naval orthopaedic surgeons) that anyone in the Navy with a fractured femur is almost always invalided from the service, because even a slight disability is liable to be found out under the rigorous conditions at sea, whereas we in the Air Force would keep pretty well everybody in after a fractured femur unless there was some obvious reason not to.

COMPREHENSIVE REHABILITATION

J. G. Sommerville, M.D.

(*Medical Director of Medical Rehabilitation Centre, London and Farnham Park Rehabilitation Centre, Bucks*)

The increasing interest in rehabilitation is encouraging to all of us who work in this vast field, and in the short time at my disposal I propose to limit my remarks to the role of medical rehabilitation centres, though I must emphasize that they are only one link in the chain. As already mentioned this morning, it was the late Sir Hugh Griffiths who said that rehabilitation starts in the ambulance and is a continuous process; this is still entirely relevant today. In Britain we have the means, and generally speaking the will, to rehabilitate our patients. Finance, or lack of finance, seldom militates against recovery, although it does hamper development, and I think one of our problems now is to use these facilities to their utmost advantage. It was Hippocrates who once said that " healing is a matter of time but it is also sometimes a matter of opportunity ". I think we are all well aware of this, and that it matters tremendously that you have a head injury when driving your car in close proximity to a neurosurgical unit.

I am the medical director of two rehabilitation centres. One is in Camden Town which is a purely outpatient centre not attached to a hospital and is in fact the first in this country, dealing with 80 to 90 patients per day, five days a week on a whole-time basis. The other centre is at Farnham Park in Buckinghamshire; a mixed residential and outpatient centre dealing with 66 inpatients and about 40 day-patients at any one time. So we have between the two organizations facilities for treating about 200 patients on a whole-time

basis, a day school if you like and a mixed boarding school and day school. All the patients are referred to us by medical sources, roughly 70 per cent of them directly from hospitals; another group are referred to us directly by general practitioners (anyone can refer people to these centres—they are not limited to a geographical area except that a patient must be able to travel to the Camden Town centre daily), and the remainder of our patients are referred by the medical officers of industrial concerns who find it singularly useless, as we all do, to be confronted with a patient who has a chit of paper saying that he is fit for suitable light work. This is not much help to anybody because they do not know what it means; in fact the man who signs the chits does not know what it means either. By sending a patient to a centre, a realistic assessment can be made of the problem or for that matter the problem can be resolved by intensive treatment. We are dealing with all types of disabilities except children, patients with infectious diseases, and patients with certifiable mental disease. There is no age limit: the oldest patient so far is 84. I would like to re-emphasize what Mr Evans said this morning about children, and that is the importance of education as part of their total treatment. We have no limit to the duration of treatment so long as progress is being maintained.

Why is it considered so essential today to develop this concept of intensive treatment? One or two factors are worth mentioning. First of all, there is the change in the social attitude to illness in this country since the National Health Service and the National Insurance Acts, whereby it has now become respectable to be ill. This is a social revolution. It is not necessarily financially unrewarding to remain ill or partially ill. There is also an awareness of the importance of total disability periods, in other words, it does not really matter how long a man is in hospital or how long he attends as an outpatient, but what really matters is the total time that he is off work. This is something which slowly but surely we are paying more attention to. However, it is rather a shattering thought that in this country the average total disability period for fracture of the medial malleolus of the ankle is of the order of seven months, but if you ask an orthopaedic surgeon what he does about this proplem, he says, " We don't even admit them; we treat them in outpatients". They are not a problem as far as he is concerned but they are a problem, and these total disability periods can be influenced by the level of treatment and by the timing of the treatment. A reasonable definition of medical rehabilitation is one produced by Cozens some years ago as " the planned withdrawal of facilities ". In other words, when someone becomes acutely ill he is given a hundred per cent facilities; as he improves these facilities should be withdrawn until they are zero and recovery is complete. The difficulty

is to plan this so as to get the patient into the right pigeon-hole at the right time. We have also discovered that what is wrong with people has not got as much significance in relation to how long they take to get better as we had thought. For example, if you take sickness absenteeism rates for two groups of people—those who are employed and those who are self-employed—it is interesting to note that whatever was wrong with them the self-employed will get better in one-third less time than the employed. It is also interesting to note that if you take two groups of Post Office workers, the linesmen who are out in the snow and ice and climbing poles, and the sorters who work in a centrally heated office, the sickness absenteeism rate of the linesmen is roughly half that of the sorters. This is, of course, the opposite of what one would expect, and perhaps it is accounted for by the fact that the linesmen are members of a very small team responsible for " x " miles of line; they have a pride in this, they are identified with their work and therefore they do not stay off work any longer than they have to, whereas the sorter realizes that if he does not turn up somebody else will sort the letters. That may be too facile an explanation but it is a possible one.

