The schools of Detroit are inspected daily by physicians appointed by the Board of Health. There are 27 inspectors, each receiving a salary of $250 per year. The physicians do not prescribe.

Minnesota.—The State Board of Health advises that medical inspection is to be made throughout the state wherever possible, but under the present laws school inspection cannot be insisted upon.

For some years, the Health Board has tried to secure the examination of the eyes and ears of school children throughout the state. In the smaller places, the Board has met with liberal support, but the larger cities, Minneapolis and St. Paul, have not yet fallen into line in this work. Minneapolis, during the winter of 1907 and 1908, has endeavored to introduce school inspection.

Medical inspection, except in an experimental way, has not been carried on. There is no legislation, except that cities are permitted to introduce medical inspection if they see fit.

The Health Commissioner is in sympathy with medical inspection carried on primarily as an aid to departments of health in the early detection of all kinds of contagious diseases. He thinks that if this should be pursued to the extent of employment of school nurses, it would prove pernicious.

Nebraska.—No special laws.

"Nebraska," says the health inspector of the state, "being young and but lightly populated, and having abundance of pure air, does not, perhaps, stand so much in need of such laws as you of the east, with your dense population overcrowded cities, and smoky and noxious atmosphere."

New Hampshire.—No legislation requiring medical inspection or providing treatment after inspection.

No legalized system of sanitary inspection.

Sanitary inspections of school buildings are occasionally made by local boards of health, more particularly upon complaint of parents, teachers, or school boards.

The views of the secretary of the State Board of Health are that medical inspection of school children ought to be made everywhere, and that legal responsibility for the treatment of such as require it should be placed upon parents, if able, and otherwise, on the municipality.

Ohio.—The present statutes permit boards of health to establish systems of medical inspection for the prevention of communicable diseases, and also permit such boards to make an inspection of school buildings twice a year for the purpose of determining conditions of lighting, ventilation, etc. There is nothing mandatory in this legislation and it is not likely that anything concerning this matter will be enacted during the present session of the Legislature.

The feeling of the Board of Education is that boards of education should be empowered to make medical examinations of all school children and that there should be power conferred enabling the Board to require parents to do whatever is found necessary following such examinations. At the present time, the Board invokes the Juvenile Court in all matters coming to our attention. They are enabled on the charge of "neglect of children" to bring most parents to time in these matters.

Oklahoma.—No laws at present. The first State Legislature now in session.

Oregon.—No legislation in regard to medical and sanitary inspection of schools, other than that given city, county, and state boards of health in the state health laws. The State Board of Health has been in existence but five years.

In the city of Portland there is a system of medical inspection, the inspection being given by various doctors throughout the city gratuitously.

No legalized system or school nursing.

The state health officer believes that every school should have thoroughly competent and well paid physicians to make regular examinations of all school children, as well as to give instructions to teachers relative to school sanitation, school hygiene, and the general health of the children. He also believes that this system should be carried into the country school districts.

Rhode Island.—No legislation. Some inspection in Providence and Newport.

Texas.—Sanitation of school buildings is required. No other laws.

Local school boards have been interested in eye inspection, and specialists have been persuaded to make these examinations without charge. The same has been done with the ear, nose, and throat troubles.

Texas is behind in these matters, but shows willingness to catch up.

Utah.—Legislation expected at the next session of the Legislature.

The State Board of Health has provided for the testing of the eyes of school children, and also examination as to the presence of defective hearing and of mouth breathing, the said test to be made by the teacher, and upon the discovery of any of the defects described, reporting the fact to the parents with recommendation that the child shall be examined by a competent specialist.

The State Board of Health is also preparing rules making it the duty of teachers to report unsanitary or unhygienic conditions in the schools, including improper construction, and to use vigilance in the detection of symptoms of contagious disease among the pupils and the immediate exclusion of any pupil suspected of being so affected.

The secretary thinks it should be the duty of all parents to provide for a competent physical examination of children before permitting them to enter school, the said examination to determine the presence of any defect requiring correction. He also thinks that the state should insist that the correction should be furnished by the parent.

The last Legislature passed a law requiring the introduction in the public schools and in the normal schools of a course of instruction on the subject of preventable disease and preventive methods.

Vermont.—No special legislation, except requirements as to ventilation, light, and general sanitary conditions in school buildings. Also a law requiring the examination of the eyes, ears, and throats of school children annually, enacted in 1904.

The secretary of the State Board of Health says that it is very difficult to formulate a law in a rural state like Vermont, where, outside of a few large towns, the schools are small and widely scattered.

South Carolina.—No legislation, aside from general statutes.

The State Board of Inspectors, the public schools, and the State

Board of Health are now inaugurating a system to protect the eyes and ears of school children.

Washington.—No general laws.

In the larger cities the matter is more or less covered by city ordinances and board of health regulations.

Wisconsin.—Very little definite legislation regarding school inspection.

The State Board of Health is empowered under the general law to make observations and enforce proper sanitary care of school houses.

The State Board of Health has endeavored through inspectors to see that the school houses were properly heated, ventilated, and lighted.

No provision has been made for treatment of school children after such inspection.

No legalized system of school nursing or legislation on subjects kindred thereto.

The Board is endeavoring to formulate methods in regard to the testing of eyes, ears, nose, and throat of school children.

This question will probably be considered at the 1909 session of the State Legislature.

In the following states there are no laws, aside from the general statutes, upon the subjects referred to:

Louisiana
Maine
Mississippi
Missouri
Montana
Nevada
North Dakota
South Dakota

In the following states inquiries regarding medical inspection were unanswered:

Alabama
Arizona
Arkansas
Delaware
Iowa
New Mexico
North Carolina
Tennessee
Virginia
West Virginia
Wyoming

From the legal domain the suggestions prompted by the foregoing study are the following:

Those having a part in the future of medical inspection should exert themselves to the utmost to secure so far as possible uniformity in statutory provision.

Legislation should provide that medical inspection shall be compulsory.

That local conditions determine whether the onus of executing the law be upon the health or the education authorities.

Insert a penal provision compelling parents or guardians to provide proper medical attention upon the order of the medical examiner.

Most essential of all—insure the law's enforcement.

CHAPTER XII

Retardation and Physical Defects

EDUCATIONAL ECONOMIES EFFECTED THROUGH MEDICAL SUPERVISION

The memorandum of the British Board of Education on "Medical Inspection of Children in Public Elementary Schools," states in a few brief words the fundamental basis upon which medical inspection rests. Of the recent English law it says:

> "It (the law of 1908) is founded on a recognition of the close connection which exists between the physical and mental condition of the children and the whole process of education. It recognizes the importance of a satisfactory environment, physical and educational, and by bringing into greater prominence the effect of environment upon the personality of the individual child, seeks to secure ultimately for every child, normal or defective, conditions of life compatible with that full and effective development of its organic functions, its special senses, and its mental powers, which constitute a true education."

That there must exist a close relation between mental and physical conditions no one will deny, but how important the relation is when measured in terms of its effect on the educational progress of school children, and whether indeed such measurement in quantitative terms is possible, are problems which have been seldom studied, and if at all, in the most casual fashion.

With some notable exceptions, those who have occupied themselves with these matters have assumed that there exists a correlation between school progress and physical defects so marked and so direct that could we but correct and prevent bodily unsoundness among the pupils of our

schools, we should thereby at once do away with "backwardness" and "retardation."

As a corollary to this hoped for disappearance of retardation not a few school men have argued that great financial economies would be effected and such evils as crowded rooms and "half time" schools rendered unnecessary. In some places this view has led to earnest argument in favor of the establishment of systems of medical inspection, and the plea has been made that the expense involved would be more than made up by the direct financial saving effected. An example is found in the latest annual report of the city superintendent of schools of one of the large New England cities. He pleads his case as follows:

> "Many children lose promotion and are compelled to repeat their work. Now, it costs the city in round numbers $230,000 to educate its public school children. The average attendance is in the neighborhood of 93 per cent.—a loss of 7 per cent. on account of absence. Seven per cent. of $230,000, or more than $16,000, represents the annual waste caused by absence of children from school. If by a system of medical inspection this per cent. of attendance can be lifted only 1 per cent., it would amount to a saving of $1,600, or all that it would cost to secure good inspection for a city like ours."

In other words, the superintendent argues that if every day 94 children can be induced to attend school where now only 93 are present, a financial saving will result amounting to some $1,600. The fallacy of this argument is, of course, evident; but it is nevertheless one which has found enthusiastic support in many places and which has been widely used by the advocates of medical inspection.

The contention that a successful system of medical inspection would go far toward eliminating the evil of "half time," because it would reduce the amount of retardation or backwardness in our school systems, rests on an equally mistaken basis. Nevertheless, this argument, too, has been eloquently stated and actively urged in many quarters. A district superintendent of one of our largest cities, an eminent and able educator, stated the argument but a few months ago in a discussion of retardation in different cities. He says:

> "Boston is now able to make the proud boast that she has a seat in school for every child able to attend. This condition may in part be due to the smaller percentage of retardation. Were the stream of children through the grades less rapid, perhaps she would have thousands and tens of thousands upon 'part time,' while empty benches yawn for occupancy in the highest grades. Damming the stream of children passing through the grades of our schools defeats the purpose of our public educational system and causes a wasteful expenditure of public funds."

And again:

> "The child that takes ten years to complete an eight year course costs the state 25 per cent. more than the one that goes through on time."

Here again the problem of retardation is brought into relation to the problems of accommodation and cost. Inasmuch as a principal argument of the advocates of medical inspection is that physical defects constitute a potent force for causing retardation, these claims are of the greatest interest in the present discussion. The first contention in the above quotation is that if the progress of the children through the grades in the city referred to were less rapid than it is, there would as a consequence be thousands or tens of thousands of pupils upon "part time." At first sight this seems a perfectly sound contention; but the fact of the matter is that the children who do not progress through the school grades at the normal rate, and hence find themselves at the age of say fourteen in the fifth or sixth grade instead of the eighth, do not as a rule continue two or three more years in order to finish, but instead drop out without completing the course. That is to say, a city must have enough seats to accommodate all of its children between the ages of say seven and fourteen years. It makes little difference in this particular problem what progress the children make: the necessity for accommodation remains the same, whether all of them complete the eight grades, or only a small percentage do so. Under all circumstances they will require the same number of seats. Looking at it from the standpoint of expenditure, it is

just as plain that it will cost fully as much to teach them, whether they are well along in their grades and studies, or far behind.

The specific case mentioned of the child who takes ten years to complete the eight year course sounds convincing, and the argument is indeed valid when this actually happens. The trouble is, however, that the case mentioned does not represent the average or even a common case. In practice the child—and he is typical of a far larger number than the general public commonly supposes—does not take ten years to finish an eight year course. He simply drops out without finishing.

In stating these aspects of the problem it is not at all our purpose to minimize the evils of retardation or to deprecate the benefits to be gained through medical inspection; but cost and overcrowding are not evils of retardation. Financial economies are not directly effected through medical inspection, and "part time" is not related to the problem. "A penny saved is a penny earned" only when the saving is direct. In the case of medical inspection the economies effected are the indirect ones of securing greater educational returns for the expenditure of public funds expended to support the schools, and the still more indirect saving effected by bringing about conditions which will render the future citizens of the state more efficient.

The fact that many of the children of the public schools never reach the eighth grade and, therefore, do not obtain the eight years' education which the common school system provides, long known to educators, has of recent years received considerable attention through efforts to measure the extent of this tendency and to discover, if possible, its underlying causes. These efforts have been more or less scattered, but the appearance of such discussions in different parts of the country indicates a growing feeling among educators that these aspects of our school administration deserve more attention than they have hitherto received. From the standpoint of a comprehensive study of the problem of retardation it is quite true that the literature of the subject is still in its infancy, but there have been contributions to it in various quarters which have thrown considerable light upon the subject in its various aspects.

To a considerable extent the treatment of the subject has been statistical, and one might say more or less unconscious of the large problems which are involved in it. It appears in this form in the reports of various school systems which print tables showing the number of pupils

of each age in the several grades, indicating most clearly that the population of a grade is not homogeneous, but is composed of many elements. A few facts gathered from various cities were published in the report of the U. S. Commissioner of Education for 1903–04. This, again, is one of the factors which receives consideration in Dr. Edward L. Thorndike's publication on "The Elimination of Pupils from School," published by the U. S. Bureau of Education as Bulletin No. 4, 1907. The tentative considerations found in the report of the Commissioner of Education of the State of New York for 1908, in connection with his discussion of industrial education, will receive further elaboration in the report now in preparation. Perhaps the most useful source of information is the "Psychological Clinic," founded by Dr. Lightner Witmer, of the University of Pennsylvania, now in its second volume. It not only contains individual studies of abnormal children, but also several important essays on the extent, not only of abnormality, but also of that lesser degree of mal-adjustment to which the term "retardation" is applied in various school systems. Attention is especially called to studies of conditions in Wilmington and Camden by the superintendents of schools in each of these cities, and to more comprehensive articles on "The Retardation of the Pupils of Five City School Systems," by Dr. O. P. Cornman; and "Some Further Considerations upon the Retardation of the Pupils of Five City School Systems," by Dr. R. P. Falkner, in which the conclusions of Dr. Cornman are in part corrected and in large measure expanded.

In all of the foregoing no doubt has been cast upon the validity of the basal argument that physical defects have a great and important influence on school progress. Public discussion has brought this matter into great prominence during recent years. The physical examinations that have been made have demonstrated that many children have not the healthy bodies that we have been taught to believe are the necessary accompaniments of sound minds. It is certainly disquieting to read that two-thirds of the school children of New York City have physical defects, and the inference has frequently been drawn that we have in this fact the explanation of backwardness in our schools. To be exact, we have *one* cause, not *the* cause. Among other factors must be reckoned, for example, late entrance, irregular attendance, mental dullness, transfers, ignorance of the English language, the "lockstep" in promotions.

To what extent do physical defects cause backwardness? We do not know. We do know that we have here a fruitful field for investigation. Such limited studies as have so far been made to ascertain the quantitative relationship between physical defects and backwardness have shown a much smaller causal relation than has been assumed and proclaimed by those advocating the physical examination of school children. Some of the best work that has been done on this problem is that of Dr. Walter S. Cornell, of the Medical Department of the University of Pennsylvania. The results of some of his investigations were published in an article in the "Psychological Clinic" of January 15, 1908. Among 219 children of both sexes from six to twelve years old in one school in Philadelphia, he found the following results:

	Average Per Cent. in Studies.
Normal children	75
Average children	74
General defectives	72.6
Children having adenoids and enlarged tonsils	72

In another investigation the children of five schools were examined for physical defects. They were divided into so-called "exempt" children, or those whose work had been so thoroughly satisfactory that they were advanced to higher grades without examination, and "non-exempt," or those whose work was less satisfactory. The following were the results:

	Exempt.	Non-Exempt.
Children examined	907	687
Per cent. defective	28.8	38.1

Still another examination was conducted in one school to determine, if possible, the degree of harmful influence of defects of the nose and throat. The results follow:

	Bright Children.	Dull Children.	Dullest Children.
Number examined	89	32	29
Having nose or throat defects.	10	9	9
Per cent	11.1	28.1	31

In an article published in the *New York Medical Journal* of June 1, 1907, Dr. Cornell gives some results of a study of the effect of eyestrain

on school progress. In this investigation the relationship of poor vision to scholarship was studied in 219 children. The results are expressed in the percentages obtained by the children in arithmetic, geography, and spelling.

Children With:	Arithmetic.	Geography.	Spelling.	Average.
Normal vision	79	69	76	75—
Fair vision	70	71	77	73+
Bad vision	66	70	71	69

It is, of course, to be noted that these investigations were conducted with a comparatively small number of cases. Moreover, the results obtained above represent only a very small part of the careful and painstaking studies conducted by Dr. Cornell. The conclusion that he draws from his studies is that the educational result in our public schools suffers a discount of about 6 per cent. in the case of the physically defective children, as well as a waste of time rightfully belonging to the normal children.

