

# PARAPLEGIA AND SPINAL PARALYSIS IN SCOTLAND

## REFLECTIONS AND SUGGESTIONS

By NORMAN M. DOTT, C.B.E., F.R.S.E., M.D.(Hon.), F.R.C.S.Ed.<sup>1</sup>

At present—1970—the numbers of paraplegic and spinal paralytic people and their proportion to the general population are rapidly increasing. The reason for this is their increased survival rate. Thirty years ago most of them soon died, chiefly from bladder and kidney complications, though extensive bed-sores and other complications also took their toll. Thirty years ago, there were considerable medical advances in the understanding of the problems involved and in techniques of combating the formerly fatal complications. The application of these advances in practice was greatly stimulated by the stirring of the medical and public conscience when the war-wounded paraplegic and spinal paralysis cases were returned from the 1939-46 War to their home communities. Efforts for their physical salvation and for their rehabilitation were greatly intensified. Most of them survived in good health, though usually with permanent spinal paralysis. The lessons learned in this endeavour for the war-wounded spread somewhat more gradually to the management of paraplegia and spinal paralysis of civilians—first to those who acquired it by reason of various accidental spinal injuries; and still more slowly to those who developed it from disease—such as multiple sclerosis, or who were born with it—such as the babies affected by spina bifida. This history and this pattern of development has been much the same in most civilised countries.

Some Scottish personalities concerned in these developments in Scotland should be mentioned. Sir Ashley Macintosh of Aberdeen was a notable neurologist, trained in Aberdeen in General Medicine and in London in specialist Neurology. One of his pupils—the late Dr. George Riddoch—migrated to London, and became a leading neurologist there. He had a special interest in affections of the spinal cord. This interest acquired a very personal significance, when, shortly before the 1939-46 War, his sister, also a doctor, acquired paraplegia from a traffic accident. Naturally, he supervised her case with the greatest solicitude and she survived in good health to continue the practice of laboratory medicine from a wheelchair. With the advent of war, Riddoch was appointed consultant in neurology to the armed forces, attaining the rank of Brigadier-General. Naturally he made special provision for war-wounded paraplegics in military and in war-pension hospitals. He was fortunate in that Dr. Ludwig Guttmann, a surgical neurologist from Breslau, had arrived in London as a refugee from Nazi persecution. The Ministry of Pensions Hospital, Stoke Mandeville, in Aylesbury, was available; and there Riddoch installed Guttmann to direct a Spinal Injuries Centre, primarily for war-wounded. Dr. Guttmann made a brilliant success of this challenge. The Stoke Mandeville Spinal Injuries Centre became internationally famous; and Dr. Ludwig Guttmann is now Sir Ludwig Guttmann. In Scotland, Mr. Walter Mercer, now Sir Walter, an orthopaedic surgeon, was in surgical charge of the war-pensions hospital at Edenhall, near Edinburgh. Largely due to

<sup>1</sup> Read by Mr. Geoffrey Klug, F.R.A.C.S.

his interest and initiative a special Paraplegia Rehabilitation Unit was developed there; and has since been taken over by the National Health Service, and enlarged in size and scope, being open for civilian cases. Other similar units have been developed in connection with other medical centres in Scotland and in England. Primarily for war-wounded traumatic paraplegia—these centres, when, in due course, they began to admit civilian cases, tended to keep their emphasis on paraplegia caused by accidental injury, and this still holds, to a considerable extent.

When we look at the community as a whole, however, we find that accidental injury, while contributing an important number to the paraplegic element in the population, is by no means the largest contributor. Cases due to multiple sclerosis are more numerous; and there are many other affections of the spine and spinal cord, which, between them, are at least comparable numerically. Then there are the spina bifida babies—of whom some 200 now survive annually in Scotland, adding this quota each year to the paraplegic element in the population. At this rate of annual increase, they will soon become the largest group among paraplegics.

