

## A PROGRAMME FOR THE CARE OF CRIPPLES IN SOUTH AFRICA

G. T. DU TOIT, F.R.C.S. (ENG.), *Chairman, National Council for the Care of Cripples in South Africa, Johannesburg*

In considering a comprehensive programme for the care of cripples in this country one is limited to some extent by the existence of a multiplicity of organizations and Government departments which have acquired a vested interest in those aspects of the service for which they are responsible. Such organizations, having justified their existence by filling a need where no previous service existed, may resist attempts at amendment of their functions or re-definition of their limitations.

In order to get a comprehensive plan adopted and to work towards it in an organized manner it will be necessary to influence heads of departments as well as to modify the official policy of the Government in relation to field work, centralization, transport, hospitalization, after-care education, vocational training and placement of cripples. In countries like Sweden, Denmark, Holland, Switzerland and Austria considerable unanimity of opinion has been achieved in this type of work. In a country like the United States of America factors such as the high standard of living, the enormous resources, the alert public conscience of the well-to-do and the peculiarity of tax exemptions for charitable donations, all contribute towards the development of good services in many States without necessarily achieving uniformity.

In the Welfare State of Great Britain a most comprehensive programme for the care of cripples has been carried out, but the administrative authorities have shown great inertia. The general standard of care has been raised, but I believe that the personal relationship of patient to doctor, social worker and therapist has to some extent been lost in the levelling-off processes of a mass-production machine.

In this country, handicapped as we are by a dearth of skilled persons and a low economic status of a large proportion of the community, we are a long way from defining our problem, let alone solving it.

The following is a full statement of our needs for the present as well as for the future:

### *Orthopaedic Centres*

Primary orthopaedic centres should be established in large cities attached to medical schools and teaching hospitals. A

University orthopaedic and traumatic centre should have a director of the regional service, a number of orthopaedic specialists graded from the most senior consulting surgeon to part-time surgeons, full-time orthopaedic surgeons serving apprenticeship before going into practice or surgical registrars accumulating experience for registration purposes as required by the South African Medical and Dental Council, and house surgeons with surgical ambitions. A unit such as this should have a full complement of orthopaedic sisters, theatre nurses, plaster-room attendants, clinical secretaries, physiotherapists, occupational therapists, remedial gymnasts, orthopaedic mechanics, limb fitters, surgical bootmakers, etc. The unit should also have its own radiological department under a radiologist interested in this aspect of surgery and pathology, and there should be close cooperation with other departments of the medical school and teaching hospital.

For example, assistance from the departments of pathology and bacteriology would make possible more accurate diagnosis, more precise evaluations and more definite attacks on particular problems. The advice and assistance of the department of medicine would be needed in such problems as the lung-function assessment of paralytic polio cases and of scoliotic deformities of the spine, and fitness for operation. This department would also be able to assist in the alternative evaluation of results achieved—a guard against continuing outmoded and useless techniques—and a guide for future practice. The help of the department of thoracic surgery and the ear, nose and throat department would be useful in paralytic cases and in cases of deformity of the spine and chest.

The department of physical medicine should become more aware of the extent to which it can contribute to the welfare of cripples. The department of general surgery should integrate its experience of handling major and minor trauma, blood and fluid loss, major burns, as well as its experience in the many fields in which there is no real boundary between orthopaedics and general surgery.

The neurosurgical department has much to teach the orthopaedic surgeons in the fields of technique and diagnosis. Simi-

larly the orthopaedic surgeon could play his part in the rehabilitation, splinting and re-education of the neurosurgical case. Co-ordinated team-operating would not only raise the standard of work for a particular patient, but would provide invaluable training for the men in both departments.

Cases for amputation should be dealt with by an orthopaedic surgeon with special experience in the construction of artificial limbs. Today, not only does the mechanic build an artificial limb to fit the amputation stump, but the surgeon devises a stump which can be fitted with the most desirable type of limb. Artificial limbs and orthopaedic appliances manufactured in this country are still primitive, and the administration of this service is poor and under divided control.

Our Government departments do not yet appreciate the standard to which they should develop this science in the interest of the patient. Taking into consideration that polio may be progressively eliminated in a few years and that surgical tuberculosis will decline here, as in more advanced countries, we should prepare for the increase in the incidence of traumatic disabilities. Accidents are taking so great a toll of our skilled workmen, our youth and our best brains that the country is losing at least £1,000,000 of national wealth per year.

An integral part of the services rendered by the orthopaedic and traumatic department should be the training of medical and para-medical personnel. The social services required should include the contact during the hospitalization period, the follow-up at home and rehabilitation. Moreover, the vocational training for those persons who are permanently incapacitated needs special planning.

#### *Regional Services*

A large unit such as described would serve a large local population and long-stay cases and complicated cases over an area possibly hundreds of miles in diameter. For example, a primary unit in Pretoria would serve the North-Eastern, North-Western and Northern Transvaal. The Johannesburg unit would serve the South-Eastern, South-Western and Southern Transvaal. Similarly, primary centres in Durban, Cape Town and Stellenbosch could serve comparable areas. From such a primary unit services should radiate out to smaller provincial hospitals and after-care clinics.