During the school years 1904–5 and 1905–6 very extensive investigations have been conducted in the city of Camden, N. J., by Superintendent of Schools James E. Bryan. The results are reported at length in the annual report of the Board of Education of the city of Camden, N. J., for the year ending June 30, 1906. In all, 10,130 children of both sexes were examined. From these were selected 2,020 children of excessive age for their respective grades, counting as of excessive age those who were at least one year more behind their grades than the standards commonly used in similar discussions. A careful attempt was made to classify the causes for the backwardness of these 2,020 pupils in their school studies. The causes assigned in the classification were:

1. Age upon starting in school,
2. Absence,
3. Slowness,
4. Dullness,
5. Health,
6. Physical defects other than sight and hearing,
7. Mental weakness.

Under these seven reasons for excessive age the 2,020 children were distributed as is shown in the following table:

Excessive age due to:

	Number Examined.	Age Upon Starting.	Absence.	Slowness.	Dullness.	Health.	Defects Other than Sight and Hearing.	Mental Weakness.
		Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Boys ...	1081	20.2	29.4	19.8	12.1	7.4	3.6	4.6
Girls ...	939	22.4	27.5	22.4	11.9	12.1	4.4	2.6
Total	2020	21.2	28.5	21	12	9.6	3.9	3.7

Whether the causes assigned have sufficient definiteness, or whether the underlying assumption that in each case there is a *single* cause be correct, need not be considered here. For the purposes of the present discussion, two points in regard to this table are significant: First, that the results of the Camden investigation decidedly support the contention that physical defects constitute *a* cause, but not *the* cause of retardation; secondly, that the bearing of physical defectiveness on school backwardness does not appear to be very great. Under the caption "Health" it appears that bad health was assigned as a reason for backwardness in 7.4 per cent. of the cases of the boys and in 12.1 per cent. of those of the girls. Physical defects other than sight and hearing were assigned as reasons for excessive age in 3.6 per cent. of the cases of the boys and 4.4 per cent. of those of the girls.

The foregoing illustrations, while they point in the same direction, namely, that physical defect is only one cause of backwardness, and perhaps not so prominent as has frequently been assumed, show at the same time the paucity of the data directly bearing on these points.

In view of this scarcity of data, attention may be called to some preliminary results of a more comprehensive investigation now in progress, but still incomplete. During May and June of 1908 the authors of this volume have conducted an investigation into some conditions existing among children in fifteen schools of New York City in the Borough of Manhattan. The total membership of the schools is something over 20,000 and it is almost equally divided among boys and girls. The schools themselves are located in different sections of the city, from the lower East Side to the Bronx. The school records of all of these pupils have been gathered and a careful study undertaken to determine, if possible, conditions bearing on the phenomena of retarda-

tion. For the purposes of the study, pupils have been divided into two groups: *normal age* and *above normal age.* All pupils in the 1 A grade (lower first) who at the end of the school year are 8½ years old or younger are considered of normal age, those older than 8½ of above normal age. In the 1 B grade (upper first) 9 years marks the limit of the normal age group and those older are considered above normal age. In the 2 A grade (lower second) the limit is 9½, in the 2 B (upper second) 10, and so on up to 16 years of age in the 8 B grade (upper eighth).

In the endeavor to find out the relation between physical defect and retardation, the records of all pupils who have been examined by the physicians of the Board of Health have been carefully compiled and studied. Among the 20,000 children, 7,608 have had physical examinations. As the results of this study are to be fully presented in a separate report, it has been thought best to give here as original data merely the tables showing the distribution of these pupils by grades and defects, and by ages and defects. The derivative tables are all in terms of percentages, in order to render them more clear, and the results are given by full grades rather than by half grades for the same purpose. Tables A and B present the original data.

TABLE A.—DISTRIBUTION OF PUPILS BY GRADES AND DEFECTS

Grades.	No. Examined.	Without Defects.	Enlarged Glands.	Defective Vision.	Defective Breathing.	Defective Teeth.	Hypertrophied Tonsils.	Adenoids.	Other Defects.	Total Defects.
1A....	678	104	288	22	141	427	277	142	120	1,417
1B....	1,151	175	503	39	290	749	454	293	191	2,519
2A....	951	102	364	159	252	660	359	275	194	2,263
2B....	788	133	274	193	155	416	253	164	108	1,563
3A	663	96	183	153	111	358	177	98	79	1,159
3B....	620	119	107	128	55	350	163	59	93	955
4A....	533	139	52	137	52	227	100	57	75	700
4B....	531	152	59	138	40	209	127	71	81	725
5A....	338	115	48	86	29	101	65	28	22	379
5B....	299	122	5	72	13	97	41	15	14	257
6A....	314	122	11	84	48	91	38	10	31	313
6B....	167	55	7	34	12	64	25	11	13	166
7A....	212	55	8	56	31	76	24	16	28	239
7B....	159	69	12	44	12	17	30	3	17	135
8A....	134	27	11	38	8	64	11	4	15	151
8B....	70	19	7	28	3	7	15	2	5	67
	7,608	1,604	1,939	1,411	1,252	3,913	2,159	1,248	1,086	13,008

TABLE B.—DISTRIBUTION OF PUPILS BY AGES AND DEFECTS

Ages.	No. Examined.	Without Defects.	Enlarged Glands.	Defective Vision.	Defective Breathing.	Defective Teeth.	Hypertrophied Tonsils.	Adenoids.	Other Defects.	Total Defects.
5....	9	2	6	..	4	4	1	1	2	18
6....	586	100	231	24	124	378	235	135	105	1,232
7....	1,286	173	536	81	321	850	508	322	210	2,828
8....	1,197	169	427	210	241	728	439	259	188	2,492
9....	1,019	185	286	206	166	567	290	188	136	1,839
10....	911	202	178	228	118	453	209	124	127	1,437
11....	839	219	132	201	103	355	177	98	109	1,175
12....	663	199	65	176	70	222	128	58	87	806
13....	510	163	35	121	50	182	84	33	67	572
14....	393	125	26	109	37	112	60	23	37	404
15....	144	53	10	37	13	45	21	5	10	141
16....	42	12	5	15	4	15	7	1	6	53
17....	7	2	1	2	1	2	..	1	2	9
18....	2	..	1	1	..	..	..	..	..	2
	7,608	1,604	1,939	1,411	1,252	3,913	2,159	1,248	1,086	13,008

Among the 7,608 pupils, 6,084 fell within the normal age group and 1,524 in the above normal age group. The following table shows the percentage of physically defective pupils in each group by grades:

Grade.	Normal Age. Per cent. defective.	Above Normal Age. Per cent. defective.
1	85	81.3
2	86.8	84.5
3	83.2	83.3
4	71.6	74.7
5	63.8	60.2
6	63.8	61.7
7	68.2	60.2
8	77.1	75
Total	79.8	74.9

Of course, the immediately striking feature of this table is that nearly 80 per cent. of the normal age children are found to have physical defects, while only about 75 per cent. of the above normal age children are defective. This feature was an unlooked for surprise to the investigators.

The second noteworthy point is that the percentage of defective children in the lower grades is decidedly greater than in the upper grades. It is to be remarked, too, that the percentage of defectives

in the first grade would have been decidedly greater than that in the second grade had it not been for the fact that practically no children are tested for defective eyesight in the first grade, thereby decidedly reducing the percentage of defectiveness. It is likewise true that the seventh and eighth grades show a much higher per cent. than would normally be the case. This is due to the facts that the figures for the seventh and eighth grades are almost exclusively for one school having a high percentage of defectives, and for comparatively small numbers of cases. The reason for this is that in most schools no physical examinations were made in the upper grades.

Our investigations lead us to believe that under normal conditions physical examinations as now conducted in New York City would show—if the eyesight of children in the first grade could be tested—a percentage of defectives of about 90 in the first grade and that this per cent. would gradually reduce through the grades to about 50 in the eighth.

A computation of the average number of defects per child in the normal age and above normal age groups gives results not dissimilar from those discussed.

AVERAGE NUMBER OF DEFECTS PER DEFECTIVE CHILD

Grade.	Normal Age.	Above-Normal Age.
1	2.5	2.3
2	2.5	2.6
3	1.9	2.1
4	1.8	1.8
5	1.5	1.6
6	1.5	1.5
7	1.5	1.5
8	1.3	1.6
Total	2.1	2.0

Here again we are confronted by the same phenomena of more defects among the children of normal age than among those of above normal age, and of the reduction in the number of defects from the first grade to the eighth. Of course, a question which immediately presents itself is whether this unlooked for discrepancy between the number of defects among normal age children and the number among those of more than normal age is to be accounted for by a consistent preponderance of each separate kind of defect among the normal age children, or whether some sorts of defects are more prevalent among those

of normal age and others among those of greater than normal age. Light is shed on this problem by the following table:

PER CENT. HAVING EACH DEFECT BY DEFECTS

	Normal Age.	Above Normal Age.
Examined	100	100
Defective	79.9	74.8
Enlarged glands	26.9	19.5
Defective vision	23.5	26.9
Defective breathing	16.7	15.2
Defective teeth	53.3	43.8
Hypertrophied tonsils	29.9	22.0
Adenoids	17.1	13.4
Other defects	14.1	14.9

Here we see that each separate sort of defect is found more frequently among children of normal age than among those of greater than normal age, with two exceptions. These are vision and "other defects." The difference in regard to vision is striking. Whereas in the case of the other defects there is considerable preponderance among the normal age pupils, in the case of vision only 23.5 per cent. are found to be defective in the normal age group, while 26.9 of those in the above normal age group have defective vision. This at once leads to the suspicion that in its relation to retardation, vision does not follow the same rules as do other forms of defects.

Having discovered that the same rules do not uniformly apply to all of the several sorts of defects, it becomes worth while to study each defect separately by grades and ages. The following table presents the per cent. of those of each individual age suffering from each defect.

PER CENT. HAVING EACH DEFECT BY AGES

Ages.	Defective.	Enlarged Glands.	Defective Vision.	Defective Breathing.	Defective Teeth.	Hypertrophied Tonsils.	Adenoids.	Other Defects.
6	82.9	39.4	..	21.1	64.5	40.1	23.0	17.9
7	86.5	41.6	..	24.9	66.0	39.5	25.0	16.3
8	85.8	35.6	17.5	20.1	60.8	36.6	21.6	15.7
9	81.8	28.0	20.2	16.2	55.6	28.4	18.4	13.3
10	77.8	19.5	25.0	12.9	49.7	22.9	13.6	13.9
11	73.8	15.7	23.9	12.2	42.3	21.0	11.6	12.9
12	69.9	9.8	26.5	10.5	33.4	19.3	8.7	13.1
13	68.0	6.8	23.7	9.8	35.6	16.4	6.4	13.1
14	68.1	6.6	27.7	9.4	28.4	15.2	5.8	9.4
15	63.1	6.9	25.6	9.0	31.2	14.5	3.4	6.9

A study of the table reveals additional characteristics of the several sorts of defect. For instance, under enlarged glands we note that the percentage steadily falls from about 40 among six and seven year old children to something over 6 among thirteen and fourteen year old children. In the case of vision, on the other hand, it increases from 17 per cent. among eight year old children to 25 per cent. among fifteen year old children. The percentage of defective breathing, again, decreases somewhat as does that of enlarged glands, falling from about 25 per cent. among seven year old children to 9 among fifteen year old children. A similar steady decrease is found in the case of defective teeth, where the percentage falls from 66 among seven year old children to 31 among fifteen year old children. A like condition is found in the case of hypertrophied tonsils. In the case of adenoids the phenomenon is even more marked, the percentage falling from 25 among seven year old children to 3.4 among those fifteen years old. A steady, although not nearly so rapid fall, is also found in the case of other defects.

In compiling this table, data for the ages of five, sixteen, seventeen, and eighteen years have been omitted, for the reason that the number of cases under each of these ages is so small as to render them insignificant. Percentages of defective vision at the ages of six and seven are not given because pupils at those ages are almost without exception in the first grades, and as they cannot write, they are not tested for defective vision. In all of these cases attention must be called to the fact that the decrease in the per cent. of defective children is not due to the falling out or leaving school of the children suffering from these defects. This might be put forward as an explanation if we had to do with children above the age of compulsory attendance, or if the characteristic decrease did not take place until the age of fourteen or fifteen; but such is not the case. We have to do with children of from six to fifteen years of age, and the marked decrease begins among the eight, nine, and ten year old children, and continues steadily.

As the older children in general are found in the upper grades and the younger children in the lower grades, it is certainly to be expected that a tabulation of defects by grades will show the same characteristic reductions, and the same exception in the case of vision. This expectation is realized in the tabulations made.

PER CENT. DEFECTIVE BY DEFECTS AND WHOLE GRADES

Grades.	Enlarged Glands.	Defective Vision.	Defective Breathing.	Defective Teeth.	Hypertrophied Tonsils.	Adenoids.
1.....	43.2	..	23.5	64.2	39.9	23.7
2.....	36.6	20.2	23.4	61.8	35.1	25.2
3.....	22.6	21.9	12.9	55.1	26.5	12.2
4.....	10.4	25.8	8.6	40.9	21.3	12.0
5.....	8.3	24.8	6.5	31.0	16.6	6.7
6.....	3.7	24.5	12.4	32.2	13.0	4.3
7.....	5.4	26.9	11.5	25.0	14.5	5.1
8.....	8.8	32.3	5.3	34.8	12.8	2.9

Apart from the fact that the eighth grade, for reasons already stated, cannot be considered as representative, the table presents many analogies with the preceding. The percentage of defects dwindles as the grades advance, though here again vision stands in a class by itself, increasing rather steadily with the higher grades.

The foregoing tables have shown clearly the fact that age is the important factor in considerations having to do with the percentage of physically defective school children. It is evident that it is not enough to say merely that in a given city 66 per cent. of the pupils are found to be physically defective to a greater or less extent. We need to know the percentage of defectiveness for each separate defect and something of the age of the children. It is evident that if vision were omitted, the general percentage of defectiveness might be expected to be great if examinations were conducted among the lower grades, and comparatively small if they were conducted among the upper grades.

The same would, of course, be true if the results were tabulated by ages rather than by grades. For instance, in the investigation in point a computation was made to find the number of defects per hundred children in each grade, omitting vision and defective teeth, and basing the calculation solely on cases of enlarged glands, defective breathing, hypertrophied tonsils, and adenoids. The computation resulted as follows:

Grades	Defects per 100 Children.	Grades.	Defects per 100 Children.
1.....	130	5.....	38
2.....	120	6.....	35
3.....	74	7.....	36
4.....	52	8.....	29

The same striking falling off is shown if a similar computation is made by ages, instead of by grades.

Grades.	Defects per 100 Children.	Grades.	Defects per 100 Children.
6	123	11	68
7	131	12	47
8	114	13	39
9	91	14	24
10	69		

It is entirely probable that had the results of the physical examinations performed in the schools by the physicians of the Board of Health of New York City taken into account age and grade, the announced results and conclusions would have been very different. Reports on the examinations of more than 100,000 school children have been published and the per cent. of defectives has run from 66 to 72. From these results it has been argued that as there was no reason to believe that these were exceptional children, it might fairly be concluded that they were typical of school children in New York and even of children throughout the United States. On this hypothesis calculations have been based, showing the probable number of children in the United States in need of medical, surgical, or dental attention, and of the probable number of cases of enlarged glands, defective eyesight, poor teeth, adenoids, etc., existing among them. Now, it must be remembered that the examinations performed in New York have very largely been among the very young children in the first and second grades. As these children represent a larger proportion of defectives and very much greater percentages of those suffering from such defects as enlarged glands, hypertrophied tonsils, and adenoids, it is at once evident that they are not only not representative of children in the United States, but not even of children in New York or in Manhattan. They are representative only of very young school children in Manhattan, and it is, to say the least, dangerous to argue anything concerning the number of children in the United States having each of the different sorts of defects from data published so far by the New York Board of Health.

