

shortening could not be elicited. From the study of the skiagraph it seems to me to be improbable. Shortening of the healthy femur for the purpose of equalization was considered. The degree of functional disturbance can, of course, not be estimated yet.

Case 13 shows congenital hypertrophy of all toes, especially of the second, in a boy of four months. They appear very thick and puffy like in elephantiasis, but the skiagraphs show normal structures. (Fig. 10.)

Case 14 shows congenital dislocation of both hips in a girl of 9 years. The cartilaginous epiphyses of the femurs are dislocated and the right femoral neck shows extraordinary bending. (Fig. 11.)

Case 15 represents congenital absence of nasal bones and insufficient development of nasal processes of the superior maxilla in a boy of two months. The infant is poorly nourished. The parents came from Russia five years ago and are well. There are four healthy children besides. (Figs. 12 and 13.)

It may be noticed that none of these deformed children were born of American parents and that heredity could not be made responsible in any of them as an etiological factor.

SOME SUGGESTIONS REGARDING A DEPARTMENT OF SCHOOL HYGIENE.*

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Definition.—From Dr. William H. Burnham, professor of school hygiene at Clark University School for Teachers, I have received this very good general definition of school hygiene. "School hygiene has to do with the conditions which favor the normal healthy development of children, so far as determined by school environment—school sanitation—and school programs, sequence of studies, text-books, and methods of study and instruction—hygiene of instruction."

Rationale.—Quoting from a former paper, I will again cite the fact that those nations which have exercised a powerful and elevating influence have been and are those which have exercised a care for the health of their citizens. Within fifty years indisputable evidence has induced nation after nation to recognize the value of sanitary science as the preserver of national health and wealth, as well as elemental to military success.

In a democracy self-preservation demands an educated citizenship. This underlying principle allows the state to say to the prospective citizen: "You shall, for an adequate length of time, be placed under such instruction as will make of you an honest, intelligent and useful citizen." Anything short of this will not insure the stability of the state. An elemental condition of useful citizenship, however, is a fair degree of physical health.

Moreover, there are certain unsundered rights of the citizen. Among these is the right to as fair a degree of health as his ancestors, and his right and moral duty to transmit to his offspring as good or better health than he himself enjoyed.

Hence, it is both the interest and the duty of the state to insist, when it places the individual under formative educational processes, that the physical basis in the

educational structure be adequately and properly laid. For the most part the state has not assumed to dictate methods to the educator, simply holding him responsible for results. Both opinion and fact testify that the desired improvement in health from grade to grade has not been attained. In America this is the more strikingly true of the children of the cities. These rapidly built wildernesses of incongruous construction express little evidence of any desire to protect and foster child life. Their dark, noisome alleys and tenements contain millions of the miserable offspring of ignorant foreigners—poorly born, poorly housed, fed and clothed, with crooked spines, misshapen skulls and pathological eyes or ears, with little in their environment to produce self-respecting, self-supporting citizens, but with many conditions which tend to convert them into a dependent class.

To thousands of acres of such slumdom, public education alone, in any large sense, stretches out the reclaiming hand. Upon it is thrown the responsibility of converting these children into people who are physically able to compete with the children of protected labor and capital. Either this must be done or we must prepare for a steady increase in the dependent classes. The proposition is a simple one. Shall we put sufficient money into the schools to enable them to produce self-supporting citizens, and then hold them strictly accountable for results, or shall we half support them, paying little attention to the health of the children, and later on spend much larger sums of money for the construction and maintenance of hospitals, dispensaries, police stations, saloons, reform schools, workhouses, etc.?

Fortunately, public sentiment has become so favorable to better school sanitation that even now this can be made an issue in a school election. Not only is this so, but the school official who disregards his pledges in this matter can easily be defeated in a subsequent election. Physicians should combine with good organizations to secure the defeat of all such officials. It is especially appropriate that the city physicians use their combined influence with all civic organizations in this matter, for they, more than any other class of men, are forced to carry the steadily increasing burden of indigency. At the same time they understand better than does any other class of men its causes and appreciate more fully its large extent. Of all men, they realize most keenly how impossible it is for the homes of thousands of these children to evolve an effective type of citizenship.

