1917.

NEW ZEALAND.

EDUCATION:

MEDICAL INSPECTION OF SCHOOLS AND SCHOOL-CHILDREN.

Presented to both Houses of the General Assembly by Command of His Excellency.

REPORT OF THE MEDICAL INSPECTORS OF SCHOOLS.

SIR,— Wellington, 20th June, 1917.

It has for some time been recognized that the physical condition of the race is very far from satisfactory. Recently the war has emphasized this lamentable fact, and has aroused the public as nothing else could have done to the fundamental importance of physical fitness. The nation realizes at last that the duty it owes to each individual child is to equip him as well as possible, physically and mentally, for the battle of life, and to shield him, especially in his tender and dependent years, from harmful influences. With the advances in child-study on the one hand, and in preventive medicine on the other, it is now realized that measures to arrest deterioration and increase physical fitness should begin as early in life as possible. Certainly they must not be omitted when the child comes to school, where the laws of the State make his attendance obligatory. Consequently, all civilized nations have instituted medical inspection of their schools, and are rapidly developing and extending their systems.

Wherever medical inspection of schools has been inaugurated a vast amount of hitherto unrecognized and unsuspected physical defect and disease has been discovered. Medical inspection of schools in New Zealand was inaugurated in 1912 with a staff of four doctors. Since then two more doctors and seven School Nurses have been appointed. Over one hundred thousand children have been examined, and notifications sent out to parents telling them of defects discovered. In addition, a course of lectures and demonstrations has been given each year to the students in the training colleges, and many addresses to teachers and parents. The good results that have already been obtained, the number of defects now treated as a direct result of Medical Inspectors' examination and advice, the greatly quickened interest both of parents and children in matters of health, to say nothing of the striking improvement in personal cleanliness everywhere apparent, repay many times over the comparatively small sum medical inspection has cost.

The medical inspection of school-children in New Zealand has shown that many defects are to be found here as in other countries. Broadly speaking, we find that from one-half to two-thirds of our school-children are in need of the attention of a dentist, an oculist, or physician. This does not mean that our schools are filled with physical wrecks, but it does mean that our children enjoy much less than their possible measure of good health. They are losers not only in happiness but in education.

What, then, are the physical defects found amongst our school-children? The answer to this is the same as amongst all civilized peoples. Many children attending school are found to be suffering from—

(1.) Subnormal nutrition and general poor physique.
(2.) Dental caries.
(3.) Affections of special sense organs—*i.e.*, defective eyesight and hearing.
(4.) Obstructed breathing—*i.e.*, adenoids, enlarged tonsils, &c.
(5.) Physical deformities—flat chest, flat feet, stooped shoulders, spinal curvature, &c.
(6.) Mental retardation and defect.
(7.) Other diseases: These may affect school-children as they affect adults, but the first six groups constitute the particular problem of the schools.

The essential work of School Medical Officers may be roughly summarized as follows:—

(*a.*) The routine physical examination of school-children and the notification to parents of defects found which require treatment. The Medical Inspectors instruct teachers, and, where possible, address parents upon matters relating to the welfare of the children.

(*b*.) The study of factors influencing the life and health of the school-child, and the suggestion of preventive or remedial measures for those which are harmful. This includes general hygiene, as the supervision of school buildings and the provision of healthy surroundings for the school-child. It should also include the devising of means to bring medical or dental aid and special educational methods within the reach of the individual child.

Though the School Nurses have been working only a few months their success is already assured. They are of much assistance to the Medical Officers during the examination of the schools, and they "follow up" cases notified, visiting the parents in their own homes and giving advice and assistance to the mothers. Already the School Nurses have detected cases of contagious disease, and thus probably been the means of preventing an epidemic. The School Nurses help to link up medical inspection with the valuable work already performed by existing societies, especially the Plunket Society and Kindergarten Associations. The results of the work of the School Nurses have been so excellent that we hope to see their numbers increased.

Examination of School-children.

Personal Cleanliness.—In the routine examination note is first taken of the personal cleanliness and clothing. In the majority of cases cleanliness is good or satisfactory, though attention to details, such as the cleaning of teeth, hands, and finger-nails, is often insufficient. Verminous conditions of the body are rare, but of the head much more frequent—at least about 4 per cent. In some schools this evil is non-existent—in others it is a plague. Many teachers deserve great credit for their efforts to eradicate this condition by constant supervision and instruction. The School Nurse gives great assistance by going into the homes instructing the mothers as to care of the children's hair, and a leaflet has lately been issued giving details for treatment. The difficulty is that the worst cases often come from homes where the condition is general and regarded as trivial.

Clothing is, as a rule, clean and sufficient, though almost every school has a few dirty, ragged, and destitute children. Many other children are much overclothed, small children being often imprisoned in so many layers of clothing that free movement is impossible. It is not uncommon to find from six to nine layers of tight garments ensheathing the body and constricting the chest. During full inspiration unbuttoned bodices or waistcoats sometimes gape as much as 4 in. The modern fashion of sending children out in bleak weather with knees bare and legs scantily covered is to be deplored. Small girls have frequently over their chests six garments which end at the waist in a mere frill. Mothers do not realize that children become ill from scanty covering of the legs as readily as from exposure of the chest to cold. The essentials of clothing are (1) that it should give sufficient warmth, and (2) that it should not restrict free movement. The usual school dress—especially for girls—lacks simplicity and limits movement. (See "Clothing" in circular "Suggestions to Parents" at end.)

Nutrition, Normal and Subnormal.

Nutirtion is found to be satisfactory or good in the majority of children. It is unsatisfactory or bad in about 10 per cent. A comparison of heights and weights of British and New Zealand children of same age is markedly in favour of the colonials, who are both taller and heavier. Good nurture promotes good growth, and a wealthy vigorous colony naturally produces children of improved physique. Nevertheless, the average of nutrition should be higher. The worst cases of malnutrition come either from remote districts in the country or from the slum area in towns, and the best type of child is to be found in a good farming district. It is a popular fiction that the country child has necessarily superior advantages. Among the struggling population of the backblocks houses are often overcrowded and insanitary, food is monotonous in character and badly cooked, mothers and children both being overworked. Many country children are accustomed to the use of condensed instead of fresh milk. They may travel a long distance to school after a scanty breakfast, existing throughout the day on a scanty lunch brought with them and often eaten before school begins, and going home in the evening to the one substantial meal of the day.

The Woodville District High School staff have lately, at the suggestion of a Medical Inspector, adopted an organized plan of supervising lunch and providing hot cocoa at minimum cost for all children remaining at school at midday. Figures showing increase of height and weight for each scholar over a known period give striking proof of the improvement in nutrition brought about by this simple means. This improvement is doubtless due not only to the fact that the children receive actually more nourishing food, but also to the fact that they sit at rest while eating instead of rushing about and snatching their food at convenient intervals from play. Children who go home for a substantial lunch often lose much of its benefit because of the haste with which it is eaten and the hurried journey to and from school. Rest is always desirable after a meal, as has been amply demonstrated in open-air recovery schools.

In dairying districts children are often employed at late and early milking, and overwork is responsible for both physical and mental inferiority. For example, O. M., boy, aged 12, Standard IV, lives on milk-farm; gets up at 3 a.m., milks five cows, and takes milk round neighbouring townships before school at 9 a.m. In the evening he milks cows and goes to bed at 8 p.m. The schoolmaster said that the boy appeared mentally dull and occasionally fell asleep in school, obviously from overfatigue. This cannot be wondered at. Many other examples might be quoted.

Undesirable city conditions are a generally recognized factor in causing malnutrition. Poverty, overcrowding, inefficiency, and vice in particular produce it. Inquiries as to diet from school-children indicate that it is often the character and mode of preparation of food that is

at fault rather than insufficiency. Bread and tea make a common but unsatisfactory breakfast, and articles bought cooked, as pies, fish and chips, cooked meats, are often the basis for an inadequate but expensive lunch. Some mothers have not time, or strength, or money enough to give their children a fair chance from a health point of view; others have not the knowledge or concern to make the best of the opportunities they have.

Some city children are also handicapped by overwork. Thus in one city school, in Standard VI, ten out of forty-four boys are wage-earners; in Standard V, twenty-nine out of sixty-four boys are wage-earners; in Standard IV, nine out of sixty-one boys are wage-earners. Many of these boys have no leisure time, and are physically and mentally weary during school-hours.