Another question which so far has had little attention is that of the relation of sex and physical defects. The tabulation of the percentages of defectiveness by sexes for each kind of defect gives the following results:

PER CENT HAVING EACH DEFECT BY SEXES

	Boys.	Girls.
Defective	78.5	79.2
Enlarged glands	32.2	20.3
Defective vision	15.7	20.8
Defective breathing	19.1	14.3
Defective teeth	48.4	53.5
Hypertrophied tonsils	33.1	24.7
Adenoids	17.4	15.6
Other defects	13.6	14.7

DEFECTS PER CHILD

Boys.	Girls.
1.8	1.6

Here again we have some surprising variations; 32.2 per cent. of the boys are suffering from enlarged glands, while we found only 20.3 in the case of the girls. Again, under defective breathing we have 19.1 per cent. for the boys and 14.3 per cent. for the girls; while hypertrophied tonsils are present in 33.1 per cent. of the cases among the boys and only 24.7 per cent. among the girls. On the other hand, the boys outstrip their sisters in regard to vision and teeth. These results are derived from the examination of a comparatively large number of cases, the boys numbering 3,301 and the girls 4,305.

The results that have been discussed, showing so consistently as they do that retarded or above normal age pupils have fewer defects than do those of normal age, furnish food for careful thought. Were further data not available, it would certainly be difficult to explain the seeming anomaly, but the data showing the percentage of defectives by ages and grades are illuminating. We see at once that age is the important factor. With the exception of vision, the percentage of pupils found to be suffering from each separate sort of defect decreases rapidly as age increases. Naturally, similar conditions are found when children of upper grades are compared with those of lower grades.

It is evident that we have here a field for many further interesting and important investigations. Without entering into any one of them, however, we are confronted by one consideration of prime importance, which is that *defects decrease with age.*

The importance of this on all investigations into the influence of physical defects on school progress is at once evident. Whether the term "retarded" is used to express a condition or an explanation, it

will always follow from the definition itself that retarded children will be older than their fellow-pupils in the same grades. This condition will exist, whether time in grade or an arbitrary age dividing-line be taken as the criterion for separating pupils into "retarded" and "not retarded," or "normal age" and "above normal age" groups. In any case it will always be true that the "backward pupils" will be the older pupils.

Now, the older pupils are found to have fewer defects. This is true, whether they are behind their grades or well up in their studies. Therefore, it is not surprising that we find that 80 per cent. of all children of normal age have physical defects more or less serious, while only 75 per cent. of those of above normal age are found to be defective. This does not mean that pupils with more physical defects are brighter mentally. It simply means that those who are above normal age are older, and that older pupils have fewer defects.

Why this should be so it is not easy to explain. It is probable that we have here a condition brought about by a number of influencing factors. In the first place, it must be remembered that the higher grades are to a certain extent made up of the survivors of the more fit. Those who reach the higher grades are at least to some extent made up of the brighter, the more ambitious, the more physically fit, those of higher social standing, and those whose parents are in better economic circumstances. If the child whose physical defects and mental dullness render him exceedingly slow in his school studies leaves school at the earliest possible moment permitted by the compulsory education laws, or even anticipates that moment, he naturally is not present to be counted among the older children or those in the higher grades. This factor, while undoubtedly operative, is probably not one of comparatively great importance.

A second consideration, and one of probably far greater weight, is that children do actually outgrow their defects. No other conclusion seems possible as an explanation of such great falling off as we have in the case of enlarged glands, with which 40 per cent. of the six year old children suffer, but which are found present in only 12 per cent. of the sixteen year old ones; or in that of defective breathing, where the reduction is from 21 to 10 per cent.; or in that of adenoids, with a fall from 23 to a little over 2 in the same years. Even in the case of defective

teeth it is found that nearly 65 per cent. of the six year old children are included among those needing attention, and only 35 per cent. of the sixteen year old ones. Of course, in this connection it must be remembered that the older children have their permanent teeth, and undoubtedly too a much larger proportion of them have received dental attention.

In studying the problems of school progress and physical defects, we must not forget that school success is to only a limited extent a true measure of real ability. It may often be rather an indication of adaptability and docility. Indeed, it would not be surprising to find that the child of perfect physical soundness and exuberant health had so many outside interests as to render him not particularly successful in school work, and that he found the rigid discipline of the schoolroom so irksome as to cause him to fail of approbation by his teachers.

It is, of course, obvious that this whole subject of the relation of physical defects to school progress is one of great importance and one which will require a great deal of painstaking investigation and careful study. Nevertheless, from the brief data here presented a few conclusions of value may be drawn. Among them are the following:

(1) Successful medical inspection results in indirect, not direct, financial economies.

(2) It does have an effect on the problem of retardation, but does not affect accommodation and "half time."

(3) Since our investigation shows that defects decrease with age, statistics dealing with physical defects among school children are not significant unless they are presented in terms of grades and ages. Most defects decrease with age, and backward or retarded children have fewer defects than those of normal age because they are older.

(4) Physical defects constitute *a* cause, not *the* cause, of retardation.

The foregoing conclusions—so different from those which have been emphasized in current discussion—must be briefly examined with respect to their significance for the general problem of medical inspection.

Our first conclusion is that successful medical inspection results in indirect, not direct, financial economies. There is an economy which means the abstention from expenditure. There is another

economy which means the production of greater efficiency. The economies effected by medical inspection are of this second or indirect sort. While they cannot be measured in dollars and cents, they are nevertheless far-reaching and important. Everyone brings into the world a certain capital of mental ability and physical soundness. On these his value to the state will depend when he is grown. Any reasonable expenditure which will result in their enhancement is in the end an economical expenditure of public funds to promote the public welfare.

Our second conclusion is that physical defects are related to the problem of retardation, but not to that of accommodation. Measured in terms of school progress, we naturally expect the sound and healthy child to advance further than the physically defective one. We must face the fact that the school period is brief and that its effectiveness largely depends upon how far the child advances. Indeed, in the vast majority of cases it depends upon how far the child advances by the time he reaches the age of fourteen. Our studies of the problem of retardation lead us to the conclusion that the greatest factor affecting the problem of the child's progress through the grades is that of regular and continuous attendance. Any influence which tends to reduce absence results in an increased use of school facilities, and so in greater economy, a higher degree of efficiency, and better results, as measured by educational standards of progress. Medical inspection, in banishing contagious diseases from the schools and in preventing or removing physical defects, has a large and important influence in bringing about this greatly to be desired result.

Conclusions three and four have to do with the statistical aspects of the problem. The evidence of current statistics on the need for physical inspection is twofold. It proves that physical defect is widespread. It enforces thereby the conclusion that there would be a gain in many respects by the elimination of such defects as are capable of prevention or removal by medical science.

On the other hand, current statistics do not establish physical defects as the cause of retardation. Under the broad definition of the former it embraces, say 80 per cent. of the school population—retardation say 20 to 40 per cent. Hence it is clear that there must be cases of defects among the non-retarded. If all the retarded were defective, we should have—were 20 per cent. retarded—100 per cent. defective;

and among the non-retarded 75 per cent defective. But some of the retarded are not defective. Their retardation is due to other causes. Hence there must be a certain per cent. of physically normal children among the retarded. All of these facts tend to equalize the percentage of defectives among the retarded and non-retarded.

It must not be inferred that physical defects exercise no influence upon school progress. They undoubtedly do, but we have not yet discriminated among physical defects. We group together all kinds. Some have a direct bearing, others none at all. Defective hearing undoubtedly exercises an important influence on a pupil's success in school, but the fact that a child has a club-foot has no such significance. That we are unable to measure by statistical methods the influence of physical condition upon school progress is far from proving that such influence does not exist.

On the other hand, our statistical results show most plainly that medical inspection and school administration must be more closely related and interlocked. The medical inspector must have a greater comprehension of school problems and his work must be adjusted as it has not been heretofore if it is to contribute to the solution of these problems.

Bibliography

REFERENCES

Allen, William H.: "School Hygiene." New York Evening Post, Sept. 21, 1907.

"A Broader Motive for School Hygiene." Atlantic Monthly, June, 1908.

"National Programme for Departments of School Hygiene." North American Review," July, 1908.

Allport, Frank: "Defective Eyesight in American Children." Review of Reviews, June, 1897, pages 696–9.

"Tests for Defective Vision in School Children." Educational Review, New York, Sept., 1897, pages 150–9.

"The Necessity for the Annual Systematic Examination of School Children's Eyes, Ears, Noses and Throats, by School Teachers." The Medical and Surgical Monitor, Feb., 1904.

The Eye and Its Care. New York, 1894.

Arnold, H. D.: "Some Results of the Medical Inspection of Schools in Boston." Annals of Gynecology and Pediatry, Jan., 1898, Vol. XI.

Babbitt, W. H.: "Compulsory Medical Inspection of Schools: A Plea for the Child." The Pacific Commercial Advertiser, Honolulu, May 12, 1908.

Baker, Leigh K.: "Medical Supervision of Schools." Medical Gazette, Cleveland, Nov., 1897.

"Notes on the Examination of the Eyes of 1048 East Cleveland, O., School Children." Ohio State Med. Jour., Feb., 1907.

Baker, S. Josephine: "The Medical Inspection and Examination of School Children in New York City." Annals of Gynecology and Pediatry, 19: 441–51.

Barkhurst, S. O.: "Medical Inspection of Schools as a Factor in Prevention of Disease." Ohio State Med. Jour., Feb. 15, 1907.

Beyer: "Observations on Normal Growth and Development under Systematized Exercise." Report of the Chief of the Bureau of Medicine and Surgery to the Secretary of the Navy, Washington, D. C., 1893, pages 141–60.

"The Influence of Exercise on Growth." American Physical Education Review, Sept.–Dec., 1896, pages 76–87.

Black, M.: "The Physician in the Public Schools." Colorado Med., Sept., 1907.

Boas, Franz: "Anthropological Investigations in Schools." Ped. Sem., Vol. I, pages 225–8.

"The Growth of Children." Science, Vol. XIX, pages 256, 281–2; Vol. XX, pages 351–2, and *passim*.

Bowditch, H. P.: "The Growth of Children." Report of the Board of Health of Mass., 1877, Vol. VIII; 1879, Vol. X, pages 33–62; 1891, Vol. XXII, pages 470–522.

"Relation between Growth and Disease." Transactions of the Amer. Med. Asso., 1881, Vol. XXXII, pages 376 ff.

Bromner, A.: "On the Importance of Examining the Eyes and Ears of all the Children, not only those of the Board Schools." Journal of the Sanitary Institute, London, 1; 189–98.

Browne, J. Crichton: "Education and the Nervous System." The Book of Health, pages 269 ff.

Report on Overpressure in English Elementary Schools. London, 1883.

Bryan, James E.: "A Method for Determining the Extent and Causes of Retardation in a City School System." Psych. Clinic, April 15, 1907.

Burgerstein, Leo: "Schulartz." Rein's Encyklopädisches Handbuch der Pädagogik, Vol. VI, pages 233–56.

Axel Key's Schulhygienische Untersuchungen. Page 345. Hamburg, 1899. (Résumé of Key's investigation of the physical conditions of Swedish school children.)

"Means of Spreading Hygienic Knowledge among the People." Report of the Com. of Ed. 1897–8, pages 257 ff.

Burk: "Growth of Children in Height and Weight." Amer. Jour. of Psych., April, 1898, Vol. IX, No. 3, pages 253–326.

Burnham: "Bibliography of School Hygiene." Transactions, Nat. Ed. Asso., 1898, pages 506–23.

"Health Inspection in the Schools." Ped. Sem., April, 1900, Vol. VII, No. 1, pages 70 ff.

Burrage: "Medical Inspection of School Children." Nat. Ed. Asso. Jour., 1898, pages 539–44.

Byrne: "School Medical Inspection in Chicago." Jour. of Amer. Med. Asso., Nov. 23, 1901.

Carruth, F. W.: "A Unique Municipal Crusade." North Amer. Review, Nov., 1903, 177: 66–74.

Chrisman: "Hearing of Children." Ped. Sem., 1892, Vol. II, pages 391–441.

"Hearing of School Children." Northwestern Monthly, July, 1897, pages 31–35.

Clark: "Physical Defects of Children." Northwestern Monthly, July, 1897, pages 24–31.

Clark, Hannah B.: "Sanitary Legislation Affecting Schools in the United States." Report of the Com. of Ed. 1893–4, Vol. II, pages 1301–49.

Cohn: Ueber die Notwendigkeit der Einführung von Schulärtzten. Page 54. Leipsic, 1886.

"Die Schulartzfrage in Breslau." Zeitschrift für Schulgesundheitspflege, 1898, No. 11, pages 579–596; No. 12, pages 643–54.

"Eyes and School Books." Pop. Sci. Monthly, XIX, 54.

Cole, Harlan P.: "The Prevalence of Physical Defects in School Children." Report of the 7th Annual Conference of Sanitary Officers of the State of New York, 1907.

Collins: "The Teeth of the School Boy." Nineteenth Century, July, 1899.

Cornell, Walter S.: "Eyestrain in School Children." New York Med. Jour., June 1, 1907.

Cronin, John J.: "The Health of New York School Children from the Point of View of the Department of Health." Archives of Pediatrics, Oct., 1906.

"The Doctor in the Public School." Review of Reviews, April, 1907, 35; 433–40.

"Physical Defects of School Children." Jour. of the New York Institute of Stomatology and Allied Societies, Dec., 1907.

"School Children and their Medical Supervision." Charities, 16: 58–62.

Darlington, Thomas: "The New Method of Medical School Inspection." Jour. of the Med. Society of New Jersey, 1906.

Denison: "The Advantages of Physical Education as a Prevention of Disease." Bulletin of Amer. Aca. of Med., Oct., 1898, III, No. 9, page 524.

Dennett, W. S.: Report of the Examination of the Eyes of the Pupils in the Schools of Hyde Park. Hyde Park, Mass., 1880.

Dowling: "The Hygiene of the Ears." Cincinnati Lancet-Clinic, July, 2, 1898.

Dukes, Clement: "The Inspection of Schools from the Medical and Sanitary Point of View." Educational Times, Dec., 1894, pages 505–11.

Durgin, S. H.: "Medical Inspection of Schools." Boston.

Eberhardt, John C.: "Examination of the Eyes of School Children." Proceedings, Nat. Ed. Asso., 1906, pages 173–7; Elementary School Teacher, June, 1907, 7: 263–8.

Ekeris, Van: "Notwendigkeit, Aufgabe und Stellung der Schulärtzte." Sammlung päd. Vorträge, Meyer-Markau, Vol. XII, No. 4. Bonn, 1899.

Eulenberg and Bach: "Die Artzliche Schulaufsicht in Gesundheitslehre." Das Schulhaus und das Unterrichtswesen vom Hygienischen Standpunkte. Zweite, ungearbeitete Auflage. Pages 1194–1214. Berlin, 1899.

Fell: "School Diseases and Medical Inspection." Addresses, Nat. Ed. Asso., Washington, D. C., 1898, pages 534–39.

Fitz: "The Hygiene of Instruction in Primary Schools." Addresses, Nat. Ed. Asso., 1898, pages 544–50.

Gaertner, A.: "Ansteckung und ansteckende Krankheiten." Rein's Encyklopädisches Handbuch der Pädagogik, Vol. I, pages 102–116. Langensalza, 1895.

