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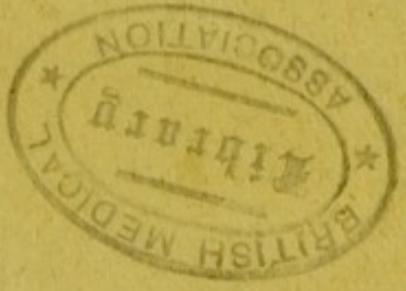
NATIONAL HEALTH MANUALS

SCHOOL LIFE

EDITED BY

T. N. KELYNACK, M.D.



SCHOOL LIFE

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NATIONAL HEALTH MANUALS

SCHOOL LIFE

EDITED BY

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London

CHARLES H. KELLY

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PREFACE

THE NATIONAL HEALTH MANUALS, of which this is the third, have been designed for those interested or engaged in social service. Their aim is to provide in concise language and compact form essential facts, and to indicate in simple, non-technical words governing principles, a knowledge of which affords the only reliable guidance to reasonable thought and rational conduct in the preservation of health and the prevention of disease.

Each volume deals with a more or less special aspect of personal, domestic, or national well-being. In order to provide the most trustworthy and helpful treatment of the subjects presented, the preparation of each chapter has been allocated to a medical expert.

It is believed that both in arrangement and in matter these manuals will be of practical assistance to those engaged in efforts for human betterment. It is hoped that they will be used in connexion with social service organizations, guilds of help, reading and study circles, as well as consulted by individual workers. In order that information and guidance may be provided for those desirous of more extensive investigation of the subjects referred to, there have been added in

appendices select bibliographies of works useful for reference and study.

We are still in the experimental stage in regard to most matters relating to so-called social reform, and there is a danger that in our eagerness and enthusiasm to initiate and conduct new movements, which are intended to make for individual improvement and national betterment, we may be led into serious errors or be guilty of deficiencies and extravagances which will inevitably hinder progress. Social advance must be based upon and governed by scientific principles. To indicate and to explain these is the main purpose of these manuals.

The present volume deals with School Life. Special problems connected with Youth will be dealt with in the next volume.

Each writer has been granted a free hand in dealing with his or her particular subject, and is, of course, responsible only for the chapter contributed. As far as possible, overlapping and repetition have been avoided, and when this aim has apparently not been entirely realized, it will generally be found that the point of view or the practical outcome is different.

To all who have so willingly co-operated in the production of this volume grateful thanks are accorded.

T. N. KELYNACK.

139 HARLEY STREET,
LONDON, W.

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SCHOOL LIFE: AN INTRODUCTION

THE EDITOR

And thou, Child, shalt be called the Prophet of the Highest.

ST. LUKE I. 76.

Train up a child in the way he should go; and when he is old he will not depart from it.

HEBREW PROVERB.

So teach us to number our days, that we may get us an heart of wisdom . . . and establish Thou the work of our hands upon us; Yea, the work of our hands establish Thou it.

PSALM XC. 12.

Child study marks the introduction of evolutionary thought into the field of the human soul.

STANLEY HALL.

The general tendency of modern thought is to regard childhood not merely as a period of preparation for the glorious estate of manhood, but as having an intrinsic value and rights of its own.

JAMES SULLY.

O'er wayward childhood, would'st thou hold
firm rule,
And sun thee in the light of happy faces;
Love, Hope, and Patience, these must be thy
graces,
And in thine heart let them first keep school.

SAMUEL TAYLOR COLERIDGE.

I

SCHOOL LIFE: AN INTRODUCTION

'ONLY that State is healthy and can thrive which unceasingly endeavours to improve the individuals who constitute it,' declared Plato ages ago. And it has been wisely said, 'What you would have appear in the life of the people, that you must put into the schools.' The scholars of to-day are the citizens of to-morrow. 'The object of Education is to train for life . . . to train the whole man for life; for life seen and unseen; for the unseen through the seen; to train citizens for the Kingdom of God.' These words of Bishop Westcott may well serve as a text for this manual. The following chapters deal with the problems of preparation for abundant Life, the Life that now is and the life that shall be Hereafter.

With the coming of clearer conceptions regarding the evolution of the race, and a deeper understanding of the development of each individual, there has arisen a new sense of responsibility in regard to the care of the school child. The child is an epitome of the past, and each little life in a measure recapitulates the pilgrimage of the race. Every child climbs up its

own genealogical tree. The problems of life are wrapped up in the mysteries of growth. Modern methods of research are throwing much new light on the forces guiding and governing growth, and we are gaining increasing insight into the principles and powers we speak of as heredity, environment, and human will. The child is set in the midst. The old subject-centred conceptions are being replaced by child-centred thought. This has been fitly expressed by President G. Stanley Hall: 'Instead of the child being for the sake of the school, we have had a Copernican revolution, and now the school, including its buildings, all its matter and method, revolve about the child, whose nature and needs supply the norm for everything.'

Max Müller has clearly indicated the importance of realizing our responsibilities in regard to the shaping of life in its plastic period: 'I doubt if it is possible to take too high a view of life where the education of children is concerned. It is the one great work entrusted to us; it forms the true religion of life. Nothing is small or unimportant in forming the next generation which is to carry on the work where we leave it unfinished.'

The days of school life provide the preparation period for man's highest and noblest destiny. The school plays an important part in the fashioning of the school child, but it is becoming more and more evident that the school is to be considered as only one factor in the education of the child. The Kingdom of Heaven is within the children of the kingdom. The child is to be viewed and studied in all its activities and powers as a living soul; and all influences,

whether in the home or in the school or in the world, are to be regulated and directed so that there may be a nearer approach to the true aim, 'The Utmost for the Highest.'

'What shall it profit a child if he gain all knowledge and lose his health?' is a wise and just question. The results of medical inspection in our elementary schools have shown that many of the bodily disorders there discovered have been home born and home grown, frequently dating back to infant days.

It is becoming clear that much of the apparent failure of our school system is dependent on lack of co-operation of parents, and oftentimes the prevalence of a persistent opposition to the spirit and practice of school teaching and discipline by home influences. Not a few of the practices of the community are also inimical to child welfare.

Educationists of all schools are agreed that the ultimate purpose of our educational systems is the formation of *character*. The child, while rich in potentialities and powers, and capable of noblest possibilities, is yet a fragile human vessel which may readily be marred or broken in the making.

Child Study is rapidly becoming an exact science. The physiology and psychology of the normal child are being investigated with scientific precision. Abnormal children, both as regards their physical constitution and mental and moral characteristics, are being studied by able observers in many lands. Pedagogical experiments of numerous kinds are being undertaken. A rich literature has accumulated. Special institutions for the training of those on whom must depend the care and education of child life are

springing up in all civilized countries. Attention is being focused upon the child.

In the conduct of school life our surest guidance comes from a patient, unprejudiced, persistent study of the child. The systematic medical examination of the children in our elementary schools, provided for by the Education (Administrative Provisions) Act, 1907, is already accomplishing untold benefits for the physical needs of our scholars. And now educationists are realizing that there must be a reconsideration of principles and practices regulating intellectual and moral growth and development. There is a demand for a correlation and integration of moral forces, and an increasing desire to secure more abiding ethical and social understanding in early life. It is rightly claimed that the teacher must be a force for hygienic and moral righteousness. We plan and labour that our boys and girls may be equipped for life's vocation. And individually and collectively, in the Home, in the School, and in the World we have to remember and act upon the great injunction—

> Take heed of this small child of earth;
> He is great; he hath in him God most high.

II

CHARACTERISTICS OF SCHOOL CHILDREN

A. S. ARKLE, M.A., M.R.C.S., L.R.C.P.

School Medical Inspector to the Liverpool District of the Lancashire County Council; Author of 'Condition of Liverpool School Children.'

Could the young realize how soon they will become mere walking bundles of habits, they would give more heed to their conduct while in the plastic state.

WILLIAM JAMES.

Those who are unfamiliar with the biological point of view seem to find it difficult to bear in mind that organisms may evolve 'downwards' as well as 'upwards' in becoming fitter to given conditions.

J. ARTHUR THOMSON.

A clean body, a sound if slow mind, a vigorous and healthy stock, a numerous progeny—these factors were largely representative of the typical Englishman of the past; and we see to-day that one and all these characteristics can be defended on scientific grounds; they are essentials of an imperial race.

KARL PEARSON.

All powers be yours, He saith, over my little ones;
The power of life and death;
The power of cloud and suns;
The power of weal and harm
Be yours to have and hold.

. . . .

Lord of the skies and lands,
Take pity on Thy dust;
Strengthen our mortal hands
Lest we betray Thy trust.

KATHERINE TYNAN.

II

CHARACTERISTICS OF SCHOOL CHILDREN

It is an undertaking of no small difficulty to attempt to write a short account of the characteristics of school children. One has only to think for a moment that a school child may be either one of three years of age or of fourteen years, and to realize how vastly different the characteristics of two such children are, to grasp at once the difficulty of trying to deal with such a subject exhaustively in the narrow limits of a single chapter. There are, however, certain underlying features and facts, especially of a medical nature, which are to some extent common to all children, and a short account of a few of these may be attempted.

The Phenomena of Growth

The two outstanding features which are perhaps most noticeable in all children are growth and plasticity or impressionability. A sound education consists in the turning to the best account the element of plasticity or impressionability without interfering with the development or growth. If in the efforts to

impress the mind of the child the growth and development are arrested or retarded, that method of education is bad; and it would be equally wrong while encouraging the growth of the child to neglect the opportunity for moulding it both physically and mentally to the best advantage.

It must not be imagined that this plasticity of children is only an attribute of their minds. Anatomically all the systems of their bodies are capable of being altered for the better or for the worse during the whole period of school life, and to some extent even later, and the best education will be that which is guided by a knowledge of what must be done in order that the child's mind may be developed without injury to its body, and the body at the same time moulded to the best advantage without neglect of its mental training.

The Influence of Defects and Disorders

Another fact with regard to many school children, which unfortunately is of such frequent occurrence as to be almost a characteristic, is that, owing to previous want of care, and in some cases to antecedent illnesses, they are very badly moulded when they come to school, and a very important part of their school education has or ought to be given up to remedying defects acquired beforehand.

Such conditions as malformations of the chest, curvatures of the spine, knock knee and bow legs are very frequently present as the result of rickets in infancy, whooping cough, and other such affections long before the child comes to school.

The school thus has the opportunity, owing to the

plasticity of the child's frame, of correcting these faults of modelling by a judicious course of physical training, or of emphasizing them or making them worse by neglecting the physical and pursuing only the mental side of education, unguided by the child's physical needs.

It must never be forgotten for a moment that none of a school child's bones are completely ossified, and that consequently they are very liable to be bent and contorted by prolonged hours in school if the position assumed is in any way faulty, and maintained without rest and change for long periods. The importance of this matter does not only apply to the bony framework of the child, it may also prejudicially affect the other systems of the body. Rickety contortions of the chest interfere seriously with the child's powers of respiration, and so produce a condition of lowered vitality by depriving the body of its oxygen. Similarly I have seen cases where, owing to a rickety depression of the chest wall, children have been caused to faint by the pressure on their heart when sitting in a constrained position for a long time.

The Nervous System of the School Child

The chief characteristic of school children as regards their nervous systems is that they are much more spinal creatures than adults, that is to say, their actions are less controlled by the brain and their reflexes are much more active. On the least disturbance of function their temperature will fly up as though they had a serious disease, if their stomach is offended they promptly vomit, if touched unexpectedly they jump. The greater the mental strain

they are submitted to, the less control will they have over their reflexes, consequently such symptoms as restlessness and inattention show clearly that the mental exercise has continued long enough and is producing a condition of strain, and an interval should be taken for relaxation. The ultimate result of prolonged and unrelieved mental strain in children is oftentimes chorea.

Sense Organs

Another very important characteristic of school children is that some, at any rate, of their organs of special sense are not yet fully developed. This is best seen in the case of the eyes.

The eyes of children, in the earlier years of school life at all events, have not by nature what is called normal vision, but are what is described as long-sighted, i.e. they are not suitable for focusing objects close at hand with comfort, and to do so involves strain.

Prolonged strain of this sort is not only a fertile source of headache to the children, but also tends to alter the contour of the eye by keeping the visual apparatus in this unnatural position.

The eye in fact tries to make itself fit for normal vision, but as this correction is added to that which Nature herself is carrying out, the sum of the two processes is too big and the eyes become short-sighted, and this is one of the most frequent causes of myopia.

The Physiology of Motion

Another important characteristic of children is the fact that movements involving the use of the large muscles are much less fatiguing than those which require the action of the smaller muscles.

For instance movements requiring the use of a whole limb, such as kicking a football, do not tire a child nearly so much as the movements of the hand alone in such actions as writing, needlework, or playing the piano, although the amount of energy expended is probably far greater. The reason of this is that the nerve strain of completing fine actions correctly is very much greater, and fatigue is produced through the nerves. Fine actions should therefore only be used moderately in school, and the exercises for recreation should be devoid of them.

It is characteristic of children that owing to their youth and the elasticity of their tissues it may be permissible for them to do things which would be very injudicious in their elders.

As an instance of this it may be mentioned that in taking violent exercise many children produce a slight dilation of the heart, which passes away in a very short time after the exercise is finished. This condition seems to be quite harmless in children and in fact beneficial, as it tends to keep the heart and circulatory system in good condition and tone, but if people of more mature years were to do it constantly, there is little doubt that they would soon get a permanent enlargement of the heart.

Psychological Characteristics

With regard to psychological characteristics very little can be said, as they are so much phenomena of the individual that it would be very unsafe to generalize, and, in fact, impossible to do so.

It has, however, often occurred to me that perhaps the emotion which strikes one's attention most

frequently and most vividly among school children is Fear. It is a most unpleasant discovery to find out that with a large proportion of school children their attitude to anything which is unusual is one of suspicion and fear, instead of trust and confidence. This is no doubt very largely due to the injudicious application of unsuitable forms of punishment both at home and also at school.

Few of the children probably have nothing in the shape of sins, whether of omission or commission, to conceal, and the constant dread of being found out ultimately tends to produce a condition of fear with respect to everything that is unknown or not understood, from the expectation that it may lead to detection and punishment. It is a very sad thing that this should be so, and although the schools are not themselves probably to blame in the first instance, a due recognition of this fact, and a consequent effort to try to restore confidence to the children, would be sure to earn a great reward both for teacher and child in a better mutual understanding and more friendly relations.

Such, then, are some of the more striking characteristics which are noticeable among school children. The generalizations made are of necessity very broad and the statements somewhat dogmatically expressed, but if they serve to call attention to some few matters which may help in promoting the welfare of the school children, they will have served their purpose.

III

THE HYGIENE OF THE SCHOOL

CHARLES PORTER, M.D., B.Sc., M.R.C.P.E.

Of the Middle Temple, Barrister-at-Law; Medical Officer of Health, Metropolitan Borough of St. Marylebone

The gods give nothing really good and beautiful without labour.

XENOPHON.

My business is not to remake myself, but to make the absolute best of what God made.

ROBERT BROWNING.

Life is a sheet of paper white,
Whereon each one of us may write
His word or two, and then—comes night.

LOWELL.

The mistake of most modern ventilation is that there is not enough of it.

ARTHUR RANSOME.

Where one boy is, it takes a woman to keep the house clean. Where a thousand boys are, it takes a local authority.

LESLIE MACKENZIE.

There can be no doubt that the aggregation of large numbers of children in insanitary schoolrooms since 1870 *is responsible for not a little of the physical unfitness which has occurred.*

SIR GEORGE NEWMAN.

To make us know our duty and do it, to make us upright in act and true in thought and word, is the aim of all instruction which deserves the name, the epitome of all purposes for which education exists.

J. A. FROUDE.

III

THE HYGIENE OF THE SCHOOL

THE effect of environment on health is at no time more marked than in childhood, when the chief functions of the body are growth and development. This, to a certain extent, has been recognized by the Board of Education to be the case in connexion with one type of childhood, namely, the elementary school child. In order to provide that a very important part of the environment of this child shall be as little inimical to his growth and development as possible, the Board have issued from time to time regulations with regard to the construction, equipment, &c., of schools. These regulations refer to schools to be erected, but as numbers of the existing schools, in rural as well as urban districts, fall short of compliance with many and in some cases all of the rules, the failure to provide for the alteration or abandonment of the buildings must be regarded as an omission. The fact that only public elementary schools, and not private and other schools as well, are dealt with, must be regarded as a serious oversight on the part of the Board of Education. The points to which attention is directed in the rules already referred to are exceedingly numerous, and include sites

and playgrounds, walls, floors, and roofs, entrances, staircases, cloak-rooms and lavatories, lighting, ventilation, warming, sanitary arrangements, water supply, central halls, corridors, schoolrooms, desks, and accommodation. In a chapter of this kind it is manifestly impossible to deal at any length with all these matters, but an attempt will be made to describe as many as possible of the conditions with which the hygienically ideal school should comply.

The School Site

The Board of Education rules say very little about the school site apart from suggesting that an open airy playground should be provided, the size of which should be such that there is allowed 30 square feet per child. This amount is not excessive, but, especially in schools near the centre of large cities, difficulty is sometimes experienced in obtaining it, and the unfortunate child is frequently compelled to go without.

The site of the school should be elevated, and the buildings should be as far as possible from others likely either to interfere with the light of the school or the air to be breathed by the children. For these reasons neighbourhoods in which there are high buildings, manufactories, especially those in which trade processes associated with the production of smoke and effluvia are carried on, are to be avoided. Because of the risk of accidents to the children and the nervous strain produced by noise, a site amongst mean, noisy, and busy streets should not be chosen.

The soil of the site should be clean and dry : clean

because the foul gases produced in the soil may be aspirated into the building, and dry because the moisture may be sucked up and cause dampness in some of the rooms. In order to protect against the rising of moisture it may be necessary to drain the soil. As safeguards against both gas and moisture it is usually advisable to cover the whole site with an impervious substance like concrete, and provide for sub-floor ventilation by making grated openings in the walls below the level of the lowest floor.

The School Buildings

The site having been chosen, the important work of planning the school commences, and the size and height of the school have to be determined. The style of architecture to be followed, and the building materials to be used must also be decided.

Naturally the size must depend upon the number of children to be accommodated, and this will be influenced by the size of the district to be served. Generally it is safe to say that if the school is to be properly managed, no one person can be expected to control more than from 400 to 500 children, and the staff necessary for the teaching of such a number. A one-department school need not therefore provide accommodation for more than this number. Very commonly, however, schools consisting of two or more departments are erected, and accommodation for 400 or 500 children in each may have to be made.

The height of the building will depend upon the size of the site and the size of the school. The fewer the storeys the better, however, as stairs always

strain children, and moreover constitute a danger in case of fire. A two-storied building is probably high enough.

The style of architecture is a matter of some importance. A building simple but dignified is calculated to exercise a beneficial effect on the children from the aesthetic point of view, and at the same time contrivances likely to interfere with light and ventilation will probably be omitted.

The choice of building materials is largely a matter of cost. Either brick or stone may be used for the walls, which should be cemented smooth inside. As many as possible of the partition walls should be of brick.

Having arranged these matters, it is necessary to choose the best position on the site for the building. The object should be to ensure that the sun shall have access to every room at some part of the day. To bring this about it is recommended to place the building so that the corners look towards the four points of the compass.

The School Plan

Next comes the drawing up of the school plan, and the rule to be followed is that laid down some time ago by an American expert in school matters, viz. 'the class-room shall be the unit first to be considered in planning a school building. The building shall be a number of class-rooms properly disposed, and not a whole cut up into schoolrooms, whose size and arrangement are dependent upon the size and shape of the building.' Halls, corridors, stairways, &c.,

even ventilation and sanitation, are secondary in importance to the class-rooms, and can be arranged for after the disposition of these has been settled. The number of class-rooms to be provided will depend upon the number of pupils to be accommodated and the number of classes into which they are to be split. The rule should be one class to one room. The one schoolroom system, in which several groups of children are taught at one and the same time in one room, it is impossible to approve. The attention of children in one class is distracted by the hum of those in another, and both the teacher and the teaching suffer.

The size, shape, height and distribution of the rooms are matters of considerable importance. The size depends naturally upon the number of children to be accommodated in the room and the amount of space to be allocated to each. In order that each child may have a certain amount of personal supervision and the strain upon the teacher be diminished, the class should not be too large. The Board of Education consider that the class-room should not be planned to accommodate more than from fifty to sixty children, but classes of this size are difficult to manage, and the maximum should not exceed forty, or, at the outside, forty-eight.

According to the Board of Education each child should have at least 10 square feet of floor space, but wherever possible this should be exceeded and at least 15 square feet provided. By allowing such a space ventilation will be simplified, and at the same time there will be less cramping of individual children.