The following lists give hours of work and wages received by school-boys in three classes of one city school in which an investigation was made:—

Age.	Work.	Wage.	Time occupied.
Standard VI.			
1. 13 years ..	Message-boy ..	6s. per week ..	4–6 p.m. daily; 8 a.m.–1 p.m. Saturday.
2. 14 ,, ..	Telegraph boy ..	7s. 6d. ,, ..	4–7 p.m., plus 5 hours Saturday.
3. 14 ,, ..	,, ..	7s. 6d. ,, ..	4–7 p.m., plus 5 hours Saturday.
4. 13 ,, ..	Newsboy ..	5s. 6d. ,, ..	4.50–7 p.m. nightly and ½ hour Saturday, selling papers.
5. ..	,, ..	16s. ,, ..	6–7.45 a.m. (9s.) and 4–6.30 p.m. (7s.), selling papers.
6. 14 years ..	,, ..	£1 ,, ..	Distributes 16 dozen morning papers (12s. 6d.), and 10 dozen evening papers (7s. 6d.).
7. 13 ,, ..	Message-boy ..	6s. ,, ..	8–8.45 a.m., 4–6 p.m., daily; 8–1 p.m. Saturday.
8. 13 ,, ..	Newsboy ..	5s. ,, ..	Collects money for papers weekly.
9. 13 ,, ..	Message-boy ..	5s. 6d. ,, ..	Works 4–5.30 p.m. nightly; 9.30 a.m.–noon Saturday.
10. 14 ,, ..	Telegraph boy ..	7s. 6d. ,, ..	Works 4–7 p.m. nightly, and 5 hours Saturday.
Standard V.			
1. 13 years ..	Message-boy ..	6s. ,, ..	4–6 p.m. daily; 8 a.m.–1 p.m. Saturday.
2. 13 ,, ..	Newsboy ..	1s. for each dozen of one paper sold—sells 6–9 dozen; 6d. for each dozen of another paper sold—sells 2 dozen daily	5.30–8 a.m. daily, selling papers; Friday, 4–9 p.m., selling papers; Saturday, 5.30–8 a.m. and 9 a.m.–noon, selling papers; afternoon to 5 p.m. goes to Fullers' and sells papers, then home to tea; sells papers in street until 9.15 p.m.
3. 11 ,, ..	Office-boy ..	5s. per week ..	3.45–5.15 p.m. daily; 8 a.m.–12 p.m. Saturday.
4. 12 ,, ..	Newsboy ..	15s. 6d. ,, ..	Selling papers, 5 a.m.–8 a.m. (4s. 6d.); 3.45–6 p.m. (5s.); 7.30–9.15 p.m. Friday, and all day Saturday on street or in Fullers' to 9.15 p.m. (6s.).
5. 12 ,, ..	Message-boy ..	6s. ,, ..	4–6 p.m. daily; 8.30–1 p.m. Saturday.
6. 13 ,, ..	,, ..	5s. ,, ..	4–6 p.m. daily; 8–1 p.m. Saturday.
7. 12 ,, ..	,, ..	5s. ,, ..	8–8.45 a.m. and 3.45–5 p.m. daily; 8–11.45 a.m. Saturday.
8. 12 ,, ..	Newsboy ..	6s. 6d. ,, ..	4–6 p.m. daily.
9. 12 ,, ..	Message-boy ..	1s. ,, ..	2 hours Saturday morning.
10. 12 ,, ..	Newsboy ..	7s. 6d. ,, ..	Distributes 13 dozen papers nightly; collects for 3½ hours weekly.
11. 12 ,, ..	,, ..	9s. ,, ..	Sells 20 dozen papers nightly, 4–8 p.m. (7s.); 4 dozen papers weekly (2s.).
12. 12 ,, ..	Message-boy ..	8s. 6d. ,, ..	4–6 p.m. daily; 9 a.m.–4 p.m. Saturday.
13. 12 ,, ..	,, ..	6s. ,, ..	4–5.30 p.m. daily; 8 a.m.–1 p.m. Saturday.
14. 13 ,, ..	Newsboy ..	5s. 6d. ,, ..	Distributes 62 papers nightly.
15. 11 ,, ..	Baker's boy, works for father	3s. 6d. ,, ..	On cart 4.30–7 p.m.
16. 12 ,, ..	Newsboy ..	£1 ,, ..	From 5.30 a.m. sells 8 dozen papers daily.
17. 12 ,, ..	Message-boy ..	6s. ,, ..	3.30–5 p.m. daily; 8 a.m.–1 p.m. Saturday.
18. 11 ,, ..	Newsboy ..	6s. ,, ..	Sells papers, 4.30–6 p.m.
19. ..	Message-boy ..	5s. 6d. ,, ..	½ hour daily; 2½ hours Saturday.
20. 12 years ..	Milkboy and message-boy	7s. 6d. ,, ..	Milk-cart 4.30–8 a.m. (5s.); grocer-boy for about ½ hour daily (2s. 6d.).
21. 12 ,, ..	Newsboy ..	5s. ,, ..	Distributes 106 papers daily.
22. 12 ,, ..	Message-boy ..	6s. ,, ..	For drapery store, 8–8.45 a.m. daily; 7–9 p.m. Friday; 8 a.m.–1 p.m. Saturday.
23. 12 ,, ..	Newsboy ..	7s. ,, ..	Distributes 12 dozen papers daily (1¼ hours).
24. 13 ,, ..	Message-boy and newsboy	10s. 6d. ,, ..	Message-boy, 4–5.30 or 6 p.m. daily, 9 a.m.–1 p.m. Saturday (5s.). Newsboy, 5.30–7.5 a.m. (5s. 6d.).
25. 12 ,, ..	Newsboy ..	1s. ,, ..	Delivers 18 to 20 papers nightly.
26. 12 ,, ..	,, ..	6s. 6d. ,, ..	Sells papers, 15 dozen nightly, 4.30–6 p.m.
27. 12 ,, ..	Milkboy and newsboy	10s. ,, ..	Delivers milk, 5.45–7.30 a.m. (5s.); sells papers 3.30–8 p.m. Friday, 9 a.m.–5 p.m. Saturday, and makes about 5s.
28. 13 ,, ..	Newsboy ..	7s. 6d. ,, ..	Sells papers 4.30–8 p.m. daily.
29. 13 ,, ..	,, ..	£1 ,, ..	Sells papers 5–6.30 a.m. (12s. 6d.); sells papers nightly to 6.30 p.m. (7s. 6d.).
Standard IV.			
1	Message-boy ..	(?)	2 hours daily.
2	Newsboy ..	£1 per week ..	4–10.45 p.m. Friday; 8 a.m.–9 p.m. Saturday.
3	,, ..	5s. ,, ..	4–9 p.m. Friday; 10 a.m.–6 p.m. Saturday.
4	Message-boy ..	5s. ,, ..	2 hours daily.
5	,, ..	8s. ,, ..	8–8.45 a.m., 4–5.30 p.m., daily.
6	Sweet-seller at Fullers'	Gets 2s. in £1 sold..	7.10–9 p.m. nightly.
7	Message-boy ..	5s. 6d. per week ..	8–8.40 a.m. and 3.30–6 p.m.
8	Office-boy ..	5s. 6d. ,, ..	4–5.30 p.m.
9	Sweet-seller at theatre	2s. in £1 sold ..	7–8.45 p.m. nightly.

Among better-class population also children suffer from insufficient leisure. Their minds are overstimulated by extra studies or amusements, and hours are spent in practising music, or poring over books, or attending the cinematograph which should be spent in healthy play outside or in sound sleep in bed.

The following shows the number of times given by three classes of boys at one school as their attendance at cinematographs :—

Standard VI—44 boys: 4 go twice a week, 14 go once a week, 4 go once a fortnight, rest go seldom.

Standard V—64 boys: 12 go twice a week, 35 go once a week, 4 go once a fortnight, rest go seldom.

Standard IV—61 boys: 1 goes five times a week, 1 goes three times a week, 9 go twice a week, 32 go once a week, 6 go once a fortnight, 2 sell sweets at theatre nightly, rest go seldom.

Considering this zeal it is a pity that the programme offered is not of a better type. Even where it is not obnoxious much of the drama shown is quite unsuited for children. The cure for this would be a special matinee programme for children, with non-admission to evening entertainments.

It is evident from the above facts that school life receives often a small share of the physical and nervous energy of children, and that life outside school which makes such strong demands must be often more largely responsible for their bodily and mental condition. Hence measures for increasing the welfare of children must be inadequate unless they affect not only their school life, but also that greater part of their existence which is spent outside the school-walls.

We would like to express our appreciation of the valuable work done by various convalescent homes for children in different parts of the Dominion. For children suffering from debility or recovering from illness such institutions give an opportunity—often otherwise unobtainable—for complete renewal of vigour. Inasmuch also as it is better to prevent illness than to cure it, widespread facilities for giving sickly children a good country holiday would save more serious trouble and would often prevent the onset of tuberculosis. Many of the tubercular children now in sanatoria would never have reached there had it been possible to get them under good treatment when the first signs of ill health were manifest but actual disease had not declared itself.

Dental Caries.