Galton: "Report of the Anthropometric Committee of the British Association for 1883."

"Why Do we Measure Mankind?" Lippincott's Magazine, Feb., 1899, pages 236–41.

Gawronsky, L.: "Einige vergleichende Daten über die zahnärtzliche Hilfe in den Mittelschulen Moskaus." International Kongress für Schulhygiene, Vol. III, 304–9.

Gilbert: "Researches on the Mental and Physical Development of School Children." Studies from the Yale Laboratory, 1895.

"Researches upon School Children and College Students." University of Iowa, Studies in Psychology, Vol. I, pages 1–39.

Gorst, Sir John E.: "The Children of the Nation: How their Health should be Promoted by the State." "Medical Inspection of School Children." Pages 50–66. New York, E. P. Dutton & Co.

Greenwood: "Heights and Weights of Children." Report of the Board of Education of Kansas City Schools, 1890–1. American Public Health Asso. Reports, Vol. XVII, pages 199–204.

Gulick, Luther H.: "Department of School Hygiene." Boston Med. and Surg. Jour., July 25, 1907.

"How Can the School make Contribution of Permanent Value?" Proceedings of the Dept. of Superintendence, Nat. Ed. Asso., Washington, D. C., Feb., 1908.

"Departments of Hygiene under Boards of Education." School Hygiene, Boston, June, 1908.

Gutenberg, Berthold: "Zum Kapitel der Zähne und Zahnpflege bei den Schulkindern." Zeitschrift für Schulgesundheitspflege, 1901, pages 452–66.

Harrington, Thomas F.: "Medical Inspection in Public Schools." Proceedings of the Dept. of Superintendence, Nat. Ed. Asso., Washington, D. C., Feb., 1908.

Hartwell: Reports of the Director of Physical Training, Boston, 1891, 1894, 1896.

"Application of the Laws of Physical Training to the Prevention and Cure of Stuttering." Proceedings of the Nat. Ed. Asso., 1893, pages 738–49.

et al.: Anthropometry, Papers upon. American Statistics Association, 1894.

Hedler, Albert: "Medical Examination of the Children of the Franklin School." Minneapolis Jour., March 17, 1908.

Heilman, J. D.: "A Clinic Examination Blank for Backward Children in the Public Schools." Psych. Clinic, Dec. 15, 1907.

Heitmuller, G. H.: "Medical Inspection of Schools." Washington Med. Ann., March, 1907.

Henderson, C. R.: "Dependent, Defective, and Delinquent Classes." Page 394. Boston, 1901.

Henie, C.: "Untersuchungen über die Zähne der Volksschüler zu Hamar in Norwegen." Zeitschrift für Schulgesundheitspflege, Feb., 1898, pages 65–71.

Herdman, Elliott Kent: "Medical Inspection of Schools." Public Health, State Dept. of Health, Lansing, Mich., Jan.–March, 1908.

Hertel: "Overpressure in the High Schools of Denmark." London, 1885.

Hinchey: "Medical Inspection of School Children." Medical Fortnightly, pages 360 ff.

Jackson, Edward: "Considerations regarding Medical Inspection in Public Schools." Bulletin of the Amer. Aca. of Medicine, 6: 923–32.

Jackson: "Care of the Eyes during School Life." Bulletin of the Amer. Aca. of Med., Oct., 1898, Vol. III, No. 9, page 517.

James, Dr. J. H.: "Suggestions to Teachers Regarding Visual Defects of School Children." Mankato, Minn.

Jarrett, Elizabeth: "Health of our High School Children." New York Med. Record, April 11, 1908.

Jeffries, B. Joy: "Report of the Examination of 27,927 Children for Color-Blindness." Boston, 1880, Rockwell and Churchill.

Jessen, Dr. Ernst: "Kostenpunkt einer städtischen Schulzahnklinik." Internationales Archiv für Schulhygiene, Vol. IV, No. 4.

"Die städtische Schulzahnklinik; ihr Verhältnis zu Stadt, Schule, und ortsansässigen Zahnärtzten." Odontolische Blätter XII, No. 7–8. Berlin.

Johnson, G. E.: "Condition of the Teeth of Children in Public Schools." Pedagogical Sem., March, 1901, 8: 45–58.

Johnson, H. P.: "Medical School Inspection in the City of New York." Transactions, Medical Society of New York, 1903, pages 183–9.

Jordan, Walter R.: "Medical Inspection of School Children." Pathologist, 8: 70–7.

Kalle, Fritz: "Die Lösung der Schulartzfrage in Wiesbaden." Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege, 1898, Vol. XXX, pages 433–447.

Keen, Dora: "Medical Inspection of Schools." Reprint from Philadelphia Med. Jour., June 18, 1898; also Public Health, August, 1898, Vol. III.

Key: "School Life in Relation to Growth and Health." Pop. Sci. Monthly, 1890–1, Vol. XXXVIII, pages 107–112.

Krohn: "Habitual Postures of School Children." Child Study Monthly, Oct., 1895.
"Nervous Diseases of School Children." Child Study Monthly, April, 1896, Vol. I, pages 354–68.

Lederle, Ernst J.: "Medical Inspection of Schools." Conference of Eastern Public Education Associations, Bulletin No. 2, 1904.

Lee: "Interdependence of Healthy Bodies and Healthy Brains." Bulletin of the Amer. Aca. of Med., Oct., 1898, III, page 534.

Lee, Joseph, and Margaret Curtis: "Medical Inspection in the Public Schools." Leaflet No. 7, Mass. Civic League, 1906.

Loring, L. G.: "Examinations of Eyes of Four Hundred and Twenty School Children." Boston Med. and Surg. Jour., Dec. 13, 1906; abstract in Jour. of the Amer. Med. Asso., Jan. 5, 1907, page 79.

Lovett, R. W.: "Medical Inspection of Schools." Boston Med. and Surg. Jour., Feb. 21, 1907.

McCallie, J. M.: "The Vision of the Pupils of an Elementary School, tested by the Snellen Alphabet and Illiterate Cards." Psych. Clinic, Nov. 15, 1907, I, 175–82.

McDonald: "Children with Abnormalities, Based upon the Reports of Teachers." Reprint from Medical Times and Register, June, 1899.
"Growth and Sociological Conditions." Reprint from the Boston Med. and Surg. Journal, Sept. 14, 1899.

McMahon, J. P.: "Necessity for Annual Systematic Examination of School Children's Eyes, Ears, Noses and Throats by School Teachers." Wisconsin Med. Jour., Dec., 1907.

Mackenzie, W. Leslie: "The Medical Inspection of School Children." Glasgow and Edinburgh, 1904.
"The Health of the School Child." Methuen, London, 1906.

Macmillan, D. P.: "The Physical and Mental Examination of Public School Pupils in Chicago." Charities and The Commons, Dec. 22, 1906, 17: 529–35.

Mahony, John J.: "The Problem of the Poor Pupil." Education, Dec., 1907.

Mangenot: L'inspection hygiènique et médicale des écoles. Page 64. Paris, 1887.

L'examen individual et la bulletin sanitaire des écoliers. Paris, 1894.

Martin, Geo. H.: "School Hygiene in Massachusetts." Reprint from 71st Report of the Massachusetts Board of Education.

Menninger: "Medical Inspection in Schools." Northwestern Monthly, July, 1897, pages 66–67.

Mulford: "The Throat of the Child." Educational Review, March, 1897, XIII, pages 261–72.

Newmayer, S. W.: "The Trained Nurse in the Public Schools as a Factor in the Education of the Children." Amer. Jour. of Nursing, Dec., 1906.

"Physical Defects of School Children Causing Subnormal and Mentally Deficient Pupils." New York Med. Jour., Nov. 2, 1907.

"A Practical System of Medical Inspection with Trained Nurses adapted for Public Schools of Large Cities." New York Med. Jour., April 4, 1908.

"Defective Vision and the Mentally Subnormal Child." New York Med. Jour., May 9, 1908.

Oppenheim: "Development of the Child." New York, 1898.

Porter: "The Physical Basis of Precocity and Dullness." Transactions of the Aca. of Science of St. Louis, Nov., 1893, Vol. VI, pages 161–81.

"The Relation between the Growth of Children and Their Deviation from the Physical Type of Their Sex and Age." Transactions of the Aca. of Science of St. Louis, Nov., 1893, Vol. VI, pages 233–50.

Powell, W. B.: "Medical Inspection of Schools." Addresses of Nat. Ed. Asso., Washington, D. C., 1898, pages 454–62.

Prentice: "The Eye in Its Relation to Health." Chicago, 1895.

Punton: "Relation of the Science of Medicine to Public School Education." Kansas City, Mo.

Randall: "The Hygienic and Scientific Value of Examinations of the Eyes and Ears of School Children." Chicago, 1895.

Report of Committee on Examination and Care of Eyes during School Life. Chicago, 1895.

Richards, H. M.: "Organized Medical Inspection of Schools." Public Health, Nov., 1906, 19: 87–96.

Risley: "Weak Eyes in the Public Schools of Philadelphia." Philadelphia, 1881.

"Defective Vision in School Children." Educational Review, New York, April, 1892, III, pages 348–54.

Roberts, Charles: "Manual of Anthropometry." London, 1878.

"The Medical Inspection of, and Physical Inspection in, Secondary Schools." Royal Commission of Secondary Education, 1895, Vol. V, pages 352–75.

Rogers, Lina L.: "Nurses in the Public School." Conference of Eastern Public Education Associations, Bulletin No. 2, 1904.

Ryerson: "Defective Vision in the Public Schools." Transactions of the Canadian Institute, 1889–90, Toronto, 1891, pages 26–7.

Rose, Karl: "Die Zahnpflege in den Schulen." Zeitschrift für Schulgesundheitspflege, 8: 65–87.

Routzahn, E. G.: "A City School Tooth-Clinic." Chautauquan, Feb., 1905, 40: 571–2.

Schaefer, Dr.: "Ueber die Gefahr der Verbreitung ansteckender Krankheiten durch den Schulbesuch und die in dieser Hinsicht erforderlichen Massnahmen." Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege, 1898, Vol. XXX, pages 617–666.

Scharfe, Dr. N. W.: "Municipal Medical Inspection of Schools." Philadelphia Med. Jour., April 29, 1899.

Schenck, H. D.: "The Detection of Defects of the Eye, Ear, Nose, and Throat." Report of the 7th Anuual Conference of Sanitary Officers of the State of New York, 1907.

Schiller, Hermann: "Die Schulartzfrage." Sammlung von Abhandlungen aus dem Gebiete der Pädagogischen Psychologie und Physiologie, Vol. III, No. 1, page 56.

Schmid, Dr. Fr.: Die Schulhygienischen Vorschriften in der Schweiz. Zurich, 1902.

Schmid, H. D.: "The Detection of Communicable Disease in School as a Part of Medical School Inspection."

Report of the 7th Annual Conference of Sanitary Officers of the State of New York, 1907.

Schubert, Paul: Das Schulartzwesen in Deutschland. Hamburg and Leipsic, 1905.

Schuschny, H.: "Geschichte und Entwickelung der ungarischen Schulartzfrage." Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege, 1897, Vol. XXIX, page 530.

Scripture: "Tests on School Children." Educational Review, New York, Jan., 1893, Vol. V, pages 52–61.

Seashore, C. E.: "Suggestions for Tests on School Children." Educational Review, June, 1901, 22: 69–82.

Shattinger, Dr. Charles: "Municipal Medical Inspection of Schools." St. Louis Med. Jour., April 28, 1899.

Shaw: "School Hygiene." Page 252. New York, 1901.

Shepherd, Fred S.: "Medical Inspection of Public Schools." (Supt., Public Schools, Asbury Park, N. J.)

Somers, B. S.: "The Medical Inspection of Schools; a Problem in Preventive Medicine." Medical News, Jan. 17, 1903.

Southard: "The Modern Eye; with an Analysis of 1300 Errors of Refraction." Page 32. San Francisco.

Steiger: "Astigmatismus und Schule. Schulhygienische Studie." Correspondenzblatt für Schweizer Artzte, Bern, 1897, No. 10, pages 289–98.

Steinhardt, Dr. Ignaz: Zum augenblicklichen Stand der Schulartzfrage in Deutschland. Page 20. Munich, 1899.

Stuver: "The Relation of Food, Air and Exercise to Healthy Growth and Development." Reprint from Jour. of the Amer. Med. Asso., Feb., 1898.

Suck, Hans: Die gesundheitliche Uberwachung der Schule. Ein Beitrag zur Lösung der Schulartzfrage. Page 36. Hamburg and Leipsic, 1899.

Thompson, T. W.: "The Natural History of Infectious Diseases." Stevenson & Murphy's Treatise on Hygiene, II, pages 243–381.

Törnell, M. G.: "Medical Supervision of Secondary Schools in Sweden." Med. Press and Circular, Sept. 25, 1907; abstract in Jour. of Amer. Med. Asso., Oct. 26, 1907, page 1479.

Twitmyer, Geo. W.: "Clinical Studies of Retarded Children." Psych. Clinic, June 15, 1907.

Tyler, John N.: "Abstract of 8 Lectures on the Physical Basis of Education." Published by Twentieth Century Club, Boston, 1906.

"The Girl in the Grammar School." Address before Amer. Phys. Ed. Asso., Dec. 26, 1906, Springfield, Mass.

Veasey, C. A.: "Importance of Active Co-operation between Parents and Teachers, in Order to Promote and Maintain the Health of Children's Eyes during School Life." Conference of Eastern Public Education Associations, Bulletin No. 2, 1904.

Wald, L. D.: "Medical Inspection of Public Schools." Annals, Amer. Aca. of Political and Social Science, 1905, Vol. XXV, pages 290–298.

Waldsworth, R. C. W.: "Crusade for a Thousand Eyes." Charities, 10: 141–7.

Warner: "An Inquiry as to the Physical and Mental Condition of School Children." Reprint from British Med. Jour., March 12–19, 1892, page 14.

Report on the Scientific Study of the Mental and Physical Conditions of Childhood. (Report is based upon the examinations of 100,000 children.) London, 1895.

"The Study of Children and Their School Training." Page 264. New York, 1897.

Weeks, J. E.: "The Care of the Eyes of Children While at School." Teachers College Record, March, 1905, 6: 30–42.

Wells, David W.: "Sight and Hearing of School Children." Jour. of Education, 51: 99–100; 117: 121–2, Feb. 15, 22, 1900.

West: "Eye Tests on Children." Amer. Jour. of Psych., August, 1892, Vol. IV, pages 595–6.

"Worcester School Children: the Growth of Body, Head and Face." Science XXI, Jan. 6, 1893, pages 2–4.

"The Anthropometry of American School Children." Proceedings, International Congress, Chicago, 1893, page 50.

"Observations of the Relation of Physical Development to Intellectual Ability Made on the School Children of Toronto, Canada." Science, New Series, 1896, IV, pages 156–9.

Williams, Linsly R.: "A Plea for the Physical Examination of all School Children." Jour. of Amer. Med. Asso., Nov. 16, 1907.

Wingate: "National Public Health Legislation." North American Review, Nov., 1898, Vol. 167, pages 527–533.

Wintsch, C. H.: "Medical School Inspection." North American Journal of Homeopathy, 51: 210–7.

Witmer, Lightner: "The Hospital School." Ped. Clinic, Oct. 15, 1907, 1: 138–46.

Wolfe: "Defects of Sight." Northwestern Monthly, July, 1897, pages 35–9.

Wood: "Kindergarten and Primary Grade Work in the Public Schools and Its Influence on the Eyesight." Bulletin of the Amer. Aca. of Med., Oct., 1898, III, pages 539–44.

Worrill: "Deafness among School Children." Transactions of the Indiana State Medical Society, Indianapolis, 1883, pages 25–33.

