

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.