The ravages of dental caries are widespread, and the extent of this problem is distressing. It is needless to emphasize here the importance of sound teeth and clean mouths, yet it is the rarest occurrence to find a child with a perfect set of teeth. Perfect health and vigour are impossible without sound teeth, and we do not even yet begin to realize the all-important part decayed teeth play as the starting-ground for many diseases. How much of less serious ill health, loss of appetite, loss of vitality and general vigour dental decay is responsible for can hardly be imagined. It is quite easy, when one studies the possibilities for harm that lurk in a decayed tooth, to become an enthusiast and persuade oneself that all the ills that civilized flesh is heir to spring from this universal defect. Even then, of course, we have only gone one step further back, and have still to explain, if we can, why dental decay is so universal, and why it is increasing in all civilized communities.

The conclusions of those who have studied the matters are that modern diet is the greatest factor in the production of dental caries. Most of our foods are now of a soft pulpy nature which cling readily to the teeth, and give little exercise to the jaws in chewing. Biscuits are particularly bad in this respect. Two generations ago the Maoris had perfect teeth. This quite refutes the favourite contention that there is something in the climate or water of New Zealand which fosters dental decay. Whilst the teeth of the Maori children are still superior in strength, regularity, and beauty, it is interesting to note that wherever the Maoris have adopted civilized or partly civilized life their teeth are being attacked by dental caries. (It is well to remember in passing that it is an error to assume that the old Maoris never cleaned their teeth. They had no tooth-brushes certainly, but they performed a careful oral toilet after each meal, cleaning the teeth with a pointed stick, and vigorous tooth-sucking.) Regular cleaning of the teeth, though it will not altogether prevent decay, will do a very great deal towards it. The circular (printed at the end), used for distribution in the schools, gives more detailed information.

What has Medical Inspection done in this matter?—It is the routine custom of the Medical Officers to examine the teeth of every child they inspect, and to notify the parents in every case where treatment is required. In this way many thousands of notices and leaflets giving information about the care of the teeth have been sent out each year. The Medical Officers have particularly endeavoured to stimulate general interest in this important problem. They have taken every opportunity to speak to the teachers directly, to the children directly, and to the parents. Thousands of children have been taken to the dentist consequently, and on re-examination of a school there is a notable increase in the number of children who have had dental attention and have acquired "artificially sound" teeth.

In school, children receive instruction upon the value of sound teeth and the importance of cleaning them; in some schools head teachers have undertaken to ask the scholars regularly each morning, when the school roll is called, whether the teeth have been cleaned. In this simple way the percentage of children who habitually clean their teeth can be raised very considerably. The "clean-mouth" habit must be a part of the child's daily life. Spasmodic cleanliness is of little use.

The question of "tooth-brush drill" in schools has been considered by the Medical Inspectors, and it will shortly be introduced experimentally into some of our schools. There are difficulties

in the way of its introduction into large schools where special water-taps and drain arrangements would be necessary before several hundreds of children could clean their teeth. The practical difficulties are much less in small schools.

The dental hospitals have given very valuable help in the large centres. Many hundreds of school-children have in them been treated for dental decay free or at a minimum cost. In some districts, for instance, head teachers have been authorized to recommend school-children for dental treatment, their recommendation requiring countersignature by a private dentist who is satisfied that the parents could not afford private dental fees. There are drawbacks, obvious enough, in this system. Many parents hesitate to proclaim their inability to pay privately who nevertheless are seriously inconvenienced by heavy dentists' bills. Also a number of parents and children, who in the first flush of enthusiasm secure a recommendation and present themselves at the dental hospital for treatment, have their ardour damped by the long and dreary times spent waiting their turn. The way to actual dental treatment should be made as short, direct, and simple as possible. Large numbers of cases reported by the Medical Inspectors have been taken to the ordinary dentist by the parents.

What suggestions have the Medical Inspectors to make with regard to the treatment of dental caries amongst school-children?—We are strongly of opinion that more must be done along the lines of preventive treatment. The problem being primarily one of diet and cleanliness (see former remarks) the public must be instructed in these matters. The importance is always explained at our addresses to mothers. The School Nurses also give advice during their visits to the homes. An investigation recently made by one of the Medical Inspectors reveals the fact that the destruction of teeth by faulty feeding begins at a very early age. Of twenty-two children of from three to four years of age, thirteen, or 59 per cent., had four or more decayed teeth; among sixty-two others of from five to six years of age there were forty-one, or 66 per cent., of similar cases; and among forty-two of from six to seven years of age there were thirty-eight, or 90 per cent., of such cases. Diet is the primary cause.

Dental Clinics.—With regard to curative treatment we feel that though the existing dental hospitals are doing valuable work for school-children they are not sufficient, and that the school-children require special school dental clinics, to which they can have direct access through the recommendation of the school medical staff. There should be no delay, and no question as to private means. Many parents would gladly take their children to a school clinic who would hesitate to attend a dental hospital although unable to pay private fees. Further—and this is important—the treatment times can be arranged specially to suit school-children, and to avoid unnecessary interference with their school-work.

In the country districts it might be possible to arrange for treatment at special contract rates (free if necessary) with local dentists. This has already been done with great success in one school at least. The following is an extract from the *New Zealand Journal of Education* giving particulars of the experiment carried out by Mr. Cron, headmaster of the Kakanui School (Otago):—

"When one of the Department's Medical Inspectors visited the school early in 1914 she reported that the teeth of quite a number of the pupils were in a very poor condition. Seeing that Kakanui was distant some eight or nine miles from Oamaru, where the nearest dentists resided, and that a considerable time would be spent by the parents in taking their children to Oamaru for dental treatment, Mr. Cron arranged with an Oamaru dentist to visit the school during the following week to examine the teeth of the children. Mr. Cron advised the pupils of the dentist's intended visit, making it very clear that their parents would not be committed to any expense by this visit. On the appointed day the dentist arrived, and examined about fifty pupils out of a roll number of seventy. Mr. Cron wrote down, at the dictation of the dentist, the requirements in each case, whether extraction of temporary or permanent teeth, or 'fillings,' or 'cleanings.' These 'requirements' were sent to each parent, after the dentist had indicated what would be the approximate cost.

"The next step was to wait till 'orders' came in. When one afternoon's work was in sight the dentist arrived, and found that during the previous two or three days additional orders had been sent in by the parents, who were willing to avail themselves of the dentist's services when they knew he was to come, but were unwilling to pledge themselves before they were certain that he would arrive. The dining-room of the teacher's residence was placed at the dentist's disposal, while Miss Cron acted as assistant. The pupils went out in turn, were 'treated,' and returned in such a way 'that interference with the school-work was reduced to the absolute minimum.'

"The impression made by the dentist's first visit was so favourable that orders came in more rapidly, the result being that for about seventeen Thursday afternoons the dentist was kept busy. In this time he extracted approximately ninety temporary and permanent teeth, and filled about half as many.

"Mr. Cron says, 'I have an important observation to make, and it is this: that it is quite certain that once the oral conditions of the children of a school are made as nearly perfect as possible, then the great bulk of the work is accomplished. All that needs to follow consists of preventive measures and other slight attentions from time to time. If dentists were secured to do for every child in the Dominion all that was required, then, when this was done, a staff of dentists only one-fourth as strong numerically could successfully cope with the problem of maintaining and even raising the level at which the first staff of dentists left their work.' Mr. Cron also mentions that since these visits of the dentist absences from school on account of toothache are almost unknown."

Affections of Special-sense Organs.

Defective Vision and Defective Hearing.—The existence of such defects is a serious drawback to school progress, and their adequate treatment is a matter of urgency.

Defective Eyesight.—We find on an average from 7 per cent. to 10 per cent. of school-children suffering from defects of vision. In noting defects of this kind we have adopted a common standard, notifying as defective children who read less than 6/9 in each eye by Snellen's test types. In higher standards, and where signs of eye-strain appear, the Medical Inspectors reserve the right of individual judgment, and may notify a child who reads more than 6/9. We find that defective vision is more common amongst girls than amongst boys, and amongst town children than country children.

It is also instructive to observe that the percentage of defective eyesight rises steadily from standard to standard. It is such a common experience to find complaints of headaches, and requests to have their eyes examined, among children in the upper classes that it behoves us to ask very carefully whether we are producing defects of eyesight through conditions that we might remedy.

The lighting of class-rooms becomes a most important matter. It is undeniable that a great many of the older schools are insufficiently and wrongly lit, and it ought to be impossible for new class-rooms to be added or new schools built without particular care being taken to ensure perfect lighting. In some class-rooms where the lighting is very bad fairly good lighting could be secured by rearranging the seats; but this simple expedient does not always occur to the teacher.

The paper used in school-books and the type and spacing all become important matters. The paper should be dull, not glossy, and the print large. Size of print 2·6 mm., and 4·5 mm. spacing. Test—not more than two lines of print should be seen at once through a hole 1 cm. square; larger for infants. (Drummond, lecturer on school hygiene, Edinburgh.)