Wyche, G.: "Inspection of School Children, with Special Reference to Ear, Nose, and Throat." St. Louis Med. Rev., May 4, 1907.

Zirkle, Homer W.: "Medical Inspection of Schools." Investigations of the Dept. of Psychology and Education of the University of Colorado, June, 1902.

ADDITIONAL REFERENCES

American Academy of Medicine, Vol. III, Oct., 1898.

"Brief Statement of the Results obtained by the Commissioner of the British Dental Association appointed to Investigate the Teeth of School Children." British Dental Journal, London, 24: 809–16.

"Care of the Eyes." Sanitary Home, June, 1899, page 79.

"Causes of Contagious and Infectious Diseases in Schools (The)." Rocky Mountain Educator, Dec. 23, 1899; from Indiana School Journal.

"Considerations respecting Medical Inspection in the Public Schools." Bulletin of the Amer. Aca. of Medicine, April, 1905, 6: 923–32; bibliography, pages 929–32.

"Cult of Infirmity (The)." Public Opinion, Oct. 19, 1899, page 493; from National Review, London.

"Defective Eyesight." Pop. Sci. Monthly, XXIV, page 357.

"Defective Vision in School Children." Educational Review V, page 42.

"Dental Clinic for School Children (New York City)." School Journal, Jan. 12, 1907, 74: 54.

"Effects of Study on the Eyesight." Pop. Sci. Monthy, Vol. XXII, page 74.

"Effects of Student Life upon Eyesight." Circular No. 6, Bureau of Education, page 29.

"Examination of Railway Employees." Jour. of Amer. Med. Asso., Chicago, Oct. 21, 1899.

"Eye Defects in Students and Children." Ped. Sem., Oct., 1897; Science, July 16, 1897.

"Eye Strain and 'Optic Crutches.'" Medical Herald, July, 1900.

"Free Eye Glasses for School Children." School Journal, April 27, May 11, June 29, 1907; 74: 419, 475, 487, 655. Charities and The Commons, April 27, 1907, 18: 130–1.

"Growth of Children." Science, Vol. XIX, pages 256, 281–2; Vol. XX, pages 351–2.

"How to Test the Vision." Child Study Monthly, I, No. 6.

"Hints on the Use and Care of the Eyes." Scribner's XIV, 700.

"Hygiene for the School Boy and Girl." The Outlook, Dec. 24, 1898, 1016.

"Influence of Schools in Accentuating the Spread of Certain Infectious Diseases (The)." Lancet, 1898, Jan. 21, page 184; Jan. 28, page 256; Feb. 4, page 330, and *passim*.

"Inspection of Schools." Educational Times, Dec. 1, 1894, pages 505–11.

La Médecine Scolaire. (Monthly publication of the Society of Medical Inspectors of Schools.) Librarie, Ch. Delagrave, Paris.

"Medical Examiner for our Public Schools (A)." Medical Herald, July, 1900.

"Medical Inspection of Schools," in "Making a Municipal Budget," pages 92–107. Bureau of Municipal Research, New York, 1907.

Northwestern Monthly, July, 1897.

"Nutrition. Investigations at the University of Tennessee." Scientific American, supplement to, March 11, 1899, page 194; also Bulletin of the Department of Agriculture, Nos. 29 and 53.

"Our Eyes and How to Take Care of Them." Atlantic Monthly, XXVII, 62, 177, 332, 462, 636.

Psychological Clinic, Vol. I, No. 1, March 15, 1907. (Most scientific exponent of the work for backward and mentally retarded children.)

"Relation of Diseases of the Eye to Diseases in General (The)." Medical Times, Jan., 1898.

"School Life and Eyesight." Pop. Sci. Monthly, I, page 766.

"School Work and Eyesight." Science XII, page 207.

"Shall We Put Spectacles on School Children?" Pop. Sci. Monthly, XXV, page 429.

"Sight Training." Literary Digest, Oct. 9, 1898; The Hospital, London, March 5, 1898.

"Statistics on Blindness and Deafness." New York Med. Jour., July 17, 1897, page 85.

"Suggestions to Teachers and School Physicians regarding Medical Inspection." Special pamphlet, Massachusetts Board of Education, 1907.

"Tests on School Children." Educational Review, V, page 42.

Zeitschrift für Schulgesundheitspflege. Edited by Kotelmann 1888–98; since that time by Erismann, Hamburg. (This contains many articles relative to the progress of medical inspection the world over.)

SCHOOL REPORTS

Baltimore, Md.: Seventy-eighth Annual Report of the Board of School Commissioners, 1906.

Birmingham, Ala.: Annual Report of the Birmingham Public Schools, 1907.

Boston, Mass.: Annual Report of the Public Schools, 1895.
Twenty-seventh Annual Report of the Superintendent of Public Schools of the City of Boston, 1907.

Brockton, Mass.: Annual Report of the Superintendent of Schools, 1907.

Cambridge, Mass.: Annual Report of Public Schools, 1898.
Annual Report of the School Committee, prepared by the Superintendent of Schools, Cambridge, Mass., 1907.

Camden, N. J.: Annual Report of the Board of Education, 1906.

Chicago, Ill.: Forty-sixth Annual Report of the Board of Education, 1900.

Cincinnati, O.: Seventy-eighth Annual Report of the Public Schools of Cincinnati, O., 1907.

Cleveland, O.: Annual Report of the Board of Education, Cleveland, O., 1901.
Annual Report of the Superintendent of Schools, Cleveland, O., 1907.

Dallas, Texas: Eleventh Biennial Report of the Dallas Public Schools, 1906.

Dayton, O.: Annual Report of the Board of Education of the City School District of Dayton, O., 1907.

Fall River, Mass.: Annual Report of the City of Fall River, 1907.

Fitchburg, Mass.: Thirty-fifth Annual Report of the School Committee of the City of Fitchburg, 1907.

Harrisburg, Pa.: Annual Report of the Public Schools of Harrisburg, Pa., 1907.

Hoboken, N. J.: Annual Report of the School Department of Hoboken, N. J., 1907.

Lawrence, Mass.: Sixtieth Annual Report of the School Committee of the City of Lawrence, Mass., 1906.
Sixty-first Annual Report of the School Committee of the City of Lawrence, Mass., 1907.

Los Angeles, Cal.: Annual Report of the Board of Education of the City of Los Angeles, Cal., 1906–7.

Lowell, Mass.: Eighty-second Report of the School Committee of the City of Lowell, and Forty-fourth Annual Report of the Superintendent of Public Schools, 1907.

Milwaukee, Wis.: Annual Report of the Board of School Directors, Milwaukee, 1900.
Forty-eighth Annual Report of the Board of School Directors of the City of Milwaukee, 1907.

Newark, N. J.: Fifty-first Annual Report of the Board of Education of the City of Newark, N. J., 1907.

Newburyport, Mass.: Annual Report of the School Committee by the Superintendent of Schools of the City of Newburyport, 1907.

New Haven, Conn.: Annual Report of the Board of Education of New Haven City School District, New Haven, 1907.

Newton, Mass.: Annual Report of the School Committee of the City of Newton, Mass., 1906.

New York, N. Y.: Ninth Annual Report of the City Superintendent of Schools, City of New York, 1907.

Northampton, Mass.: Twenty-third Annual Report of the School Committee of the City of Northampton, Mass., 1906.
Twenty-fourth Annual Report of the School Committee of the City of Northampton, Mass., 1907.

Pawtucket, R. I.: School Report, 1901.

Reading, Pa.: Minutes of the Reading School Board, March 15, 1904.

San Antonio, Texas: Annual Report of the San Antonio School Board, 1907.

Somerville, Mass.: Thirty-sixth Annual Report of the School Committee of the City of Somerville, Mass., 1907.

Syracuse, N. Y.: Fifty-eighth and Fifty-ninth Annual Reports of the Department of Public Instruction of the City of Syracuse, 1906–7.

Waltham, Mass.: Annual Report of the School Committee and Superintendent of Schools of Waltham, Mass., 1908.

Wilmington, Del.: Thirty-fourth Annual School Report of the City of Wilmington, Del., 1905.

Yonkers, N. Y.: Twenty-seventh Annual Report of the Board of Education in the City of Yonkers, N. Y., 1907.

REPORTS FROM BOARDS OF HEALTH

Brünn, Austria: Dritter Bericht über die Tätigkeit der städt. Bezirksärtzte in Brünn als Schulärtzte, 1903.
Vierter Bericht über die Tätigkeit der städt. Bezirksärtzte in Brünn als Schulärtzte, 1906–7.

Cambridge, Mass.: Annual Report of the Board of Health, Cambridge, 1896.

Everett, Mass.: Fifteenth Annual Report of the Board of Health, 1907.

Montclair, N. J.: Thirteenth Report of the Board of Health, 1907.

New York, N. Y.: Working Plan of the System of Medical Inspection and Examination of School Children in the City of New York, Department of Health, New York, 1906.

Springfield, Mass.: Annual Report of the Board of Health, 1907.

OTHER REPORTS

Commissioner of Education: Report of the Commissioner of Education, 1897–8, Vol. II, "Medical Inspection of Schools," pages 1489–1512.

Report of the Commissioner of Education, 1902, "Medical Inspection of Schools Abroad," pages 509–526.

Report of the Commissioner of Education, 1902, "Report of Committee on Statistics of Defective Sight and Hearing of Public School Children," pages 2143–2155.

Report of the Commissioner of Education, 1906, "Medical Inspection of School Children," Vol. I, page 327.

Detroit, Mich.: Bulletin No. 1, Child Study Committee, Detroit Public Schools, Dec., 1907.

Dundee, Scotland: Report on Housing and Industrial Conditions and Medical Inspection of School Children. Dundee Social Union, Dundee, 1905.

Dunfermline, Scotland: First Annual Report of Medical Inspection of School Children, Dunfermline, 1906.

Second Annual Report of Medical Inspection of School Children, Dunfermline, 1907.

Edinburgh, Scotland: Report on the Physical Condition of 1400 School Children in the City of Edinburgh, together with some account of their Homes and Surroundings. London, 1906.

Harrisburg, Pa.: Report of the Special Committee to Investigate and Report on Medical Inspection in the Schools. Harrisburg School District, Harrisburg, Pa., April 27, 1908.

London, England: Report of the Education Committee of the London County Council, Submitting the Report of the Medical Officer (Education) for the Year ended 31st March, 1905.

Report of the Education Committee of the London County Council, Submitting the Report of the Medical Officer (Education) for the Year ended 31st March, 1906.

Report of the Education Committee of the London County Council, Submitting the Report of the Medical Officer (Education) for the Year ended 31st March, 1907.

Board of Education. Memorandum on Medical Inspection of Children in Public Elementary Schools, under Section 13 of the Education (administrative provisions) Act, 1907. London, 1907, Eyre & Spottiswoode. (Great Britain Board of Education, circular 576.)

Report of International Committee on Medical Inspection and

Feeding of Children attending Public Elementary School. 2 v., London, Wyman & Sons, 1905.

Lucerne, Switzerland: Bericht und Antrag des Stadtrates von Luzern betreffend Errichtung einer Schulpoliklinik. Lucerne, Dec. 8, 1906.

Massachusetts (Board of Education): Sixty-fourth Annual Report of the Board of Education, 1899–1900, pages 375–380.

Seventieth Annual Report of the Board of Education, 1905–1906, pages 110–118. "Medical Inspection in the Public Schools."

New York City: New York Committee on the Physical Welfare of School Children. "Physical Welfare of School Children." Quarterly of the American Statistical Association, June, 1907.

Appendix I

"SUGGESTIONS TO TEACHERS AND SCHOOL PHYSICIANS REGARDING MEDICAL INSPECTION"

Issued by the Massachusetts Board of Education

COMMONWEALTH OF MASSACHUSETTS

STATE HOUSE, BOSTON, Jan. 23, 1907.

In order to render the medical inspection required by chapter 502, Acts of 1906, effective and uniform throughout the State, His Excellency Governor Guild appointed a committee to prepare a circular of advice to the school physicians of the State.

This committee consisted of Dr. Henry P. Walcott, Dr. Charles Harrington and Dr. Julian A. Mead, representing the State Board of Health; Mrs. Ella Lyman Cabot, Mr. George I. Aldrich and Mr. George H. Martin, representing the Board of Education; and Dr. Robert W. Lovett, Dr. Harold Williams and Dr. W. H. Devine, representing the medical profession.

A sub-committee of this body arranged for conferences with the heads of departments and others connected with the medical schools and hospitals in and about Boston, and with physicians who have had experience in school inspection. These gentlemen have given freely of their time and thought, and have furnished to the committee the suggestions contained in this circular.

These suggestions cover the ground included in the clause in section 5 of the law: "The school committee of every city and town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year, to ascertain whether he is suffering from defective sight or hearing, or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in

order to prevent injury to the child or to secure the best educational results."

The Board of Education issues this circular in the assurance that it represents the highest professional authority in the specialties covered by the law, and commends it to the careful attention of all teachers, school physicians and other school officers.

The following are the subjects treated, with the names of the physicians who have contributed suggestions:—

1. *Infectious Diseases.*—Dr. John H. McCollom.

2. *The Eye.*—Dr. Myles Standish, Dr. Henry B. Chandler, Dr. Charles H. Williams, Dr. David W. Wells.

3. *The Ear.*—Dr. Clarence J. Blake, Dr. D. Harold Walker.

4. *The Throat and Nose.*—Dr. Samuel W. Langmaid, Dr. Algernon Coolidge, Jr., Dr. Frederic C. Cobb, Dr. George B. Rice.

5. *The Skin.*—Dr. John T. Bowen, Dr. James S. Howe, Dr. George F. Harding, Dr. Charles J. White, Dr. C. Morton Smith, Dr. John L. Coffin.

6. *Diseases of Bones and Joints.*—Dr. Edward H. Bradford, Dr. Augustus Thorndike, Dr. Chales F. Painter, Dr. George H. Earl, Dr. Robert Soutter.

7. *Children's Diseases.*—Dr. Thomas M. Rotch, Dr. John L. Morse, Dr. John H. Moore, Dr. Robert W. Hastings, Dr. Edmund C. Stowell.

8. *The Teeth.*—Dr. Edward W. Branigan, Dr. George A. Bates, Dr. Eugene H. Smith, Dr. Samuel A. Hopkins.

9. *Nervous Diseases.*—Dr. James J. Putnam, Dr. George L. Walton, Dr. Morton Prince, Dr. William N. Bullard, Dr. Edward W. Taylor, Dr. John J. Thomas, Dr. Walter E. Fernald.

10. *School Hygiene.*—Dr. Henry J. Barnes.

11. *School Furniture.*—Dr. Frederick J. Cotton, Dr. R. Clipston Sturgis.

12. *School Inspectors.*—Dr. George S. C. Badger, Dr. H. Lincoln Chase, Dr. Harry M. Cutts.

GEORGE H. MARTIN,
Secretary

DISEASES

Infectious Diseases

Diphtheria.—It is a well-recognized fact that nasal diphtheria of a mild type without constitutional disturbance is one of the most important factors in causing the spread of the disease, and also that children very frequently have profuse discharges from the nose. It therefore follows that, in order properly to inspect the public schools, it is important that cultures should be taken from the nose in every case where there is a persistent discharge, particularly if there is any excoriation about the nostrils.

The throat should be examined at varying intervals, depending upon the physical condition of the children. Any hoarseness or any thickness of the voice should cause an examination of the throat. If the tonsils are enlarged, if the mucous membrane is congested, if there is swelling of the palate, a culture should be taken. These symptoms precede diphtheria.

A child with positive cultures should be excluded from school until two consecutive negative cultures at an interval of forty-eight hours have been obtained.