In dealing with the shape of the class-room, the

regulations indicate a preference for a square room, and one which measures at the outside 24 feet 8 inches across. Despite this expression of opinion, there are many who prefer an oblong to a quite square room for teaching purposes, holding that if the desks are placed across the space, lighting can be more satisfactorily carried out, and the pupils can more readily and with less effort see any apparatus which the teacher may wish to demonstrate behind the desk, there being very little fore-shortening for the pupils on the extreme left and right. The dimensions suggested for an oblong room to contain forty-eight pupils are: Length, 30 feet; width, 25 feet, and height, 13 feet. In such a room each child would have 15 square feet of floor space, and slightly over 200 cubic feet of air space. In height, class-rooms should not exceed 12 or 13 feet, since ventilation and cleaning difficulties increase with any height above this.

The next question to be decided is one of some difficulty. How are the class-rooms to be arranged? Is there to be a large central hall around which the class-rooms are grouped, or is there to be a lateral assembly hall? The chief objections to the central hall are difficulties in connexion with ventilation both of the hall and the class-rooms. The latter, if natural methods are employed, are deprived of proper through ventilation, and the former acts as a space into which the class-rooms ventilate. The lateral assembly hall with class-rooms on one side only has fewer objections, because it can be provided with windows along one side so that through ventilation both of halls and class-rooms is more or less secured.

One great objection common to central and lateral halls is that since they are usually only shut off from the class-rooms by thin partitions of wood and glass, the din made in the hall when it is used as a drilling-place is apt to interfere with the work in occupied class-rooms.

Cloak-Room, Accident-Room, and Staircases

In addition to class-rooms other rooms are, of course, necessary, and corridors and other means of communication between them must also be provided. The chief rooms called for are cloak-rooms and accident-rooms. If more than 100 or 120 scholars are accommodated, more than one cloak-room is required, and they should always be distinct and separate from the class-rooms in order that the unpleasant odours and any infection which the garments may harbour may be excluded. They should open direct from the corridors and should be well lighted and ventilated, and allow a space of at least 150 square feet for every fifty pupils. Two good-sized doors, one for ingress and the other for egress, should be provided. The hat and coat pegs should be placed in rows at least 5 feet apart, and the space between individual pegs should measure from 12 to 15 inches. In addition to pegs, umbrella racks with proper drip channels may be recommended. To assist in the drying of wet garments, hot-water pipes properly arranged against an air inlet are a great advantage and should not be omitted.

The accident-room is one usually not provided, but inasmuch as it may prove exceedingly useful, especially in these days when medical inspection of school children is in vogue, the advisability of introducing

it should be seriously considered. To such a room, children who have been injured or taken ill in school may be removed, and should be kept there till they have been medically examined, or some one has called from their home to fetch them. The room should be simply furnished, and should have smooth walls and be well lighted, ventilated, and heated. It should be as far removed from the class-rooms as possible.

Corridors provided as means of communication between various parts of the building should be from 10 to 12 feet wide, and well lighted and ventilated. If possible there should be end windows to assist ventilation. Light may be borrowed from class-rooms bordering upon corridors, but no class-room should receive its main light from them. The walls should be smooth and light coloured. The floors should be of asphalte or some such hard material.

Staircases, if there is more than one storey, should be easily accessible, and well lighted. They should be at least 5 feet wide, and should not be of the 'spiral' variety. The flights should be short and straight, with a landing at every eight or ten steps. The individual steps should be 12 or 13 inches wide and not more than 6 inches high.

Doorways to rooms should be at least 3 feet 6 inches wide, and if not made to open both inwards and outwards, should open outwards. The entrances to the school building should be wide and from quiet thoroughfares.

Lighting of Class-Rooms

Windows.—The evil effect of defective lighting in schools and the importance of providing the best

light possible are now generally recognized. The window area in relation to the size of the room, it is generally conceded, should be one-fourth of the floor space, and the only objection to having it greater is the cooling of the air of the room which may occur in very cold weather. The windows giving the chief light should be placed on that side of the room which is to be to the left of the pupils. Windows on other sides—supplementary light windows—though of assistance in ventilation; are apt, if too large, to interfere with the main lighting. If supplementary windows are provided, they should be on the right of the pupils. The glare from windows in front of the children is apt to dazzle the eyes, and that from windows behind to interfere with the teacher's ability to see the pupils. A rear light moreover is apt, if strong, to cast a shadow on the pupils' work. Top lights are unsatisfactory and should not be used.

The windows introduced should be wide and not too far apart; the window sill should not come too near the floor—about 4 feet above it—and the window should go close up to the ceiling in order to obtain as many rays inclining from above downwards as possible. The panes of glass should not be too much broken up, and all woodwork around the window and between the panes should be bevelled in order that the amount of light cut off in this way may be reduced. Plate glass is probably best, but ribbed and prismatic glasses may be used in badly lighted rooms in order to bring about diffusion. No room is satisfactorily lighted in which small print cannot be read in any corner when held at a distance of from 12 to 16 inches from the normal eye.

Artificial lighting.—This is best brought about by means of electricity. The objection to its use is expense, but it is cleaner than any of the other illuminants, and less wasteful of oxygen in the air of the room. If electric light cannot be obtained, incandescent gas is probably the next best. The lights should be arranged in such a way that the whole room is well lighted and that shadows are not cast over the pupils' work.

Ventilation

The necessity for providing each individual with 3,000 cubic feet of pure fresh air per hour is nowhere more important than in a school. Nowhere is it more difficult to make such provision, and indeed so great is the difficulty that it is safe to say that there are very few schools in which anything like 3,000 cubic feet are supplied.

In arranging for ventilation it is necessary to arrange for the getting of the air into the room, for accommodation for it after it is admitted, and for its removal after it has passed through the breathing apparatus of the persons to whom it is supplied. The air should enter steadily, quietly, almost imperceptibly; it should pass out with equal steadiness.

There are two chief methods of getting air in and out of rooms—natural and artificial. In the former the air enters through the natural openings—doors, windows, &c., and passes out through similar openings, chimneys, &c., no assistance apart from providing the openings being given to it. In artificial methods of ventilation the air is assisted in or out by mechanical means, special openings—inlets and outlets—being

provided. In all buildings a decision must be arrived at early as to which method is to be employed. Usually the decision is in favour of the natural because it is less costly, and because it is believed that artificial methods require a great amount of attention, and are apt to get out of order. The difficulty of providing for 3,000 cubic feet per hour is dependent upon several factors. In the first place the arrangement of the rooms in many instances renders through ventilation by natural methods almost impossible; in the second place the space allowed for the accommodation of the air is so small that to keep up a fresh supply means passing the air through at such a speed that draughts would almost certainly result and considerable discomfort to the occupants.

Theoretically the only satisfactory way of ventilating a school building is by artificial means, and providing for the driving in (propulsion) of fresh air, and the extraction of breathed air. Practically those responsible for erecting schools say that mechanical methods are so expensive and so difficult to control that the natural method must be adhered to, nature and luck being trusted to to provide as much fresh air as possible. Windows, doors, and fire-places are therefore left to do the work. Occasionally patent windows are provided, e.g. the Chaddock, which when opened give greater assistance to ventilation than the older-fashioned up-and-down sash windows. Whether or not the windows shall be opened is, however, left to the teacher, and teachers differ in their ability to distinguish between a stuffy and a fresh atmosphere. In addition to the natural openings, contrivances which permanently assist in

ventilation are occasionally introduced, e.g. perforated panes of glass in the windows, openings into the chimney breast, wall valves and tubes, such as Sheringham's and Tobin's, and so on.

Warming

Warming and ventilation must always go hand in hand, no matter what form of heating appliance is to be used—fires, stoves, steam or hot-water pipes. The heat should be required to assist either in bringing in and warming the fresh air or in carrying off the foul air. Various methods of combining heating and ventilation are in use. If fires are to be employed, some form of ventilating fire-place, rather than the ordinary open grate—which, though it can carry off large quantities of air, does not discriminate between the fresh and the foul—should be introduced. Galton's fire-place, which draws fresh air from outside and heats it before allowing it to pass into the room, is a good type of ventilating grate. Stoves which do not assist in ventilation are not permissible in class-rooms. Those in which coal is used are preferable to gas or any other type, but they must be supplied with fresh air directly from the outside by a flue of not less than 72 inches superficial.

In large class-rooms, steam or hot-water pipes are almost essential unless the ventilation is artificial, and the air provided is warmed before delivery into the room. The heating pipes should be arranged in the form of radiators, and it is better to have several small radiators instead of one large one in each room. Pipes running round the room at the bottom of the

walls are dirty, and as they do not assist ventilation at all, are to be avoided.

The radiators should be placed in front of air inlets in order that the heat may draw in fresh air, and at the same time warm it. The inlets should be grated and be fitted with wire gauze. This gauze collects dust from the air, and should be easily removable for cleansing purposes. When air is brought into a room in this way, openings should be provided for its escape after it has been fouled by use. They should be as high up as possible. Tubes passing through the ceiling and opening at the roof may be used, but it is not uncommon to find the tubes from individual rooms collected into one shaft and placed alongside the chimney from the furnace which provides the hot water or steam for the radiators. The object of this is to use the heat in the chimney to assist in drawing out the foul air from the rooms. Though hot-water or steam radiators are practically essential in large rooms, it is advisable to provide a fire-place in each room as well. It may never be necessary to light a fire in it, nevertheless it is there in case of accident, and it acts moreover as an additional foul-air outlet. The best working temperature for a class-room is between 60° and 65° Fahrenheit, and no matter what type of heating is employed it should be the aim of the teacher to keep the room at or near this. Steam or hot-water systems—especially the low pressure form of the latter—are easily regulated and for this reason are to be preferred. There should always be a thermometer in each class-room, and this should be consulted from time to time by the teacher during a class-session.

Decoration

The decoration of the class-rooms is important for more reasons than the aesthetic. The psychological effect of colour is well known; more important still is the influence which it exerts on the lighting of the class-rooms. Light restful colours are to be preferred —delicate shades of green or yellow for the walls and white for the ceilings are best, and the changes should be rung on the light restful shades so that if possible no two rooms are quite alike. The surfaces should be washable, dull, and smooth, rather than shiny and smooth. In order that they may not absorb too much light the furnishings of the room should also be light in colour.

Furnishing

The most important articles of furniture in the class-room are the seats and desks. In the elementary school, more than any other, only the best types are good enough, and despite the fact that the Board of Education state that the single seat and desk—which is undoubtedly the best—is unnecessary in the elementary school, attempts to have them introduced should be made. The chief objection to this type is its price; moreover, it takes up a greater amount of space than the seat and desk for two or more pupils. Its advantages are that it can be adapted to the child who is to occupy it, and the desk portion can be adjusted for the various exercises to be performed at it. With the dual or other form there is no possibility of suiting the seat to the child; even though

the desk be adjustable it can never be fitted, so far as height is concerned, to the children working at it.

Fixed seats and desks can never be regarded as suitable. In the case of the seat it is essential that the back and the seat should be capable of being moved up and down, so that the feet of any child occupying it may be allowed to rest square upon the floor and his back be provided with support in the proper place, just below the shoulder blades. In the case of the desk it is essential that alterations should be possible in height and in distance, i.e. the space between the edge of the seat and the front edge of the desk. The reason for the making of alterations in height is obviously dependent chiefly upon variations in the height of children. It is necessary to make alterations in distance because the child has to stand up, e.g. to answer a question, and there must be a distinct space between seat and desk; and because he has to read and write, and the edges of seat and desk must coincide, or that of the latter overhang that of the former. The names given to these distances are plus, zero, and minus, and seats and desks which have only one distance are unsuitable and induce the occupants to adopt attitudes inimical to the proper use and growth of some or all of the organs and muscles of the body.

In schools attended by children of the better fed and cared for class, it matters comparatively little what type of desk is employed, but in those in which the pupils are poor in physique, poorly fed, and often neglected, it is essential to avoid anything which may lead to injury to sight or the cramping or possible deforming of their bodies.

This result can only be obtained by the use of suitable adaptable seats and desks of the single variety, which have this additional advantage, that they obviate to a certain extent the risk of transference of infection, vermin, &c., from one child to another, which may occur when the pupils are placed close together in one seat. In this connexion it may be mentioned that it is always advisable, having allotted a seat to a child, to keep him to it. Some assistance may be obtained in tracing the source and spread of infection, if this is done. Other articles of furniture, black-boards, maps, cupboards, &c., need not be specially mentioned.

Sanitation

Only the most up-to-date sanitary appliances should be used in schools, partly with the object of preventing nuisance and danger to health, partly with the object of showing the children what proper sanitary appliances look like, and giving them an opportunity of learning how to use them. The drainage should be properly constructed and water and gas tight. Closets of the most approved type should be used, and there should be a plentiful supply of lavatory basins, water, soap and towels.

Formerly the sanitary convenience preferred was known as the trough, in which the dejecta of all the children using the appliance was received and retained till flushed away by hand or by the discharge of water from a cistern, which automatically filled and emptied itself. Happily this form is disappearing, and its place is being taken by the separate closet with the

separate flushing cistern found in most modern houses.

The number of such closets required depends upon the size of the school, but the minimum should be 1 for every 15 girls and 1 for every 20 boys. In addition, urinal accommodation is required for the boys. The common practice is to provide slate slabs, but as these soon become fouled and are difficult to clean, they should be avoided and the more hygienic white glazed stall introduced. The urinals should be regularly and plentifully flushed with water.

The lavatory basins provided for the use of the scholars should be placed near the sanitary conveniences. They should be as plentiful, if not more plentiful, than the conveniences themselves, and the children should be encouraged to use them. Towels should also be provided. Those of the roller variety, which may spread such conditions as skin diseases and eye affections, are to be avoided, and single towels, frequently changed, distributed instead. In addition to providing such ordinary conveniences, the advisability of introducing one or more plunge or shower baths should also be considered. These would prove exceedingly useful in teaching the children the importance and value of regular bathing, and might also be used, if no other means in the form of a cleansing station existed in the district, for the treatment of children found to be verminous.

Water Supply

A good supply of water for drinking and lavatory purposes and for the cleansing of the school buildings is absolutely essential. No water from a doubtful

source should be used. The drinking-fountains should be conveniently situated and numerous, and if the children are to be allowed to drink out of metal cups, they should be taught, in order to avoid the spread of such diseases as diphtheria, to well rinse the cup before use, and to dip the lips into the water rather than grip the edge between the lips. Fountains in which the child drinks direct from the tap, the water spouting upwards instead of from a cup are recommended by some, but are not greatly favoured.

Cleansing

The cleansing of the school building is a matter not referred to in the regulations. In order to prevent the spread of infectious germs by means of dust, cleansing should be carried out regularly and thoroughly, and damp dusting and washing and scrubbing of the floors of class-rooms, corridors, cloak-rooms, lavatories, &c., properly carried out. In certain quarters there is a tendency to recommend the use of disinfectants of various kinds in the school, but if plenty of soap and water are used and the washing, scrubbing, and dusting are thoroughly and energetically done day by day, the routine use of disinfectants becomes quite unnecessary.

The Existing School

With few exceptions what has gone before refers to the new school. What is to be done with the existing school in which the conditions are not absolutely hygienic? In many cases it is quite possible

to carry out alterations and to do away with the defects in hygiene. Each school must be considered separately, the defects noted, and the possibility or impossibility of remedying or removing them thoroughly gone into. It may be that in the class-rooms the space provided per child is too small; then the number of pupils must be reduced. The light from the windows may come in from the wrong side, and the possibility of altering the arrangements of the seats must be considered. It may be that the room is galleried and that the windows are behind the children; is it possible to remove the gallery and so place the seats that the windows are on the left? The ventilation of a room may be defective: are more inlets and outlets required, and can they be introduced easily and at not too great a cost? And so on: defects and possible remedies must be considered side by side, but those who are urging the carrying out of alterations must themselves be thoroughly acquainted with the hygienic requirements of the children, and should also be capable of offering suggestions as to how to provide what is required.

As has already been mentioned, it is unfortunate that the schools which are hygienically defective are, in many instances, those in the older and poorer districts, to which resort the poor, the ill-fed, ill-clad, and neglected children, who are likely to be most affected by unhygienic conditions. If the schools cannot be altered, and in many cases it defies all ingenuity to alter the building so as to make it hygienic, it may be necessary to recommend closure or complete reconstruction, but as this is sure to

cost a great deal, the person making the recommendation is likely to become exceeding unpopular.

A socialistic suggestion which might be offered is that the new schools in the modern districts of large towns should be used for the poorer children, and the older less hygienic buildings for the healthier and better cared-for children of such better-class districts! In most places such a suggestion would not be listened to, but there are in the country certain districts in which, if offered, it would receive at least consideration.

IV

MEDICAL INSPECTION OF THE SCHOOL CHILD

J. C. BRIDGE, F.R.C.S.E., D.P.H.

County Medical Officer of Health and School Medical Officer for Breconshire Formerly Medical Officer to the Carnegie Dunfermline Trust, and Medical Officer to the Dunfermline School Board

Medicine joins hands with common sense.

SIR JOHN SIMON.

In a country without a compulsory military service, the school period of life affords the only opportunity of taking stock, so to speak, of the physical characters of the people.

SIR GEORGE NEWMAN.

Medical inspection of children and the teaching of the laws of health in schools may increase the rates to a certain extent in one way, but it will lead to their great diminution in other respects, and it will be found ultimately that it is a great deal cheaper to spend pence on children than pounds on paupers.

SIR LAUDER BRUNTON.

Nations are gathered out of nurseries, and they who hold the leading-strings of children may even exercise a greater power than those who hold the reins of government.

CHARLES KINGSLEY.

No nation is safe unless in the average family there are healthy, happy children.

THEODORE ROOSEVELT.

IV

MEDICAL INSPECTION OF THE SCHOOL CHILD

Our system of medical inspection of school children has been no mushroom growth, but is the outcome of long-continued consideration. Although at the present time we cannot be said to be behind other countries in our methods nor our energy, we were decidedly behind them in starting.

The Evolution of Medical Inspection of School Children

In England, although it had been pointed out that physical fitness was necessary for efficient education, enthusiasm belonged to individuals and was not official. In 1880 Dr. Priestley Smith, of Birmingham, published a paper on *Short Sight in Relation to Education.* In 1882 Dr. Clement Dukes published his book *Health at School.* In 1884 Sir James Crichton-Browne reported to the Education Department on the mental over-pressure in elementary schools, a subject which caused some considerable

stir at the time. But still the Government made no move. In 1892 Dr. Francis Warner, who had for some years studied the health of school children, published a report on the examination of 50,000 in 106 schools, and later on, in conjunction with two other medical men, he reported on another 50,000 children. He succeeded in arousing a good deal of interest, which was followed in 1889 by the Royal Commission on the Blind, Dumb, and Feeble-minded. In 1890 the London School Board appointed a medical officer to advise on general matters which might arise in connexion with the elementary schools, such as examination of teachers, inquiry into the cause of outbreaks of infectious disease, &c. Bradford followed suit in 1903, and these two appointments may be looked upon as the nucleus of our present system of medical inspection. At first it was only the mentally or physically defective and the epileptic children who received attention. Local authorities were urged to provide suitable accommodation and education for those who were not fitted to be taught in the ordinary schools. The Act (Defective and Epileptic Children) of 1890 was passed, and medical officers approved by the Education Department were appointed to find out whether any particular child came within the meaning of the Act, and medical nspection may be said to have received a start. By degrees it was recognized that there were many children who did not come within the above category and who were yet totally unfit to bear the mental strain imposed upon them by State Education—children with incipient phthisis—children who were backward from some simple defect which could be

remedied, such as those whose deafness was due to adenoid growths, &c. These children were a source of danger possibly to others and were certainly in danger themselves of having their constitutions undermined and slight ailments allowed to progress towards serious handicaps in the fight for maintenance. In fact the relation between physical and mental conditions and the question of environment forced themselves upon thinking minds, and the question of medical inspection was considered. A Committee was appointed whose duty it was to report to the Board of Education on the amount of medical inspection in public elementary schools and on the result, as well as on any existing voluntary agencies for providing meals for the school children. They were also asked to make any suggestions. They reported the need for improvement in existing systems, stated what they thought should be the duties of a school doctor, and advocated the employment of school nurses.

The Education (Administrative Provisions) Act, 1907, was the result of this Commission, and is worded thus: '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.'

Medical inspection stood on a firm footing as a new branch of preventive medicine, but closely allied to,

and co-ordinating with, the Public Health Service. It was to become 'a joint worker with other agencies of knowledge and action for the national interests,' putting aside any 'spirit of exclusiveness,' and forming 'an appropriate medium for the solution of the problems of hygiene in relation to the education of the child.' The school medical officer became a recognized official from 1908.