Content.—Leading authorities place the following within the province of school hygiene:

School Diseases: Those of the respiratory tract, of the spine, of the nervous system, and of the special senses; general infectious diseases; the eruptive fevers.

Hygiene of Instruction: General; school age; amount of study; home study; arrangement of work; number of sessions per day; discipline; punishments; public examinations; number of pupils to a teacher; regularity of attendance; courses of study; individual branches—their comparative effect on health.

Personal Hygiene of Pupils: Food; clothing; sleep; exercise; bathing.

Physical Education: General; history; literature; as a department of science; as a department of hygiene; as a pedagogic discipline; as a practical art.

School Grounds: Soil; area; dimensions; surfaces; planting; school gardens; play grounds.

Buildings: Placing in grounds; foundations; base-

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee of the Section: Drs. H. E. Tuley, Edwin Rosenthal and Samuel W. Kelley.

ments; materials; general dimensions, as affecting school-room construction; heating and ventilating; lighting.

School Rooms: Dimensions; shape; furniture and its placing; floors; blackboards; colors; lighting; heating and ventilating; cloak rooms; supervision of conditions.

Furniture: Adaptability; cardinal points in construction; supervision.

Ventilation: Introduction of good systems; strict supervision of the same.

Heating: Different methods; temperature records; atmospheres; supervision.

Cleaning: School dust; methods and frequency of cleaning; supervision.

Sewerage: Systems; ventilation; supervision of closets, urinals, etc.

Since many of these phases of the subject will be discussed in the papers to be read, this paper will content itself with the mere mention of these important phases of school hygiene.

Introduction.—This may be effected in several different ways.

1. Upon the recommendation of the superintendent of instruction the board of education may consider the matter and arrange for a department. This presupposes a progressive superintendent, backed by an unusually intelligent and progressive board of education. This combination is rather unusual. Where it exists, however, the superintendent and board should feel that they have the moral and political support of the profession, as well as its assistance and counsel. A strong committee from the leading medical society can render services of great value in this connection. The factors most affecting the success or failure of this plan are the school board, the superintendent of instruction and the teaching force. Hence a few comments concerning these will be in place.

During the past six years we have attempted to introduce a department of hygiene into the Cleveland schools, following this plan, and the result is still doubtful. Here the federal-plan law is supposed to dissociate the department of instruction from the distinctively business department and to take the former out of local politics. Perhaps it accomplishes this, year for year, in a larger degree than is the case under the usual forms of school board organization. Notwithstanding, however, the earnest efforts and yearly recommendation of our superintendent, Mr. L. H. Jones, it has been impossible to secure the adequate co-operation of the school council in the establishment of a department of school hygiene. The work has grown with the teaching force and with the public to the proportions of a full-fledged department and is so recognized on all hands, except by this singular body. On the other hand, during the past year there was introduced and favored by certain members of the board, a measure which was calculated to divide the work in school hygiene, placing several medical inspectors directly under political control and so dividing the whole matter as to prevent the possibility of an effective department. It is probable that this measure would have passed but for the vigorous protest of many of the leading physicians of the city. This, together with other acts of a similar nature, leads me to conclude that city school boards, as at present composed, are not competent to introduce and foster adequate measures for the conservation of the health of the school children. Neither are they willing to employ and follow the sug-

gestions of those who make such matters a life study. Hence it is necessary, if this plan is to be successfully carried out, that certain limits of eligibility should be placed upon membership in these bodies, in order that they may contain men who are vitally interested in the health of the children, as well as men of sufficient executive ability to secure sanitary school conditions.

Among other qualifications, they should be men of mature judgment, but an age limit, say 55, should exist. They should have a vital connection with the schools through having children therein. They should be men of assured executive ability through having succeeded in business. They should not be known as local politicians. These matters are emphasized because the school board is the snag on which such reforms usually stick, and because physicians, through combination with other organizations of good citizens, can materially assist in the election of an effective school board.

