

provision of any necessary appliance. The scheme of treatment must be settled by a surgeon with special experience in this work, who should direct which muscles are to receive treatment and which movements require re-education. There is a tendency to consider physio-therapy as the panacea for infantile paralysis. This is not so. It has its uses, but must be applied thoughtfully as a part of the whole scheme of treatment. Only selected muscles and movements should be treated and exercised. It is easy by giving electrical treatment to the stronger muscles to produce rather than to diminish deformities. After two years from the date of onset of the paralysis, physio-therapy has only very restricted uses. During the later stages, however, carefully thought out exercises to improve the power and control of muscles which have recovered but are not in active use, and to undo bad habits, may produce great improvement. It requires great experience and intelligence to draw up the scheme for such treatment. These cases more than any others should be under an orthopædic surgeon whilst under treatment. Treatment should in no case be indefinitely prolonged.

3. *Spastic Paralysis*.—These repay physio-therapy only in so far as they are capable of improvement by re-education. Massage and electrical treatment are useless. It may be said generally that the appropriate methods of re-education are not taught in the massage schools, so that a masseuse will not be able to deal adequately with a case of spastic paralysis unless she has preliminary and special instruction.

In all except very mild cases the treatment by re-education is only a part of the treatment, preliminaries being the reduction of the spasm by surgical methods such as tenotomy, division of nerves, division of posterior nerve-roots, and perhaps the provision of walking appliances. Many cases of spastic paralysis are so mentally deficient that they are unable to respond to any form of treatment.

4. *Scoliosis and Round Shoulders*, divisible into :
 (1) Mild postural cases. The essential element in these is not bone deformity or muscular weakness, but lack of proper muscular control and balance. Their cure is a question of physical education. They are best dealt with in small classes and by educational gymnastics. Such treatment is most easily given in the schools. Apparatus is not essential; if apparatus is provided it should be only of the simplest, the most valuable pieces being (a) reversible bench for balance work, and (b) a few rib stools. Plinths are not wanted
 (2) Mild structural cases. It is essential that these should be under regular surgical supervision, as they are the type of case from which the bad scoliosis arises, and often arises very suddenly. Exercises for these require most careful regulation. The best exercises are, as a rule, those for improvement of control of muscle balance—i.e., educational. Splints for recumbency and supports for the spine may be required. (3) Severe structural cases. These require much the same treatment as the

last class, but in many cases there is a tendency to treat by exercises children with fixed severe curves which are quite incapable of improvement. The number of bad cases of scoliosis among school children is relatively very small.

5. *Flat Feet*.—Flat feet and talipes valgus are common in children. The first essential in treatment is to see that proper boots or shoes are worn. Boots that have been modified or are supported by a steel spring may be required. Subject to this, exercises are useful in a large proportion of cases. Class exercises in school are all that are required, except in a few special cases. No apparatus is required unless it is a skipping rope.

6. *Breathing Exercises* can be best done in classes in school. No apparatus is required.

7. *Bone and Joint Disease*.—It should be our aim to see that these cases are treated, as far as possible, in residential institutions while at the active stage. During later stages they require careful after-care, namely: (a) periodical surgical supervision to watch progress; (b) supervision to see that apparatus is worn and rules as to rest carried out.

The types of cases which require orthopædic supervision and treatment can therefore be divided into: (a) Those for whom class exercises only are required. These should be dealt with by special physical education classes in schools, and should not be brought to treatment centres apart from initial and periodic examinations. The treatment of these children in clinics interferes much with their schooling, and is unnecessarily expensive. (b) Those who require orthopædic treatment. This may include surgical supervision, splinting, surgical appliances and physio-therapy such as massage, exercises, and electrical treatment. These cases cannot be dealt with at a clinic at a school, but should be treated either in a hospital out-patient department, or if one is not accessible, in a centre which is virtually an outpost of the orthopædic hospital, and should be supervised by a surgeon trained in orthopædic work and in touch with the central hospital, which can deal with portions of the treatment which cannot be carried out at the centre.

Such centres should be: (1) Established only where a hospital cannot adequately carry on the work of the area. (2) Part of a complete scheme of orthopædic treatment for the area and properly coördinated with a hospital. (3) Under the surgical supervision of an orthopædic surgeon, who visits sufficiently often to exercise adequate supervision. He must be paid. (4) Coördinated with: School medical work—school medical officer should visit the clinic weekly and admit new cases; infant welfare centres; school classes for corrective exercises; Invalid Children's Aid Association.

The Central Committee for the Care of Cripples are willing to assist in the first organisation of a clinic or system of clinics, and particularly to assist in the selection of visiting orthopædic surgeons.

May we urge that good King Sol and highly skilled specialist nurses are indispensable in dealing with Children's Orthopædics.

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