The seating-accommodation also has a direct bearing on this subject. Children seated at desks too low for them are tempted to bend over their work, and this tends to eye-strain as well as to the production of stooped shoulders. It is also important to remember that the eyes of children up to the age of six or seven are quite unsuited for near work. Their training should be far more manual than visual, and no fine near work should be expected of them. Sewing should not be begun until eight years old, and should then be very coarse. Finer sewing may be undertaken at eleven years. Children who are highly strung, whose eyes are weak, or who suffer from frequent headaches should do little or no sewing. Frequent attendance at moving pictures injures many eyes. Long hours of music practice are likewise harmful.

The importance of having defects of vision corrected must be brought home to parents. It is quite common still to find parents who strenuously object to having their children's eyes attended to because they do not like the appearance of the child in spectacles. Others think the defect is of no consequence; the child, in their opinion, can see "well enough": yet the dire results of neglected visual defects, the results in nervousness, backwardness, self-consciousness, headaches, and permanently ruined eyesight make up a sad-enough picture.

The treatment of defective eyesight in school-children is probably less satisfactory at present than the treatment of any other defects. It is impossible in many country districts to get any treatment at all, and the spectacle-vendor finds many dupes in the smaller country towns. Also, it is impossible to get specialist treatment except in the larger centres, and it cannot be too emphatically stated that only the eye specialist should treat defects in children's eyes. The public needs educating on this point. At present, unfortunately, owing to the small number of eye specialists available, and to the high fees to which specialists are entitled, the school-child often has to choose between no treatment at all and treatment by unqualified opticians. Nor can we see how this unfortunate state of affairs is to be remedied, unless some arrangement is made between the eye specialists and the Education authorities. To send school-children in large numbers to the hospital out-patient department for eye-testing is unsatisfactory, because it imposes an extraordinary strain on the honorary ophthalmologist; and, again, the children have to wait often for hours for treatment. But it might be possible, by special arrangement, to have school eye clinics established in connection with the hospital out-patient departments. If the question of adequate testing and prescribing of glasses could be thus solved it ought also to be possible to arange with qualified opticians for the supply of spectacles at a reasonable rate, and, further, to arrange to supply spectacles free of charge to children who could not afford to pay for them.

It is impossible at present to suggest any adequate means of securing treatment for eyesight defects in the remoter country districts. Of course, a certain number of those examined and notified for defective eyesight find their way into town for treatment, but it is certain that many notified cases are obliged to go untreated. Fortunately, defects of this kind are less common among country children, who are on the whole less "bookish" than town children, and who generally also start school at a later age and so probably escape some eye-strain.

However, notwithstanding all these difficulties and drawbacks, medical inspection has certainly resulted in hundreds of children having defects in vision treated which would otherwise have been undetected or neglected. In some cases eyes have been actually saved from blindness.

Deafness.—Obvious deafness occurs in about 2 per cent. of the children—slight degrees much more frequently. It is most often caused by the presence of adenoids. It may also be a result of a past attack of scarlet fever or measles. Deafness resulting from adenoids generally improves when the adenoids are removed. For extreme cases of deafness provision is made in the Special School for the Deaf at Sumner.

Obstructed Breathing.

Obstructed breathing arises in the majority of cases from the presence of adenoids or enlarged tonsils. The serious handicap given to children suffering from this defect with regard to both physical and mental development is now recognized. Where the condition is accentuated by deafness the mental dullness is greater, and many of these children are undeservedly numbered in the ranks of the backward or feeble-minded. The improvement in intelligence and in physical

development when the breathing-passage is cleared is most marked. In the first days of medical inspection of schools in New Zealand from 20 to 30 per cent. of the children were suffering to some extent from this defect. This is now reduced to about 10 per cent. We attribute this improvement partly to the increased knowledge of the public as to the symptoms and the necessity for early treatment, but chiefly to the regular and conscientious training in breathing-exercises and in handkerchief drill given by the teachers during the last few years as an essential part of the daily physical work. This has done wonders in curing slight cases of obstructed breathing and in minimizing the general defects resulting from the condition. As post-operative treatment, also, it is of great value.

There are other unsatisfactory but rarer conditions of the nose and throat, few of which call for operative treatment. These also are generally improved by breathing-exercises.

In this connection we may again stress the importance of keeping our schools domestically clean and free from dust, and the necessity of securing the nearest approach possible to open-air conditions.

Physical Deformities.

Speaking generally, there is amongst school-children a large amount of physical asymmetry or deformity. Postural defects are very common. The "Fatigue" posture is common and typical. It is the position adopted by a child of fatigued neuro-muscular system, who sits "all-of-a-heap" in the attitude of least resistance, with shoulders drooping forward, chest contracted, abdominal muscles lax, head poking forward. Then there is the "Round-back" posture, where the spine takes on one long weak curve from shoulders to hips. These postures may become habitual, and later harden into actual deformity and lead to impairment of the general health from the consequent cramping of the lungs, sagging of the abdominal organs, and so on. It is useless to tell these children to sit erect and keep their shoulders back. They cannot. They have to be re-educated physically until good posture becomes habitual. This can only be done through careful and prolonged physical training.

Habitual faulty posture leads to *curvature of the spine*, in which the spine bends to one side or the other (scoliosis) or shows excessive curve backwards in the chest region (kyphosis). These distortions are merely a further development along the lines of faulty posture following on poor neuro-muscular control and development. Habitual faulty posture also leads to permanently stooped shoulders, round shoulders, and cramped chests.

Flat chest and *pigeon-breast* are fairly common, and can be remedied to some extent by physical training. There is one type of flat chest which we come to associate specially with school life and conditions for which much can be done—the unexpanded, cramped chest of the studious child of deficient muscular development and activity.

Flat foot is another common defect, and its occurrence in school-children is interesting since attention has been drawn to the condition as a cause of rejection for military service.

Children suffering from these conditions are not necessarily to be regarded as "defective." Most of them without special care will grow up to be more or less useful citizens, but they will not, without special attention, attain the physical perfection of which they are inherently capable. Nor can any one estimate how much they are missing in brightness, happiness, and mental keenness. It is possible to make practically all these children physically efficient, to make them grow up straight as well as strong, by properly directed careful physical education. There is in addition a certain amount of serious physical deformity in our schools, such as bad spinal curvature, for which little can be done apart from expert individual treatment.

What are the causes of physical defects of this class? Anything interfering with the child's health, such as malnutrition, adenoids, anæmia, defective vision, overwork and overcrowding, and bad home conditions, renders a child more liable to develop these deformities. Undoubtedly the long hours of bodily inactivity spent sitting at desks, good or bad, is the determining causative factor in many cases of physical deformity. The worse the desk the worse its effect. Most pernicious of all are those seats without any backs, of which there are still far too many. It is gratifying to note that effective steps have been taken to get rid of this type of seat. The custom of making children fold their arms either before or behind also produces marked deformity in susceptible children.

Bad lighting in schools leading to the adoption of an incorrect posture is another contributing factor. A habit of carrying school-books always over one shoulder, and the use of misfitting school-desks, with consequent twisted position in writing, also help the development of spinal curvature in children of poor muscular tone and poor nutrition.

An investigation recently made by one of the Medical Inspectors shows that, even in a kindergarten class where seating was good and free movement amply provided for, there were many cases of physical deformity. Out of twenty-two children from three to four years of age, seven, or 36 per cent., had some physical deformity; of sixty-two children aged from five to six years there were twenty-four, or 38 per cent., of similar cases; and of forty other children of ages six to seven there were twelve, or 30 per cent., of such cases. The Medical Inspector considers that, in addition to the results of cramping in bad go-carts and perambulators, slight and often unnoticed, rickets have partly been the cause of these defects.

Classification of Children.—From the standpoint of physical defect of this kind children may be roughly classified into four groups:—

(*a.*) Well-nourished healthy children without physical deformity.
(*b.*) Well-nourished healthy children with physical deformity, such as faulty posture, stooped or drooping shoulders, faulty carriage.

(*c*.) Poorly nourished children with physical deformity, such defect being generally more marked than among children in group (*b*), because these children lack nervous and muscular tone, and their general limpness tends to the development of physical deformities.

(*d*.) Poorly nourished children, in whom the general condition of debility or anæmia is more important than the presence or absence of any particular physical deformity. This group may be disregarded in the meantime, since the treatment of the underlying condition is more important than the physical deformity itself.

The groups that vitally concern us in school-work are groups (*b*) and (*c*). Speaking generally, it may be said without fear of contradiction that group (*a*) is much smaller than it ought to be, and group (*b*) much larger. It should be possible, by well-directed efforts in physical education, to pass on the great majority of group (*b*) into group (*a*). This is the most immediate problem to be faced and the most hopeful.

What can be done to prevent and cure these deformities?—As the war has emphasized the importance of physical fitness, so also has it demonstrated as nothing else could have done the improvement in physical development and bodily health that is attainable by systematic exercise. The basis for a national system of physical education must be some scheme of wide scope planned to secure the even and perfect development of the body as a whole, and capable of application to all ages and both sexes. Furthermore, all other physical activities—games, sports, dancing, swimming—give their best results when superadded to this sound general training. The Swedish system of physical training meets all these requirements. It is the system adopted in the Army and Navy. It is the system at present in operation in our schools, and our aim should be to strengthen and perfect the system.