The Aims and Duties of Medical Inspection

Many have written on this subject, and we have the following various expressions of the same thought:— 'Its aims are the removal as far as possible of all conditions which act as obstructions to mental and physical growth.' 'The smoothing of the path of educational progress.' 'The detection of deleterious influences and of all departures from the road of mental and physical health.' 'The prevention of disease in childhood and a raising of the standard of national physique.' 'The improvement of conditions—mental, moral, and physical.' 'The cultivation of a sound mind in a sound body.'

Compulsory education brought as a natural sequence of events an increased nervous strain, and for many years this was not recognized. When the State realized the gravity of the situation it appointed school medical inspectors in order that they might cope with and supervise conditions due in a measure to school work. Besides the actual school work, physical exercises, so important to a proper physical development of the child, and which were intended to do away with the stigma of a one-sided education,

also needed supervising in order that those unfitted for the exertion might not suffer by a training beneficial to the majority.

It will be seen that the aims and duties more or less coincide and overlap. They include :—a better condition for the children physically ; a high standard of cleanliness ; the treatment of special defects in whatever way decreed as legitimate in a particular locality ; the detection of incipient disease ; provision for all mentally defective children so that they are taught under suitable conditions ; the exclusion from school when necessary of individual unhealthy children ; advising the school authorities on matters concerning the sanitation, construction, management, and closure of schools ; and the supervision of all special and open air schools. These duties are 'Medical, Pedagogical, and Educational,' and they comprise :

Routine Medical Inspection.—This involves the examination regarding cleanliness, nutrition, observation of any special eye or ear defects, defective teeth, organic mischief of heart or lungs, the presence of glandular enlargement, special diseases such as ringworm, scabies, impetiginous sores, and other disorders.

Inspection of Special Schools.—This requires 'the differentiation of types of children,' and 'the educational treatment of children according to their mental and physical capacities.'

Inspection of School Buildings.—Here such matters as ventilation, lighting, sanitary arrangements, and the like have to be considered.

Inspection of Physical Training, Gymnastics, and

Organised Games.—The school doctor is expected to give 'advice as to practical methods and educational value.'

Teaching of Hygiene.—Teachers require to know and grasp a certain amount of anatomy and physiology in order that they may apply them when faced by the problems of education. The school doctor is often expected to undertake such instruction.

Prevention and Detection of Infectious Diseases.—This is a self-evident duty.

The Superintendence of the School Nurse.—The school nurse visits such homes as the school doctor considers necessary, keeps in touch with delicate children, and visits regularly at the schools and reports to the doctor any cases to be seen or needing to be excluded.

The Treatment of School Children

This is a much discussed, and still in great measure unsolved problem.

The treatment of school children may be undertaken: (1) By the family doctor. A letter in many cases is sent to the parents asking them to take the child to their doctor and enclosing a letter addressed 'To the Family Doctor.' (2) At a hospital out-patient department. (3) At a Poor Law dispensary. (4) At a School Clinic, which is under the supervision of the school medical staff, as at Bradford and Dunfermline, or under a body of specially appointed practitioners. The method of procedure will be decided by the local authority, sanctioned by the Board of Education.

School clinics, or some special means for dealing

with diseased school children, are essential, and for several reasons: (1) The ignorance, apathy, and neglect of the parents or their genuine inability to afford a private medical attendant. (2) The limited number of institutions for treatment available; the enormous waste of time entailed in taking children to hospitals; the chronic nature of many of the ailments.

The School Clinic is free and does not demand the mother's presence, and the mothers do not stand in the way of this treatment, so that it seems the best method where it can be satisfactorily arranged.

Sir George Newman in his Report says, 'One of the most potent causes of social inefficiency is neglected disease, and particularly serious in this relation is the neglect of the beginnings of disease. To prevent, and if that be impossible, to combat the disease revealed by medical inspection is, or should be, the practical results of facts and findings now for the first time being brought to light.' And again, 'It is needless to say that the Board are aware that neither they nor any other body were, or even yet are, in a position to make any final pronouncement as to legitimate scope of schemes of treatment, or the conditions which will ultimately be found to govern their usefulness. This can only come with time and the experience of local education authorities all over the country.'

The administration of a Medical School Service implies the organization and co-ordination of all the above-mentioned factors, and in addition the keeping of schedules as a register of the results of the inspection and the making of an annual report.

MEDICAL INSPECTION

The cost of both medical inspection and any form of treatment is very varied. Some localities present special difficulties, and others put down a margin for further developments. In Sir George Newman's Report the following figures are given as the approximate expense in the areas referred to :

Cost of salaries per child in average attendance.	Cost as decimal of 1d. rate.
Counties . . . . . 4·79	0·15
County Boroughs . . . 5·69	0·19
Municipal Boroughs . . . 7·64	0·23
Urban Districts . . . 7·56	0·28

Total expenditure of 37 local education authorities with school nurse, £1,800. Total expenditure of 21 local education authorities providing spectacles, £400. Estimated annual expenditure of Bradford Clinic, £379. Contributions to hospitals by the London County Council for treatment of about 33,000, £5,000 to £6,000.

V

THE SCHOOL CHILD WORKER

D. M. TAYLOR, M.A., M.D., D.P.H.

School Medical Inspector to the Education Committee of the Borough of Halifax

It is clear that in whatever it is our duty to act, those matters also it is our duty to study.

ARNOLD.

There are who think that childhood does not share
With age, the cup, the bitter cup of care;
Alas! they know not this unhappy truth,
That every age and rank is born to ruth.

KIRKE WHITE.

Nature is a strict accountant; and if you demand of her in one direction more than she is prepared to lay out, she balances the account by making a deduction elsewhere.

HERBERT SPENCER.

Much has been said about the moral value of drudgery. Sheer drudgery has absolutely no value at all; to perform it is to be reduced to the level of a slave; to insist on others performing it is to be an ignorant or immoral tyrant.

HAYWARD.

The moral beauty of a child is greatly determined in the first years. Quiet, order, beauty, peace, soft voices, loving faces, are the elements of education which leave permanent marks.

RUSKIN.

V

THE SCHOOL CHILD WORKER

THE Report of the Inter-Departmental Committee on the Employment of School Children showed that, on a low estimate, 300,000 children combined school attendance with paid employment. The question is therefore of considerable magnitude, and if, as seems generally admitted by employers, educationalists and medical men, such a combination is incompatible with the true interests of the child and its education, one wonders how this anomaly continues to be perpetrated. All forms of school child employment are detrimental in one or more respects—physical, mental, moral or social. It is remarkable that the English working classes have not yet obtained for their children the same privileges as the German and the Scotch, while the constant stream of child labour—practically always of a degrading, unskilled, and blind alley type—goes over to swell the numbers of the unemployed and unemployable.

THE PROBLEM OF CHILD LABOUR

A library could be stocked with the literature of this subject—Blue Books, Departmental Committees, Government Returns, Commissions, Education and

Council Reports, the publications of the Half-time Council, and innumerable other voluntary associations, with volumes galore from individual and collective pens.[1] In spite of this evidence, all that has been obtained up to now is piecemeal, timid legislation, and framing of by-laws. A little more courage in 1899 on Robson's part by fixing the partial exemption age at thirteen, instead of twelve, and not excluding those employed in agriculture, would have saved much suffering and disaster, and paved the way for the fourteen-year age limit of leaving school. Similarly, if the Committee on Employment of School Children had more seriously weighed the evidence before them they would have recommended the abolition of child labour, instead of legalizing it by promoting petty restricting by-laws. One reason for this half-hearted tackling of the problem was, no doubt, the scarcity of medical evidence. Direct practical medical evidence is wanting from the Departmental Committee's Report; this has since been supplied from various quarters, and medical inspection of school children is again confirming all the old arguments against child labour. The recent inspection and study of many hundreds of half-timers, factory and otherwise, of out-of-school workers, of street traders, &c., have convinced the writer that the evil is as insistent at the present day as it ever was.

The arguments advanced in favour of child labour

[1] A useful bibliography will be found in No. 7 (June, 1910), 'Subject List of some publications in English,' compiled by the British Institute of Social Service, 4 Tavistock Square, London, W.C., and published by Messrs. P. S. King & Son, Orchard House, 2 & 4 Great Smith Street, Westminster, S.W.

are purely palliative and by way of excuse. They are dealt with more or less under the various headings of the results. Trade interests will not suffer by its abolition; trade conditions, now as formerly, are elastic and easily adaptable to such altered circumstances. Towns (and industries), such as Huddersfield and Manchester, with no half-timers, flourish equally as well as towns like Bradford and Halifax, where such employment is found. Other nations suffer no commercial loss from the want of early child labour. No longer can any particular trade, e.g. newspaper, be allowed to place its interests against those of the child, nor the voice of the small tradesman prevail. The exceptional case of a child, who has received no physical injury from early work, only proves the general rule, and the personal argument of the parent as to the innocuousness of his own hardships in early childhood cannot be entertained in these days when physique and education with a view to skilled work are a vital necessity to the nation.

Illustrative Cases of Child Labourers

The following outlines of actual cases will help to present the problem in concrete form.

(i.) Girl, age $12\frac{5}{12}$, gets up at 5 a.m. in order to reach mill at 6. Works till 12.30 with short interval for breakfast. Thirty minutes' walk home to hurried dinner in order to reach school by 1.30 p.m. This child is specially excused if she is some minutes late for afternoon school. Remains in school till 4 p.m. Long walk home to tea, and helps at home in the evening. The parents do not need this child's paltry earnings, but the

esprit de famille demands it, as the two older sisters have done the same. Her condition on inspection at 2 p.m. was one of exhaustion and listlessness; the five months of half time had deteriorated her physically and mentally.

(ii.) Boy, age $11\frac{4}{12}$, assists hairdresser. Full time at school. Three evenings a week employed from 5 to 8.30. Saturdays from 8 a.m. to 10 p.m. with half an hour for dinner, taken with him, and a few minutes for tea between customers. He lives some distance from shop, and on Saturdays seldom reaches home before 11 p.m. Supper, chat with parents, and bed at midnight. On Sundays unfit for any exertion, and spends half the day in bed. The boy lathers, the master shaves. The shop is a small one, badly ventilated, lighted by gas, filled to overflowing with Saturday customers, who smoke to their heart's content in waiting their turn. What an atmosphere! (No wonder the phthisis rate amongst hairdressers is so high). Wages 1s. 9d. per week, of which 3d. goes in pocket-money and 3d. to buy cups of tea, leaving a sum of 1s. 3d. per week to enhance family income. Net result is £3 5s. per annum against the boy's loss of education, loss of health, and loss of self-respect. His whole play-time is blotted out and replaced by drudgery. Is it surprising that such a lad is dull and listless in school, becomes stupid and discontented, or turns to juvenile debauchery as a stimulant in his weariness?

Through the whole range of child work it would be easy to give similar illustrative and practically typical cases of the lives of errand and van boys, newspaper boys, milk deliverers, the little slaves of the petty tradesman, the home domestic drudge, and the many forms of street trading.

The agricultural child worker, of whom there are about 20,000, is a being apart, and even less protected than the town child labourers. While not suffering

such physical damage, he nevertheless loses his chance of education, and the most plastic period of youth (10–14 years) is moulded in the monotonous drudgery of weeding, hopping, picking fruit, tending cattle and the like.

Physical and Medical Results of Child Labour

The general physique suffers, and the increase of height and weight is less than in the all-day scholar, as demonstrated by figures from Halifax, Bolton, and other industrial centres. The average height and weight of half-timers is less than those not employed. Too much importance must not be attached to the latter, seeing that these child workers are often drawn from the worst housed, most poorly nourished and clothed class, although this points *a priori* to the greater need of protecting the very class of child least able to stand any extra strain. The usual picture of a half-timer—more marked when inspected on the afternoon of the week for his morning turn at the mill—is one of fatigue. His clothes reek and smell; he is anaemic, tired, dull and listless, and often with muscular tremor. The heart frequently shows grave functional disturbance, the impulse increased, the action irregular or even intermittent, and in many cases a murmur (not present at other times) is audible. One has the classical signs of a fatigued heart muscle, a grave condition for a young, evolving organism. Similar remarks apply to all forms of child labour, and although the symptoms may not present such acute phases, or may be for a

time masked, still the final results of stunted growth, impeded development, impaired function and often actual disease are the same. The causes of these symptoms include: (1) Muscular strain, either long-continued exertion of moderate type or excessive, e.g. lifting of heavy weights. The latter is partly prohibited by the Employment of Children Act. (2) Long hours without the intervals of rest necessary for recuperation. (3) Loss of sleep. Nothing can be more hurtful to a young constitution, and no remedy, dietetic or therapeutic, can make good this loss. (4) Unhygienic conditions of employment, e.g. the close, humid, overheated factory (described by the supporters of half-time work as the 'nice, warm, cosy mill'), the badly-ventilated dusty workshops, noise and smell, exposure to wet, inclement weather, and other prejudicial conditions. (5) The monotony of all child employment, and in consequence the rapid progress of weariness.

Educational and Mental Results of Child Labour

The effect of trying to combine education with wage-earning is fatal to the mental progress of a child. The teaching profession is practically unanimous on this point. Child workers cease to be able to run alongside those not employed, and special classes with special methods are a necessity in half-time centres. This might naturally be expected from the physical conditions noted above, as well as from the mental attitude of these young wage-earners, viz. a chafing discontent of restraint.

'Continuation schools are useless, except in very rare cases, for the education of boys who had been half-timers. No continuation school could make up for what a boy had lost through attending school only half time after twelve years of age' was clearly demonstrated by one of the Joint Committee for Abolition of Half-Time Labour.

Mentally among child workers there is dullness, lack of interest, lack of response, and but feeble powers of assimilation. The superficial mental alertness of the street arab is mere sharpness and precocity, with generally evil tendencies. Educationally, none of the varieties of child employment can be regarded in any true sense as manual instruction.

Moral Results of Child Labour

The risk of moral deterioration under child labour conditions is well known. The contagion of the streets is rapid, and leads to hooliganism, which is the first stage towards a life of crime. 'They have never had a chance to do better,' says the Governor of Pentonville Prison. The age is an impressionable one, and the small earnings lead to no habits of saving, but are often spent on idle or risky amusements, and the *péripéties* of apeing manhood.

The effects of vicious contact in the mills with older boys and young people of both sexes are in very many instances too apparent, and the moral horrors of employment as depicted in *The Jungle* are, from frequent newspaper reports, not entirely absent from this country. Our own personal knowledge is in great part derived from the teachers who with heart

breaking relate day by day the frequent deterioration of some of their best and most promising pupils when these enter the half-time life. It is said, and may be true in some cases, that bad habits grow gradually and imperceptibly. A recent experience tends to show that in other cases the depravity is acute and fulminant in character. A boy described, when a full-time scholar, as bright, cheerful, intelligent, gentlemanly, an honour to his class, was inspected some weeks after going half-time to the factory. Medical examination showed a good physique, but flabby and exhausted. The eyes were shifty and lustreless, the manner morose, and the response unsatisfactory. Within a week of his entry into partial exemption work, this school boy was initiated into vice, and utilizing his previous good health and talents pervertedly, he had not only dragged himself into an abject condition, but had succeeded in spreading depravity amongst his class-mates, both boys and girls.

We do not wish to suggest that child labour always means moral deterioration; but the extreme and known dangers of such should be sufficient to alarm parents or guardians, and two more years of education, mental power, force of will, and moral energies would efficiently minimize these risks.

Economic and Social Results of Child Labour

What is the primary object and net result of child labour? Solely to enhance the family income by a mere pittance of anything from 6*d*. to 4*s*. per week; in a few cases a little more.

The best regulated form of school child employment is the factory half-time. Only 5 per cent. of the boys continue at the mills after sixteen or seventeen years, and from a recent investigation it was shown that 54 per cent. half-timers had drifted into the unskilled labour market, whilst only 3 per cent. of non-half-timers had this ending. Youths often remain at the factories until eighteen years of age in the hope of an overlooker's job, and then find themselves turned adrift, too old for a trade and economically ruined. Half-time factory work, then, is no preparation for a future trade, and can only be regarded as a ' blind alley ' equally with all the other varieties of child employment. Strange that our Government should be guilty of similar exploitation by its treatment of the telegraph boys ! Child work reduces adult wages, and drives into the labour market women who ought to be at home rearing and caring for their offspring.

Financially, the loss of grant to education authorities is serious. In Bradford the loss, according to the secretary, is about £1,700 per annum. To meet the case of the half-timer, there is extra expense of administration, of the special classes and the special instruction necessary. Child employment in other forms leads to truancy, and further loss. Philosophers have demonstrated the supremacy of the law of compensation in human life, and here one finds an illustration. Half-timers and child workers gain a few pounds earlier in life, but never, with but few exceptions, rise later to the higher wages of the educated skilled workman.

A Remedy for Child Labour

From what precedes, only one remedy will avail, viz. compulsory attendance at school till fourteen years of age, and the abolition of all forms of child employment. This means simply that education authorities must have the sole control of the child. The remedy is simple. They have the staff, the machinery, and the necessary knowledge of facts and conditions. The remedy is not costly. Of the wages earned by school children 75 per cent. are not necessary for home support. The earning of increased grant with diminished cost of administration and working would set free a sum amply sufficient to prevent the remaining 25 per cent. suffering any hardship. The remedy is not ideal nor drastic. What individual, what trade interest, would suffer if tomorrow Parliament were to decree that a child was a child until fourteen years of age, that no child must work for wages, and that its child life must be divided between school, sleep, and play ? No one, it is safe to predict, would be injured ; at the most, some temporary inconvenience. The nation at large would benefit, and the solution of the grave question of unemployment would begin to take definite shape.

VI

THE PHYSICAL EDUCATION OF THE SCHOOL CHILD

F. BARRIE LAMBERT,
M.B., B.S., D.P.H.

Man is the sum of his movements.

F. H. ROBERTSON.

That which those who winnow wheat do for it, gymnastic exercises accomplish in our bodies for us.

SOLON.

Where the city of the healthiest fathers stands,
Where the city of the best-bodied mothers stands—
There the great city stands.

WALT WHITMAN.

That man, I think, has had a liberal education who has been so trained in youth that his body is the ready servant of his will and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength and in smooth working order, ready, like a steam-engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of Nature, and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or of art, to hate all vileness, and to respect others as himself.

HUXLEY.

VI

THE PHYSICAL EDUCATION OF THE SCHOOL CHILD

THE question of the physical education of the school child is one of paramount importance to the nation.

CONDITIONS OF SCHOOL LIFE

The life of a normal child during its waking hours is one of continual activity. This must of necessity be restrained during school hours and the child placed temporarily under unnatural conditions. To the enforced stillness we have added the nervous strain and tension occasioned by the effort of acquiring knowledge. If, therefore, the child is to grow up a straight, healthy, well-developed member of the community, we must, by a wise system of physical exercise, counteract the unnatural conditions under which boys and girls are placed at school.

Physical exercises are necessary for all children during their school life, but more especially for those living in towns. In the country children often have to walk two or three miles to school, thus exercising every part of the body. When not at school they

often have to help in various outdoor occupations. In towns children rarely have far to walk to school, and the tendency of the city child especially, when not at school, is to loaf about the streets and rarely to take good healthy exercise.

The Rôle of Physical Exercises

Physical exercises can be divided roughly into three main divisions: (1) Educational; (2) Remedial; (3) Medical.

The three best-known systems of physical training are the English, the German, and the Swedish. The most generally accepted and taught is the Swedish, which is certainly the most scientific and best adapted for school children.

All children during their school life should have at least twenty minutes' daily systematized exercises. The method in vogue in so many schools of giving one hour's gymnastics once or twice a week, although certainly better than nothing, cannot be compared to the regular twenty or thirty minutes' daily drill.

Classification of Physical Exercises

Systematic exercises may be conveniently grouped as: (1) Nutritive; (2) Breathing; (3) Corrective; (4) Disciplinary.

Nutritive exercises are those which help to develop the child's physique along normal and natural lines. The muscles all over the body are equally in need of development. Care must be taken that arm exercises do not preponderate over the others. This occurs

in so many systems of physical training, where the biceps and muscles of the forearm are often developed out of all proportion to the rest of the body. The muscles of the legs, abdomen, back, and neck as well as those of the arms, must all be equally exercised in turn. Not only the muscles but the bones also of a child benefit by these exercises. As they grow in length and thickness they require the equalized pressure and pull of healthy muscular action to mould them into correct shape and thus prevent deformities.

Breathing Exercises.—All drill should be conducted preferably in the open air, and where this is not practicable, in a well-ventilated hall with wide open windows. Otherwise, of what use is it to teach a child to breathe deeply if the air inhaled is impure? Exercises should be avoided that tend to raise much dust.