The average superintendent, supervisor and principal will assert that he is interested in the health of the children. In a general way this is true. But it usually requires a fierce flame of public opinion to secure adequate action on his part. Frequently he is content to foster the traditional subjects, grammar, arithmetic, etc., and let other people look after the health of the children. He has not yet realized that the problems of education in the wretchedly built and governed American city of to-day are quite different from those of the towns and villages either of to-day or of a generation ago. It takes an occasional revolution in school management to awaken him to this fact. Such a revolution the medical fraternity can, if necessary, inaugurate. On the other hand, if the superintendent is a leader in educational matters, he will need the hearty and continuous support of all medical men, in order that he may carry out his plans in conserving the health of teachers and children, in spite of the constant interference of scheming politicians, which he is sure to encounter at every turn.

So evident has been the growth of interest and accomplishment among the rank and file of the teachers, that I am persuaded that the teaching force does not stand in the way of the introduction of school hygiene into city schools. In Cleveland the great majority of the teachers have given the work suggested fully as much attention as justice to other branches will allow. The instances are very numerous in which teachers, at their own expenditure of time or money, and often both, have taken care of pupils whose parents were unable to do so. Many of the teachers are far more enthusiastic about all such matters than are any other class of people. They deserve the highest praise for their efforts along these lines.

2. Where the superintendent or the board, or both, are inoperative the problem can be solved, if an able man is available, by his election to the executive position—that of director of schools, for instance. To do this the medical fraternity must secure the co-operation of all civic organizations which stand for the public welfare and through their efforts elect an executive, who is at the same time a sanitarian. The difficulty in carrying out this plan arises from the fact that the necessary business qualifications for this office are not easily secured, even without the special qualifications of a sanitarian.

3. This plan is the one which in my estimation covers the larger number of cases and is the more hopeful of immediate success. The committee on state medicine of the leading medical society, or the local pediatric

society, may call to its support in each school district the services of two or three physicians who are well and favorably known. They should be men who are established in practice. As special examiners, these men should give half a day or more to the work of subcommittees. The general committee should place in their hands lists of questions covering the more important phases of school hygiene. To secure such lists, reference may be made to the outline of school hygiene given in this paper. A list recently used in Cleveland is herewith given.

REPORT ON SCHOOL HYGIENE.

..... SCHOOL.

1. Provided all should use them do you find the play grounds ample for the number of children in the building?
2. Are the play grounds in good condition for play?
3. Do you find any rooms from which the light is cut off by annex or other buildings?
4. Are the buildings so located and is the school yard of sufficient size to prevent the darkening of any of the rooms by the future erection of adjacent buildings of four or five stories?
5. Do you find any rooms in which the ratio of window to floor space is less than one square foot of glass to five square feet of floor?
6. Do you find that street noises interfere with the instruction in any of the rooms?
7. Do you notice a bad odor in any of the rooms?
8. Do you notice a bad odor in connection with the water closets and urinals?
9. Upon inquiry and inspection does the heating and ventilating system seem to you to be satisfactory?
10. Does the form and arrangement of the school furniture, as you see it in use, appear conducive to eye strain or spinal curvature?
11. Do you find the surfaces of the rooms, furniture and halls clean and in good condition?
12. How many basement, attic or recitation rooms, relief building rooms and storerooms do you find in use as school rooms?

Please add comments. What do you consider of *primary*—of *secondary* importance to the sanitation of this building?

- Primary
- Secondary
-, M.D.
-, M.D.
-, M.D.

Sub-Committee at School.