For the individual affected by paraplegia, the facts of spinal paralysis, the prospects of adequate care, and of social and economic independence, are of more interest and importance than the past cause of the paralysis—be it accidental injury, disease or faulty pre-natal development. On the assumption that society—especially in a 'welfare state'—has a duty and an interest to promote the welfare of its crippled members, all these categories of spinal paralysis are equally deserving of its consideration and care. For historical reasons the war-wounded and those spinal paralyses caused by accidental injury have led the way in demanding recognition, adequate care and opportunity; but they should now make common cause with the other groups. Unity gives strength.

These groups have much in common. The primary medical assessment of the extent and effects of the individual spinal paralysis is complex, but essentially follows a similar routine pattern; as also do the assessment and care of complicating factors, such as the prevention of skin pressure sores, the management of bladder and bowel functions and the prevention of kidney damage. The practice of a routine improves efficiency. In longer term management the provision of means of mobility—from special splintage to specially adapted hand and power propelled vehicles, suitable for all ages, and of appliances for dealing with 'incontinence'—provided by 'bio-medical engineering'—are necessary for most of them. Indeed, paraplegia and spinal paralysis are unique conditions, which require the focussing of medical care and of bio-medical engineering in a few large centres where they can be brought together for purposes of early care and rehabilitation; and to which they can be re-admitted at suitable intervals for re-assessment, provision of further equipment, etc. The condition is so unique, and its demands in resources are so exacting and large, that the condition—spinal paralysis—should transcend conventional divisions such as medical and surgical, adult and childhood. It is necessary to combine these conventional divisions in such a way that the necessary effort and facilities can be concentrated on the problems of spinal paralysis. To leave them scattered, as they are at present, can only perpetuate the present failure to help the individual patient with full efficiency.

For reasons of efficiency and economy hospital accommodation is, or should be, divided into 'acute', 'medium stay' and 'long-stay' sections. The 'acute' section is for primary assessment, diagnosis and primary treatment, including initial operation, when required. This accommodation is expensive, requiring special X-ray,

operating room, and laboratory facilities, and abundant staffing. In the 'medium-stay' section, the emphasis is on rehabilitation, the accommodation can be less expensive, and staffing can be less numerous. The 'long-stay' section follows a similar pattern. For paraplegics, the relevant special departments of existing main hospitals are appropriate for the 'acute' section accommodation—departments of neurological surgery, medical neurology and paediatric neurology. The patients' initial stay there would vary from a few days to a few weeks. These primary 'acute' specialist hospital departments are, in general, adequate at present; though, of course, they are continually undergoing improvements.

The 'medium' and 'long-stay' accommodation could well be combined together for paraplegia and spinal paralysis. These *spinal paralysis rehabilitation centres* should either be newly constructed, or considerably enlarged upon existing paraplegic centres. The emphasis would be on rehabilitation, and this would require extensive bio-medical engineering facilities. They would have a children's section, staffed by the paediatric hospital service; and an adult section staffed by the adult hospital service. Consultant staffing would include medical and surgical neurologists, orthopaedic surgeons, urological surgeons, plastic surgeons and bio-medical engineers. They would take the patients from the primary 'acute' departments for a shorter or longer period of rehabilitation, including the provision of special equipment as required. They would re-admit patients at suitable intervals for re-assessment and for any further rehabilitation equipment required. When further special investigations, or treatment, such as X-ray, operation, etc. was required the patient would be temporarily transferred to the appropriate 'acute' specialist department; and returned to the spinal Paralysis Rehabilitation Centre, for any further rehabilitation required, and for discharge with suitable follow-up or re-admission arrangements.