It is essential that properly performed nasal breathing should be included in every system of physical instruction. This will do much to lessen the large number of children suffering from adenoids and weak chests. Many children also are very shallow breathers, and unless taught to breathe properly fail almost entirely to expand the lungs freely. The teacher should insist that the children both inspire and expire through the nose. Children, when taught breathing exercises in class, are often instructed to breathe in through the nose and out through the mouth with an audible sighing breath. This is done so that the teacher may hear as well as see what the children are doing. It is a dangerous doctrine; the children should have it impressed upon them that,

unless opened for the purpose of speaking or singing, the mouth must be kept shut.

Corrective exercises are intended to counteract the faulty attitudes so often assumed by children. Many of these, unless early corrected, tend to become permanent. Children in school are usually grouped in standards according to their age or brain capacity. An overgrown child of thirteen may be slow mentally and backward with his lessons and placed with children of nine or ten, and so will have to sit at a desk intended for little children. It is rare to find desks arranged to correspond to the needs of each individual. Through continual bending the child's chest becomes contracted, his shoulders raised, his head sunk forward, and the upper part of his spine curved. Exercises strengthening the back shoulder muscles must be part of the daily drill in order to counteract this tendency to round shoulders; breathing exercises must be given to counteract the contraction of the chest, and head exercises to correct the position of the head.

Disciplinary effects of physical training are most manifest and valuable. I would emphasize the importance of employing a well-trained teacher, used to giving the commands in a sharp, brisk manner. The great educational value consists in teaching the child instantaneous obedience to the word of command: the response of the class being in a direct ratio to the briskness with which the command is given. The child thus unconsciously acquires habits of discipline and order and learns to obey promptly. He realizes during his childhood that he is part of a corporate body and understands the necessity of harmonious

working with others. This instils into him a sense of citizenship and *esprit de corps*, and will do much to prevent the slouching, loafing ways so common in the youth of to-day. The child also learns that to be brisk, upright, and alert is commendable ; and takes pride in his physical development. On leaving school the child will possess a love of order and discipline, and this will do much to put a stop to the senseless hooliganism which in so many cases is but a misdirected outlet for surplus energy.

The conduct of instruction in physical exercises can be arranged for in two ways. The best method is to leave the drilling entirely in the hands of trained instructors. Another way is to let each teacher go through an extended course of physical training at one of the training colleges. This latter is the method proposed for our national elementary schools.

Whether some form of apparatus is or is not necessary is a debatable point. The Board of Education, in the excellent syllabus brought out in 1909, recommends only the so-called floor exercises. For such, any large well ventilated class-room can be used ; larger classes can be drilled at the same time ; and no expensive apparatus is required. If the drill is intended only for children under ten, it is sufficient. Beyond that age it is difficult to keep the interest of healthy boys and girls from flagging unless something in the nature of climbing, balancing, or jumping is introduced.

Music plays a very important part in the German and English systems, but is not used in the Swedish. Although undoubtedly exercises executed to music are much more recreative, yet in the opinion of many

much of the physical value is lost. First, because the exercise usually lasts too long and the muscles become over fatigued, and secondly, because the working becomes too mechanical. It is, however, a pity to banish music altogether.

Besides the regular twenty minutes' daily drill, some means of exercise should be provided during the five minutes' interval between each class. If practicable, it is best to let the children run wild in the open air. When this is impossible, then, all windows and doors having been thrown open, the children, as they stand by the side of their desks, should go through some form of simple exercise.

Special Exercises

A certain proportion of children are unfit to follow the ordinary curriculum. We may group school children into three classes: (1) Normal children; (2) those requiring remedial physical exercises; (3) those requiring medical gymnastics.

Remedial exercises are required for children with a tendency to adenoids, those with slight degrees of spinal lateral curvature, cases of torticollis and other similar deformities. Children suffering from flat feet, and those who are weakly and anaemic, but who otherwise are organically sound, can be benefited by well arranged and wisely conducted exercises.

Medical gymnastics should be reserved for cases physically unfit. In this class would be placed children suffering from heart disease and certain lung affections, those with infantile paralysis, and the subjects of the severer degrees of spinal curvature

and other deformities dependent on former disease. Needless to say, medical gymnastics can only be safely carried out under skilled medical supervision.

Playcraft

Most of our public schools now possess playing-fields and have facilities for organized games, such as football, cricket, hockey and the like. Not a few girls' schools have a specially selected games mistress. From a health standpoint there can be no doubt that school games have been of the greatest possible value in the physical development of our youth. Playcraft has now become the subject of definite scientific study.

In most schools games are compulsory. This, no doubt, is wise, providing the physically unfit are excluded: children who dislike and avoid healthy games are usually those with abnormal tendencies for whom they would prove of the greatest benefit. The difficulty of providing games and athletics for the elementary school child is great. Owing to lack of space and means, it is impossible in most cases to provide the children with more than a large courtyard. Into this they are crowded, and therefore cricket, football, hockey, &c., are impossible. Thus, games have to be taught for which little space is required and no expensive apparatus necessary. Many such are given in the Board of Education syllabus.

Besides open-air games there are other forms of sport which should be encouraged in that they are useful adjuncts to physical development. Such are swimming, rowing, boxing, fencing, and the like.

One cannot speak too highly of organizations such as the scout movement, lads' brigades, and the like, which encourage drill and open-air pursuits. These nearly all insist upon some definite physical training. In the case of the scouts, most of the work is done out of doors, to the great physical gain of the boys.

Medical Supervision of the Physical Life

All sports and games of growing children should be medically supervised. Even healthy children during their school life are not always at their physical best. Some febrile or other attack may temporarily have weakened their reserve power, and consequently heart strain may be the outcome of too strenuous exercise. Such are the occasions when it becomes necessary to point out which games may or may not be played with impunity. Much controversy has lately been carried on in the lay press as to whether it was harmful for growing boys and girls to run races. Undoubtedly in some cases it has proved injurious. Hence the necessity of ascertaining the physical capacity of each child so that the running may be regulated accordingly. Lastly, children who from any grave organic disease are unable to join in any of the games of their fellows are unfitted for ordinary school life. They should be kept at home, and their physical development and their games placed under special control.

VII

THE PERSONAL HYGIENE OF THE SCHOOL GIRL

MYRA MACKENZIE, M.B., Ch.B.

School Medical Inspector for the County of Stafford

Tender twigs are bent with ease,
Aged trees do break in bending.

SOUTHWELL.

It is the law of good economy to make the best of everything. How much more to make the best of every creature!

RUSKIN.

To help the young soul, add energy, inspire hope, and blow the coals into a useful flame; to redeem defeat by new thought, by firm action, that is not easy, that is the work of divine men.

EMERSON.

Character in infancy is an instinct; in childhood it is slowly made over into habits; at adolescence it can be cultivated through ideals.

W. B. FORBUSH.

There is but one temple in the world, and that is the body of man. Nothing is holier than that high form.

NOVALIS.

Self-reverence, self-knowledge, self-control,
These three alone lead life to sovereign power.

TENNYSON.

VII

THE PERSONAL HYGIENE OF THE SCHOOL GIRL

THE years spent in school comprise some of the most important years of the whole life. Then the foundations of the individual's future should be securely laid. In these years the whole personality, mental, moral, and physical, is unfolding and pliable, and may be trained, or at least given a bias, in almost any direction. Therefore it is most important that the bias be given in the right direction—that of health and efficiency of body and mind. Certain simple rules of health should be followed with that aim in view.

PERSONAL CLEANLINESS

Girls, as a whole, have much less dislike to soap and water than boys have, but none the less they need systematic training in habits of cleanliness. Scrupulously clean hands, nails, ears, and teeth, and well-brushed hair, are very important to the health as well as to the self-respect of the girl. Teeth should be brushed at night as well as in the morning, and no biscuits or sweets allowed after going to bed, as the

particles of food left between the teeth tend to set up decay. The daily morning bath is very beneficial. A cold bath is the most invigorating, owing to its effect in exciting the heart's action, stimulating the contraction of the blood-vessels of the skin and closing its pores. It is also an excellent moral tonic for girls inclined to coddle themselves too much. Delicate children, however, with feeble circulation are unable to take a cold bath. After it they are shivery, with blue or white hands and feet instead of experiencing a warm glow, and for them the water should be tepid or warm. Girls should be accustomed to a daily morning bath from infancy. A hot bath at night, oftener than once a week, is weakening in its effects physically, and may do serious harm morally by promoting feelings conducive to bad habits. It may be mentioned in passing that children's ears should be well dried inside after washing. Earache frequently follows when water is allowed to lie in them.

Healthful Clothing

Clothing should be warm, light, and as uniform as possible, so that all parts of the body are equally clothed. Wool, as the best non-conductor of heat, should be worn next the skin. Over-clothing is to be avoided as much as under-clothing, as there is great liability to chills if the skin be kept in a continual state of moisture. Boots and shoes should be well-fitting and have fairly thick soles and low heels. Care should be taken that the feet are not cramped in any way. Stockings should be of wool and of

sufficient length, as it is useless to have the boots big enough if the stockings are too short. Girls' clothing should be at least as loose as that of boys, and allow of perfect freedom of movement. Stiff corsets of any kind should never be worn by the school girl of any age, as the artificial support given by them to the spinal and abdominal muscles prevents them from growing strong by adequate exercise. Muscles waste if unused, and many cases of crooked back in the girl and general flabbiness of figure in the woman are caused by the unused muscles of the back and abdomen being too weak to do their proper work of supporting. Special loose flannel clothing should always be worn when playing any vigorous outdoor game, and should be changed as soon as the game is over.

Most girls naturally take pride in their personal appearance, and they should be taught where true beauty lies—in symmetry and true proportion of form, in extreme neatness and daintiness of all articles of dress, rather than in an absurdly small waist, high heels, and an outwardly showy frock.

Hygienic Habits

Food.—Abundance and variety of good, plain, wholesome food is very necessary to children, for in them it has to provide for growth as well as for wear and tear. Girls at the age of most rapid growth, eleven to fourteen, need what may seem enormous quantities of food, and should be allowed to eat to repletion at each of four meals a day. Plenty of milk and sugar in various forms, as well as butter, should be allowed. Fat in any other form than butter

is often very repugnant to little children, and as their powers of digesting it are undeveloped, it should never be forced on them, though fancifulness in regard to food should always be discouraged. Regularity of meals should always be enforced, and cakes, sweets, &c., between meals never allowed, as, taken then, they upset the digestion and take away the appetite for more wholesome food. Rich and made-up dishes are unsuitable for children, as are also strong tea and coffee. As a constant drink, lemonade and aerated waters are not good.

The Regulation of Work and Play.—Girls are as capable of hard mental work as boys if their bodies are kept healthy and strong. They require more latitude than boys, however, and cannot be kept so constantly hard at work without ill effects. Girls are incapable of standing much pressure at two periods of their school life, on first entering school and at puberty. At the beginning a child has a great deal to learn, apart from lessons, that is a strain on her nervous system ; for example, to sit still, to pay attention, &c. At puberty so much of the energy of the girl goes in growth and development that she has little or none to spare for mental work. After fifteen, girls will do much better work at school and be much stronger in health if they have been allowed to take it easily for two or three years before. Girls should be trained to thoroughness in work and made to know at least one thing as thoroughly as possible. They are too apt to be satisfied with a mere smattering or surface knowledge. Training in regularity and thoroughness of work is of great hygienic and moral value. Girls should be taught that lives, to be healthy and

happy, must have some serious purpose, some definite aim in view. There is rather a tendency nowadays to work girls, and more particularly little girls, too hard in schools. The hours are usually too long. The chief aim of the education of girls should be to turn them into as healthy, sane, well-grown, and all-round well-developed women as possible, with body, mind, and character all equally well balanced. Scholarship is too dearly bought if won at the expense of health. Girls should, however, receive as thorough and comprehensive an education as possible. The future mothers of the race should be capable of a wide view of men and things. Care should be taken that girls do not sit in school or at home in any cramped or hunched-up position. The desk should be of a size and shape suitable to the age of the child. When learning lessons at home, a very good position is kneeling at a table. This avoids stooping and keeps the back in its natural curve. When standing, children should be made to stand on both feet equally, and when sitting, to sit straight and square with the table or desk. A habit of sitting with knees together and feet wide apart is apt to cause knock-knee.

Plenty of exercise and play in the open air is as essential for girls as for boys. Up to puberty, girls may play with advantage almost any games played by boys. Afterwards, rather quieter games are more suitable. Rowing is specially good for girls in that it strengthens weak backs and develops the chest and abdominal muscles. Dancing tends to gracefulness and 'is the most liberal of all forms of motor education.' Swimming is excellent for its stimulus to heart

and lungs. Team games, such as hockey, are not only useful as exercise but help to develop a sense of *esprit de corps* and the subordination of self to the common good—very valuable lessons for the girl. Some girls have an aversion to open-air exercise, and if permitted would sit all day over the fire with a novel. This tendency should be sternly checked, and the girl, if strong and healthy, made to take systematic exercise.

Rest and Sleep.—All children need a great deal of sleep. Girls need more than boys, especially at puberty, when they are growing and developing rapidly and establishing new functions. The amount of sleep required varies from thirteen hours at six, to nine and a half at seventeen. Some girls need more than that. A hair mattress is the best kind to sleep on, and the bed-covering should be sufficient, but on no account too warm. Blankets, as allowing of ventilation, are better than down quilts. There should, of course, be a free current of fresh air in the room, though not a direct draught, nor should the room be too cold.

Most girls need a certain amount of rest during the day, especially those who are not very strong physically. By rest is meant quiet time to amuse themselves in their own way and to give their own individuality time to grow. Girls have too little leisure nowadays. Most children are fond of reading, and they should be given healthy stories of adventure or any of the real classics. Classics, literature of genius, will never do the harm done by the silly mawkish stories too often considered suitable for girls.

Regulation of Natural Functions

As well as affording a covering to the body, the skin acts as the great heat regulator. It also excretes many impurities and therefore should be kept in good working order by cleanliness and suitable covering.

Children should be taught from infancy the necessity of a daily motion of the bowels. To form the habit they should be trained to seek relief at the same hour every morning. When aperients are constantly given the child is apt to become unable to do without them. Sometimes laziness is the cause of failure, and Dr. Dukes states he has found a judicious mixture of reward and punishment very efficacious. Much can be done by diet, green vegetables, stewed prunes, figs, and fruit of all kinds being of value.

At puberty another great function requires regulation in the life of the girl. At that time physical growth and development are greatly increased, the mental and moral horizon widens, feelings and emotions unfelt before awake. It is a time of great nervous instability, when the seeds of much future ill-health may be sown by want of care.

Care is necessary to ensure the regular establishment of the monthly period. Rest, as far as possible, is very necessary at such times. Rest is most essential the day before, and the first and second days of the flow. Violent exercise should never be taken, and chills and damp feet carefully avoided. Girls sometimes suffer a good deal of pain, especially before the function has become regular. Constipation often increases this, and a dose of some simple aperient given the day before the commencement of the period

will often work wonders. There is sometimes great irregularity for the first year or so. If, in spite of all care, after the function has become regular, there is great pain or an excessive flow, medical advice should always be sought.

Mention must be made of an evil habit—masturbation—which, though much less prevalent among girls than among boys, has to be watched for and guarded against. Quite little girls sometimes fall into it perfectly innocently and untaught by others. Girls on first going to school should be warned against listening to what may be told them by nasty-minded children. Anything which might foster the habit, such as hot baths at night, too warm bed-covering, and heavy suppers, should be avoided. The effect on a girl of much indulgence in the habit is very similar to that described in the companion chapter on boys. Much tact and gentle firmness with plain speaking, and often medical treatment, are necessary if the habit is to be rooted out. The only sure prevention lies in training girls from infancy in self-control, in refinement and delicacy of mind and feeling; in teaching them to respect themselves and reverence their bodies as 'temples of the living God.'

VIII

THE PERSONAL HYGIENE OF THE SCHOOL BOY

J. O. SYMES, M.D., D.P.H.

Late Physician to Clifton College and to the Bristol General Hospital; Author of 'The Rheumatic Diseases'

Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you?

ST. PAUL.

We shape our deeds and then are shapen by them.

WILLIAM WATSON.

Let us bring up our children simply, I had almost said, rudely. Let us entice them to exercise that gives them endurance—even to privations. Let them belong to those who are better trained to fatigue and the earth for a bed than to the comforts of the table and couches of luxury. So we shall make men of them independent and staunch, who may be counted on, who will not sell themselves for pottage, and who will have withal the faculty of being happy.

CHARLES WAGNER.

Let us do our work as well—
Both the unseen and the seen—
Make the house where God may dwell
Beautiful, entire, and clean.
Build to-day, then, strong and sure,
With a firm and ample base,
And ascending and secure
Shall to-morrow find a place.

H. W. LONGFELLOW.

Life lies before us, as a huge quarry before the architect; he does not deserve the name of architect except out of this fortuitous mass he can combine, with the greatest economy, suitableness, and durability, some form, the pattern of which originated in his own soul.

GOETHE.

VIII

THE PERSONAL HYGIENE OF THE SCHOOL BOY

THE natural boy is averse to cleanliness, and it is therefore the duty of all engaged in his upbringing to combat this feeling. When once a boy's habits are formed it is exceedingly difficult to effect a change, and neither punishment nor reward is of much avail. Our main effort must be therefore to instil into the school boy a desire and liking for cleanliness both in thought and deed which will follow him throughout his lifetime.

PERSONAL CLEANLINESS

A weekly hot bath to keep the skin clean and a daily cold plunge or shower bath to promote healthy action of the skin should be insisted upon from the earliest years, and the reasons for taking them should be explained. Clean hands and faces and properly-attended-to hair and nails should be rigidly enforced, and boys should be questioned from time to time as to whether the teeth are cleaned once a day. A

regular day should be fixed on which underclothing ought to be changed. These points have to be attended to daily, perhaps many times a day, for years, until finally the habit of cleanliness becomes ingrained into the boy's nature and the performance of his toilet almost a matter of ritual. This habit of cleanliness is invaluable to the boy's future health, and with its establishment there comes a change in the child's mental and moral aspect. Increased interest and pride in personal appearance lead to increased self-respect and self-confidence. For the same reason a boy should be suitably and becomingly clothed. A uniform for drill, flannels for cricket, shorts and jersey for football and running, altogether apart from their suitability to the sport and hygienic value, teach the boy to take a pride in his appearance, and not to shirk the trouble of frequent changing and washing. Amongst boys of the poorer class, such institutions as Baden-Powell's Scouts and the Boys' Brigade all foster this most desirable spirit.

Hygienic Habits

The power of self-control is perhaps the most important habit which a boy has to acquire, and in order to obtain and retain it he must during his early years have acquired healthy habits.

Food.—With regard to diet, a school boy must be accustomed to take his meals punctually at the hour set. These meals should not be rushed, but a certain time allotted to sitting at the table. In this way the boy will not be tempted to bolt his food and so lay the

foundation of future dyspepsia. Work in the morning before breakfast is not desirable, nor should a heavy meal be given within three hours of bedtime. Every effort should be made to vary the diet. It is bad for a boy to know what each day's dinner is going to consist of. Fads and fancies about particular articles of diet should be strongly discouraged. In our public schools a substantial meal should be provided about six o'clock in the evening; the usual tea provided is quite inadequate. In poor-law schools and institutions where expense has to be carefully considered much might be done to improve the dietary by the introduction of vegetarian methods and by the reduction of the superabundant starchy element. Whilst boys should not be forbidden to indulge their natural taste for sweets and uncooked fruit, they should be taught the inadvisability of eating between meals. The provision of 'grub-shops' in our public schools is a grave scandal. Many of the boys have too much pocket-money, and indulge far too largely in the pastry and other delicacies provided, thus spoiling their appetites for the plainer and more wholesome fare provided at meal-times. The grub-shop is one of the most potent factors in the formation of irregular habits and self-indulgence.

Sleep.—The hours of sleep required by boys will vary with the age. From ten to thirteen years of age eleven hours is not too much, and from thirteen to eighteen at least nine or ten hours should be allowed. The dormitories should have the windows open at night summer and winter, and there should be no curtains or partitions, as in the cubicle system, to shut off the free access of air. Heating by hot-water

pipes is a great advantage, as permitting freer ventilation and lighter bedclothing. Boys should be encouraged to take a cold shower-bath on rising, and breakfast should be served as early as possible. The long fast between breakfast and dinner may be broken by providing bread and butter, biscuits, &c., at about eleven o'clock. The habit of evacuating the bowels early in the morning should be inculcated, and in all schools there should be ample closet accommodation. Neglect of proper ventilation in the dormitories, heavy bedclothing, late suppers, and undue strain on the nervous system are all contributory factors in the causation of that most troublesome complaint nocturnal incontinence (bed-wetting), but every boy suffering from the complaint should be medically examined; the need for punishment for the offence can be very rare.