This refers more especially to matters in connection with school property. Questions are asked about conditions which a casual observer might see almost any time upon visiting a building. Here the work of many of the subcommittees has been quite complete and their reports will throw considerable light upon the situation. When they are all collected and tabulated the general committee, appointed by the Cleveland Medical Society a year ago, will have much of the necessary data with which to go before the board of education and, if need be, before the legislature. When it does this, a complete scheme for a department of school hygiene should be placed before one or the other of these bodies, with a strong recommendation for its adoption. In addition, the committee will need to follow up the matter and see to it that its recommendations are really followed. For there are usually enough scheming politicians on a city school board to evade or pervert such measures for their own personal benefit. These should be turned over to a committee of citizens, which, in co-operation with the local papers, will at once inform the public of any deviations from the right path.

It will not require many reports, under these circumstances, to secure for the committee a more efficient school board.

Organization.—First of all, a department of school hygiene must have for its head a medical man who is at the same time a school sanitarian. For it is evident that the territory between the practitioner, whose observations are largely of pathologic conditions, and the educationist, whose observation is limited in large measure to mental phenomena, is a broad realm; the realm in which, for the most part, preventive medicine must operate. While it will be noted that it contains much which lies within the fields of actual practice and practical education, it is at the same time evident that there is a vast amount of opinion and a large collection of facts, which, for their advantageous assimilation by a city school system, requires the constant study of men especially trained for this phase of school supervision. On the other hand, that there may be actual accomplishment, rather than mere study of problems, the director of a department of school hygiene should possess the training and the sympathy of his fellow physicians, the skill of the teacher and the organizing ability of the educator. Hence, while he should be familiar with the experiences of the general practitioner, just as should any other specialist, yet his field of operation presents so many problems which neither the general practitioner nor the teacher are called upon to solve that he must be a specialist in this field of preventive medicine if he is to succeed in any large measure. His whole time must be devoted to the subject. Not only this, but he must be both level-headed and at the same time enthusiastic, an organizer, a leader and a worker. This field offers unlimited opportunities to an ambitious, well-educated young physician with plenty of money.

In addition to an efficient head, the department must have assistants. A large amount of office work will accumulate, which can be done by assistants at \$50 per month, and which should not be done by a man whose time is worth several thousand dollars a year. To these should be added all special teachers of physical education, physiology and hygiene, etc. In addition, he should have at least one medical assistant to look after special cases and supervise in a general way the work of medical inspectors in the different districts.

Taken altogether, there ought to be sufficient help to enable him at any time to prepare quickly for the superintendent, or for the board of education, an exact statement concerning any condition within the schools which affects the health of teachers or children. Since the larger part of the work in his department lies in supervising the work of teachers, he should have plenty of special teachers, whom he has trained to supervise in an efficient manner the work of the regular teachers. Too much emphasis can not be placed upon this. The regular teacher in the grades needs constant assistance and encouragement. In Cleveland, at least, she receives entirely too little. She has many subjects to teach. Her program is crowded. Wise and constant supervision is required if each hour of the day is to be beneficial.

Medical Inspection.—Without medical inspection of special cases, a department of school hygiene is incomplete. Hence a fund should be available so that the director can call to his assistance physicians in the different school districts to act as his special medical examiners. The fund should be ample to secure the services of a sufficient number of experienced men. At stated intervals they should visit buildings and examine

such cases as the principals may send to them. This inspection is of great value. It should not for a moment be thought that it will take the place of a department of hygiene. For many teachers and principals will not send all the cases needing attention to medical examiners unless they know that their rooms are closely watched by special teachers of the department of hygiene and that they are liable to be summarily called to account for negligence in the matter. I have satisfied myself on this point from investigations in city schools where medical inspection is supposed to cover the ground quite thoroughly.

Status.—The advice and the activities of this department should be entirely unbiased. This means that it should have no connection with school politics and should be entirely free from school traditions. It must be, therefore, under civil service regulations. I have held the position that its head should be an appointee of the superintendent of instruction. This certainly is much better than that any professional man should be hampered in his work through an appointment made by designing politicians. My own experience, however, is inclining me to the view that some position, equal with or above that of any present school official, must be created by the state before the health of school children receives the proper consideration at the hands of the educationist and the politician. These people fight each other, while the teachers go without adequate facilities, the children suffer and the people become distrustful of the efficacy of public education.