Most of the physical defects above referred to might be avoided, and many remedied, by making our present system of physical work more effective. The Swedish system of exercises depends for its good effects on the quality of the work done. With this end in view we would suggest:—

(1.) That, as physical work of a good quality can only be carried out by efficient teachers, every possible facility be given teachers to become expert by such means as vacation training-camps, short refresher courses, and voluntary evening classes under the Physical Instructor of the district.

(2.) That training-college students receive more systematic training in Swedish work, particularly training in teaching the Swedish exercises, and that encouragement be given to students to make this a special branch of their work.

(3.) That Physical Instructors, limited in number as they are, concentrate their efforts more on the instruction and training of teachers than on inspection of classes. It is very noticeable that children respond at once to a keen teacher in physical as in other work, and it is to be remembered especially that the great majority of children are to be reached and benefited in their physical development through the teachers in our schools, and that they can be reached in no other way.

(4.) That more time be allotted to physical work in our school syllabus. The present allowance of fifteen minutes daily is not sufficient for a good Swedish lesson under an inexpert teacher, although under an expert a great deal can be accomplished in the time. A better allowance would be half an hour; and we wish to emphasize the fact that this half-hour is not play-time, but a very strenuous half-hour of combined physical and mental activity. We are still very far from realizing the mental stimulus supplied by effective physical work. To secure this half-hour it may be necessary to lighten the present syllabus in other directions, but we confidently believe that the increased physical vigour and mental keenness so obtainable would more than compensate for the apparent loss of school time.

(5.) That, wherever facilities exist, swimming should be taught, and should be an integral part of the school-work. We would like to see more schools with swimming-baths and gymnasia. We know that at present a very great deal is being done by the personal interest of teachers in the matter of open-air bathing and swimming where natural facilities exist, and we heartily endorse their efforts.

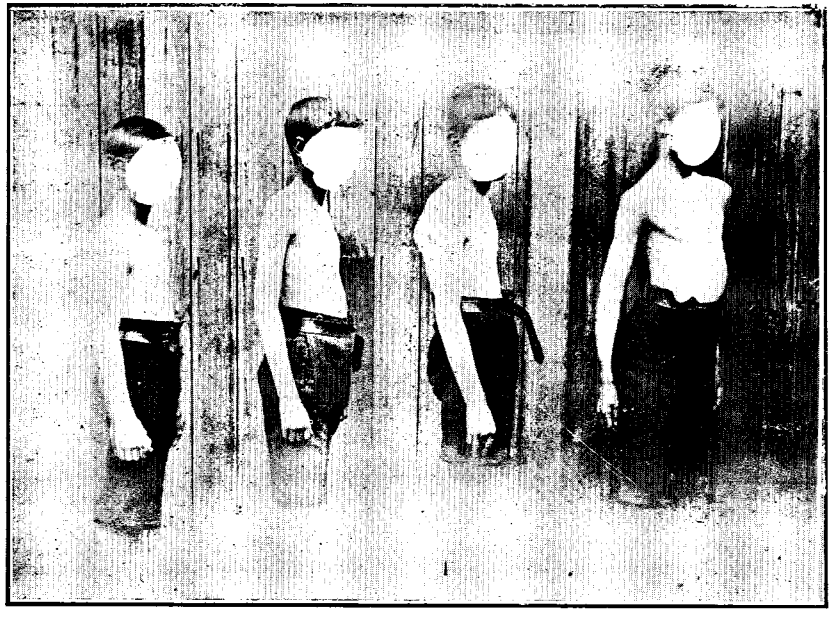
(6.) That recognition be accorded to teachers who excel in the teaching of physical work, and that in the grading of teachers the quality of their work on the physical side be considered.

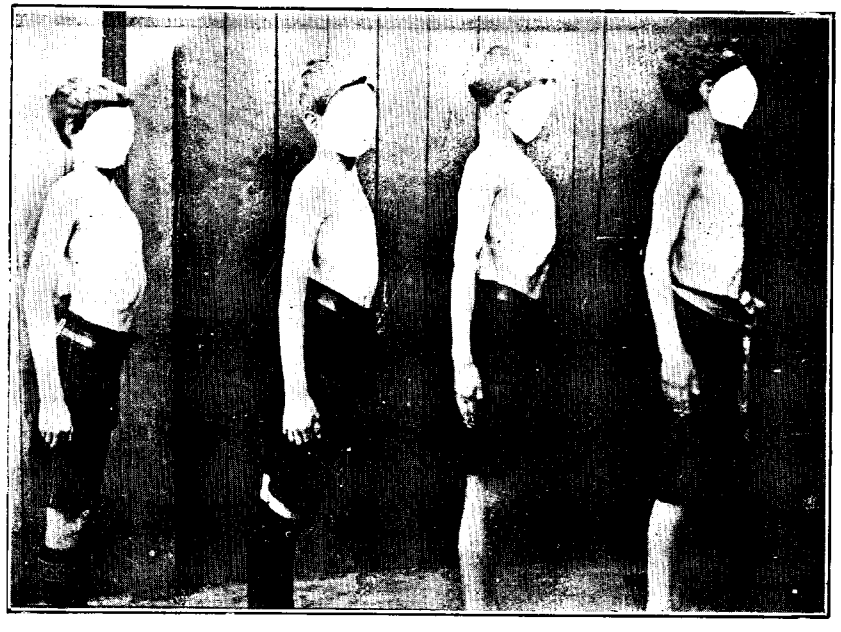
(7.) That further effort be made through the teachers to encourage amongst the children the habit of wearing suitable clothing for physical exercises. It would be a great step forward if teachers and children alike (especially girls) were suitably clad for this work. Swedish work in clothing that in any way whatsoever hampers free movement of any part of the body loses half its efficiency. Teachers who conduct their drill classes in suitable costume openly proclaim their faith and interest in the exercises. This matter of costume is a practical point that must not be ignored if the scheme of physical education is to be sound. (See hints on clothing in circular "Suggestion to Parents.") An appropriate costume is already adopted widely by the girls in certain schools, and with the best results from the æsthetic standpoint as well as the physical.

If, in addition to the measures above detailed, the plan were adopted of having short intervals for drill or for amusement after each hour's work, group (*b*) would be almost non-existent.

Showing Physical Deformities in Girls before Corrective Treatment.

An Example of Tight Clothing.





Boys before and after a Year's Course of Physical Corrective Exercise.

When we come to consider the children whom we have classed in group (*c*) who show poor nutrition, as well as some physical deformity, our problem is more complex. Poorly-nourished children are, for the most part, limp and toneless, easily fatigued, inclined to be "slackers" mentally as well as physically, pale, listless, often anæmic. These children readily fall into the various faulty postures described. They literally assume, because of their general laxity, the attitude of least resistance, and collapse into "huddled heaps" during the hours of enforced immobility.

These children are more difficult to treat because of their general tonelessness and lack of energy. They are the children who escape effort whenever possible, who go through their regular daily exercise in a large squad with the least possible exertion to themselves. They have no "snap," no brightness, and possibly perform in their listless way all the various movements required; but, because they do not assume a correct posture to start with, the system designed to aid them may actually be exaggerating their defect, and at the best they are reaping no benefit from it. Unless a certain amount of individual attention can be given to the physical needs of these children the majority of them will not greatly improve.

So far as their school life is concerned their immediate needs are these:—

(1.) To have any pronounced defects, such as enlarged tonsils or adenoids, defective eyesight, decayed teeth, detected and remedied. This may mean repeated notices to parents and personal interviews by the School Nurse.

(2.) To have shorter periods of enforced immobility, and more frequent spells of open-air activity.

(3.) To have individual attention in their Swedish work. This means that they must be taught in small squads by competent teachers.

During the past year the Medical Inspectors, with the co-operation of the Physical Instructors and teachers, have endeavoured to meet these needs. In the large schools of the various centres children of the type described have been selected by the Medical Inspectors and set aside for special physical work in a small squad known as the "corrective class." So far as possible we have tried to secure half an hour of physical work daily for these squads in two periods of fifteen minutes. This has meant in many cases considerable rearranging of school-work, since it has meant the setting free for these periods of a competent teacher. We are glad to state that head teachers have met us wholeheartedly in arranging for these classes.

The essentials for success in these corrective classes are enthusiasm, accuracy, sympathy, persistence on the part of the teacher, and the power to enlist the active interest and co-operation of the children themselves in the improvement of their own physical condition.

The classes have consisted of from ten to twenty children, selected by the Medical Inspector after careful examination as likely to benefit from extra Swedish drill under favourable conditions. In many cases the corrective class was photographed at the time of selection, and we now have some photographs of the same children after a year's special work. The improvement must be seen to be believed. Speaking generally, it is evident that the corrective classes are a distinct and growing success.