Work and Play.—The question of school work hardly comes within the scope of this article. I have dealt with it in detail elsewhere,[1] but the following table may prove of service:

Years of Age.				Per week
From 12 to 14	the hours of school work should be			30
,, 14 to 15	,,	,,	,,	35
,, 15 to 16	,,	,,	,,	40
,, 16 to 17	,,	,,	,,	45

The time spent out of school should not be left, however, unoccupied; a certain portion may with advantage be left at the boy's disposal so that he may develop his natural tastes and hobbies, but

[1] SYMES, J. O., *Parents, Teachers, and Schools.* London: Simpkin, Marshall & Co., Ltd.

every day there should be organized games, cricket, football, hockey, running, rounders, prisoners' base, according as circumstances permit. These should be under the supervision of the master, or at least of reliable senior boys, else the weakly, dreamy, morose and lazy boys, who most need the stimulus of games, will not take part. The benefit of organized games from a physical standpoint is immense, but still greater is the moral effect, for it is at these that boys learn self-control, self-knowledge, and self-expression. Whatever the physical condition may be, loafing should be forbidden ; a delicate boy at a public school may learn carpentry, horse-riding, bicycling, fives, &c., whilst at institutions for less favoured individuals there should be the opportunity of learning a handicraft. Military drill is useful for developing the qualities of discipline and obedience, but neither this nor gymnastics as taught at present does much towards developing the physique and stamina of boys. A short period given every day to Swedish movements is of much greater value, and every boy with a physical defect such as curvature of the spine, flat-foot, or contracted chest, should be placed under special gymnastic treatment.

Healthy Thinking.—Boys should not be encouraged to talk of their ailments, nor should parents discuss symptoms of disease in their presence. If a boy is ill he should be simply told the nature of his illness and no further details be supplied. Parents and teachers are too fond of dwelling on medical topics ; the risks of infection, the dangers of athletics, the rise and fall of temperature, particulars of illnesses and their remedies—all are discussed in the presence of children,

who only too quickly absorb the morbid information which speedily assumes altogether too great an importance. Boys are more liable than girls to this hypochondriacal state, and mothers are apt to foster it. This constant dwelling on the subject of disease induces an unhealthy condition of body, just as a bright, cheerful and healthy outlook on life is conducive to a healthy bodily condition.

The Place of Alcohol and Tobacco

Whatever differences of opinion there may be as to the value or disadvantage of alcohol for adults, there is fortunately in this country a strong feeling that alcohol should be withheld from the young. The State has made the administration of alcohol to children under five years of age a legal offence, and has prohibited the presence of children in public drinking-bars. The custom of allowing children to carry beer from the public-house to the home in unsealed vessels has been abolished, and the education code of our elementary schools has been made to include some simple teaching regarding the principles of temperance. Whilst these measures have been adopted in order to protect the health and morals of the poorer classes, little or nothing has been done to encourage temperance amongst boys in middle-class homes and in public and private schools. In some of our public schools it is still the custom to allow boys to take beer with dinner or supper or on Saints' days if they wish it. This custom will be continued until parents protest and make it evident that they will not have

any intoxicating liquor offered to their boys. In the same way, in the home, whatever the personal habits of the parents may be, the children should be forbidden the use of alcohol in any form. I would especially draw attention to the evil of giving alcohol for supposed health reasons. To give a flagging boy a glass of stout, a glass of port wine, or a dose of medicated wine is not only a useless procedure from a medical point of view, but it is also a sure way of teaching him to resort to stimulants in after life to mask the effects of stress and strain. If a boy is brought up as an abstainer he will never in later years come to regard alcohol as a necessary article of dietary; he is much less likely to fall into the habit of excessive drinking, and he has by refusing offers of drink already learned something of the all-important habit of self-control. Apart altogether from these grounds, however, alcohol should be forbidden to children on account of its deleterious effect on the physical, mental, and moral powers.[1] Alcohol given systematically to boys impairs their development both by the direct action of the drug upon the body cells and by its injurious effects on the digestive organs. It lessens the child's power of resistance to infectious diseases, and by its narcotic action may lead to lassitude, inattention, and lack of receptiveness during lesson hours. Not less important is the fact that alcohol leads to impaired self-control, and for this reason it is particularly to be avoided with the supper meal.

Smoking has, too, the same effect upon a boy's

[1] HORSLEY AND STURGE: *Alcohol and the Human Body*, chap. xiv. London: Macmillan & Co.

general development and nervous system, and for this reason should be rigidly forbidden.[1] It should be plainly explained to the boy that the growing cells in his brain and body are more readily and more certainly affected by tobacco smoking than are those of adult persons. By frankly speaking of the matter, and by putting boys upon their honour not to smoke on the sly, much may be done to check a habit which not only leads to injury to the digestion and nervous system, but also to habits of deceit and subterfuge.

Masturbation

Much harm has been done in the past by parents and teachers failing to acknowledge or being unwilling to acknowledge the extreme prevalence of this habit amongst boys of all classes. Whilst the habit of masturbation is perhaps most common amongst boys in reformatory schools and large charitable institutions, it is also to be found amongst boys higher in the social scale living at home, as well as in public schools. No age is exempt from the habit, and in preparatory schools amongst children, from the ages of seven to ten, masturbation is commonly practised. To say that 50 per cent. of all boys are infected would be a moderate estimate. The physical effects of the practice are lassitude, pallor, poor muscular tone, low vitality and arrested development. Sometimes these are so marked that one may suspect a

[1] Woodhead, G. Sims: *Medical Aspect of the Smoking Question*. Anti-Narcotic League, 25 Market Street, Manchester.

boy of the vice from his appearance alone, but more often one is led to suspect him from alteration in his moral and mental attitude. The boy, formerly frank and open in his behaviour, becomes furtive, listless, lacking in interest in work and games, and less sociable than formerly. His masters complain that he is losing his place in his form owing to inability to concentrate his attention upon his lessons, and without any ascertainable physical cause, the boy's condition is generally unsatisfactory.

The treatment of this condition is avowedly very difficult. First and foremost must come preventive treatment. At the age of about seven or eight parents should speak to their boys and warn them of the prevalence of the habit, urging them to clean habits of thought and action, and if the child is at an age to understand, dwelling upon the hygienic and moral aspects of the question.

In the case of older boys it is sometimes better to put into their hands a book dealing with this subject, but such a book should be carefully selected, as many are calculated to do more harm than good. I am strongly of opinion that this duty should be undertaken by the parent, and not left to the schoolmaster or the doctor. Reliance should be placed upon creating a healthy tone of thought, rather than exciting fears of possible dangers, physical or mental.

All who are in charge of children should be constantly watchful for the existence of this evil, and where possible the dormitories should be under supervision from the hour the children go to bed until rising time. Dormitories should be well ventilated, bed clothing not too heavy, no heavy meal allowed

within two hours of bed time ; the cold morning bath should be encouraged, and the hours of the day well filled by lessons and by organized games. When a boy is discovered to have formed the habit he should be seen and examined by a medical man.

Above everything else the prevention of masturbation depends upon the moral atmosphere and code of honour by which the boys are surrounded, and there is no surer method of cure than the awakening of the boy's religious sense.

IX

DENTAL CONDITION IN SCHOOL CHILDREN

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A man is known by the teeth he keeps.

WOODS HUTCHINSON.

God to thy teaching delegates the art
To form the future man. The care be thine.

BISHOP MANT.

In sickness, respect health principally, and in health, action; for those who put their bodies to endure in health may in most sicknesses which are not very sharp, be cured only with a diet and tendering.

BACON.

God gave them wisdom who have it, and those that are fools let them use their talents.

SHAKESPEARE.

For forty years educationalists talked a great deal of subjects. Now they are leaving this wilderness—they are beginning to think of the child himself, of his aptitudes, his defects, his health, his growth.

MARGARET MCMILLAN.

The vision of the ideal guards monotony of work from becoming monotony of life.

BISHOP WESTCOTT.

IX

DENTAL CONDITION IN SCHOOL CHILDREN

BEFORE proceeding with the subject of the hygiene of the mouth, one must bear in mind that the 'crown,' or portion of a tooth which projects into the mouth, is completely covered with a hard highly resisting substance known as the dental 'enamel,' while the main bulk of the tooth is composed of a relatively soft unresisting substance known as 'dentine.' The word unresisting in this connexion refers mainly to its attitude as regards dental decay, to which it offers but a feeble resistance owing to the fact that it contains some 30 per cent. of organic matter. Hence, though we may find but a minute opening in the dental enamel it may be the entrance to a large mass of decayed dentine. In the interior of a tooth we find a space varying in size and shape according as to whether the tooth is an incisor, bicuspid, or molar. This space is occupied by what is known as the nerve, or more correctly, the dental pulp; it is composed of blood vessels as well as nerves, and serves to nourish the crown of the tooth as well as having been the structure from which the dentine was originally developed. Covering the root or roots there is a membrane called the dental periosteum, and within this membrane we find a plentiful supply of nerve

and blood vessels which serve as a source of nutrition to the roots themselves.

It is plain, then, that a tooth has two sources of nutrition, namely, the nerve or dental pulp and the dental periosteum, both of which are closely connected with the main blood supply of the jaws, so that even when the pulp is dead the tooth may remain useful so long as the dental periosteum is alive.

Milk or Temporary Dentition

The crown of a tooth is the portion first formed, and in the case of the temporary dentition we find that the crowns of these teeth are forming during intra-uterine life, and though they do not begin to erupt till the child is some six months old, it is evident that if the health of the mother during her pregnancy should be seriously affected by disease or malnutrition, it is more than likely that the teeth of her soon-to-be-born child may turn out to be ill developed, and therefore less resistant to dental disease.

It is important, then, to realize that the condition of the crowns of the temporary teeth is largely an index of the condition of the mother during her pregnancy, and it follows therefore that during that period the expectant mother should take exceptional pains to keep not only in good health, but to provide herself with enough lime-containing diet to enable her child's teeth to become properly calcified.

The temporary dentition, which consists of twenty teeth, first makes its appearance by the eruption of the lower central incisors, and the remainder appear in groups, and should be complete at two-and-a-half years of age.

Inherited and Acquired Influences

As to the effect of congenital syphilis upon the temporary teeth there is much diversity of opinion, but in the author's experience there is nothing that can be regarded as in any way characteristic of this disease in the milk teeth, though they may appear ill dentified or imperfectly calcified.

Rickets, again, being a disease that occurs after birth, has no effect upon the teeth of the temporary dentition, the crowns of which are already formed before the child is born.

The Permanent Dentition

The permanent or second set of teeth begins to appear in the shape of the first lower molars at about six years of age. Teeth continue to appear in groups until about twelve years of age, when the second molars erupt ; the wisdom teeth are exceedingly irregular in their appearance, and while in some cases they appear at sixteen years of age, in others they may not appear till twenty-five or thirty, or indeed not at all, for there are many people in advanced life who have never had any wisdom teeth.

The crowns of the permanent teeth being formed after birth, that is to say between one and six years of age, are dependent not only upon the health of the child during that period, but also upon its diet and the particular diseases that may have attacked it during its early years.

The enamel of the permanent teeth of children who have been fed upon skimmed milk and patent foods, instead of healthy maternal milk, on eruption may be found to be pitted or 'honeycombed' owing to

imperfect development of the dental enamel. Rickets also appear to affect teeth in this way and stomatitis (inflammation of the mouth) has the same effect in arresting the proper formation of the dental enamel.

Congenital syphilis being a disease which produces its most definite effects after birth, may produce an absolutely characteristic appearance in the case of the upper and lower central or lateral incisors ; these teeth, instead of presenting the normal appearance, are usually described as 'barrel shaped' and have a notched cutting edge, which Sir Jonathan Hutchinson was the first to point out as being 'characteristic of this disease.'

It is important to bear in mind that this so-called 'Hutchinsonian' appearance may be simulated by other mechanical conditions, produced by breaking threads between the teeth or by a faulty articulation of the upper and lower teeth leading to a wearing away of the cutting edge, which may resemble the notch of congenital syphilis ; without, then, some collateral evidence it is seldom justifiable to make a positive diagnosis of congenital syphilis.

The incidence of one of the eruptive fevers may also produce an arrest of development of the enamel of the permanent teeth leading to a horizontal line across the crowns of the teeth affected.

Function of the Teeth and Dental Decay

The function of the incisor teeth is naturally to cut the food up, and the function of the back teeth is to crush it, and with the assistance of the tongue to cause it to become thoroughly incorporated with the saliva, which has an important digestive function

which persists even after the food has left the mouth and entered the stomach.

The mother must keep herself healthy and properly dieted during her pregnancy. After the child is born it must be fed if possible with its mother's milk, and its teeth as they appear must be kept clean, which can readily be done with a piece of clean rag and a little precipitated chalk.

Dental decay (caries) being brought about by the fermentation of carbo-hydrate food on and between the teeth, it is essential that particles of cake, bread, biscuits, and so forth, should be cleaned away before the child is allowed to go to sleep, as it is particularly during sleep that the softening of the dental enamel is brought about. The fermentation of carbo-hydrate food leads to the production of acid substances, which decalcify the enamel and make a way for the entrance of the micro-organisms which bring about dental decay. Besides, then, keeping the teeth absolutely clean, it is essential that work should be given for the jaws by means of hard crusts, and so forth ; the child should as soon as possible be made to chew hard crusts and hard food generally, as this leads to an improved development of the jaws and diminishes the tendency to dental decay. The same applies in the case of the permanent teeth; they should be thoroughly cleaned night and morning with some non-irritating, non-abrasive tooth powder such as precipitated or camphorated chalk, and the diet should always contain some tough articles of food that will tend to develop the jaws, and incidentally act as natural tooth brushes. Apples are particularly good in this respect, and should be made as much use of

as possible. Articles of diet which are highly acid, such as vinegar, pickles, certain brands of cider, and so forth, are exceedingly bad for the teeth, leading to decalcification of the enamel.

Dental Clinics

Owing to the vast amount of dental decay existing among school children, Professor Jessen, of Strasburg, instituted what are now known as 'dental clinics' for the treatment of the teeth of elementary school children. They have been so great a success that now from forty to fifty cities in Germany have established them, with marvellous results to the health of the children. In London at the present time there are three such clinics subsidized by the Education Department of the London County Council. In Cambridge, Bradford, Reading, and other large cities dental clinics have been or are about to be established, so that we are at last in this country waking up to the urgency of dental treatment for elementary school children if we are to produce in the future an output of healthy citizens worthy of our Imperial destinies. In using the expression in its widest sense, a dental clinic should not mean merely a dental surgery, but rather imply a system of which the surgery is but a part, the remainder consisting of dental hygiene instruction, not only to the children but also to their parents and teachers. Thus will school dental work form part of one great modern system of Preventive Medicine, and should, as Professor Moeller of Berlin has shown, prove our greatest weapon in the conflict against Tuberculosis.

X

MENTALLY DEFECTIVE CHILDREN

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Absence of occupation is not rest,
A mind quite vacant is a mind distressed.

COWPER.

There is no field of political economy which can be worked to better advantage for the diminution of crime, pauperism, and insanity than that of idiocy.

KERLIN.

I think that the additional expenditure would only mean that we should spend directly and usefully what we now spend indirectly and to no useful purpose . . . on unemployed, vagrants, discharged prisoners.

H. F. BROWN.

Our general conclusions are that in dealing with the classes 'idiot,' 'imbecile,' and 'feeble-minded,' and with the moral imbecile, we are dealing with conditions chiefly inherited, and subject, therefore, to amelioration only to the extent to which the mental and physical force available in the individual approaches to the normal. But this conclusion does not preclude a considerable advance in knowledge and self-command among the higher grades of the defective—so far at least that they may be trained so as to contribute materially to their self-support.

REPORT OF THE ROYAL COMMISSION ON THE CARE AND CONTROL OF THE FEEBLE-MINDED, 1908.

X

MENTALLY DEFECTIVE CHILDREN

As a result of the inquiries of the Royal Commission on the Care of the Feeble-minded it seems probable that about 1 in 250 of the population, and 1 in 127 of the children on the school registers, are permanently mentally deficient.

Definitions of Grades of Mental Defect

A feeble-minded person is one who is capable of earning a living under favourable circumstances, but is incapable from mental defect, existing from birth or from an early age, (1) of competing on equal terms with his normal fellows, or (2) of managing himself or his affairs with ordinary prudence.

The imbecile is a degree worse than the feeble-minded, and is incapable of earning his living under any circumstances, but is able to guard himself against common physical dangers.

The idiot is the lowest degree, and cannot even guard himself against common physical dangers.

Factors in Causation

A taint of insanity, epilepsy, or mental deficiency is found in about 40 per cent. of the families of the feeble-minded. There is little doubt that this taint,

handed down from generation to generation, is the most potent cause of feeble-mindedness, especially if it be reinforced by an additional taint from the other parent.

In considering tuberculosis or alcoholism, it is not possible to give such a definite opinion. Tuberculosis is so wide-spread that family histories are of little value. Again, it is very common amongst the insane, because they seem to have inherited a weak resisting power. In this way a tuberculous family history may show that the child comes from a stock tainted with mental disease and tuberculosis. It is also difficult to estimate the effect of alcoholism, either affecting the ancestors and producing an inherited taint, or as a poison to the parental reproductive elements before or after conception. Statistics are misleading, and the fact that a person is convicted of drunkenness often only means that he is of weak mental calibre. All that is certain is that the tissues of persons suffering from alcoholism or tuberculosis to any great extent are much weakened and poisoned.

Though injury at birth and disease after birth may be the cause of feeble-mindedness, they are rare compared to the inherited causes. There is also nothing to show that syphilis or cancer causes feeble-mindedness. Let it be emphasized that in most cases feeble-mindedness is innate and inherited.

Types of Mental Defect

The following types can be picked out ; but it must be understood that the majority of the feeble-minded cannot be classed under any special type, some of

them being of a bright and even prepossessing appearance.

(1) *The Microcephalic*, with very small heads, which, instead of being from 20 to 21 inches in circumference, are often only from 17 to 18 inches.

(2) *The Mongolian*, whose features are very like those of a Chinaman, the eyes being obliquely set, and the bridge of the nose depressed; the ears are small and shell-like, the tongue protrudes, the head is small and round, and the hands trident shaped. These children are usually very happy, and show a marked liking for music.

(3) *The Cretin*, whose condition is due to the absence of one of the glands of the body, the thyroid, and not due to an original brain defect. These cases can be vastly improved by the administration of extract of sheep's thyroid. Cretins are very stunted in growth, have coarse features and skin, a harsh voice, a large clumsy tongue, and are extremely dull and heavy in action and thought; if untreated, they are hopeless imbeciles.

(4) *The Hydrocephalic*, whose head is enlarged and brain compressed by an effusion of fluid in the brain. The much commoner enlargement of the head due to rickets must not be confused with this condition.

(5) Those due to a haemorrhage on to the brain at birth. Such children are often stiff and awkward, and are very given to slavering.

(6) Epilepsy and feeble-mindedness are closely connected with one another. As many epileptic children are also feeble-minded, no treatment of the epilepsy can alter the mental condition in such cases; but, on the other hand, most epileptic children are

not feeble-minded, and mental dullness, if present, is due to the fits which may have a marked effect in this way.

Physical Characteristics of the Mentally Defective

Among the commonest of these are : (1) Smallness and unevenness of the head, the circumference being less than the normal, which can be taken as 21 inches at 4 years and 21½ at 10 years—a head under 19 inches in a well-grown child is very suspicious ; (2) abnormally shaped ears ; (3) extra skin folds at the inner angle of the eye ; (4) a highly arched palate. This condition has been said to cause defective speech, but has little effect in this way. These stigmata, though they may be and often are present in normal children, are much more common in the feeble-minded. The heights and weights of mentally defective cases are generally lower than those of ordinary children. The general balance and carriage are often very defective, because, as in the case of defective speech, there is poor muscular control and clumsy co-ordination of groups of muscles. It is often possible to tell at a glance from the expression and general appearance that the child is feeble-minded.

Disorders of Speech

Defective speech is very common, and may be due to underdevelopment of the ways into the brain or of the centres in the brain. The speech apparatus is seldom really deformed, so training, education, and

stimulation of the ways in, i.e. sight, hearing, and sense of lip movement, of the brain itself, and of the ways out to the muscles of the speech apparatus, can do much towards improvement.

A slovenly jumbling together of words leading to general indistinctness is often found combined with lalling, which is substitution of one of the more easily pronounced consonants, such as P, B, or T, D, for the less easily pronounced, as K, G, or else Y for R. Coat thus becomes 'toat'; girl, 'dirl'; rabbit, 'yabbit,' and so on. The combined consonants present especial difficulties in words like scissors and kettle. In the same way the child may write 'god' for dog, or go off into a meaningless jumble when attempting to write down a word.