I believe that surgeons and other skilled staff from the central unit should visit outlying hospitals, where decentralized orthopaedic work could be done with the assistance of local surgeons and a nucleus of full-time staff. The visiting surgeon of such a secondary centre should review and discuss all work done by the local men between visits—this would assist in their training and would disseminate useful techniques to the centres. The full-time men at such a centre should have the status of registrars and should be integrated into a rotating system where a man spends, for instance, 4 years training as a surgeon.

One year of this training could be devoted to adult European orthopaedics, 1 year to European children's orthopaedics, and 1 year to non-European orthopaedics in a major centre where the registrar would get maximal opportunities for applying techniques learnt and doing major work of all types under supervision. In his 4th year he would be competent to undertake all routine work at a secondary centre and would review his work at weekly or fortnightly intervals with the visiting senior surgeon. He would then, after 4 years, be ready to practice on his own, or join a teaching unit, according to his special aptitude.

#### *Remote Areas*

In the areas ranging up to 100 miles from the secondary centres it would be wasteful to send surgeons away from institutions where there are adequate nursing, theatre, and X-ray facilities. It would be better and cheaper to bring in the cases to the secondary centres by ambulance or bus. Johannesburg, for instance, would have a primary centre, Klerksdorp a secondary centre, and areas in the far South-Western Transvaal could be served by a decentralized clinic held only once in 3 months by a visiting surgeon from the secondary centre.

At this decentralized clinic the after-care sister, who would know all cases under treatment, would collect about 10-20 cases once a week and arrange for them to go by bus to the secondary centre where all out-patient services could be rendered the same day. In this manner appliances could be maintained, plaster casts changed, X-rays taken, diagnoses made and checked, and continuity of control achieved. In this field the after-care services

by social workers and orthopaedically trained nurses could be organized by local committees assisted by local hospital staffs.

#### THE PATTERN OF THE PROBLEM

In the United States, out of a population of 170 million, there were an estimated 28 million physically handicapped persons including 6 million under 21 years of age. Six million are sufficiently disabled to find it difficult to find employment. Two million require rehabilitation before they can be employed. Each year  $\frac{1}{4}$  million join the ranks of those needing rehabilitation. In the United Kingdom, about 1 million out of approximately 40 million were on the disabled register in 1952.

Of the 64,000 disabled adults in need of rehabilitation in the USA, 42% have orthopaedic disabilities:  $\frac{1}{5}$ th from poliomyelitis, arthritis or osteomyelitis,  $\frac{2}{5}$ ths from accidents, and  $\frac{2}{5}$ ths from congenital and other diseases. In 1924, 23% of cases in orthopaedic institutions in the USA were treated for surgical tuberculosis. In 1951 this figure was down to 1.3%. In 1924 rickets accounted for 8% of crippled children, but in 1957 it accounted for only 1%. Congenital malformations alone account for 21% of crippled children and cerebral palsy for 20%. Among our European population the position is probably comparable, i.e. that congenital deformities and cerebral palsy each account for  $\frac{1}{5}$ th of our cripples.

There are good grounds for hoping that some of these disabilities can be reduced by preventive measures. The early months of pregnancy are important in the structural development of the embryo and most congenital defects are established during this period. If the mother suffers from vitamin or mineral deficiency congenital deformities may occur. Dwarfism may result from lack of iodine, blindness and eye defects from vitamin-B deficiency. X-ray treatment during pregnancy may result in congenital eye defects, sometimes together with mental deficiency. German measles, a mild virus infection, if contracted during the first 8 weeks of pregnancy may cause one or more congenital defects affecting the eyes, heart, hearing or intelligence of the unborn child. These are some of the examples in which prophylactic work lies on the fringe of a comprehensive programme for the care of cripples. This preventive programme covers a tremendous field.

#### *Rehabilitation*

The rehabilitation of the physically handicapped is understood to mean their restoration to the fullest physical, mental, social, vocational and economic usefulness. Of the orthopaedically disabled at least  $\frac{3}{4}$ ths can be rehabilitated by providing adequate medical treatment and any prosthesis needed. Special vocational counselling and selective placement in industry may also be necessary.

The remaining  $\frac{1}{4}$ th, however—the severely disabled—require all the resources of society to bring them to the highest degree of self-sufficiency. About 3% can never be rehabilitated to the extent of independence, and provision should be made for them to be cared for either at home or in suitable institutions. The existing provincial hospitals make provision for the treatment of the vast majority of physically disabled so that they may return to a useful life. But in this country there exists a need for at least 2 centres for the seriously disabled.

The Rehabilitation Association for Injured Workmen, a non-profit-making organization under the wing of the Department of Labour, established an organization 3 years ago—namely the Workmen's Rehabilitation Centre in Johannesburg. This organization deals specifically with workmen as defined under the Workmen's Compensation Act and offers comprehensive facilities for the treatment of severe accidents. It renders medical, surgical, physiotherapeutic and occupational therapeutic services as well as socio-economic assistance. In my opinion this organization may with advantage be broadened to accept difficult cases of physical disablement from sources other than accident as well. It could be the nucleus of a great rehabilitation service for the community, especially if it is integrated with postgraduate medical education to attract the best talents in the profession.