Such a plan for dealing effectively with spinal paralysis should, I think, receive medical support. It should commend itself to Authority, inasmuch as it would conserve expensive 'acute' hospital accommodation by providing much less costly rehabilitation accommodation. Its implementation would not be dependent on major hospital rebuilding programmes, as it envisages much simpler accommodation. I would suggest two major Spinal Paralysis Rehabilitation Centres and a third lesser one for Scotland, situated respectively in the vicinity of Glasgow, Edinburgh and Aberdeen. Those in Edinburgh and Glasgow would have full bio-medical engineering facilities which could co-operate with each other in such a way as to avoid overlap of development effort. The centre at Aberdeen could rely on one of these for major bio-medical engineering requirements. At the Dundee medical centre, the relevant specialist hospital departments for 'acute' initial assessment and primary treatment of spinal paralysis cases already exist. For the present Dundee might share the facilities of the Spinal Paralysis Rehabilitation Centre situated in the Edinburgh area, especially with the ready access afforded by the Tay and Forth road bridges, and especially if hostel accommodation for visitors were provided at the Edinburgh Centre.

It might be desirable, though not essential, that the main social club and sports and similar facilities for spinal paralysis patients should be sited adjacent to these centres; and hostel accommodation for visitors from a distance would be convenient. Lesser social club and sports facilities would be required more locally; and could probably be associated with similar local social and sports centres for other disabled.

I hope that the Scottish Paraplegic (Spinal Injury) Association will regard

itself as a spearhead in pressing for such developments and that other voluntary spinal paralysis groups such as the Scottish branches of the Multiple Sclerosis Society, the Scottish branches of the British Polio Fellowship and the Scottish Spina Bifida Association will join in heartily.

I believe that Spinal Paralysis Rehabilitation Centre—or Hospital or Unit—is a designation preferable to Paraplegic Rehabilitation Centre. 'Paraplegia' is a technical medical word which is in fact unduly restrictive in its meaning and is out of place in ordinary English language. Spinal Paralysis includes paraplegia and also other relevant conditions; and has the merit of being readily comprehensible by the public at large.

### Discussion

SIR LUDWIG GUTTMAN (*G.B.*). I would like to make a few comments to the papers of Mr Harris and Professor Dott. Mr. Harris and his colleagues have given a survey of the incidence of spinal paraplegia in Scotland, and it shows quite clearly how the number has increased and something has to be done about it. With regard to the incidence of spina bifida, you will remember that our Society chose this as a subject at one of our previous meetings and ever since, I am glad to say, interest in this particular subject has increased. There are at least two Units—that of Dr. Gregg in Dublin and that of Dr. Paeslack in Heidelberg—who have opened special wards for these patients and this has been a great success in the treatment of these patients.

It would be important if other units in Great Britain would do a similar study as Harris has done, because we would find that quite a number of paraplegics and tetraplegics are still buried in general hospitals under surgeons or other colleagues who have not the facilities and knowledge to give these patients that comprehensive treatment from the start and throughout all stages. I would remind you, in this connection, of the activities of Baroness Masham, a paraplegic herself, who has just been made a Life Peeress. She raised the subject of paraplegia in the House of Lords and has really brought it to the notice of the public, by mentioning neglected cases in a general hospital, and this has started some discussion in the press.

This also applies to other countries. I visited the United States recently and there has been discontent in public about the treatment of traumatic paraplegics from Vietnam as well as civilians.

A question is, should paraplegia be a notifiable disease? I am a strong supporter of this and I am sure this would be ideal and would go a long way towards the proper treatment of these unfortunate people.

That brings me to the remarkable paper of Professor Dott's on which I have to make some comment. There is no doubt that the man who has been responsible for giving the paraplegics a better chance in this country by advising the British Government in World War II to set up spinal units was George Riddoch. When he asked me in September 1943 whether I would be prepared to start a new spinal unit it was for two reasons. The first was that, although there were quite a number of spinal injury units in existence the Medical Research Council and they were not satisfied with the results, the reason being that there was no physician or surgeon with experience who would have devoted his whole activities to the complex problems of spinal cord lesions. These units were attached to neuro-surgical or orthopaedic departments which, however, had so many other interests in their own specialties that they were quite unable to provide that comprehensive management which is absolutely essential for spinal paraplegics and tetraplegics. I cannot agree with Professor Dott's concept at all which still advocates that fragmentation between immediate treatment in neurosurgical units and later transfer of these patients to spinal units for so-called rehabilitation. This dichotomy of management, which all too often involves