It is always necessary to pay careful attention to the hearing and eyesight in order to make sure that the mental dullness is not due to such troubles. In testing the hearing, the observer must be careful not to confuse want of attention with true deafness, as it is by no means always easy to distinguish between the two.

Though the feeble-minded are late in learning to walk and talk, most of them have learned before they attain school age; but delayed development of control over the muscles governing the bladder and bowels may persist to school age, and give considerable trouble. Careful training is usually successful in such cases.

Mental Characteristics

Memory is often deficient, the mother complaining that the child cannot go simple errands. Concentration and attention, so necessary for learning, are often conspicuous by their absence. Many feeble-minded

children appear deceptively bright, but their attention is so little fixed, and flits so lightly from one subject to another, that the ways into the brain are poorly developed and tuition is difficult.

The feeble-minded find great difficulty in appreciating an abstract idea. They cannot do sums or name colours at all well, but may succeed if they have beads to count or colours to match. They are much better at manual tasks, for they commonly have good powers of imitation, and can do useful work under supervision. At first they may need infinite pains and care, the worst cases beginning with the very simplest tasks and gradually learning to perform harder ones. Moral failings, such as incorrigible thieving and lying, are very difficult to deal with in some cases, but fortunately intractable cases are not very common if discipline begins at an early age.

It must be remembered that on the one hand some children are backward because their health has been bad and their education neglected, and on the other hand that some feeble-minded children can attain a fair amount of knowledge and manual skill; in consequence it is not always easy to be sure that a child is feeble-minded, but if attention be paid to the above points, a definite opinion can be given in most cases.

Treatment and Care of the Mentally Defective

These children need permanent care. Unless all workers and all societies taking up this subject recognize that permanent care is the one and only remedy by which a community may hope to deal effectively

with the feeble-minded, their work may do more harm than good. If these children are to be trained and educated at special schools, arrangements must be made for supervision and care after school age, or the ranks of the unemployable, the prostitutes, the drunkards, and the habitual criminals are recruited. Further, it is far better for the feeble-minded to have their minds and bodies developed and exercised than for them to lie fallow.

There are several methods of dealing with feeble-minded children of school age :—

1. *Special Schools.*—The Education Committees of many of our large towns have now schools set apart entirely for the feeble-minded and staffed by teachers skilled in their care. The children should be selected by a medical officer, who examines the cases picked out by the teachers in the ordinary schools. The advantages of a special school are many. In an ordinary school feeble-minded children, though not always conscious of their inferiority, are often bullied and teased, and cannot get that special attention so necessary if they are to get any benefit from teaching. More important is the fact that they waste the time of the teacher and the ordinary children. At a special school, instead of suffering from contact with other feeble-minded, those of the higher grades are often benefited. The imitative and musical faculties should be fully used, and manual training and drill adapted to giving the children control over their fingers, muscles, and powers of judgement. Improvement in cleanliness and obedience should be first aimed at, and little can be done till some power of attention can be attracted. It is only infinite patience,

combined with skilled and practised tuition, that will render good results possible. After leaving school the children must be under supervision and guidance of some organization for finding them occupation and for permanent care.

2. *Institutions for Permanent Care.*—There is little doubt that the formation of colonies or institutions for the permanent care of the feeble-minded goes a long way towards the solution of the problem, and, if it were more generally adopted, would in time greatly diminish the number of the unemployed. In America they are far in advance of us. Here in England there are no legal powers of control over education cases after the school age of 16, so any attempt at permanent care in an institution is badly handicapped from the beginning by the fact that any of the inmates over 16 can walk out if they wish to do so. In spite of this difficulty, the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded has for eight years been conducting such an institution. Prevention is better than cure, and the sooner the community realizes that permanent care and segregation of the feeble-minded is the chief way of lessening the number of these undesirables the better.

3. *Ethical and Legislative Forces.*—Finally it should be pointed out that the general population must be brought to realize clearly that feeble-mindedness is inherited and likely to recur in the next generation. Then many entirely unsuitable marriages will be prevented, and the greater will be the success attending the efforts of those who wish to stamp out a scourge that has brought untold distress to many homes, and has imposed an enormous burden on the community.

XI

PHYSICALLY DEFECTIVE CHILDREN

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A great Empire and little minds go ill together.

BURKE.

So careful of the type she seems,
So careless of the single life.

TENNYSON.

O suffering, sad humanity,
O ye afflicted ones, who lie
Steeped to the lips in misery,
Longing, and yet afraid to die,
Patient, though sorely tried.

LONGFELLOW.

It is very good for strength to know that some one needs you to be strong.

E. B. BROWNING.

Since the essence of wealth consists in power over men, will it not follow that the nobler and the more in number the persons are over whom it has power, the greater the wealth? Perhaps it may even appear, after some consideration, that the persons themselves are the wealth. . . . In fact, it may be discovered that the true vein of wealth are people—and not in rock, but in flesh—perhaps even that the final outcome and consummation of all wealth is in the producing as many as possible full-breathed, bright-eyed, and happy human creatures.

RUSKIN.

XI

PHYSICALLY DEFECTIVE CHILDREN

FOR the purpose of this chapter the term 'Physically Defective Children' may be taken to mean children who suffer from some defect or disease, other than a mental one, which seriously interferes with ordinary school life and which is likely to operate against the efficiency of the child viewed as a prospective citizen.

FACTORS INFLUENCING A CHILD'S PHYSICAL HEALTH

To what extent Heredity acts in determining the physical well-being of a child it is difficult to determine, and concerning it there is at present no general agreement; in surveying the causes of physical deficiency in a large number of children of the public elementary school class Heredity would appear to be secondary in importance to Environment. The number of diseases actually inherited is very small; more commonly a predisposition to certain diseases—e.g. tuberculosis, rheumatism, and rickets—is transmitted from the parent to the child; this inherited liability to disease is, however, considerably diminished if the child is brought up under healthy conditions. The supreme influence on the physical development and health of the child of food, air, clothing and cleanliness cannot be too strongly insisted upon; the effect of

PHYSICALLY DEFECTIVE CHILDREN

Environment on the growth and nutrition of the child is well illlustrated in the tables below, which are taken from Dr. Arkle's findings[1] in an examination of Liverpool school children.

TABLE INDICATING PHYSICAL CONDITION OF CITY SCHOOL CHILDREN

Age	Ages in Years													
	7		8		9		10		11		12		13		14	
AVERAGE HEIGHT.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Secondary Schools .	3	11½	4	2½	4	4	4	6½	4	7½	4	10	5	0½	5	1½
Council Schools, A .	3	9½	3	11¾	4	1¾	4	3¼	4	5	4	7	4	9	4	10¼
,, ,, B .	3	8¾	3	10	4	0	4	1¾	4	3¾	4	5½	4	6	4	8¼
,, ,, C .	3	8	3	8¼	3	11	4	0½	4	1¾	4	3½	4	5½	4	7¼
AVERAGE WEIGHT	St.	Lb.	St.	Lb.	St.	Lb.	St.	Lb.	St.	Lb.	St.	Lb.	St.	Lb.	St.	Lb.
Secondary Schools .	3	7¼	4	0¾	4	3½	4	10	5	0¼	5	7	6	4¼	6	10½
Council Schools, A .	3	2	3	4½	3	11¼	3	13	4	5½	4	10½	5	3½	5	5¾
,, ,, B .	3	1	3	3½	3	8¾	3	11	4	3	4	8	4	12¾	5	5¾
,, ,, C .	3	1	3	1¾	3	6½	—		3	13½	4	6	4	13¼	5	1¼

Council Schools, A represent the best class of Public Elementary Schools.
,, ,, B represents class where the parents are mostly of the labouring classes and small shopkeepers.
,, ,, C represents children of the poorest classes; the parents being of the casual labourer class.

Classifying the children according to the state of their nutrition, Dr. Arkle's results were as follows:—

Boys	A	B	C	Girls	A	B	C
Number . .	298	442	286	Number . .	325	383	213
	Per Cent.	Per Cent.	Per Cent.		Per Cent.	Per Cent.	Per Cent.
Good nutrition	80	28·5	10·5	Good nutrition .	91·6	65·7	16·9
Fair ,,	17·8	60·1	35·3	Fair ,, .	8·1	33·9	52·5
Poor ,,	1·3	9·7	48·6	Poor ,, .	—	·7	28·6
Bad ,,	—	·7	2·4	Bad ,, .	—	—	1·8

[1] ARKLE, A. S.: 'Physical Condition of School Children.' *School Government Chronicle*, January, 1907.

Malnutrition is very prevalent, as the figures just referred to show, amongst the children of the poorer classes, and in the majority of cases is due to causes which may be summed up in the term bad environment ; occasionally it may be due to some underlying disease or peculiarity of constitution ; it entails not only feeble health, an increased liability to contract disease and backwardness in learning, but if long continued may lead to permanent under-development of the individual.

In the following account of the common physical defects no reference is made to phthisis in school children. For information respecting phthisis in children the reader is referred to the chapter on ' Tuberculosis ' by Dr. Clive Riviere in the preceding volume of this series of manuals—*Childhood*. The defects or diseases are arranged according to the system or parts affected.

Affections of the Eye and Organs of Sight

There are about 1,600 blind children between the ages of five and fourteen in England and Wales ; approximately 40 per cent. of these are due to ophthalmia, a disease affecting the newly-born infant. Ophthalmia commences within a day or two of birth, and in the absence of treatment rapidly leads to the destruction of both eyes. By proper attention to the infant at birth, ophthalmia could be prevented ; by prompt treatment of the disease in an early stage, blindness from this cause could be abolished. With a view to securing immediate treatment, a few municipalities have made notification of the disease by the parent or midwife compulsory.

External Diseases of the Eye.—The conjunctiva (the membrane covering the white of the eye) and the cornea (the membrane in front of the pupil and continuous with the former) are very liable to inflammation, but especially so amongst debilitated and badly-cared-for children. Trachoma, a chronic contagious affection of the conjunctiva, is the result of bad hygienic surroundings and is consequently almost restricted to the children of the poorest classes ; it is important in that the child must be separated from other children during the whole course of the disease, which may be many months or even years, and because of its liability to affect the cornea. Diseases of the cornea may lead to permanent opacity and thus to serious impairment of vision.

Visual defects due to errors of refraction are very common in school children ; it is estimated that 10 per cent. of all children are affected to such an extent as to require treatment. In hypermetropia, or long-sightedness, the image is focused behind the retina, as the eyeball is too short from front to back ; consequently the child is only able to see near objects at all clearly by straining the eye. The symptoms caused by eyestrain are aching of the eyes, headache, redness of the eyes and general ill-health. In myopia, or shortsightedness, the image is focused in front of the retina, as the eyeball is too long from front to back. The child is unable to see objects at a distance clearly, and in reading holds the type nearer to the eyes than is usual. Myopia is in part the result of the prolonged use of the eye for near vision, more especially under improper conditions such as insufficient or badly directed light and faulty position of the child ; in a

fair proportion of cases an inherited tendency to myopia is an important factor in the causation of the disease. Astigmatism is due to irregular curvature of the cornea; for instance the vertical curvature may be greater than the horizontal, and as a result the image is not sharply focused on the retina. Astigmatism may produce marked eyestrain symptoms.

It should be pointed out that in the majority of cases visual defects in children do not attract the notice of the parents, and but for routine medical inspection many of them might remain untreated for an indefinite period.

The Ear and Hearing

Defects of hearing of such a degree as to be noticeable by the teacher occur in about 5 per cent. of all school children. Ear discharge or running ear, due to suppuration in the middle compartment of the ear ('Otitis Media') is one of the commonest and one of the most serious affections of the ear in childhood. It is most frequently caused by adenoids, scarlet fever, and measles. If treated with perseverance whilst the disease is in an early stage, it can usually be cured by comparatively simple means; if the condition is neglected, it will become more intractable, more dangerous, and will necessitate an operation for its cure. Irretrievable damage to the hearing and even fatal complications may ensue from old-standing suppuration in the middle ear.

Deaf Mutism.—If from any cause a child becomes deaf before the power of speech has been fully acquired, that is about the seventh or eighth year of life, the ability to talk is more or less diminished or not

developed at all, as the case may be. There are about 3,400 deaf mutes of the school age in England and Wales; nearly one half of the total number are deaf from birth (congenital deaf mutes), and of these a fair proportion are hereditary. The cases due to deafness coming on after birth are the result of meningitis and of suppurative otitis of both ears. In the special schools for deaf children the oral method of training is in all cases first tried, so the child has the opportunity of learning to speak and read aloud and, further, to interpret by lip-reading the speech of others. The power of speaking to a useful extent is acquired in the majority of cases; a smaller number learn to lip-read successfully. If the children are to be successful as wage earners, it is essential for them to receive industrial instruction before leaving school.

Affections of the Nose and Throat

Adenoids.—In the upper part of the pharynx behind the nasal passages there is a rich supply of lymphoid tissue; overgrowth of this tissue sometimes takes place, producing the condition known as Adenoids. About 8 per cent. of all school children suffer from adenoids. Normally the inspired air on its way to the lungs passes through the nose, and in so doing is warmed and filtered; one of the chief effects of adenoids is to obstruct the nasal passages and thus hinder nasal respiration; mouth breathing is thereby set up and the air reaches the lungs cold and comparatively dust-laden. The child's general health very soon suffers; in a marked case he becomes dull and

loses the power of concentration, the mouth is habitually open, he snores heavily at night and is constantly 'catching colds'; frequently there is some deafness. The susceptibility to infectious fevers is increased. If the condition is present during early life the child is likely to become pigeon-chested owing to the interference with full pulmonary expansion. Enlarged tonsils are frequently associated with adenoids and serve to aggravate the condition.

Enlarged Lymphatic Glands in the Neck.—This is a common condition in children; it is caused by the absorption of irritating material, frequently from carious teeth, head lice, and sores about the scalp and face. Swollen glands due to such causes are apt to form abscesses, and they also provide a suitable soil for the growth of the tubercle bacillus. Tuberculous disease of the glands in the neck is one of the commonest forms of tuberculosis in children; the disease follows a chronic course, and it is imperative that the hygienic surroundings of the child should receive full attention; the open-air school admirably fulfils the wants of these children.

Diseases involving Bones and Joints

Rickets is a disease of infancy, and is due essentially to improper feeding and unhealthy surroundings. We are here concerned with its effects on the later development of the child; these may be: (1) General physical and mental backwardness; (2) deformities of the bony skeleton due to a softened condition of the bones. The bones affected are those which are subject to strain in early life; thus, through the constant maintenance

of the sitting position the spine may bend under the weight of the head, or when the child commences to walk the leg bones may bend, producing either knock-knee or bow-leg deformities. The chest may be affected, particularly if the child suffers from adenoids, the ribs sinking in on either side of the breast bone and causing a marked diminution in the transverse diameter of the chest. In severe cases gross and permanent deformity, of the legs especially, may result unless the child is carefully looked after.

Lateral Curvature of the Spine.—In this condition the spine when viewed from behind is curved to one side of the middle line ; in a severe case the most striking feature is the distortion of the trunk that accompanies the deformity of the spine. It is most frequently met with in girls of about ten to fifteen years of age. The common type is due to a combination of factors, viz. poor general health, faulty sitting position, and sometimes excessive bodily work about the period of puberty ; the last factor is largely responsible for the condition when it develops in factory girls and young domestic servants. The conditions under which the child works at school, and reads or sews at home, are in great part responsible for the deformity. Proper seats and desks, good illumination, and the correction of any existing visual defects are the essentials in preventing the trouble. The seat of the chair should be deep enough to support the thighs, and of such a height as to allow the feet to rest firmly on the ground ; the chair back should reach to the level of the shoulders, and should incline slightly backwards above ; the desk should be close up to the body, and should be high enough to

prevent any tendency to stooping; the child should be made to face the desk squarely when writing. Much can be done for the deformity if it is treated in good time.

Tuberculous Disease of the Bones and Joints.—Of the bones and joints, the spinal column, the hip and knee joints are the parts most commonly attacked by tuberculosis. In at least 50 per cent. of the cases the disease commences before the sixth year of life.

Tuberculosis is responsible for the majority of crippled children, not to mention the amount of pain and suffering which it inflicts. The conditions favourable to the development of tuberculosis have been described in the preceding volume. Spinal disease usually results in an angular curvature, more or less marked, of the spine. Hip and knee disease leave the respective joints stiff and often fixed in a deformed position. Abscesses not uncommonly develop in the course of the disease and prove a serious complication. The active stage of the disease extends over some years; if permanent crippling is to be avoided, if recovery is to be attained within a reasonable period—two to three years—then it is essential for the child to have fresh air, good food, and constant and intelligent care from those in charge in helping to carry out the treatment—one of the principal aims of which is to secure absolute rest of the joint. The treatment of spinal disease usually necessitates the position of complete recumbency for a considerable period; some form of splint or jacket to fix the spine may be ordered later on, so as to enable the child to get about. In treating hip and knee disease, after a preliminary rest in bed, a splint is applied to secure absolute rest

to the joint and to prevent any weight being borne on the limb ; the child is then able to get about with crutches. It is unfortunately the case that the home surroundings of many of the children with these diseases are such that the treatment is carried out under the greatest difficulties and is necessarily inadequate.

Heart Affections.

Heart disease as met with in children of the school age is usually acquired, but occasionally it is congenital. In examining 600 Edinburgh school children, fifteen were found to be suffering from heart disease ; these figures appear to represent the average incidence of the disease. In acquired heart disease the valves guarding the passages between the chambers of the heart, or the orifices where the great vessels issue from the heart, are so altered as to be incapable of properly performing their function in directing the course of the blood through the heart and lungs.

Under favourable conditions the heart is enabled to overcome this defect, for a certain length of time, by an increase in its muscular power ; the child meanwhile may show no sign of heart disease and, but for routine medical examination, would be subject to the ordinary school work and conditions, with very damaging results to the heart. Children suffering from heart disease are very liable to be troubled with coughs, headache, and palpitation ; they ought to be under regular medical supervision ; the only form of school that they can attend with any regularity or benefit is an open-air school. It is essential to maintain the nutrition of these children fully if the heart is to accommodate itself successfully to the defect.

The proportion of children with heart disease who attain adult years in good condition is small.

Affections of the Nervous System

Chorea, or St. Vitus's dance, is characterized by aimless and uncontrollable twitching movements of any or all the muscles of the body ; there is a close association between chorea, rheumatism, and heart disease. The first sign noticed is usually clumsiness in performing certain movements such as are involved in writing, drawing, or even in walking and feeding ; the child often 'makes faces.' The child is irritable, and is made worse by observation, or by association with other children. The disease is a serious one, and should receive immediate attention ; the child is quite unfit to attend school. The disease may last for weeks, or even months, and is very liable to recur—especially under unfavourable surroundings or after too early resumption of ordinary school work.

Infantile Paralysis.—This is an acute disease of the spinal cord, which occurs most frequently during infancy and early childhood. When the acute stage of the disease has subsided there usually remains more or less permanent paralysis; most commonly certain groups of muscles in one of the legs are paralysed with the result that the limb is deformed and the child walks lame ; occasionally the paralysis is much more widespread, and the child may be completely crippled. The mental capacity of the child is unaffected. By early and persistent treatment a great deal can be done to improve the physical condition of the child.

The congenital malformations such as club foot,

cleft palate, hare lip, and others, are not from the point of view of this work of much importance, and as a rule the nature of the deformity is sufficient to ensure early treatment. Cleft palate invariably interferes with proper articulation. After the operation for closure of the cleft has been performed the deficiency in speech can to a great extent be remedied by careful training.

Provision for Physically Defective Children

The Education (Administrative Provisions) Act of 1907 compelled the local education authorities to provide a system of medical inspection at regular intervals of all children in the public elementary schools. The objects which, amongst others, this Act aims at securing are: (1) The detection of physical (and mental) defects in an incipient stage, and the securing of treatment for these by urging the parents to take the necessary steps. (2) The adaptation of the educational system to meet the physical and mental capacity of the child.

Legislation dealing with the treatment and education of these children is necessarily at present of a permissive and elastic character, except as regards the blind and deaf; it will only be after a full consideration of the results of the methods adopted by the different local authorities, and of the facts furnished by some years of medical inspection, that any systematic scheme can be finally formulated.

Education and treatment must in many cases be associated; and in considering the means that are being taken to place these on a more satisfactory basis it will be necessary to arrange the different

types of physical defects in groups. (1) Children who are physically incapacitated for attendance at school; for instance, children suffering from hip, spine, or knee disease, from severe rickety deformities, and from extensive paralysis. For such of these children as are fit to be taught—and the great majority are—*Special Day Schools* have been established. The children are, if need be, conveyed to and from school in an ambulance, and special accommodation is made at the school. There are thirty-four such schools in this country, twenty-four of which are under the London County Council.