#### *Sheltered Employment*

In South Africa sheltered employment already provides hope and a useful life for 1,800 European people who are so handicapped that they are not able to hold their own in the open labour market. Some of these facilities have recently, on the advice of the National

rehabilitation Board, been made available for rehabilitation purposes.

It is generally felt that the time is opportune to create similar facilities for large numbers of the non-European population with a view to restoring their earning capacity and well-being and ultimately reducing the drag on the economy of the country.

#### *Economic Aspects*

Nearly 1 out of 5 of the 64,000 persons rehabilitated in 1952 in the United States through the State Federal vocational rehabilitation programme, had been on public assistance rolls, costing the taxpayers 8½ million dollars a year. But as productive members of society, they earned approximately 22 million dollars in the first year after rehabilitation.

The year's earnings of the 64,000 cases was about 115 million dollars, out of which they paid in income tax to the federal government about 10½ million dollars. The rehabilitation of the severely paralysed hemiplegic, paraplegic and quadriplegic patients was so difficult that only about 60% were employable after rehabilitation.

The real economic and social benefits of rehabilitation result from increased self-care that releases hospital beds and frees families and institutions from the care of helpless persons. Morale, self-respect and personal freedom are positive benefits derived by the patients themselves.

#### *Paraplegia*

In South Africa, a paraplegia centre is urgently needed, preferably in Johannesburg, because this city has the density of population, the concentration of accidents and the industrial resources to provide opportunities for placement, as well as the skilled medical, nursing and other personnel required. The National Rehabilitation Council may well be persuaded to establish a centre for the apparently hopeless cases of paraplegia which cannot be effectively handled in provincial hospitals.

A coordinated effort of the Provincial Hospital Departments, the Rehabilitation Association for Injured Workmen, and the National Rehabilitation Council, could lead to the development of a unit offering rehabilitation for the most difficult problem-cases in the country.

#### *Voluntary Institutions*

These institutions have done pioneer work in the rehabilitation of crippled children. A fair criticism of their activities, however, has been that some of these institutions have supplied hospitalization out of funds collected, whereas hospitalization is really a direct responsibility of the Provincial Hospital Departments concerned.

Furthermore, there is the ever-present danger that parents and families, once relieved of their burden of caring for their own children, will be happy to leave this responsibility to someone else. It is true that severe and prolonged cases of disablement require long-term institutional care; but some voluntary institutions are boarding and lodging cases that could be better cared for in their own homes provided that they could be checked at an orthopaedic clinic at intervals and followed up through the after-care service.

It is my conviction that the main function of cripple-care organizations is to establish the field work—finding the cases, organizing diagnostic clinics, persuading parents to have their disabled

children attended to, and ensuring continuity of follow-up until ultimate readjustment is achieved. Money should be more widely spent on organization and on field service than on a possible excess of bricks and mortar.

#### *Education of Crippled Children*

To provide educational opportunities for severely disabled children, special provision has to be made, especially in regard to transportation, special equipment, and long-stay convalescent homes and training centres.

Screening of cases for admission and screening of cases during their stay will ensure that services are given to those most in need and that children capable of facing life on equal terms with their fellows are not needlessly estranged from their families by prolonged institutional care.

#### *Training of Personnel*

One of the most urgent aspects of cripple-care work is finding suitably trained social workers, sisters for after-care work, and orthopaedic nurses, both European and non-European. Since social work covers such a wide field, we should ensure that a certain proportion of the workers acquire an orthopaedic bias in their training. It is desirable that university degree courses should be broadened in such a way that a period of training in cripple-care work could be incorporated in the curriculum. The country cannot afford to lose orthopaedically trained nurses to fill the gaps in after-care services; but a social worker with a B.A. degree could learn enough of cripple-care work in 3 months to make her a valuable assistant in the field work.

The few orthopaedic nurses trained under the auspices of the National Council for the Care of Cripples are hopelessly inadequate for the needs of the country. Fortunately, the Cape Province has adopted the scheme officially, and there is evidence that the Transvaal Provincial Hospital Department may develop training schools for both European and non-European orthopaedic nurses in the near future.

There is a considerable body of opinion that the training of physiotherapists is badly planned at present. Too much accent is placed on the first 2 years of training which follows the same pattern as a doctor's training. I do not believe that detailed knowledge of anatomy and physiology are necessary in the training of therapists. Uniformity in the training of physiotherapists in the provinces is desirable especially from the point of view of registration by the Medical Council.

#### *Orthopaedic Surgeons*

The training of surgeons varies greatly in South Africa. In some hospitals practically self-trained men acquire the right to register as specialists without sufficiently working under supervision during that period. In other institutions, postgraduate training in orthopaedics is inadequate. The universal defect of inadequate training in rehabilitation work for surgeons can only be remedied if more Chairs of Orthopaedics, Traumatology and Rehabilitation are established.

Once again it is stressed that it is the duty and function of the National Rehabilitation Council to further the academic and research aspects of orthopaedic and rehabilitation services so as to provide the country with the skilled personnel we need today and shall require on a still greater scale in the future.