Scarlet Fever.—If there is a sudden attack of vomiting, if there is any redness of the throat, if the child complains of headache, if there is an unexplained rise in temperature, the child should be isolated at once. Any desquamation (peeling of the skin) should be looked upon with suspicion. If there are any breaks at the finger tips, if on pressing the pulp of the finger there is a white line at the juncture of the nail with the pulp of the finger, particularly if this occurs in the majority of the finger tips, the child should be excluded from the school.

A child who has had scarlet fever should not return to school until the process of desquamation has been entirely completed, and all discharge from the nose and ears has ceased.

Measles.—Running from the nose and slight intolerance of light may call for an examination of the mucous membrane of the mouth for Koplik's sign. Koplik's sign, so called, is the presence on the lining membrane of the mouth, near the molar teeth, of minute pearly white blisters, without any inflammation around them. There may be only two or three of these blisters, and they may easily escape detection if the

patient is not carefully examined in a good light. These blisters are certain forerunners of an attack of measles.

No child should return to school after an attack of measles until the desquamation is entirely completed, and the child has recovered from the intercurrent bronchitis.

Mumps.—Any swelling or tenderness in the region of the parotid glands (situated behind the angle of the jaw) should be looked upon with suspicion. It is important to notice any enlargement or swelling about Steno's duct (inside the mouth, opposite the second upper molar tooth), as this is a very frequent symptom of mumps.

A child should be excluded from school until one week has elapsed after the disappearance of all swelling and tenderness in the region of the parotid glands.

Whooping-cough.—A persistent paroxysmal cough, frequently accompanied with vomiting, no matter whether there is any distinct whoop or not, is indicative of whooping-cough. In cases of whooping-cough of long standing, even if there has been no distinct whoop, an ulcer on the band connecting the lower surface of the tongue with the floor of the mouth is found in a certain number of cases. If there is no distinct ulceration, there may be a marked congestion of the band.

As long as there is any cough, the child who has had whooping-cough should be looked upon with suspicion.

Varicella (*Chicken Pox*).—A few black crusts scattered over the body are evidences of an attack of chicken pox. The crusting seen in impetigo must be differentiated from that of chicken pox.*

No child should return to school until all crusts have disappeared from the body, particularly from the scalp, for in this region the crusts remain longer than elsewhere.

The Eyes

[Supplement to circular already issued]

There are certain children who show normal vision by the ordinary tests, yet whose parents should be notified to have the eyes examined. These are: (1) children who habitually hold the head too near the book (less than twelve to fourteen inches); (2) children who frequently

*See Diseases of the Skin.

complain of headaches, especially in the latter portion of school hours; (3) children in whom one eye deviates even temporarily from the normal position.

It should be remembered that the following symptoms are at times indicative of trouble with the eyes: (1) habitual scowling, and wrinkling of the forehead when reading or writing; (2) twitching of the face; (3) inattention and slowness in book studies in a child otherwise bright.

The Ears

See circular of directions for testing hearing, already in hands of teachers.

The Throat and Nose

In all cases of acute illness the throat should be examined for the presence of the eruption of scarlet fever and measles and for the exudation or membrane of tonsillitis and diphtheria, and a culture taken in any suspected case of the latter.

The presence of discharge from the nose should be noted, and if it is thick and creamy, a culture should always be taken. In all cases of severe hoarseness, with difficult breathing, diphtheria should be suspected. If the discharge from the nose is only from one nostril, a foreign body in the nose should be looked for.

In cases of chronic nasal obstruction, as evinced by mouth-breathing, snoring, continual post-nasal catarrh or recurring ear trouble, the presence of an adenoid growth (third tonsil) should be suspected, and the child referred for special examination and treatment. As a rule, digital examination for adenoids should be made only by the operating surgeon. Obviously large tonsils, recurring tonsillitis and enlargement of the glands of the neck, suggest the advisability of referring the child to the family physician as to the propriety of removing the tonsils.

Recurring nose-bleed should be referred for special treatment.

In cases of eczema about the nostrils, a cause may be sought in pediculi capitis (head lice).

In referring cases for treatment, school physicians, in addition to the diagnosis, should state the symptoms upon which the diagnosis is based, for the benefit of the family physician or specialist.

Diseases of the Skin

Scabies (*the Itch*).—A contagious skin disease, due to an animal parasite which burrows in the skin, causing intense itching and scratching. The disease usually begins upon the hands and arms, spreading over the whole body, but does not affect the face and scalp. Between the fingers, on the front of the wrist, at the bend of the elbows and near the arm-pits are favorite locations for the disease; but in persons of cleanly habits the disease may not show at all upon the hands, and its real nature is determined only after a most thorough and careful examination. There is a great variation in the extent and severity of this disease, lack of personal care and cleanliness always favoring its development. Scratching soon brings about an infection of the skin with some of the pus-producing germs, and the disease is then accompanied by impetigo, or a pus infection of the skin.

At the present time itch is very common and widespread, and, because of the great variation in its severity, mild cases have been mistaken for hives, eczema, etc., the real condition not being recognized, and the disease spread in consequence. All children who are scratching or have an irritation upon the skin should be examined for scabies.

It is very important that all infected members of a family be treated till cured, else the disease is passed back and forth from one to another. It is also important that all underclothing, bedding, towels, etc., things that come in contact with the body, be *boiled* when washed.

All cases of scabies should be excluded from school until cured.

Pediculi Capitis (*Head Lice*).—An extremely common accident among children, either from wearing each others' hats and caps, or hanging them on each others' pegs, or from combs and brushes. No person should be blamed for *having* lice,—only for *keeping* them.

The irritation caused by vermin in the scalp leads to scratching, which in turn causes an inflammation of the skin of the neck and scalp. The skin then easily becomes infected with some of the pus-producing germs, and large or small scabs and crusts are formed from the dried matter and blood. Along with this condition the glands back of the ears and in the neck become swollen, and may be very painful and tender.

The condition of pediculosis is most easily detected by looking for

the eggs (nits), which are always stuck onto the hair, and are not readily brushed off. The condition is best treated by killing the living parasites with crude petroleum, and then getting rid of the nits. With boys, this is easy,—a close hair cut is all that is needed; with girls, by using a fine-toothed comb wet in alcohol or vinegar, which dissolves the attachment of the eggs to the hair. All combs and brushes must be carefully cleansed.

Children with pediculosis should be excluded from school until their heads are clean. By chapter 383, Acts of 1906, parents who neglect or refuse to care for their children in this respect may be prosecuted under the compulsory attendance law.

Ringworm.—A vegetable parasitic disease of the skin and scalp. When it occurs upon the skin, it yields readily to treatment; but upon the scalp it is extremely chronic. Ringworm of the skin usually appears on the face, hands or arms,—rarely upon the body,—in varying sized more or less perfect circles. One or more, usually not widely separated, may be present at the same time. All ringed eruptions upon the skin should be examined for ringworm.

When the disease attacks the scalp, the hairs fall or break off near the scalp, leaving dime to dollar sized areas nearly bald. The scalp in these areas is usually dry and somewhat scaly, but may be swollen and crusted. The disease spreads at the circumference of the area, and new areas arise from scratching, etc.

Another disease, somewhat like ringworm of the scalp, is known as favus,—a disease much more common in Europe than America. In this disease quite abundant crusts of a yellowish color are present where the process is active. The roots of the hair are killed, so that the loss of hair from this disease is permanent, a scar remaining when the condition is cured.

Care must be taken to see that all combs and brushes are thoroughly cleansed, and to prevent children wearing each others' hats, caps, etc.

Children with ringworm should not be allowed to attend school.

Impetigo.—A disease characterized by few or many large or small flat or elevated pustules or festers upon the skin. The condition is often secondary to irritation or itching diseases of the skin (hives, lice, itch), and scratching starts up a pus infection.

The disease most often appears upon the face, neck, and hands;

less often upon the body and scalp. The size of the spots varies very much, and they often run together to form on the face large superficial sores, covered with thick, dirty, yellowish or brownish crusts.

The disease is contagious, and often spread by towels and things handled.

Children having impetigo should not be allowed to attend school until all sores are healed and the skin is smooth.

Diseases of the Bones and Joints

All noticeable lameness, whether sudden or continued, may indicate serious joint trouble, or may be due to improper shoes. These cases, as well as curvatures of the spine, as indicated by habitual faulty postures at the desk or in walking, should be referred for medical inspection.

Spinal curvature should be suspected when one shoulder is habitually raised or dropped, or when the child leans to the side, or shows persistent round shoulders.

Complaints of persistent "growing pains" or "rheumatism" may be the earliest signs of serious disease of the joints

Some General Symptoms of Disease in Children which Teacher should notice, and on Account of which the Children should be referred to the School Physician.

Emaciation.—This is a manifestation of many chronic diseases, and may point especially to tuberculosis.

Pallor.—Pallor usually indicates anæmia. Pallor in young girls usually means chlorosis,—a form of anæmia peculiar to girls at about the age of puberty. It is usually associated with shortness of breath; the general condition otherwise usually appears good. Pallor may also be a manifestation of disease of the kidneys; this is almost invariably the case if it is associated with puffiness of the face.

Puffiness of the Face.—This, especially if it is about the eyes, points to disease of the kidneys; it may, however, merely indicate nasal obstruction.

Shortness of Breath.—Shortness of breath usually indicates disease of the heart or lungs. If it is associated with blueness, the trouble is usually in the heart. If it is associated with cough, the trouble is more likely to be in the lungs.

Swellings in the Neck.—These may be due to mumps or enlargement of the glands. The swelling of mumps comes on acutely, and is located just behind, just in front and below the ear. Swollen glands are situated lower in the neck, or about the angle of the jaw. They may come on either acutely or slowly. If acutely, they mean some acute condition in the throat. If slowly, they are most often tubercular. They may also be the result of irritation of the scalp, or lice in the hair.

General Lassitude, and Other Evidences of Sickness.—These hardly need description, but may, of course, mean the presence or onset of any of the acute diseases.

Flushing of the Face.—This very often means fever, and on this account should be reported.

Eruptions of any Sort.—All eruptions should be called to the attention of the physician. It is especially important to notice eruptions, because they may be the manifestations of some of the contagious diseases. The eruption of scarlet fever is of a bright scarlet color, and usually appears first on the neck and chest, spreading thence to the face. There is often a pale ring about the mouth in scarlet fever, which is very characteristic. There is usually a sore throat in connection with the eruption. The eruption of measles is a rose or purplish red, and is in blotches about the size of a pea. It appears first on the face, and is usually associated with running of the nose and eyes. The eruption of chicken pox appears first as small red pimples, which quickly become small blisters.

A Cold in the Head, with Running Eyes.—This should be noticed, because it may indicate the onset of measles.

Irritating Discharge from the Nose.—A thin, watery nasal discharge, which irritates the nostrils and the upper lip, should always be regarded with suspicion. It may mean nothing more than a cold in the head, but not infrequently indicates diphtheria.

Evidences of Sore Throat.—Evidences of sore throat, such as swelling of the neck and difficulty in swallowing, are of importance. They may mean nothing but tonsillitis, but are not infrequently manifestations of diphtheria or scarlet fever.

Coughs.—It is very important to notice whether children are coughing or not, and what is the character of the cough. In most cases, of course, the cough merely means a simple cold or slight bronchitis.

A spasmodic cough, that is, a cough which occurs in paroxysms and is uncontrollable, very frequently indicates whooping-cough. A croupy cough, that is, a cough which is harsh and ringing, may indicate the disease diphtheria. A painful cough may indicate disease of the lungs, especially pleurisy or pneumonia. A long-continued cough may mean tuberculosis of the lungs.

Vomiting.—Vomiting usually, of course, merely means some digestive upset. It may, however, be the initial symptom of many of the acute diseases, and is therefore of considerable importance.

Frequent Requests to go out.—Teachers are too much inclined to think that frequent requests to go out merely indicate restlessness or perversity. They often, however, indicate trouble of some sort, which may be in the bowels, kidneys or bladder; therefore, they should always be reported to the physician.

The Teeth

Unclean mouths promote the growth of disease germs, and cavities in the teeth are centers of infection. Pus from diseased teeth seriously interferes with digestion, and poisons the system. It causes a lowering of vitality and renders mental effort difficult. Diseased teeth, temporary as well as permanent, are frequently the cause of abscesses, and should be carefully watched and treated.

Irregularities of the teeth, especially those which make it impossible to close the teeth properly, lead to faulty digestion, to mouth-breathing, and to other diseases and evils which an insufficient supply of oxygen produces.

The first permanent molars are perhaps the most important teeth in the mouth, and are the most frequently neglected, because they are so often mistaken for temporary teeth. (It should be remembered that there are twenty temporary teeth, ten in each jaw, and that the teeth that come at about the sixth year immediately behind each last temporary tooth—four in all—are the first permanent molars.)

The teacher should be on the lookout for pain or swelling in the face. When the child keeps the mouth constantly open, an examination of the teeth should be made. When symptoms of indigestion occur, or physical weakness or mental dullness is observed, the teeth should be inspected. It should be remembered that disease of the ears, disturb-

ances of vision and swelling of the glands of the neck may be caused by diseased teeth.

It should be known that decay of the teeth is caused primarily by the fermentation of starchy foods and sugars, and that the greatest factor in preventing dental caries is the removal of food particles by frequent brushing. Children should be prevented from eating crackers and candy between meals, and when possible the teeth should be cleaned after eating. Inspection of the teeth by a dentist should be made at least once in six months.

Nervous Troubles and Mental Defects

Teachers and medical inspectors of the schools should investigate children who show certain physical and mental symptoms. Especially should they take notice of the presence of these symptoms in a child who did not formerly show them. The most important of these are the following:—

I.—Restlessness and inability to stand or sit quietly, in a previously quiet child, especially if to this is added irritability of temper and loss of self-control, as shown by crying for trifles, or inability to keep the attention fixed.

There may also be present quick, twitching movements of the muscles of the trunk, face, and especially of the hands, fingers, arms or legs. If severe, these may cause the child to drop things, render its work awkward, or interfere with buttoning the clothes, writing or drawing. Such children are often scolded for being inattentive or careless.

These symptoms are the slighter ones of chorea (St. Vitus' dance). With these should not be confounded other forms of twitching of muscles, such as the blinking of the eyelids, the slower twitching movements of the face or shoulders, or other parts of the body, often called habit spasms, which may be due to defects of vision, adenoid growths or other reflex causes. These latter cases do not usually need to be withdrawn from school work, though often requiring treatment; while the former class should be removed from school at once, both for the child's sake, and to prevent an epidemic of imitative movements, such as sometimes occurs.

II.—Another class of symptoms requiring investigation are repeated faintings, especially if the child's lips become blue; attacks, often only

momentary, in which the child stares fixedly and does not reply to questions, or in which he suddenly stops speaking or whatever he is doing, and is unaware of what is going on about him. These lapses of consciousness may be accompanied also by rolling up of the eyes, drooling, or unusual movements of the lips, and often appear like a "choking" attack.

Sudden attacks of senseless movements of various sorts, such as twisting and pulling at the clothes or handkerchief, fumbling aimlessly at the desk, especially if there is no recollection afterwards of what was done, are often another expression of the same conditions.

Such attacks, particularly if repeated at varying intervals, even when not accompanied by complete loss of consciousness, are frequently as characteristic of epilepsy as the severe convulsions.

Epileptic convulsions usually involve the entire body in sharp jerking movements, with blueness of the face or lips, complete loss of consciousness, and are usually followed by a period of sleep or drowsiness, and are frequently accompanied by frothing at the mouth, biting of the tongue, and occasionally by wetting or soiling of the clothes.