There are three *Residential Schools* in England—at Manchester, Liverpool, and Chailey respectively. The school at Manchester, the first municipal residential school to be established in this country, has accommodation for one hundred and twenty children. The average period of residence in the Manchester school is approximately two years. The results have proved so satisfactory in this school that the accommodation has recently been substantially increased.

(2) Children who are quite able to get about, but whose physical condition renders them unsuitable for education at an ordinary school.—This class is a very large one, and includes children suffering from malnutrition, enlarged glands, heart disease, and some of the external diseases of the eye, children recovering from chorea, or who have recovered from bone and joint disease. Under present conditions some of these children attend the ordinary schools very irregularly and with little educational benefit; when absent from school the time is not, in many cases, employed to the advantage of the child's health.

For this class *Open-air Schools* have been established in London, Bradford, Halifax, Norwich, Sheffield, Darlington, and elsewhere.

(3) The children with defects that will speedily and completely yield to prompt treatment, but which if neglected will have serious results to the affected child or the children associated with such.—In this class may be placed children suffering from visual defects due to errors of refraction, some external diseases of the eye, the early stages of running ear, skin diseases—ringworm, itch (scabies), lice and pustular affections. In these diseases the sole need is for prompt and efficient treatment, and if the parents are too poor to obtain this from a private doctor then recourse must, in the absence of special provision, be had to the local hospital. Where the hospitals are largely used for the treatment of these children some arrangement between the education authority and the hospital board is very desirable, and is in fact only right. Some local education authorities, in order to meet the practical difficulties met with in attempting to secure adequate treatment for this class, have established 'school clinics,' which are practically out-patient departments for the treatment of minor ailments, but which have the advantage, amongst others, over charitable institutions in possessing an organization to ensure regular attendance.

It is plain that in dealing with the treatment of physically defective children of the poorer classes, a more effective control of the child and of the child's surroundings than the existing agencies possess is necessary if results satisfactory from a medical and educational standpoint are to be attained.

XII

THE SCHOOL CHILD AND CITIZENSHIP

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I would that every Englishman should be as free as the air we breathe.

KING ALFRED.

To know
That which before us lies in daily life
Is the prime wisdom.

MILTON.

Lo! here thy body beginning, O son, and thy soul and thy life;
But how will it be if thou livest, and enterest into the strife?

WILLIAM MORRIS.

To govern a country of a thousand chariots there must be . . . faithfulness and a love for the people.

CONFUCIUS.

Stronger than woe is will; that which was good
Doth pass to better—best.

BUDDHA.

Yet I doubt not through the ages one increasing purpose runs,
And the thoughts of men are widened with the process of the suns.

TENNYSON.

There was never a child's full laugh or a woman's cheerful word
That did not exalt the State where its tones were felt and heard.
Know, then, that it still holds true, from the skies to the humblest soil,
That there is no wasted love and there is no wasted toil.

M. O. BYLOW.

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THE SCHOOL CHILD AND CITIZENSHIP

In the history of the human race there has been no greater factor in the progress of mankind than the development of the communal instinct whereby the more limited interest of the individual in the welfare of the family expanded into a desire for the advancement of the tribe. The welfare of the tribe was reflected in the well-being of the individual, so that probably the primary stimulus of the development was based on self-interest; but with the dawn of greater ideals in the human race there came into existence the more unselfish patriotism which prompted men to sacrifice their own interests for those of the community, to live for the good of their nation, and to die for their country. And with the later evolution of man, coincident with his acquirement of power not only to adapt himself to his environment but also to modify it, curing and exterminating disease and obviating famine, and influencing thus two agencies which by natural selection have determined in the past the path of his

progress, there has developed a desire so to influence posterity that the race, by the conscious efforts of the individual, may be improved.

Patriotism as a Stimulus

To some extent, the stimulus to efforts at improving the race arises from the spirit of patriotism. The Briton is eager for the well-being and the advancement of his nation, and this end can be attained by taking thought for the future citizen. Strong and healthy in body, of an intellect alert and trained, of a moral stamina worthy of the finest ideals: such is the citizen we seek to rear. And whether the predominant part of our patriotism be the more mundane desire for the commercial success of our country, or the fiercer wish for our continued strength in battle, or the more peaceful prayer that, by the advancement of our nation as a world-power, the men of our race, grown more honourable, more just, and more kind, may hasten the ethical progress of the human race, the means to the end is ever the same—the citizen, efficient physically, mentally, and morally.

Citizens in the Making

Because the child is a citizen in the making, it behoves the State to give to the rearing of its children such wisdom and foresight as will produce the greatest number of efficient citizens. The State should take thought for the training of the child's intellect, so that with the acquirement of useful knowledge there shall be a full development of initiative and power

of thought, and for the growth of the child's body so that the mental training shall in no way diminish the physical well-being nor the environment handicap the healthy adolescence of the future citizen ; and the State should see that the moral training of the child is such that the future citizen is imbued with ideals which the conscience of civilized man declares to be noble ; thus will the State raise for itself citizens who will make our country worthy of the foremost place among the world-nations.

Evolution and the Child

In caring for the upbringing of the children of the nation, the State is removing certain conditions which tend to deteriorate the bodily and mental well-being of the child, conditions such as non-hygienic slum-life, handicapping ailments such as adenoids and eye-strain, and semi-starvation on account of insufficiency or unsuitability of food. There is a tendency to regard these unfavourable conditions as a means whereby nature eliminates the unfit, and their removal as a retrograde step which will result in the survival of the weaklings of the race ; but such views are incomplete, and from the brief consideration given in the succeeding paragraphs it may be seen that the removal of these deteriorating influences is not only justifiable but essential to the rearing of efficient citizens and to the improvement of the race.

In dealing with these deteriorating influences individually, consideration is given to the fact that man has modified his environment, exterminating or

limiting the influence of the former selective agents such as famine and disease, and to the fact that the struggle now is not always to the death—for whereas in remote ages the selective agents killed off the unfit, in modern times they damage the health of large numbers of future citizens. A long period of semi-starvation may not kill a child; the child usually survives damaged, and becomes a weak and inefficient citizen. It will be seen, moreover, that the individual who is *fittest* to withstand semi-starvation or the attacks of infectious disease is not necessarily the *best* individual, either in physical health or in mental and moral worth to the nation.

In taking thought for the rearing of citizens, the State should seek first for any evil influences in the environment of their earliest years which would diminish their eventual efficiency and value to the nation. Slum-life and unsuitability and insufficiency of food are some of these evil influences, and the State should seek to remove them. At present, these influences kill off 150 out of every 1,000 infants during the first year of life. Does this make for the survival of the fittest? If we wished to rear a nation of citizens 'fittest' to withstand damaging feeding during infancy, and impure air and overcrowding, it might be right if not righteous to allow these influences free play. But our view of the ideal citizen is not this. Moreover, for every one of the 150 infants per 1,000 who die during their first year, there are many more who, although they survive, are damaged by the evil influences. They live, and the damage is often irremediable, and they become weaklings.

The evil environment is also the happy hunting-

ground of fever germs, and to take the resistance of a child to infectious disease as a test of its fitness to live would be unwise ; there are hundreds of healthy vigorous children dying each year because they chanced to come into the field of infection. That blind chance resulted in their death, otherwise they would have become healthy adults. If this evil environment is a test of fitness to survive it is an arbitrary test ; if it is allowed to act as a selective agent it will produce a type not necessarily healthy in mind and body, but fit mainly to withstand slum-life and evil feeding ; so that the State's first care in its attempt to produce the ideal citizen must be to remove the influences which are tending to produce a type which is lower.

Famine has ceased to be a factor in the selection of the ' fittest.' At the present time the child who is semi-starved lives, is damaged by the lack of nourishment, and becomes a citizen of less value to the nation. And if the State seeks to rear the greatest possible number of healthy and efficient citizens, it must take measures to prevent the child being deprived by semi-starvation of its chance of healthy citizenship.

Parental Responsibility and the Coming Citizen

The responsibility of the parent for the sustenance of the child until the child can fend for itself is a moral responsibility, and its exercise is in itself a stimulus to good citizenship ; therefore parental responsibility should be retained and the children should be adequately fed, clothed, and cared for by

the parents whenever possible. But it is not always possible, and the first care of the State must be given to the children who are growing up in a state of semi-starvation, a continued state which results in the child becoming an adult whose physical condition is not only a handicap to the individual but a decided loss to the State. The underfed children whose parents are unable to provide sufficient nourishment must be fed by the State ; and the children whose parents *are* able but neglect to feed them must be fed and the cost recovered from the parents. The State needs healthy and efficient citizens ; therefore the State must remove the conditions which are preventing the production of its need.

The Medical Treatment of School Children

In a large proportion of the children in the elementary schools to-day there exist defects or ailments which are handicaps to healthy vigorous growth in mind and body. What this means to the individual in physical suffering and to the State in the diminished value of its future citizens it is difficult to realize ; and although these handicapping conditions can be cured if treated in the early stages, treatment is difficult to obtain. The majority of the ailments require for their cure medical treatment, which, from the nature of the complaints, is expensive and beyond the means of the great majority of the parents of these children.

The Environment of the Future Citizen

The environment of the child may be defined as the sum of all the external conditions which influence him

in any way. Some of these conditions have an evil influence on the growing child—slum-life, unsuitability of food during infancy, insufficiency of food at a later period of childhood, exposure to damage by infectious disease. There are other conditions to be considered, and of these the school environment is one of the most important. Until recent years, the atmosphere in the ordinary class-room was close and unhealthy, the rooms were overcrowded, ill-ventilated, and insufficiently warmed; and the children suffered in health. Although some improvement has already taken place, much requires to be done if the child is to be given the best chance of becoming a healthy citizen. The evil effects of this environment are great on the normal child; they are far greater on the delicate and ailing child.

Weak and Delicate Children

There are large numbers of children in the elementary schools of the country who are weak and delicate, suffering from anaemia, nervous troubles, slight heart disease, and other conditions which can be cured or improved by suitable upbringing. They are not fit for regular school attendance at the ordinary schools, they are not in a fit state to undertake the curriculum of these schools, and the results obtained in Germany by the education of these children in open-air schools have been so satisfactory and the improvement in their physical health and scholastic progress so marked, that similar institutions are being established in this country. Special upbringing will result in very many of these children becoming healthy

adults, and it is obviously to the advantage of the State to obtain healthy citizens instead of weaklings. Hitherto, these children have been forced to attend the ordinary school ; irregular attendance has resulted in trouble for the parents, and the fact that a highly-strung child continually ' did her sums aloud ' during sleep was deemed an insufficient excuse. The coming of the doctors to the schools is already altering this unsatisfactory state of affairs ; but much remains to be done.

The School Curriculum

In the present controversy concerning the school curriculum there is much difference of opinion among the experts ; there are many seekers for the right path, and, because they seek wisely and scientifically, there is hope that in the near future the path will be found. Probably the best preliminary training for infants has been found in the Froebelian *Gifts and Occupations*, the former developing the function of the sensory areas of the brain, the latter exercising the lesser association centres whereby the impressions received through the sensory areas are co-ordinated. But the solution of the problem in the post-kindergarten stages appears to be still far to seek ; the transition between formal instruction and the fuller development of the ' real interests ' is unsatisfactory. Yet out of the chaos there are a few defined forms arising. Apart from all other things in education, it has become clear that the children will be better citizens in the future if they receive adequate formal instruction and training in certain groups of subjects beyond the three R's, in-

struction for the sake of the knowledge gained apart from the training given.

For the older girls, formal instruction in housecraft and the care of children should be developed and continued, knowledge which will be of the utmost importance to the future wives and mothers of the race. For the older boys, the opportunities of technical instruction are being everywhere increased: the State is taking thought for the childhood and adolescence of her future citizens so that their citizenship shall be of the greater value.

Classification

Throughout our education system there is arising a new force which will make inevitably for greater efficiency—classification. Whereas formerly there was a routine education to which all children were submitted, there is needed a greater selection, and attention is now being given to the varying aptitude of children, to the unequal rapidity of mental development, and to the special needs of children physically delicate but of good brain power. The cast-iron system will be gradually given up, a system more adapted to the needs of the individual will arise, with the result that the State will obtain citizens of a higher standard of physical and mental worth.

The Civic Spirit

The civic spirit in a citizen is of value to the State, and although *esprit de corps* is more difficult to foster in a day school than in a residential school, formal

instruction may be of great use. To my knowledge, the attendance of older school children at the annual mayoral installation resulted in a keen interest among the children in the municipal government, and the formal instruction of children concerning things imperial is to be encouraged. In the greater attention which has been given during recent years to the problem of the children of the nation there is abundant hope for the future of our country. It has been stated above that the main stimulus of the efforts directed towards the hygienic and rational upbringing of the children is patriotism. This stimulus alone is worthy, for our heritage of the glorious annals of our country is a noble one. But running through the warp of our endeavour there is also the golden thread of a greater ideal—that of the more perfect human being. Also there falls on our ears the plaintive cry of the children who are sore weary, and by our efforts they will win to the city of health and efficiency. They shall be citizens of no mean city.

APPENDICES

CONSISTING OF REFERENCES TO ILLUSTRATE THE PRECEDING CHAPTERS

APPENDICES

In the following appendices an attempt has been made to furnish the serious student with such information and direction as shall lead to specialized study and practical service. The Editor will count it a favour if readers will inform him of all sins of omission and commission.

APPENDIX I

To illustrate Chapter I

Readers are advised to consult the appendices to the volumes on *Infancy* and *Childhood* in this series of manuals for references to many works dealing with subjects discussed in this book.

The bibliographies here presented are of course not to be taken as in any way complete. They are, however, representative, and will serve to direct to a fuller study of the subjects to which they relate. There is now a very extensive periodical literature dealing with educational problems, school hygiene, studies of school life and investigations of the school-going child. The following will be of service for reference :

American Physical Education Review. Springfield, Mass., U.S.A.: The American Physical Education Association. Monthly. Annual subscription, $3.

International Magazine of School Hygiene. Munich: Otto Gmelin. Quarterly.

Journal of Education. London: William Rice. Monthly. Annual subscription, 7*s.*

Journal of Scientific Physical Training. King's Norton, Birmingham: Mrs. E. Adair Impey. Three copies yearly, 3*s.*

School Hygiene. London: Magazine and Publication Syndicate, Ltd. Monthly. Annual subscription, 7*s.* 6*d.*

The Child. London: John Balē, Sons, and Danielsson, Ltd., Oxford House, 83–91 Great Titchfield Street, Oxford Street, London, W. Monthly. Annual subscription, £1 1*s.*

The Journal of Educational Psychology. Baltimore: Md., U.S.A.: Monthly. Annual subscription, $1.50.

The Pedagogical Seminary. Worcester, Mass., U.S.A. Quarterly. Yearly subscription, $5.

The Psychological Clinic. Philadelphia, Pa., U.S.A. The Psychological Clinic Press. Monthly, except July to September. Annual subscription, $1.75.

The School Review. Chicago: The University of Chicago Press. Monthly. Annual subscription, $1.50.

The School World. London: Macmillan & Co. Ltd. Monthly. Annual subscription, 7*s.* 6*d.*

A list of 'Education Authorities and Officials concerned in the Medical Inspection of School

Children' will be found in *The Public Health Service Directory and Year Book*, 1911. London: Hodgetts, Ltd. 7*s.* 6*d.* net.

For particulars regarding English Schools consult *The Public Schools Year Book:* the Official Book of Reference of the Head Masters' Conference. 1911. 3*s.* 6*d.*; and *Girls' School Year Book.* 1911. 2*s.* 6*d.* net. London: The Year Book Press, 25 High Street, Bloomsbury, W.C.

Paton's *List of Schools and Tutors* and *Guide to Continental Schools* (London: J. & J. Paton, 143, Cannon Street, E.C.) are useful for reference. See also *The Schools of England.* published by Edward J. Burrow, Cheltenham.

APPENDIX II

To illustrate Chapter II

For particulars relating to the anatomical, physiological, and psychological features of children of school ages, see chapters and references given in *Childhood,* the second volume of this series of Manuals, and especially the following:

Crowley, R. U.: *The Hygiene of School Life.* London: Methuen & Co. 1910. 3*s.* 6*d.*

Dukes, C.: *Health at School Considered in its Mental, Moral, and Physical Aspects.* Fourth edition. London: Rivingtons. 1905.

FORSYTH, W.: *Children in Health and Disease.* London: John Murray. 1909. 10*s.* 6*d.* net.

GRIGGS, E. U.: *Moral Education.* Second edition. New York: B. W. Huebsch. 1904. (Good bibliography.)

GROSZMANN, M. P. E.: *The Career of the Child.* Boston, U.S.A.: Richard G. Badger, 1911. $2.50 net.

GUTHRIE, L.: *Functional Nervous Disorders in Childhood.* London: Henry Frowde and Hodder & Stoughton. 1907. 7*s.* 6*d.* net.

ROWE, S. U.: *The Physical Nature of the Child, and How to Study it.* New York: The Macmillan Co. 1899. (Useful bibliography.)

APPENDIX III

To illustrate Chapter III

THE official publications of the Board of Education should be studied, especially *Rules to be Observed in Planning and Fitting Up of Elementary Schools.* London: Eyre & Spottiswoode, Fleet Street, E.C. 1907. 2*d.*

A fairly full bibliography will be found appended to Drs. George Reid and John Priestley's article on 'Organization and Administration of the Medical Examination of Schools' in *Medical Examination of Schools and Scholars.* Edited by Dr. T. N. Kelynack. London: P. S. King & Son. 1910. 10*s.* 6*d.* net.

The following works will be of service for reference :

JONES, H. : *School Hygiene.* London : J. M. Dent. 1907. 2*s.*

NEWSHOLME, A. AND PARKES, W. C. C. : *School Hygiene.* Tenth edition. London : Swan, Sonnenschein & Co. 1904. 3*s.*

PORTER, C. : *School Hygiene and the Laws of Health.* Second edition. London : Longmans, Green & Co. 1908. 3*s.* 6*d.* net.

SHAW, E. : *School Hygiene.* New York : The Macmillan Company. 1902. 4*s.* 6*d.*

WEBB, W. H. : *School Planning at Home and Abroad.* London : The Sanitary Publishing Co., Ltd. 1911. 1*s.* net.

APPENDIX IV

To illustrate Chapter IV

A VERY full bibliography will be found at the end of each of the chapters in *Medical Examination of Schools and Scholars.* Edited by T. N. Kelynack, M.D. ; with introduction by Sir Lauder Brunton, Bart., M.D. London : P. S. King & Son. 1910. 10*s.* 6*d.* net.

The Annual Reports of Sir George Newman, M.D., Chief Medical Officer to the Board of Education— London : Wyman & Sons—contain full particulars regarding the results of medical inspection in this country.

APPENDICES

The following works should also be consulted :

CROWLEY, R. H. : *The Hygiene of School Life.* London : Methuen & Co. 1910. 3*s.* 6*d.*

GULICK, L. H., AND AYRES, L. P. : *Medical Inspection of Schools.* New York : Charities Publication Committee. 1908. $1.

HOGARTH, A. H. : *Medical Inspection of Schools.* London : Henry Frowde and Hodder & Stoughton. 1909. 6*s.*

MACKENZIE, W. L., AND MATTHEW, E. : *The Medical Inspection of School Children.* Edinburgh and Glasgow : William Hodge & Co. 1904. 10*s.* 6*d.*

STEVEN, E. M. : *Medical Supervision in Schools.* London : Baillière, Tindall & Cox. 1910. 5*s.* net.

SNEDDEN, D. S., AND ALLEN, W. H. : *School Reports and School Efficiency.* New York : The Macmillan Company. 1908.

APPENDIX V

To illustrate Chapter V

THE following official and other reports should be studied by all wishful of understanding the subject of child labour and its relation to present-day problems :

Annual Reports of the Chief Inspector of Factories and Workshops. 1909. [Cd. 4664.] 2*s.* 4*d.*

Apprenticeship and Skilled Employment Association. Reports and Pamphlets. *Trades for London Boys and how to enter them.* 170 pp. London. 1908. 9*d.* net. *Trades for London Girls and how to enter them.* 145 pp. London. 1909. 9*d.* net.

Boy Labour and Unemployment. Letter signed by Nettie Adler, S. A. Barnett, the Bishop of Birmingham, &c. (Reprinted from the daily Press, December 14, 1908. To be obtained from J. M. Myers, Lewis House, Philpot Street, London, E., or R. H. Tawney, 24 Shakespeare Street, Chorlton-on-Medlock, Manchester.)

British Association for Labour Legislation: Report on the Employment of Children in the United Kingdom, by Constance Smith. 1909. 3*d.*

Bulletin of the Bureau of Labour: Department of Commerce and Labour—Child Labour Legislation in Europe. Washington: Government Printing Office. 1910.