The Physical Instructors have given special attention to the corrective classes and special help to the teachers of them, and the Medical Inspectors have tried to secure the co-operation of the parents by circulars pointing out the importance of simple food, long sleep, loose clothing, and of having medical or dental attention where necessary. We wish to make these corrective classes a permanent and special branch of our work, and draw attention to the following facts in connection with them:—

(1.) The selection of children for corrective work belongs to the Medical Inspector alone. It is unsafe to put any delicate-looking child into such a class without medical examination. Indeed, every child should be medically examined before undertaking strenuous physical work; but these more delicate children especially must be so safeguarded. It is particularly among these children that one finds the unsuspected case of heart-weakness, and sometimes the general condition is so poor that to give extra drill is merely to add to the already existing fatigue. Thus it occasionally happens, to the teacher's surprise and disappointment, that the most needy-looking children are not included by the doctor in the corrective class.

(2.) We wish it to be clearly understood that these classes are not actually remedial in character. We do not include in them the worst cases of, say, spinal curvature. Where any deformity is well established in a delicate child the treatment must be expert and individual. In such cases we notify the parents, and advise that the child be placed under expert care and advice. The special classes are what they claim to be—corrective only—designed to deal with that class of physical deformities which belongs especially to the province of the school doctor, the large class of "deformities in the making."

(3.) These classes are an instructive demonstration of the good results of regular Swedish exercise, where the teacher is not hopelessly handicapped by large numbers and great variations in type. It is the manageable size of the squad, the knowledge of the individual weaknesses, and the chance for individual attention that have gained for these classes their very successful results.

At the yearly re-examination those who have sufficiently improved will be passed on to their ordinary drill squad, and the gaps in the ranks filled by new cases.

During the past year, and in connection with the establishment of these corrective classes, a good deal has been done in the way of further training of teachers in physical work. During the winter evening classes (voluntary) have been held in the large centres, and the Medical Inspectors

have given various lectures to teachers, pointing out the importance of correct posture, and demonstrating the actual occurrence of these various defects in children selected for the purpose. In addition there have been many short refresher courses for teachers during the year conducted by the Physical Instructors (with the co-operation of the Medical Inspectors in the manner already outlined). We believe that further and continuous efforts should be made in these directions if we are to get the real benefit out of the physical system already in vogue in our schools.

Mental Defect.

One of the difficult problems in education is the classification of children according to their mental capacities. It is becoming recognized that unless much effort is to be misdirected the educational system must be adapted to the requirements of several groups of children, and provision must be made for the special educational treatment of the child who is dull and backward.

Children may be divided as follows :—

(1.) The child that is mentally normal or above normal.
(2.) The dull or backward child.
(3.) The feeble-minded child.
(4.) The imbecile and idiot child.

The child who is backward from accidental circumstances, as ill health in early life, physical defect, bad environment, &c., may be in time brought up to the normal by attending to his bodily welfare and adapting the school curriculum to his need. He is to be distinguished from the child who has an inherent defect in brain-development, and who, though educable to some extent, remains permanently retarded.

Owing to the varying standards of judgment it is difficult to estimate the number of mentally defective children at our primary schools. A census taken in seventeen schools gave an average of 4 per cent. of backward children. Returns for other districts run from 4 to 6 per cent. Most of the children included in this result are merely those who are so backward as to be two or three years above the usual class age, and whose limited powers make them a drag upon the rest of the class. Such children are common in every school. (The estimate of the Medical Officer for the London County Council—10 per cent.) The sole hope that these children have of becoming wage-earners in the future is in their ability to do manual work; yet they of all children at school have the least facility for training in this direction. Their poor mentality keeps them in the lower standards where technical work is never taught, and where they lack the necessary stimulus of associating with children of their own age.

Older children of defective mentality may constitute a moral danger to the younger members of a class.

Institutions are needed for dealing with children who, while far above the imbecile or feeble-minded found in the special schools, have so limited a mentality that they cannot progress by the beaten tracks to knowledge. These children require a curriculum with more objective teaching, and motor work at manual exercises. Intellectual training must be preceded by education of special senses and training of voluntary muscles. At any early age much of their training should be directed to handicrafts and simple manual labour which will make the individual self-supporting. This group of dull and backward children might receive education in two ways :—

(1.) A special class for backward children might be formed in existing primary schools, the number for each class to be small enough to permit of increased individual attention, and the curriculum offered giving more time to handwork.
(2.) A special school for day pupils, with suitably modified curriculum, might be opened in each of the four centres which would receive children too backward for the primary-school education. Children improving under this regime could be returned when fit to the primary school, while children whose low mentality made the discipline and training of a residential school advisable could be drafted on to the special schools for the feeble-minded.

It should be stated that a special class of about twenty backward children is being held in the Myers Kindergarten Building in connection with the Normal School at Auckland. The pupils work under open-air conditions and have a hot mid-day meal.

Feeble-mindedness dates from birth or an early age, and represents an arrest in the normal development of the brain which deprives its subjects of ordinary powers of control. There are few feeble-minded children at the primary schools, and those are incapable of acquiring education as it is there offered them. The special schools at Richmond and at Otekaike make provision for children of this class. Here instruction is given on definitely practical and manual lines, and effort is made to render the individual self-helpful and self-supporting. Idiots and nearly all imbeciles are incapable of education, but require custodial treatment.

After-care of feeble-minded children is a problem which has to be faced. With the exception of the few whose circumstances permit of intelligent supervision at home they are happier and more useful in a special institution. More especially is custodial care advisable for feeble-minded girls, whose low intelligence might cause them to be victimized. As feeble-mindedness is hereditary it is advisable that adults of this type be given no opportunity to transmit their poor mentality. Moreover, as there is an intimate relationship between feeble-mindedness and crime, many of this class have vicious instincts and are potential criminals.

Epilepsy.—At some future date it may be possible to make special provision for the education of epileptics. Many epileptics show mental defect. At present some epileptics who are unfit for education at the primary schools are taught at the special schools for feeble-minded, though this must be regarded as a purely temporary arrangement.

School Hygiene.

It is necessary to ensure as far as possible that school premises form a healthy environment for the child. There has been great improvement of late years in the character of the buildings erected, but very substantial alterations are necessary to make the older buildings conform to the modern conception of school hygiene. In the older schools defects in lighting, ventilation, and heating abound; overcrowding is common, and furniture clumsy and old-fashioned.

As a typical room of the undesirable class take the following: All the light in this room comes from the back. It is 43 ft. long and 17 ft. wide. By no feat can the teacher standing in front of the class have every member of it under observation at once. For blackboard work the children at the extreme ends of the room have either to read from a distance of 20 ft. and at a bad angle when the board is half-way down the room, or of 40 ft. if it is at one end. There are ninety-four children in the class, giving an average floor-space of only 7·7 ft. per child. The school furniture consists of the old-fashioned long desk and seat at which children are ranged regardless of height. This state of affairs is bad for the children and very trying for the teachers.

Lighting.—Many rooms depend entirely on back lighting. This is unsatisfactory for children, who write in their own shadow, and for teachers, who are obliged to face the glare all day, many of whom complain of defective eyesight in consequence. Remote corners of schoolrooms are often in twilight. The newer schools depend as much as possible on lighting from the left, and make adequate provision for it.

Ventilation in the newer schools is, as a rule, satisfactory, but very inadequate in many of the older buildings. We have found rooms where windows have never been made to open. We are of the opinion that, though many more or less complicated experiments have been tried, the old-fashioned window which permits of top and bottom sash being pushed up and down gives most satisfaction in airing a room. Cross-ventilation should always be provided.

School Furniture.—Single and dual desks are gradually replacing the old-fashioned long desk and form. In five education districts the long desk is practically abolished. With regard to furniture of the infant department, the introduction of the little individual chairs with back-rest is excellent.

Heating is carried out by means of open fires, by stoves, or by hot-air apparatus. Where the hot-air system is in use the air seems to acquire a stale and flat quality even when the windows are opened. The open fire is an admirable means of ventilation, but its total inadequacy for heating a class-room was shown by observation made in winter in Otago Central and in North Canterbury. In the large majority of the schools of New Zealand the temperature in winter is far below that which is prescribed for shops and factories.

Roxburgh, 26th May: A bright sunshiny day. A good fire was burning in the infant-room when school opened at 9.30 a.m. Temperature of the infant-room at 9.30 a.m. (in corner remote from fire), 39° F.; temperature of the infant-room at 11 a.m., 44° F.; temperature of the infant-room at 12 noon, 48° F.; temperature of the infant-room at 2.30 p.m., 50° F.; temperature of the Standard VI room at 11 a.m., 38° F.; temperature of the Standard VI room at 2.30 p.m., 48° F. Both of these rooms get little sun. At Naseby, 4th June: temperature in infant-room at 11 a.m., 38° F.; at Hawera Flat, 22nd June: temperature in infant-room at 10 a.m., 39° F.; at Lowburn, 25th June: temperature in infant-room at 10.30 a.m., 39° F. These last three schools are heated by stoves. Where such conditions prevail it is essential that small children should be warmly clad and given frequent opportunity for exercise. It is a serious drawback to an infant-room when it has not a sunny aspect, but in many districts rooms are built with the object of presenting their good side to the street rather than to the sun.