Another class of convulsions is the hysterical, which are often difficult to distinguish. The hysterical convulsion, however, differs from the epileptic in the following respects. The hysterical patient often shouts, cries or raves, not only previous to but frequently throughout the attack, and is often able to reply to questions during the convulsion. The epileptic gives a single cry, immediately followed by unconsciousness and the spasm. The movements in the hysterical convulsion are often accompanied by bowing of the body backward, and very frequently simulate intentional or voluntary movements, such as tearing the hair, pulling at the clothes, and such things; while the epileptic movements are characterized by their jerking or twitching character. The hysterical patient, also, in place of a convulsion, may strike an attitude, such as of fear or entreaty, often accompanied by raving or singing. This again may follow the convulsion, taking the place of, and strikingly contrasted with, the almost invariable sleep of the epileptic, which is almost never seen in hysteria. Hysterical patients if they fall seldom injure themselves by the fall, as epileptics frequently do. Biting the tongue almost invariably indicates an epileptic seizure, as does wetting or soiling the clothes when it occurs.

Cases of epilepsy, whether mild or severe, require treatment, and advice as to whether they should be removed from school. Many cases do not require to be withdrawn from school, and are benefited by its discipline.

III.—Excessive nerve fatigue, which is shown by irritability or sleeplessness, may indicate a neurasthenic condition, that is, a threatened nervous breakdown. Such symptoms may be due to irregular habits, want of proper sleep, lack of suitable food, poor hygienic conditions, or simply from the child being pushed in school beyond its physical or mental capacity.

Excessive fear or morbid ideas, bashfulness, undue sensitiveness, causeless fits of crying, morbid introspection and suspiciousness may also be symptoms of a neurasthenic condition, and call for investigation, and for the teacher's sympathy and winning of the child's confidence, to prevent developments of a more serious nature.

This nerve fatigue may result in a child being unable for the time being to keep up in its work in school.

Forgetfulness, loss of interest in work and play, desire for solitude, untidiness in dress or person, and like changes of character, are sometimes incidental to the period of puberty.

IV.—Mentally defective children in the public schools exhibit certain common characteristics. The essential evidence of mental defect is that the child is persistently unable to profit by the ordinary methods of instruction, as shown by lack of progress or failure of promotion through lack of capacity. After one, two or three years in school, they are either not able to read at all, or they have a very small and scanty vocabulary. One of the most constant and striking peculiarities is the feebleness of the power of voluntary attention. The child is unable to fix his attention upon any exercise or subject for any length of time. The moment his teacher's direction is withdrawn, his attention ceases.

These children are easily fatigued by mental effort, and lose interest quickly. They are not observant. They are often markedly backward in number work. They are especially backward in any school exercise requiring judgment and reasoning power. They may excel in memory exercises. They usually associate and play with children younger than themselves. They have weak will-power. They are

easily influenced and led by their associates. These children may be dull and listless, or restless and excitable. They are often wilful and disobedient, and liable to attacks of stubbornness and bad temper. The typical "incorrigible" of the primary grades often is a mentally defective child of the excitable type. They are often destructive. They may be cruel to smaller children. They are often precocious sexually. They may have untidy personal habits. Certain cases with only slight intellectual defect show marked moral deficiency

The physical inferiority of these defective children is often plainly shown by the general appearance. There is generally some evidence of defect in the figure, face, attitudes or movements. They seldom show the physical grace and charm of normal childhood. The teeth are apt to be discolored and to decay early.

It is a most delicate and painful task to tell a parent that his child is mentally deficient. This duty should be performed with the greatest tact, kindness and sympathy. It would be a great misfortune for the school physician and teacher, as well as for the child, to designate a pupil as feeble-minded who was only temporarily backward.

Temporary backwardness in school work may be due to removable causes, such as defective vision, impaired hearing, adenoid growths in nose or throat, or as the result of unhappy home conditions, irregular habits, want of proper sleep, lack of suitable food, bad hygienic conditions, etc. Great care must always be used in order not to confound cases of permanent mental deficiency with cases of temporary backwardness in school work, due to the causes mentioned above, or those described under the head of excessive nervous fatigue.

In some cases, where the existence of mental defect is in doubt, accurate information is usually to be obtained in the early history of the child. The time of first "taking notice," the time of recognition of the mother, that of beginning to sit up, to creep, to stand, to walk and to talk should be learned. Marked delay in development in these respects is usually found in all pronounced cases of mental deficiency.

It may be found useful to require teachers to refer at stated intervals to the medical inspectors for examination all children who, without obvious cause, such as absence or ill health, show themselves unable to keep up in their school work, who are unable to fix their attention, or

are incorrigible,—though it does not follow that all such cases have either physical or mental defects.

School Hygiene

The school physician should notice the ventilating, lighting and heating of the rooms, and the location of the source of water supply with reference to possible pollution. In case pollution of the water supply is suspected, application should be made to the State Board of Health for an examination of the water. The general cleanliness of the schoolroom is of importance, and the admission of sunlight when possible is desirable.

The Closets.—The school physician, accompanied by the janitor of the school, should inspect the toilet rooms, to see if the floors are clean and dry, that the bowls of the closets are properly emptied and kept clean. (If outhouses are used, a large supply of earth will aid in keeping the place in a sanitary condition.) A few simple directions as to the cleanliness of the room should be posted in the closets.

Cups.—The use of one drinking cup for a number of children is to be condemned, as tending to spread the infectious diseases from child to child. The so-called hygienic drinking fountain, now in more or less general use in progressive cities and towns, is to be recommended where running water is available. If there is no running water, each child should use his own cup.

School Furniture

Any proper sort of school furniture should furnish a seat of such height that the feet will rest easily on the floor. It should have a desk high enough not to touch the knees. It should have a desk low enough for the arm to rest on comfortably without much raising of the elbow; not, however, so low that the scholar must bend down to write on it.

The seat should be near enough so that the scholar may reach the desk to write on it without leaning forward more than a little, and without entirely losing the support of the backrest. The seat should not be so close as to press against the abdomen nor near enough to interfere with easy rising from the seat. This means a distance of ten and one-half to fourteen and one-half inches from the edge of the desk to the

seat back; it also means that the seat must not project under the desk more than an inch at most.

The seat should have a back-rest that will support the "small of the back" properly, without having the scholar lean back excessively. Whether it also supports the rest of the back or not is of small consequence; support of the back carried up to the level of the shoulder blades is likely to do more harm than good.

These are given as the minimum requirements. Whether or not regular adjustable furniture is in use, we should not be content with less than the accomplishment in one way or another of these primitive adjustments. More accurate adjustment is desirable, and less care in adjusting would be hard to justify, in the light of our present knowledge of the results of faulty attitude.

Appendix II

A TYPICAL SET OF EUROPEAN BLANKS AND FORMS

(Translations of those used in Brünn, Austria)

FORM I

Notice to Parents

As a result of the physical examination of your child ....., which examination was made in accordance with the provisions of the town council of the city of Brünn, it has been found that he (she) is suffering from.....
.....

In the interests of your child, as also for the welfare of the school,.....
.....
.....
.....

is urgently required.

Brünn,.....19....

.....

Medical Inspector

To
.....
.....
.....

FORM II

Notice to Parents

To

Mr. (Mrs.).....

.....

At the recent medical examination made of your child.....,

the hair was found to contain vermin.

In the interests of your child, of your family, and of the school, a thorough cleansing is urgently requested.

By Order of the City Council:

Brünn,.....19....

.....

Note: The cutting of the hair is recommended; or rubbing the head with petroleum (taking care of the eyes and of proximity to a light), then enveloping the head in a closely fitting cap for twelve hours, thereafter washing with warm water and soap; or saturating the hair with a fatty substance, frequent combings, and rubbing with vinegar to eliminate the nits.

FORM III

Health Report

of .....son (daughter) of.....

Born.....I.....

Vaccinated.....I....School.....since.....I.....

Revaccinated.....I....

Date and School Year.		General Constitution.	Ht. cm.	Wt. kg.	Size of Chest cm.	Chest and Abdomen (Tuberculosis and Hernia, etc.).	Skin Diseases (Parasites).	Spine and Extremities (Scrofula, Rickets.)
I	Winter							
	Summer							
II	Winter							
	Summer							
III	Winter							
	Summer							
IV	Winter							
	Summer							
V	Winter							
	Summer							
VI	Winter							
	Summer							
VII	Winter							
	Summer							
VIII	Winter							
	Summer							

(Reverse of Form III)

Date and School Year.		Eyes and Eye-sight.	Ears and Hearing.	Mouth, Nose and Speech.	Recommendations for Treatment in School. Remarks.	Notices to Parents.	Remarks of Teacher (Illnesses, Number of Hours Absent, etc. Instruction III, 7).
I	Winter						
	Summer						
II	Winter						
	Summer						
III	Winter						
	Summer						
IV	Winter						
	Summer						
V	Winter						
	Summer						
VI	Winter						
	Summer						
VII	Winter						
	Summer						
VIII	Winter						
	Summer						

FORM IV

Monthly / Yearly Report of Findings Taken from Health Reports

School: .....

School.		No. of Pupils.	No. Examined.	General Constitution.			Chest and Abdomen.	Parasites. Skin Dis.	Spine and Extrem.	Eyes.	Ears.	Mouth, Nose, Speech.	Recommendations as to Treatment in School (Physician's Certificate). Remarks.	Notices to Parents.	Remarks of Teacher.
Boys.	Girls.			Good.	Medium	Bad.									

Brünn, ...19.... .....

Medical Inspector

FORM V

Monthly / Yearly Report of Visits made by School Physicians during the Month. (Class and Individual Examinations.)

School: .....

School.		No. of Visits by Physicians.	No. of Classes.	No. of Pupils Examined.	No. of Individual Examinations.	Diseases.									Physician's Recommendations.	Notices to Parents.
Boys.	Girls.															

Brünn,.....19....

.....
Medical Inspector

FORM VI

Physician's Report

.....

Born.....School.....Street.....

General Constitution Mentality	
Chest Organs (Tuberculosis)	
Abdominal Organs (Hernia)	
Spine and Extremities	
Skin (Parasites)	
Eyes, Eyesight	
Ears, Hearing	
Mouth, Nose and Speech	
Remarks	
Physician's Recommendations regarding Instruction	

Brünn,.....19.... .....

Practising Physician

Note.—Physicians are requested to make out the report as carefully as possible. The first section, "General Constitution," must always be filled out, and according to the category of "good," "medium," and "bad," bracketing (chlorosis, tuberculosis, etc.). The other sections need only be filled out in case of symptoms.

A detailed statement in the section, "Remarks," is particularly desired when questions arise as to absences of the child or questions of excuses from lessons and from physical training.

FORM VII

Memorandum Blank

With Reference to Unhygienic Conditions found in School Houses by Medical Inspectors

Date of Visit.	School.	Remarks, Suggestions, etc.

Brünn,.....19.... .....

Medical Inspector

Questions to Parents or Guardians

In the interests of the pupil, so that due consideration may be accorded to him in school, it is requested that careful answers be given.

1	Name of Pupil
2	During what years of life did sickness occur? Name the illnesses.
3	Did you observe continued ill effects of such sickness? What effects and since when?
4	Has the child sustained injuries of lasting consequence? When, and what injuries?
5	When did the child (a) learn to walk, (b) learn to talk?
6	Has the child weak eyes, or is he nearsighted? Since when and what is the cause?
7	Has the child difficulty in hearing? Since when and what was the cause?
8	Is the child suffering from other defects or weaknesses? (Frequent headaches, nose bleeding, lassitude, frequent loss of appetite, convulsions, nervous irritability, difficulties in speech, psychic peculiarities.)
9	Has puberty been reached? Since when? Are the periods regular? Are there difficulties? What difficulties?
10	Does the child regularly partake of alcohol? Does he drink beer, wine, tea with rum, and if so, in what quantities?
11	A regular system of medical inspection has been introduced into the school. Parents or guardians are, therefore, requested to indicate *clearly* as to whether they grant or refuse their consent for the examination of the child by the school physician.

Brünn,.....19....

Signature

.....

(Individual Report Giving Results of Semi-Annual Physical Examinations During the School Life of Eight Years.)

Health Report

Name..... Born..... Vaccinated .....

Class		I		II		III		IV		V		VI		VII		VIII	
Terms		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Examined (Date)																	
General Condition of Body																	
Height in cm.																	
Weight in kg.																	
I. Condition of the Body and the Blood	1. Anæmia 2. Chlorosis 3. Scrofula 4. Enlarged Glands 5.																
II. Osseous Structure	1. Malformation of Skull 2. Malformation of Sternum 3. Scoliosis 4. Deformities of Limbs 5.																
III. Condition of Bones, Joints, and Muscles	1. Chronic Inflammation of the Bones 2. Chronic Inflammation of the Joints 3. Rachitis 4. Wry-neck 5.																
IV. Skin	1. Eczema 2. Psoriasis 3. Furunculosis 4. Prurigo 5.																
V. Mouth, Throat, Nose	1. Adenoids 2. Ozena 3.																
VI. Condition of Lungs	1. Asthma bronchiale 2. Tuberculosis 3. Chronic Catarrh																
VII. Condition of the Heart	1. Funktionelle 2. Malformation, or defective heart 3.																

(Reverse of Health Report)

Class		I		II		III		IV		V		VI		VII		VIII	
Terms		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
VIII. Abdominal Organs	1. Chronic Catarrh of Stomach and Intestines																
	2. Hemorrhage from Stomach																
	3. Nycturia																
	4.																
	5.																
IX. Eyesight	1. Myopia																
	2. Hypermetropia																
	3. Weak Eyesight																
	4. Twitching of the Eyes																
	5. Strabismus																
	6.																
X. Diseases of the Eyes	1. Chronic Inflammation of the Conjunctiva																
	2. Chronic Inflammation of the Cornea																
	3. Chronic Inflammation of the Eyelids																
	4. Trachoma																
	5. Scars and Spots																
	6.																
XI. Hearing	1. Ability to hear Whisper																
	2.																
XII. Diseases of the Ear	1. Discharge from Ears																
	2.																
XIII. Speech	1. Stammering																
	2. Stuttering																
XIV. Defects of Development	1. Defective Palate																
	2. Inguinal Hernia																
	3. Umbilical Hernia																
	4. Goitre																
XV. Nervous System	1. Convulsions																
	2. Epilepsy																
	3. Paralysis																
	4.																
	5. Ataxia																
	6. Chorea																
	7. Abnormal Reflexes, Twitchings																
	8.																
XVI. Psychic Peculiarities	1. Unusual Irritability																
	2. Particular Inclinations																
	3.																
XVII. Parasites	1. Scabies																
	2. Pediculosis																
	3.																
Condition of Teeth																	
Development																	
Remarks. Absences from school on account of illness. Mention them and give dates and periods of each sickness.																	

FORM I (Dental)

Brünn,.....190...

Name: .....Pupil in class.....

of school....., residing at .....

requires prompt dental treatment. If it meets with your consent to have him (her) undergo such treatment, it is requested that you signify your willingness by signature. Treatment is conducted at the expense of the city.

....

Medical Inspector School Principal

AFFIRMATION

I hereby testify my willingness to have my child.....

.....undergo dental treatment.

Signature:

.....

(Reverse of Form I—Dental)

Care of the Mouth and Teeth

Food well chewed is half digested. Badly kept teeth hinder mastication; they create a disagreeable odor, and are often the cause of interferences with health. Pieces of food lodge and decay in carious teeth; and disease germs are found in the oral cavity.

Therefore, from the standpoint of breathing and from that of good digestion, the hygiene of the mouth is most essential. For this reason the mouth and teeth should be rinsed daily, in the morning and in the evening, with clean, lukewarm water. The teeth and gums should be cleansed with a clean, moistened brush, using as a tooth powder finely ground chalk, and by moving the brush up and down. Finally the mouth and throat should be rinsed throroughly with water.

Food eaten very cold or very hot, that which is too sweet or too sour, as well as food highly spiced, is injurious to the teeth.