Christian Social Union: Boy Work and Unemployment, by Spencer J. Gibb. 18 pp. (C.S.U. Pamphlet, No. 22.) London. 1909. 1*d.*

Christian Social Union: Child Labour, by Constance Smith. 4 pp. (C.S.U. Leaflet, No. 18.) London. 1908. 3 for 1*d.*

Committee on Wage-Earning Children (Hon. Secretary: Miss N. Adler, 6 Craven Hill, Hyde Park, W.). Reports and pamphlets.

Consultative Committee on Attendance, Compulsory or otherwise, at Continuation Schools. Vol. I: Report and Papers. [Cd. 4757]. 1*s.* 6*d.* Vol. II: Summaries of Evidence. [Cd. 4758.] 1909. 1*s.* 6*d.*

Departmental Committee on the Conditions of School Attendance and Child Labour: Report. (H.C. 311 of 1893–4.) 3*d.*

Half-Time Council (Secretary: T. L. Roberts, Redcross Street School, Rochdale). Publications.

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Independent Labour Party: City Branch (Secretary: F. Montague, 164 Cloudesley Road, N.). *Commercialism and Child Labour.* 16 pp. 1900. 1*d.*

Inter-Departmental Committee on the Employment of Children during School Age in the Large Centres of Population in Ireland: Report, with Evidence and Appendices. [Cd. 1144.] 1902. 1*s.* 8*d.*

Inter-Departmental Committee on the Employment of School Children: Report. 1901. [Cd. 849.] 3*d.* Evidence, with Appendices and Index. 1902. [Cd. 895.] 4*s.* 2*d.*

Inter-Departmental Committee on Partial Exemption from School Attendance. Vol. I.: Report. [Cd. 4791.] 2½*d.* Vol. II: Minutes of Evidence, Appendices and Index. [Cd. 4887.] 1909. 2*s.* 5*d.*

International Congress for the Welfare and Protection of Children. Report of the Proceedings of the Third International Congress . . . held in London, 1902. 348 pp. London. King, 1902. 2*s.* 6*d.* net. *See* pp. 191–202, *Employment of Children,* with special reference to Street Trading by Children, by Robert Peacock.

Report on the By-laws made by the London County Council under the Employment of Children Act, 1903. 1906. [Cd. 2809.] 3*d.*

Return for England and Wales, giving: (1) number of children attending elementary schools who are known to be working for wages or employed for profit, with their ages, standards, occupations, hours of work and rates of pay . . . Part I (H.C. 205 of 1899.) 3*d.*; (2) the different classes of employment into which the boys and girls attending elementary schools in England and Wales went

on leaving school during some complete year. Part II. (H.C. 23 of 1899.) 6*d*.

Return of Local Authorities which have made By-laws under the Employment of Children Act, 1903. (H.C. 249 of 1907.) 1*d*.

Royal Commission on the Poor Laws and Relief of Distress: Report, 1909. [Cd. 4499.] 5*s*. 6*d*. *See* pp. 325–6, *Boy Labour*. pp. 1166–7 (Minority Report), *Misuse of Boy Labour*. Appendix Vol. XX. Report by Mr. Cyril Jackson on *Boy Labour* . . . 1909. [Cd. 4632.] 3*s*. 9*d*.

Special Reports on Educational Subjects, Vol. 8. *Education in Scandinavia, Switzerland, Holland, Hungary, &c.* 1902. [Cd. 835.] 3*s*. 2*d*. *See* pp. 653–70, *The Education, Earnings, and Social Conditions of Boys engaged in Street Trading in Manchester*, by E. T. Campagnac and C. E. B. Russell.

Special Reports on Educational Subjects, Supplement to Vol. 8. Report on the School Training and Early Employment of Lancashire Children. 1903. [Cd. 1867.] 3*d*.

The following works will also be found of service for reference:

ADLER, NETTIE: *Child Workers and Wage-Earners*. Reprint, Committee on Wage-earning Children.

ALDEN, MARGARET: *Child Life and Labour*. London: Hadley Bros. 1*s*. net.

BAGGALLAY, F. W.: *Child Labour in Factories and Workshops*. (pp. 293–308 of *Economic Review*, price 3*s*., July 15, 1909.)

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BRAY, R. A.: *Apprenticeship: Old and New.* (*Local Government Review*, January, 1910). 1s. net.

BRAY, R. A.: *Apprenticeship Question.* (*Economic Journal*, September, 1909.)

CHAMBERLAIN, NORMAN: *Labour Exchanges and Boy Labour.* (*Economic Review*, October 15, 1909.)

CONWAY, MICHAEL: *Child Labour.* Bradford: Bradford Moor Socialist Institute, 14 Laisterdyke. 1909. 1*d.*

DALE, HYLTON: *Child Labour under Capitalism.* 19 pp. (Fabian Tract, No. 140.) 1908. 1*d.*

DEUTSCH, JULIUS: *Child Labour.* (*International Review*, February, 1909.) 1s. net.

DEWAR, W.: *The Children Act*, 1908, *and other Acts affecting Children in the United Kingdom.* Edinburgh and London: William Green & Sons. 1910. 7*s.* 6*d.*

GARBUTT, THOMAS: *Half-Time Question.* (*School Hygiene*, March, 1910.) 6*d.* net.

GIBB, S. J.: *Problem of Boy Work.* London. 1906. 1s. 6*d.* net.

GIBBON, I. G.: *Skilled Employment and Apprenticeship Committees in England.* (*Progress*, July, 1908.) 6*d.*

JEVONS, H. W.: *Industrial Prospects for Boys and Girls.* Reprint. Fourth Series, No. 22, by the Charity Organization Society.

KEELING, F.: *Labour Exchange in Relation to Boy and Girl Labour.* London: P. S. King & Son. 1910. 6*d.* net.

SMITH, C.: *Report on the Employment of Children.* 2nd Edition. London: British Association for Labour Legislation. London: 4 Bloomsbury Square, W.C. 1908. 3*d.*

APPENDIX VI

To illustrate Chapter VI

MUCH valuable information may be obtained from *The Playground*, and the other publications of the Playground Association of America, 1, Madison Avenue, New York City. See also *Journal of Scientific Physical Training*. Birmingham: Hudson & Son, Edwin Street.

DUDLEY, G., AND KELLOW, F. A.: *Athletic Games in the Education of Women*. New York: Henry Holt & Co. 1909.

DUTTON, A. S.: *The National Physique*. London: Baillière, Tindall & Cox. 1908.

JOHNSON, G. E.: *Education by Plays and Games*. London and Boston, U.S.A.: Ginn and Co. 1907. (Bibliography.)

LELAND, A., AND LELAND, L. H.: *Playground, Technique, and Playcraft*. Springfield, Mass., U.S.A.: The F.A. Basselle Company. 1909.

MCKENZIE, R. TAIT: *Exercise in Education and Medicine*. Philadelphia and London: W. B. Saunders Company. 1909.

APPENDIX VII

To illustrate Chapter VII

PERSONAL hygiene is dealt with in many of the works to which references are given in this Manual and the preceding volumes of the series. In addition

to these *see Articles in the Transactions of the London Meeting of the International Congress on School Hygiene.* London : Royal Sanitary Institute. 1908. 15*s.* for 3 vols., and the following :

CAMPBELL, HELEN Y. : *Practical Motherhood.* London : Longmans, Green & Co. 1910. 7*s.* 6*d.*

GUTHRIE, L. G. : *Functional Nervous Disorders in Childhood.* London : Henry Frowde and Hodder & Stoughton. 1907.

HALL, G. STANLEY : *Youth, Its Education, Regimen; and Hygiene.* London. 6*s.*

HALL, G. STANLEY : *Educational Problems.* New York and London : D. Appleton & Co. 1911. 31*s.* 6*d.* net.

LOWRY, EDITH B. : *Confidences : Talks with a Young Girl Concerning Herself.* Chicago : Forbes & Co. 50 cents.

WATT-SMYTH, A. : *Hygiene for School Teachers.* London : Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 6*s.*

APPENDIX VIII

To illustrate Chapter VIII

THE subject of the personal hygiene of school boys is dealt with in many of the larger works on child life and school influences, and in the various journals dealing with school problems. Some of the Educational Pamphlets of the Society of Sanitary and Moral Prophylaxis, 9, East Forty-second Street, New York City,

will be found of service to parents and teachers, particularly '*Instructions in the Physiology and Hygiene of Sex for Teachers*,' and '*The Boy Problem for Parents and Teachers*.' See also :

BISSEKER, H. : *In Confidence : To Boys.* London : Adlard & Son. 3*d.*

CHURCHILL, S. : *Forbidden Fruit for Young Men.* London : James Nisbet & Co. 1*s.* 6*d.*

HAMILL, H. : *The Truth we owe to Youth : A Vision of Sex.* Freiburg : J. Bielefelds.

HIME, MAURICE C. : *Schoolboys' Special Immorality.* London : J. and A. Churchill. 1901. 1*s.* net.

HOPKINS, E. : *The Story of Life : For the Use of Mothers of Boys.* London : Walter Scott Publishing Co., Ltd. 1902. 6*d.*

LOWRY, E. B. : *Truths : Talks with a Boy Concerning Himself.* Chicago : Forbes & Co. 50 cents.

RICHMOND, ENNIS : *Through Boyhood to Manhood : A Plea for Ideals.* London : Longmans, Green & Co. 1900.

SIBLY, F. A. : *Private Knowledge for Boys.* Stonehouse, Glos : Mark Whiley. 6*d.*

SYMES, J. O. : *Parents, Teachers, and Schools. Lectures in School Hygiene.* Clifton : J. Baker & Son. 6*d.*

TREWBY, A. : *Healthy Boyhood.* London : Published by Author. Fenton House, Hampstead Heath, London. 1906. 1*s.* 6*d.*

WELTON, J. and BLANDFORD, F. G. : *Principles and Methods of Moral Training, with Special References to School Discipline.* London : W. B. Clive. 1909.

APPENDIX IX

To illustrate Chapter IX

FOR particulars regarding the state of the teeth of elementary school children see *The Reports of Sir George Newman, Chief Medical Officer to the Board of Education.* London: Wyman & Sons. See also *Reports of the Committee appointed by the Board of the British Dental Association to conduct the Collective Investigation as to the Condition of the Teeth of School Children.* London: John Bale, Sons, & Danielsson, 1891. 2*s.* 6*d.* Consult the Reports of School Dentists' Society.

CUNNINGHAM, G.: 'Dental Conditions in Elementary School Children,' Chapter XII in *Medical Examination of Schools and Scholars,* Edited by T. N. Kelynack, M.D. London: P. S. King & Son. 1910. 10*s.* 6*d.*

JESSEN, E.: 'The Care of the Teeth in the School,' *Transactions of Second International Congress on School Hygiene.* Vol. II, p. 515. London: Royal Sanitary Institute. 1908. 5*s.*

PEDLEY, R. D.: *The Diseases of Children's Teeth.* London: Segg & Co. 1895. 3*s.* 6*d.*

WALLIS, C. E.: 'A School Dental Clinic in London.' *Transactions of Third International Congress of School Hygiene.* Paris. 1910.

WALLIS, C. E.: *Recent Progress in School Dental Hygiene: School Hygiene,* Vol. I, No. 1. London: School Hygiene Publication Co., Ltd. 1910. 6*d.* net.

WALLIS, C. E.: 'School Clinics.' *Transactions of School Dentists' Society.* September, 1910.

WALLIS, C. E.: 'Teeth of Children of Michael Faraday School, Walworth.' *Transactions of Second International Congress of School Hygiene.* Vol. II, p. 511. London: Royal Sanitary Institute. 1908. 5*s.*

APPENDIX X

To illustrate Chapter X

ASHBY, H., and WRIGHT, G. A.: *Diseases of Children.* Fifth edition. London: Longmans, Green & Co. 1905. 25*s.*

BARR, M. W.: *Mental Defectives.* London: Rebman, Ltd. 1904.

BEACH, F., and SHUTTLEWORTH, G. E.: 'Idiocy and Imbecility,' Sir Clifford Allbutt's *System of Medicine.* Vol. VIII. London: Macmillan & Co. 1899. 25*s.*

BOURNEVILLE: *L'Epilepsie, l'Hystérie and l'Idiotie.* Paris: 1903.

DENDY, MARY: *Prevention is better than Cure, and How we Prevent.* Manchester: Thomas Wyatt, 279, Deansgate. 1906.

DENDY, MARY: 'The Problem of the Feeble-minded,' *Reports of Manchester Statistical Society.* March, 1908. Manchester: John Heywood.

DENDY, MARY: 'The Feeble-minded,' *Charity Organization Review.* November, 1909.

IRELAND: *The Mental Affections of Children.* Second edition. London: J. & A. Churchill. 1900. 14*s.*

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LAPAGE, C. P.: *Feeble-mindedness in Children of School Age*, with an Appendix on Treatment and Training by Mary Dendy, M.A. Manchester: University Press, Sherratt & Hughes. 1911. 5*s*.

LAPAGE, C. P.: 'The Diagnosis of Permanent Mental Deficiency in Infancy and Childhood,' *Practitioner*. August, 1909. London. 2*s*. 6*d*.

MCKENZIE, LESLIE, and MATTHEW E.: *The Medical Inspection of School Children*. Edinburgh: William Hodge & Co. 1904. 10*s*. 6*d*.

PETERSEN and CHURCH: *Nervous and Mental Diseases*. Fourth edition. 1904.

POTTS and others: 'Discussion on the Relation of Alcohol to Feeble-mindedness,' *British Journal of Inebriety*. Vol. VI. No. 3. London: Baillière, Tindall & Cox. 1909. 1*s*. net.

SHERLOCK, E. B. *The Feeble-minded: A Guide to Study and Practice*. London: Macmillan & Co., Ltd. 1911. 8*s*. 6*d*.

SHUTTLEWORTH, G. E., and POTTS, W. A.: *Mentally Deficient Children: Their Treatment and Training*. Third edition. London: H. K. Lewis. 1910. 5*s*. net.

SHUTTLEWORTH, G. E.: 'Slighter Mental Deficiency in Children,' *British Medical Journal*, October 3, 1903.

STILL, G. F.: *Common Disorders and Diseases of Childhood*. London: Henry Frowde and Hodder & Stoughton. 1909. 15*s*. net.

TREDGOLD, A. F.: *Mental Deficiency* (*Amentia*). London: Baillière, Tindall & Cox. 1908. 10*s*. 6*d*. net.

WYLLIE, J.: *The Disorders of Speech*. Edinburgh: 1894. 18*s*.

See also : *The Problem of the Feeble-minded.* London: P. S. King & Son. 1909. 1*s.*

Reference should also be made to the following official publications :

Report of the Departmental Committee on Defective and Epileptic Children, 1898.
Report of the Royal Commission on Physical Training in Scotland, Edinburgh, 1903.
Report of the Royal Commission on the Care and Control of the Feeble-minded, 1909.
Reports of the National Association for the Feeble-minded.
Reports of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. Manchester: Rawson & Sons, New Brown Street.

Lists of institutions taking charge of mentally defective children will be found in :

SAVAGE, G. H. : *Insanity and Allied Neuroses.* London : Cassell & Co.
The Medical Directory. London : J. & A. Churchill. Published annually 14*s.* net.
The Annual Charities Register and Digest. London : The Charity Organization Society, Denison House, 296, Vauxhall Bridge Road, and Longmans, Green & Co. 5*s.* net.

APPENDIX XI

To illustrate Chapter XI

FULL information regarding the physical defects of children from a medical aspect will be found in any of

the standard works on children's diseases. It may be of help to the reader to mention the following :

ASHBY and WRIGHT : *Diseases of Children.* Fifth edition. London : Longmans, Green & Co. 1905. 25*s.*

HOLT, EMMETT : *Diseases of Infancy and Children.* Fifth edition. London : Appleton. 1909. 25*s.*

STILL, G. F. : *Disorders and Diseases of Childhood.* London : Oxford Medical Publications : Henry Frowde and Hodder & Stoughton. 1909. 15*s.*

For a consideration of the subject from the educational and social points of view, the following works will be found useful :

CROWLEY, R. H. : *The Hygiene of School Life.* London : Methuen & Co. 1910. 3*s.* 6*d.*

MACKENZIE, W. L., and MATTHEW E. : *The Medical Inspection of School Children.* Edinburgh and Glasgow : William Hodge & Co. 1904. 10*s.* 6*d.*

Much statistical and other important information can be obtained from *The Annual Reports of the Chief Medical Officer of the Board of Education.* London : Wyman & Sons. Also from Dr. Kerr's *Annual Report on the School Children under the London County Council,* London : P. S. King & Son ; and the reports of the various school medical officers throughout the country.

An excellent account of the work done by, and results obtained in, a residential school for physically defective children will be found in *The Problem of the Crippled School Child,* by E. D. Telford, Published by Sherratt & Hughes, Manchester.

APPENDIX XII

To illustrate Chapter XII

MANY movements are now directed to the training of children for citizenship, and the publications concerning boy scouts, lads' brigades, &c., should be examined. Consult with advantage publications of Moral Education League, 6, York Buildings, Adelphi, London, W.C.; also *Duty and Discipline Series* of Leaflets published by Cassell & Co., Ltd., La Belle Sauvage, London, E.C. See also:

ALLEN, W. H.: *Civics and Health.* Boston: Ginn & Co. 1909.

BAGLEY, W. C.: *Craftsmanship in Teaching.* New York: The Macmillan Company. 1911. 5*s.* net.

BLOOMFIELD, M.: *The Vocational Guidance of Youth.* Boston, U.S.A.: Houghton Mifflin Company. 1911. (Bibliography.)

BRAY, R. A.: *The Town Child.* Second Edition. London: T. Fisher Unwin. 1911. 3*s.* 6*d.* net.

FISKE, G. W.: *Boy Life and Self-Government.* New York: Y.M.C.A. Press. 1910.

FORBUSH, W. B.: *Church Work with Boys.* Boston, U.S.A.: The Pilgrim Press. 1910. (Bibliography.)

GARBER, J. P.: *Annals of Educational Progress.* Philadelphia and London: J. B. Lippincott Company. 1911. 4*s.* 6*d.* net.

GILLETTE, J. M.: *Vocational Education.* New York: American Book Company. 1910.

GRIGGS, E. H.: *Moral Education.* New York: B. W. Huebsch. 1904. (Extensive bibliography.)

HALL, G. STANLEY: *Aspects of Child Life and Education.* Boston, U.S.A.: Ginn & Co. 1907. 6*s.* 6*d.*

HITCHING, W.: *Home Management.* London: W. R. Chambers, Ltd. 1910. 2*s.* 6*d.*

HOAG, E. B.: *Health Studies.* London: W. C. Heath Company. 1910.

HORNE, H. H.: *Idealism in Education.* New York: The Macmillan Company. 1910. 5*s.* 6*d.* net.

KERSCHENSTEINER, G.: *Education for Citizenship* (*English Translation by A. J. Pressland*). Chicago: Rand McNally & Co. 1911.

LODGE, O.: *Parent and Child.* London and New York: Funk & Wagnalls Company. 1910. 2*s.* net.

MARK, T.: *The Unfolding of Personality.* London: T. Fisher Unwin. 1910. 2*s.* net.

NEWMAN, G.: *The Health of the State.* London: Headley Bros. 1907. 1*s.* net.

PAGET, H. L.: *Home Life in England.* London: Longmans, Green & Co. 1910. 2*s.* net.

PENSTONE, M. M.: *Town Study.* London: National Society's Depository. 1910.

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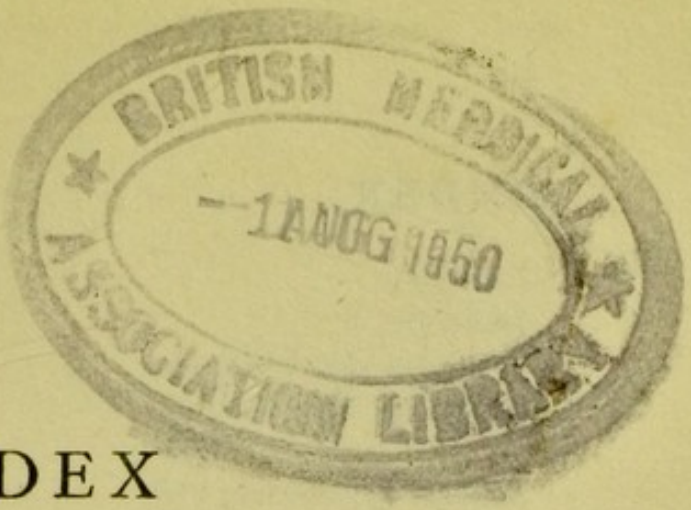

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