School-cleaning under the present system is obviously inadequate. The difficulty of getting caretakers who will perform their duties thoroughly is often very great. For instance, many caretakers object, on account of the extra labour, to sweeping floors with sawdust damped with disinfectant. In towns where the schools are bigger and the salary of a caretaker is higher the work is, as a rule, better, but both here and more especially in the country the condition of the school premises is often most unsatisfactory. Dust collects quietly year after year upon rafters and in undisturbed recesses, and, though floors are scrubbed out in periods of from six weeks to three months, there is often no effort to ensure a complete cleaning and airing of the rooms. Under such circumstances it would be of great advantage had the Department in its employ regular officers whose duty it was to undertake at stated periods throughout the year the systematic cleansing and disinfection of school buildings. The work of such officers would be additional to and would in no way supersede the ordinary duties of caretakers. They would take the various schools in rotation, and see that they were once or, if possible, twice a year thoroughly cleaned. Their services would also be available after an outbreak of infectious disease to thoroughly overhaul school premises. The Education Department in Victoria for several years has had in its employ regular officers for school-cleaning, with most satisfactory results. The cost is found to be moderate.

With regard to sanitary arrangements, the accommodation is sometimes inadequate and the cleansing very much so. This again is worse in the country. A few teachers fail to recognize their obligation in supervising these buildings. As a rule where some water-carriage system is provided conditions are satisfactory, but where, as in the country, labour is scarce and the work despised they are sometimes very bad. The newer buildings with cement floors and glazed walls are, of course, much superior to the old wooden buildings.

School Property.—Pencils, books, plasticine, &c., should be used in common as little as possible owing to the probable spread of infection.

Drinking-water.—Under present conditions there is no satisfactory means of preventing the spread of infection from this source. Even where common mugs are abolished it is practically

impossible to supervise children so that they do not put their lips to the tap in drinking. There is really no adequate substitute for a drinking-fountain, though many devices are suggested. As epidemic succeeds epidemic it becomes evident that the installation of bubble fountains is necessary. Many schools have this year introduced drinking-fountains.

Open-air Schools.—The value of teaching in the open air is now generally recognized. Evidence of the benefits derived from this method have so accumulated that it is unquestionably desirable to increase facilities for it. The outdoor shelters are very largely utilized for this purpose, and it is pleasant to note how many schools are adopting the practice of working as much as possible outside. The windy and variable climate of many districts is a serious drawback to this custom, and it becomes obvious that more substantial structures in the nature of "fresh-air class-rooms" are necessary to permit of it.

The open-air class-room at South Wellington has been in use since March, 1915, with most satisfactory result. An open-air class-room is at present under construction at Lansdowne, near Masterton.

Considering the rigorous period of winter and the frequency of cold winds, it appears desirable either to construct open-air class-rooms so that they may be converted into well-ventilated but warm class-rooms of the ordinary type, or else to so construct ordinary class-rooms that they may be converted as often as possible into open-air class-rooms. Thus the room is adapted for weather of all seasons.

Playgrounds.—In towns these are frequently much too small, and more especially is this so in congested areas where there is no wide space to which children may resort.

In the country playgrounds are often almost entirely grass-covered, a satisfactory condition in dry weather but the reverse on wet days. A large asphalted area is an essential if physical drill is to be regularly performed. Outside seating-accommodation is nearly always insufficient, and in consequence the children often seat themselves on damp ground.

The shelter-sheds are often much too small. Where trees are planted in playgrounds they add beauty and give useful shelter. School playgrounds in one or two districts have been made delightful from tree-planting and the arrangement of garden-plots and grassy slopes. This is a very practical method of educating the æsthetic sense of children.

Conclusion.

It will be seen from the above report that even in its initial stages and with a very small staff the work of medical inspection of schools has been of great benefit to thousands of school-children. The possibilities of future developments referred to in the report give some indication of what further benefit may be expected in proportion as parents more fully avail themselves of the advantages offered by the system, and as fuller provision is made with regard to staff and equipment there seems to be no doubt that parents will more and more appreciate and utilize the school medical service, and that the public generally will recognize that no labour and no effectively applied expenditure are too great if they result in the building-up of a stronger and healthier race. This can best be done by supervising the welfare of children during their early and formative stages of growth. Without such supervision much of our work on behalf of education and social progress will be severely handicapped, and, what is more important, the health and happiness of a considerable number of our people will be unnecessarily impaired.

We have, &c.,

Eleanor S. Baker,
Elizabeth H. B. Macdonald,
Margaret McCahon,
Agnes G. Paterson,
Medical Inspectors of Schools.

The Director of Education, Wellington.

APPENDIX.

EDUCATION DEPARTMENT, N.Z.—MEDICAL BRANCH.

(Circular issued by the Medical Inspectors of Schools.)

DECAYED TEETH IN CHILDREN.

A CLEAN mouth is more important than a clean face. Care of the child's teeth will add to his present vigour and happiness, and help to ensure his future health and success in life.

The teeth are necessary to grind the food. They ought to last throughout life, but we lose them by decay. Particles of food easily get caught in the little hollows in and between the teeth. These particles soon ferment and cause decay of the teeth.

I. DECAYED TEETH CAUSE ILL HEALTH.

1. Bad teeth can give rise to such diseases as blood-poisoning, consumption, pneumonia, diphtheria, rheumatism, and many others, because—

(*a.*) Disease-germs multiply rapidly in a decayed tooth. The minute germs of the diseases mentioned may lodge there and multiply by the thousands in a few hours.

(*b.*) Disease-germs can enter the body through a decayed tooth. The decayed spot communicates with minute vessels that enter the tissues of the body. When the disease-germs enter the body they give rise to the corresponding disease.

2. Bad teeth cause stomach troubles, because poisonous material and germs are swallowed with every mouthful of food. This causes poor digestion, bad breath, poor general health, and liability to illness.

3. Bad teeth render chewing difficult or impossible, and food which is not thoroughly chewed and mixed with the saliva causes indigestion and constipation.

4. Bad teeth cause toothache, and chronic toothache makes children nervous and irritable.

II. DECAY IN TEETH CAN BE PREVENTED.

1. Try to develop good teeth: When a baby is born the buds of all the teeth, both first and second, are present under the gums. Anything that interferes with the baby's health interferes with the nutrition of the developing teeth. Natural feeding is best for the baby's health, and therefore best for the growing teeth.

2. Use the teeth: If the teeth are not used when they are growing they will never grow strong. Children should therefore have hard food to chew, such as crusts, oat-cakes, &c.; a hard apple is good to finish a meal. Avoid too much soft and sweet food, as it satisfies the appetite without exercising the teeth.

3. Keep the teeth clean: Uncleanliness leads to decay. Biscuits and sweets between meals are very bad for the teeth, as the sweet particles stick in the cracks and readily ferment.

(*a.*) Begin to clean the teeth early in life. Each child should have his own tooth-brush and be proud of it. The "clean-mouth habit" cannot be formed too soon.

(*b.*) Clean the teeth thoroughly. Use tooth-powder or clean soap on the tooth-brush or salt in the water. Brush the teeth up and down and over all surfaces as well as across. Wash the mouth well at the same time.

(*c.*) Clean the teeth regularly. They should be cleaned at least once a day, but better after each meal. They should always be cleaned last thing at night.

4. Watch for signs of decay, and, if possible, get the teeth inspected by a dentist once or twice a year.

N.B.—Parents should look out for the first permanent molars. They come at about the sixth year, immediately behind the first teeth, and are nearly always mistaken for first teeth. They are perhaps the most important teeth in the mouth, and should never be allowed to decay.

5. Attend to the general health. A healthy, sturdy child is most likely to have strong, sound teeth; and poor general health reacts on the teeth.

III. DECAYED TEETH SHOULD BE TREATED.

1. Get the first teeth treated if they show signs of decay. This is always worth while, as the mouth must be kept clean and healthy for the second teeth.

2. Directly a tooth begins to decay obtain treatment. Money thus spent will be money well spent. It will help to save doctors' bills. If a decayed tooth is treated early it need give no pain, and ought to last throughout life.

3. Never allow a bad tooth to remain in the mouth. One bad tooth in a mouth will set the others going, as one bad apple among good ones. If decay is extensive the tooth must be extracted. This is always a great pity, because artificial teeth are not nearly as good as natural teeth.

N.B.—Natural teeth can exert a pressure of 250 lb.; artificial teeth of only 50 lb.

Remember—

(1.) Where teeth are bad a child swallows poison with every mouthful of food.
(2.) Teeth should be cleaned at least once a day to prevent their decay.
(3.) If a tooth decays treat it at once.