DIAGNOSIS OF THE BACKWARD CHILD.*

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To formulate a definition which will describe the term "backwardness" in children is a task of considerable difficulty. It is made still more difficult by the extreme vagueness of the term as used by more recent writers, who use the terms "backward" and "feeble-minded" almost interchangeably. The truth of the matter is simply this, that there is no sharp line of distinction between the normal and the so-called backward child, or between the markedly backward or feebly-endowed child and the high-grade imbecile. No standard of mental activity has ever been fixed by which we can accurately determine these questions. Psychological studies, which are now being actively pushed, both in institutions for normal and abnormal children, promise in the near future to give us some more definite standard on which to base our diagnosis.

The variety of opinion on this subject is well illustrated by comparing the report furnished by Prof. Will S. Monroe, who gathered statistics of 10,000 school children in California by means of circular letters sent to the different teachers of the state, with those of others who have investigated the same subject. The report of this gentleman, compiled from the answers to his letter, shows the teachers considered nearly 10 per cent. of their charges as backward. Dr. Francis Warner, member of the Royal Commission to examine the blind, deaf and other classes requiring exceptional methods of education, out of 100,000 school children

reported 7 per cent. dull and backward, while 1.6 per cent. required especial care and training. A report formulated from the examination of 42,000 children in Great Britain of the elementary school class between the ages of 7 and 13, gives 1 per cent. of defective children as the result. Mrs. Esten, supervisor of special schools in Providence, R. I., a city of over 150,000 inhabitants, states, in a recent article, that 50 pupils were then receiving instruction in their special schools, and that a recent canvass had revealed the fact that there were yet about 100 children who ought to be provided for. This is in decided contrast with the first statistics quoted, and shows how badly some standard for comparison is needed. Dr. Shuttleworth, in an article on the treatment of children mentally deficient, laughingly calls attention to the high standard Americans set for their children, and states that he was jocosely warned by an American friend, when he was about to make a tour of the institutions for the feeble-minded in the United States, that "He guessed I would find their feeble-minded children about equal to the average British schoolboy." It is plainly to be seen that in the teachers' returns compiled by Professor Monroe, each teacher must have filled her return according to her own individual judgment as to what should constitute a normal average.

I seriously doubt if it is true that a boy is necessarily dull or backward because he can not follow the curriculum formulated in the schools. However excellent this may be for the average child, there are many boys classified among the dull ones in their classes who turn out to be successful men after their school days are past. What they may lack in the faculty of merely memorizing, they more than make up in their power of reasoning and acuteness of judgment. Certain special faculties may be entirely absent, and while this lack may interfere with a boy's school progress, and may deprive him of much enjoyment, it may not in any degree interfere with his usefulness or affect the public estimate of his mental strength. These include such faculties, for instance, as the musical faculty, the mathematical faculty, discrimination of colors, etc. Our estimate of mental strength must rather be formed from his power of attention, his strength of memory, his efficiency in that method of reasoning which comes to us all instinctively in our early days, and which has been quite extensively treated by Carpenter, under the every-day designation of "common sense." On the other hand, abnormally slow perception, lack of power to fix the attention, distorted judgment, feeble memory, or a decided lack of moral sense are mental symptoms which would tend to place the subject among the backward class, and if different methods are faithfully tried to remedy these defects without marked result in a reasonable time, we may safely conclude that they indicate not only a backward but a feeble mind. Among the physical symptoms which are strongly indicative of lack of normal mental growth, the failure of articulate speech, where defect of the auditory apparatus, or that concerned in articulation does not exist, is the most conspicuous. In the absence of these physical defects, if the appearance of speech is delayed beyond the age of 6 years, it may be safely inferred that cerebral deficiency or lesion exists, and that some mental weakness surely accompanies the child's silence. Gait and posture are of some value, taken in connection with other symptoms. The former is apt to be slow

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