The moistening of postage stamps, envelopes, or ink spots with the tongue; the putting of the fingers, of playthings or any other objects into the mouth; the insertion of hard substances, such as a fork, penknife, pen, pin, etc., between the teeth may cause great damage. None but wooden or quill toothpicks should be used.

In the case of a diseased tooth, the sooner a dentist is consulted, the sooner is it possible to remove the difficulty.

FORM II (Dental)

No..... Brünn.....190.....

To Dr. .....

Dentist

in Brünn.

Upon consent having been obtained from the parents of .....pupil in class....., school..... .....located at....., for dental treatment of their child, you are hereby requested to undertake such treatment and to make appointments.

City Physician

.....

(Reverse of Form II same as reverse of Form I)

Appendix III

RULES ISSUED TO MEDICAL INSPECTORS OF SCHOOLS IN CHICAGO, ILL., DETROIT, MICH., AND SPRINGFIELD, MASS.

I. Rules for Medical Inspectors and School Medical Inspectors, Department of Public Health, City of Chicago

Medical Inspectors should familiarize themselves with the City Health Ordinances. (Copies can be had by applying to the Secretary.)

Beginning at 9 o'clock Medical Inspectors will call daily at the schools assigned them, and request principals to have all pupils in readiness for examination who have been absent from school for four consecutive days. The principal will also refer to the Inspector any pupils in school who are suspected to be suffering from infectious or contagious diseases.

The examinations will be made at the school.

The principal of school should have all children to be examined sent to a room by themselves where the other pupils will not come in contact with them, and where the school inspector can examine them.

Inspection is to be made in reference to communicable diseases and the vaccinal status of pupils only.

Examinations are to be made for the following diseases: Scarlet fever, diphtheria, measles, rötheln, smallpox, chickenpox, tonsillitis, pediculosis, ringworm, impetigo contagiosa or other transmissible diseases of the skin, scalp and eye. Tuberculosis, when thought to be far enough advanced to be a menace to the public health, must be reported to the Chief Medical Inspector before excluding the pupil from school.

Scarlet-fever cases must not be allowed to return to school until all desquamation is completed, and there is an entire absence of dis-

charge from ears, nose, throat or suppurating glands and the child and premises are disinfected. This requires at least six weeks—severe cases eight weeks or longer.

Diphtheria cases must be excluded until two throat cultures made upon two consecutive days show absence of the Klebs-Loeffler bacilli. Those exposed to diphtheria should be excluded one week from last exposure.

Measles cases are very infectious in the early stages, and must be excluded at least three weeks and longer if there is present bronchitis, inflammation of the throat, nose or abscess of the ear. Those exposed to measles should be excluded two weeks from date of last exposure.

Whooping Cough: Cases should be excluded until after the spasmodic stage of cough—usually about eight weeks. Whooping cough is very infectious in the early stages of the disease. Those exposed to whooping cough should be excluded two weeks from date of last exposure.

Mumps: Exclude ten days after all swelling has subsided. Those exposed to mumps should be excluded three weeks from date of last exposure.

Chickenpox: Exclude until scabs are all off and skin smooth—two to three weeks, according to the severity of the attack.

Rötheln, German Measles: Exclude from school two weeks. Those exposed to rötheln must be excluded from school three weeks from date of last exposure.

Cases of tonsillitis must be excluded on the clinical evidence alone, and throat cultures made for further diagnosis.

Cases presenting suspicious throats, but not definite evidence of disease clinically, must have throat cultures made, allowed to return to their classes until the cultures have been examined, and only excluded in case the bacteriologic examination shows exclusion to be necessary.

In making inspections care must be used to disturb the child as little as possible, and throat cultures are to be made only when good reason therefor exists.

In making throat examinations, the wooden tongue depressors supplied must be used, to the exclusion of all other tongue depressors. Each tongue depressor must be used only once and then burned. Aseptic methods must be employed in all examinations.

If a child is excluded, brief but sufficient reason therefor must be written on the exclusion card.

Inspectors are forbidden to make any suggestions as to the treatment or management of pupils who are sick. *This is imperative.*

Children recovering from measles, whooping cough, mumps, chickenpox, scarlet fever, diphtheria and smallpox—must not re-enter school without a permit from the Department of Health.

When a pupil is taken sick with an infectious disease in a schoolroom, the pupils in the room must be dismissed, and the room disinfected.

If smallpox is found in the eruptive stage, the child can be taken to his home, if near, and there isolated until the ambulance arrives, or isolate in the room where found. In doing this no one should be allowed to come near the infected child.

Children properly vaccinated who have been exposed to smallpox need not be excluded from school. Those exposed and not vaccinated must be excluded twenty days.

Pupils living in apartment buildings, where an infectious disease exists, should be excluded from school by the principal. A visit to the building by the Inspector will determine who can return to school with safety. It depends upon the construction of the building and the habits of the inmates whether it is safe to let any from the building continue in school. The Inspector must be the judge. Usually if families use the same entrance there is some risk, and yet a case can be so well isolated and cared for that all others in the building are safe. A visit to the building is necessary to determine this.

All cases of infectious diseases coming under the observation of the Inspector which are not properly safeguarded should command his attention.

Give proper instructions to the family, leave the Department circular applicable to the case, and take any other measures necessary to protect the public health. Investigate all suspected cases of infectious diseases in your territory and take proper measures for safeguarding against the spread of infection. Make daily reports to the Chief Medical Inspector upon blanks provided for the purpose of each case inspected or investigated. Beginning Oct. 15, School Medical Inspectors will vaccinate free of charge any child or pupil who may apply to them for vaccination, and must issue a certificate of vaccination to those entitled

to the same. The inspectors will vaccinate no child without the consent of parent or guardian.

The Department prefers that the family physician should perform vaccination; but if the parent or guardian of a child wishes it done by the Department the child may be taken or sent to the School Medical Inspector or Public Vaccinator, whose duty it then is to vaccinate such child and furnish a certificate without charge.

Examine every school pupil's arm to determine the vaccinal status. Any discovered not complying with the vaccination ordinance must be excluded from school by the principal. Read the ordinance carefully and be governed by it in the matter of vaccination. Inspectors must make monthly reports upon blanks furnished for that purpose, giving the number of tubes of vaccine received during the month, the number of primary vaccinations performed, the number of re-vaccinations performed, the number of certificates issued to those previously vaccinated within seven years and entitled to a certificate without a re-vaccination, the number of attempted vaccinations on primary subject resulting in failure to take, and the number of attempts at vaccination in previously vaccinated subject resulting in failure to take.

Inspectors must carry with them a supply of the Department circulars to hand out for instruction in cases of infectious diseases. The circulars are: Information for the family in case of contagious diseases. Circulars on prevention of consumption. The Vaccination Creed. Special circulars on each of the infectious diseases and warning slips to distribute and paste up for the public to read. Spatulas for tongue depressors. Culture mediums and outfits for Widal test.

Additional Duties of School Medical Inspectors

The city has been divided into eleven districts. A Medical Inspector, a Sanitary Inspector and a Milk Inspector is placed in each of these districts. Each of these districts is subdivided into nine districts with a School Medical Inspector in each of these minor districts. The nine School Medical Inspectors will be under the direction of the Medical Inspector. Each morning before 9 o'clock the location of the infectious diseases reported to the Department will be telephoned to the School Inspector in the district from which the case is reported. The Medical Inspector will have the same information from the nine districts. The

School Inspector will visit all cases reported from his district, see that proper isolation is established, determine who from contiguous flats or houses can safely remain in school, and see that the warning card is on the door or where it will best serve the purpose of warning any who may approach the infected premises. See also that a warning card is posted where the milk man who delivers milk will see it, leave the Department circulars giving information in cases of contagious diseases and distribute and post the small warning leaflet in the near-by neighborhood and mail a notification card to the principal of school.

The Inspector notified will take smears in cases of diphtheria to determine when the case is ready for termination. When the District Medical Inspector has more antitoxin work than he can attend to, the School Medical Inspector will aid in this work. When the School Inspector is in doubt about a diagnosis he will call upon the District Medical Inspector to help in making a diagnosis. The School Inspector is to have charge of all infectious diseases in his restricted territory and will be held responsible for the work in the territory assigned him. The Medical Inspector will be held responsible for the work of the nine School Inspectors in his district. To assist the Medical Inspectors three diagnosticians have been designated—one on each of the three sides of the city. In making inspections and investigations you will observe the following instructions:

Inspectors must keep in close touch with the Department of Health so they may be reached without delay when wanted.

Contagious diseases and suspected contagious diseases reported to the Department of Health are assigned to the Medical Inspectors and School Medical Inspectors either for *inspection or investigation.*

Cases for *inspection* are those reported by physicians. In these cases see that the family receives a copy of the Department "Circular of Information Upon the Management of Contagious Diseases," and give them such further advice concerning the best methods to pursue for preventing the spread of contagion as you deem necessary.

Especially instruct the family in regard to the *length of time cases should be isolated* and impress upon them the necessity of a thorough disinfection after the case has terminated.

Tell them to have their doctor notify the Department when the case is free from giving off contagion and the house is ready for disin-

physician." It is the duty also of the Inspector to secure the consent of the patient or family for the removal of the patient to the Isolation Hospital. Do not leave this duty to the ambulance driver.

Until the ambulance comes the case must be made safe. If it is necessary to police the house to secure safety, do so. After securing the prompt vaccination of all exposed it is the Inspector's duty to see the exposed every other day for fifteen to twenty days. If the vaccination does not take, repeat until it does take.

If there is doubt about the diagnosis, vaccinate the inmates of the house, make the case safe to others and see the patient later.

A Medical Inspector must be courteous and should be tactful in all his relations to cases of smallpox, the same as a doctor should be in his private practice. He should be a complete master of the situation, able to dispose of complications and duties as they arise, in a proper manner. It should not be burdensome to do so, for the reward is always present, the consciousness that it is life-saving work.

Use discretion and secure compliance with the ordinance without force.

This can almost always be done, but if necessary the police power can be used to enforce compliance with the law.

II. Instructions to Medical Inspectors of Public Schools Detroit, Mich.

1. The pupils to be inspected will be referred to the inspectors by the principal for two reasons:

A. Those who have been absent one or more days.

B. Those in the school whom the teacher may suspect to be suffering from communicable diseases.

These two classes must be kept separate in the reports.

2. The inspection is to be made with reference to communicable diseases only, and pupils are to be excluded for the following diseases:

Scarlet Fever	Mumps	Pediculosis
Diphtheria	Smallpox	Ringworm
Tonsillitis	Chickenpox	Impetigo
Rötheln	Whooping cough	Scabies

or other communicable diseases of the skin and scalp, and communicable diseases of the eye.

3. In making throat examinations, the wooden tongue depressors supplied must be used to the exclusion of all other depressors. *Each tongue depressor must be used only once.* Aseptic methods must be employed in all examinations.

4. Whenever a child is excluded, brief but sufficient reason therefor must be written on the exclusion card.

5. Medical inspectors will use their own judgment about the acceptance of family physician's certificates. You have the right to ignore them if such action is justified by your personal investigation of a case at school.

6. The *principal* excludes children from school, the inspector *recommends* to the principal exclusions when justified, the principal acts accordingly. Do your utmost to maintain harmony and coöperation with principals.

7. Be sure and give exclusion cards in every instance, so parents will be notified

8. Remember you have no jurisdiction as inspector beyond the threshold of the public schools of your district. DO NOT examine pupils at your office or any place outside of the public schools.

9. Use great discretion in examining pupils. Do not keep them waiting any longer than necessary.

10. On discovery of smallpox, diphtheria, or scarlet fever cases notify Health Officer AT ONCE by telephone. Blanks for reports, etc., can always be obtained at the Board of Health Building, 233 St. Antoine Street.

11. Report promptly to Health Officer whenever illness or accident prevents you from going to your work.

12. Send in your weekly reports PROMPTLY.

13. Medical inspectors are paid on the fourth Saturday of each month. Checks are at City Hall, office of City Treasurer.

III. Rules for the Medical Inspection of the Public School Children, Health Department, Springfield, Mass.

Under the authority of the revised laws of the State of Massachusetts, the Board of Health of this city has arranged a system of medical inspection of pupils attending the public schools.

The objects of the medical inspection of school children are: (1) Identification of all pupils requiring medical care. (2) Prompt exclusion from school of all pupils suffering from communicable diseases. (3) Detection of ailments and diseases other than communicable diseases. (4) Detection of defects of sight or hearing or other disability injurious to pupils.

Under the law, the tests of sight and hearing shall be made by the teachers, and the necessary rules of instruction, test cards, etc., will be distributed as soon as they are ready.

It is desirable that the Medical Inspector have the use of a room for the examination of children. The Medical Inspectors will visit each school twice weekly,—Monday and Thursday mornings. The Principal of the school and the Medical Inspector should agree upon the hour of inspection, which should, as far as possible, serve the best interests of the two or more schools to which the inspectors are assigned. The Medical Inspector will examine such children as are indicated by the teachers.

The following described children should be sent to the Inspector at the appointed time:

A. Every child returning to school without a certificate from the Board of Health after absence on account of illness, or from unknown cause.
B. Every child who shows signs of being in ill health, or suffering from infectious or contagious disease.
C. Every child returning to school after having been excluded by the Inspector.

Children showing symptoms of the following diseases are to be sent home immediately:

Smallpox	Diphtheria	Mumps
Scarlet Fever	Influenza	Scabies
Measles	Tonsillitis	Trachoma
Chickenpox	Whooping Cough	Ringworm
Tuberculosis	Pediculosis	Impetigo contagiosa.

In case exclusion from school is warranted, the exclusion card is to be filled out and put in a sealed envelop and given to the child to take home. A record of each case must be made upon the card provided for the purpose, to be kept by the rinpcipal, and upon the large blank to be returned to the Board of Health at the end of each week. In case any of the above mentioned diseases be found, the Board of Health is to be at once notified on blanks provided for this purpose.

In many cases of exclusion, children should be allowed to return to school promptly if they can furnish evidence that they are under treatment for the disease indicated. In this way many children suffering from ailments of a special nature will be permitted to attend school instead of being kept out of their classes.

Swabs should be taken by the Inspector from all suspicious throats.

Medical Inspectors (or the family physician) are expected to vaccinate such children as require it. No prescription or medical treatment is to be given any child by the Medical Inspector while in the performance of his duties except as follows:

In special cases prescriptions, furnished by the Health Department, are to be provided free of charge for the following diseases: Impetigo contagiosa, ringworm, scabies, animal parasites in the hair.

Rules governing the admission of children to school after illness with contagious disease:

School children may return to school after—

Diphtheria when two negative cultures have been obtained.
Scarlet fever after three weeks, or when peeling has ceased.
Measles when catarrhal symptoms have ceased.
Whooping cough after cough has stopped.
Mumps when swelling has disappeared.
Chickenpox when skin is free from crusts and scabs.

During the continuance of *diphtheria* and *scarlet fever* in the household, school children exposed to the contagion cannot return to school.

The Medical Inspector's attention should be called to any of the following conditions:

Skin and Hair

A. Animal parasites or nits in the hair.
B. Crusted or scaly patches or sores about the face, neck, or hands.
C. Crusts in the scalp or loss of hair.
D. Scaling about the fingers.
E. Pimples in the spaces between the fingers.
F. Swollen glands.
G. Any evidence of pronounced itching on the part of the child.

Eyes

A. Sensitiveness to light.
B. Redness of the eyes.
C. Discharge from the lids.
D. Crusted condition about the eyelashes.

Ears

Running from the ears and crusty patches thereon.

Children who are slightly hard of hearing sit with their mouths partially open, which gives them a somewhat dull expression. They hear questions imperfectly, hence are slow and often stupid in their answers, since they try to conceal the hardness of hearing.

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