EDUCATION DEPARTMENT, N.Z.—MEDICAL BRANCH.

(Circular issued by the Medical Inspectors of Schools.)

SUGGESTIONS TO PARENTS.

IN order that your child may receive the fullest benefit from his school training, and grow up to be a health and vigorous citizen, you are asked to do your part by attending to the following matters:—

Sleep.—Children attending school require at least ten hours of quiet refreshing sleep in a well-aired bedroom with open windows. Many young children are not sent to bed early enough, and do not get nearly enough sleep. Delicate, nervous, and anæmic children especially need sleep. The excitement of evening entertainments is very harmful and interferes with sound sleep.

Baths.—All children should have a hot bath at least once a week for cleansing. It is not generally realized that a quick cold sponge or a rub over with a wet cold towel every morning is to most children a very valuable skin and nerve tonic.

Food.—Food should be simple and well-cooked. It is important to see that children have a good breakfast without hurry, as the fear of being late for school seriously interferes with a child's appetite and digestion. Where lunch is carried to school, sandwiches, and if possible, fruit are better than cakes, pastry, or biscuits. A suitable diet for school-children may be selected from the following:—

Breakfast:—
Porridge and milk, bread and milk, eggs, or fish, or fruit. Milk or cocoa.
No tea, no meat.

Lunch (when taken at school):—
Sandwiches, fruit, milk or cocoa if obtainable.

Dinner (as soon as possible after return from school, when appetite is keen):—
Soup, meat, vegetables, potatoes, milk puddings, custards, plain suet puddings with syrup or jam, stewed fruit.

Tea (where dinner is taken at midday):—
Bread, oat-cake, butter, jam, milk, cocoa, with or without extras as for breakfast.

Supper (where evening meal is taken early):—
Bread and milk.

Avoid pickles, vinegar, tinned food, excess of sweets, biscuits, food between meals.

Teeth.—It is very important that children's mouths should be kept clean and their teeth in good condition. Children should be taught to clean their teeth twice daily, in the morning and before going to bed, and if necessary should have the attention of a dentist.

Clothing.—All clothing for children attending school should be warm and light and sufficiently loose to allow of perfect freedom of movement.

For girls, a suitable costume for general wear and for physical exercise and games would be: A loose tunic hanging from the shoulders and reaching to the knee; a loose blouse with sleeves loose enough to allow the arms to stretch fully overhead; a pair of dark knickers. Corsets and high-heeled shoes should be given up.

For boys the following is suitable: Pants, with washable underpants, and a loose shirt or jersey, giving plenty of room at neck and wrists; a belt is better than braces.

For both boys and girls, rubber shoes without heels, or sandals, are the best footwear for drill.

Notices from Medical Inspectors.—When a notice regarding defective eyesight, enlarged tonsils, adenoids, or other condition is received from the Medical Inspector of Schools, you should at once consult your own doctor or take the child to the public hospital. Children cannot receive full benefit from mental or physical work until these abnormal conditions are put right.

EDUCATION DEPARTMENT, N.Z.—MEDICAL BRANCH.

(Circular issued by the Medical Inspectors of Schools.)

CONTAGIOUS SKIN-DISEASES IN SCHOOL-CHILDREN.

I. TREATMENT OF SCABIES ("ITCH").

1. GIVE a prolonged hot bath and scrub the body well with soft soap, especially the fingers, toes, armpits, and groin
2. Dry thoroughly with a soft, clean towel.
3. Rub in the ointment thoroughly, paying special attention to fingers, toes, armpits, and groin.
4. Repeat the treatment next evening.

Remember: This disease is contagious. The child, therefore, must not use other children's towels, wear other children's clothes, and, particularly, must not sleep with other children.

Caution: A child when cured is often reinfected from clothes or bedding which were in use before treatment was begun. Therefore all clothes and bedding should be washed, and where possible boiled.

The Ointment.—Sulphur Ointment } Equal
Vaseline } parts.

Scabies is often complicated by eczema and inflammation.

If the treatment described is not successful, the failure is due to want of thoroughness in treating, or to one of these conditions, in which case further medical advice must be sought.

II. TREATMENT OF IMPETIGO ("COMMON SORES").

1. Bathe off the crusts with warm water or weak boiled starch twice a day. The bathing must be done thoroughly, and it must be continued for a quarter of an hour or longer, until the crusts get soft and can be wiped away.
2. After removing the crusts, apply the ointment to the sore places.
3. Wherever possible keep the sores covered with clean lint or rag, after applying the ointment.

Remember: As this disease is contagious, the child must not use other children's towels, &c.

The Ointment.—White Precipitate Ointment } Equal
Vaseline } parts.

III. TREATMENT OF RINGWORM.

Ringworm of the Body.—Paint the ringworm for several days with tincture of iodine, going well over the spreading edge. Keep a sharp lookout for fresh spots, and paint them as soon as they appear.

If this does not cure the ringworm in a few days, further medical advice is required.

Ringworm of the head is difficult to cure, and should be under the care of a doctor. The hair must always be cut over the patch and for at least half an inch beyond.

Remember: This disease is contagious. The child must not use other children's towels, clothes, &c.

DISINFECTION OF CLOTHES.

Clothes which cannot be soaked in strong disinfectant or boiled may be disinfected by prolonged baking in an oven, Wrap them in a newspaper to prevent scorching.

EDUCATION DEPARTMENT, N.Z.—MEDICAL BRANCH.

(Circular issued by the Medical Inspectors of Schools.)

CARE OF THE HAIR IN SCHOOL-CHILDREN.

THE School Medical Officers wish to draw the attention of parents to the fact that the hair of children, even clean children, is liable to get into an unclean condition owing to infection by small insects (head-lice). The "Nits," or eggs of these insects, will be found as whitish specks firmly glued to the hair.

With proper patient treatment this condition can always be got rid of. It should never be neglected, as it may lead to the formation of scabs and sores on the head and enlarged glands in the neck, resulting sometimes in abscesses in the neck and even tuberculosis.

DIRECTIONS FOR CLEANSING THE HAIR AND KEEPING IT CLEAN.

It is not sufficient to get rid of all living parasites from the head; the eggs or nits also must be completely removed from the hairs, as otherwise they become living parasites in about eight days and so keep the trouble going.

To cleanse the hair the following directions should be carefully carried out:—

1. (*a.*) *One Method.*—Take equal parts of kerosene and sweet oil—mix, and thoroughly saturate hair and scalp at night with the mixture. Wrap the head in a towel and leave it so for the night. Next morning wash the child's head with hot water and soap, and remove all traces of the oil. After thoroughly drying, saturate with vinegar separating hair and strands, and brush with a stiff brush. When necessary, repeat the process twice a week for a fortnight. (If preferred, Eucalyptus may be used instead of kerosene.)

(*b.*) *Another Method.*—Rub the following ointment into the head every night for ten days. Wash the head twice a week with hot water and soap, adding one teaspoonful of Jeyes' Fluid to each pint of water.

The Ointment: White precipitate ointment.

(This method is recommended always where there are sores on the head.)

2. In case of boys and troublesome cases in girls the hair should be cut in order to make treatment easier and more thorough.

3. To remove nits from the hair, comb frequently with a small-tooth comb dipped in vinegar or methylated spirits. (Not to be used if sore places are present.)

4. Hats and caps of the children, which will most likely be infected at the same time as the hair, must be disinfected. This may be done by prolonged baking in an oven—scorching may be avoided by wrapping the article in a newspaper.

After doing this the hats and caps should be lined with some washable material such as calico, linen, &c., during treatment.

5. Combs and brushes may also transmit infection. These should be cleaned by soaking in hot Jeyes' Fluid or carbolic acid solution (one teaspoonful of Jeyes' Fluid to a pint of water). Each child should be provided with its own comb and brush, and should use no other.

6. *Girls.*—It is wise for girls to wear their hair short, or well tied back.

7. Children should be cautioned against exchanging hats and caps, as this helps to spread infection.

CAUTION.—Kerosene and methylated spirits are inflammable, and must not be used near fires or lights.

EDUCATION DEPARTMENT, N.Z.—MEDICAL BRANCH.

SPECIAL DRILL CLASSES.

SPECIAL classes for the correction of defects such as faulty posture, round shoulders, &c., are at present being formed in our schools. These defects are not incompatible with fair health, but they indicate a certain loss of physical tone, and if allowed to persist or increase predispose to more serious trouble.

The special classes are likely to be of the greatest benefit to the children selected.

I have selected your child for admission to the special class in the school he [she] attends, and, in order that he [she] may obtain the full benefit from the physical training there given, we ask for your co-operation and attention to the attached circular.

, Medical Inspector of Schools.
Place:
Date:

Approximate Cost of Paper.—Preparation, not given; printing (1,600 copies), £20.

By Authority: MARCUS F. MARKS, Government Printer, Wellington.—1917.

Price 6d.]