We are now well aware of the fact that motivation or the desire to get better is the all-important factor, and that this can be favourably influenced by a closely integrated team. Furthermore, we are aware of the dangers of inadequate treatment. We should not be surprised if the patient who feels that he is discharging his social obligations to the community by going to the hospital three times a week and being massaged by a blonde for half an hour under a heat lamp takes a long time to get better. This is not really the level of treatment which is required. This type of treatment is the doctor's responsibility; we must not grumble at the physiotherapists who do what they are told, but this kind of uncontrolled treatment merely provides, in many cases, a socially acceptable reason for not working. Finally, I am convinced that there is a positive advantage in removing a patient from the atmosphere of the hospital as soon as possible, because basically the philosophy of hospital staff is " Look what we are doing to get you better ", and the philosophy of a rehabilitation organization is, "Look what you are doing to get yourself better ". In my experience these philosophies do not mix satisfactorily. My feeling is that the future pattern is going to be, not the independent centre such as Camden Road, but the centre closely integrated with the work of the hospital but none the less having a physical identity of its own so that the patient takes a step from the hospital to the rehabilitation organization.

Each patient in the centre is examined on admission, and an individual programme is designed to deal with his problem. A

doctor refers patients by completing an application form; the form is considered and nine times out of ten we can agree on paper whether or not to accept the patient. Where we cannot make up our minds, we make it a rule that if humanly possible he is seen at the centre before any final decision is reached. We do not turn them down on paper unless they are from a long way away. The programme is designed to deal with the individual patient's problems, then this programme which keeps the patient busy all day five days a week is reviewed at weekly staff meetings and adjusted as is considered necessary.

The average patient from the acute hospital makes a complete recovery, goes home and back to his full original work and presents no problem. A number remain very severely disabled, are incurable, and can end up with partial work in their own home, special home or hospital; a number, of course, die. There are another group of patients, whose numbers have been variously estimated (the Liverpool survey suggests that 20 per cent is a fair figure for a general hospital), and who would have their total disability periods materially shortened by going to some medical rehabilitation centre, either inpatient or outpatient. From there, some will get better and go back to their jobs, and a number, in whom full restoration of function is incomplete, will go into either an industrial rehabilitation unit, a government training centre, or a sheltered workshop. There are two things which an industrial rehabilitation unit does and one thing it does not do, and this is always a subject of confusion. The two things which happen in an industrial rehabilitation unit is that the patient is work-conditioned after a period of incapacity, and secondly he is assessed to find out what he could be fit to do after that. He may, as the result of being there, go back to his original work; this is more likely to happen if he has come to the industrial rehabilitation unit direct from the hospital and not through a medical rehabilitation centre. The one thing which does not happen is training, which is done at a government training centre. The average stay at an industrial rehabilitation unit is about seven weeks with a maximum of 12, but at a government training centre they can spend six months, a year or longer. It may be of help for you to know, as general practitioners working in this area, that if you have a patient whom you feel would benefit from either an industrial rehabilitation unit or a government training centre, the avenue of approach is through the disablement resettlement officer of the Ministry of Labour, of whom there is one attached to every labour exchange. He is the man with the experience and the knowledge to help you to get the patient on to the right lines, and one of the things which is a tremendous help to us is the willingness of this organization at Queen Elizabeth Training College to assess patients when asked and

to advise us about fitness for training.

Finally, there are sheltered workshops, the Remploys, of which there are 90 in this country; they include workshops run by local authorities and those run by voluntary agencies such as Dorincourt Estates. The major problem in this country still is that with this group of disabled there is a division of responsibility, whereby the Ministry of Health is responsible to a certain level, and the Ministry of Labour or the local authority at another level. As rehabilitation is a continuous process, there is a danger of a patient's falling between two stools at this point unless there is close local co-operation all along the line.

We have treated about 3,400 patients over the last eight years, 75 per cent male and 25 per cent female, and the group includes 42 per cent medical cases, 49 per cent orthopaedic and 9 per cent surgical. I am going to ignore entirely the problem of the unstable disabilities, because Dr Cooksey is going to deal with this and I am going to talk largely about the orthopaedic and the surgical cases this afternoon.

It is important at a centre to balance the short-term patients, the people who are likely to be at the centre less than six weeks, against the long-term, those who will certainly be at the centre over six weeks. We usually try to strike a balance at about 60 per cent short-term to 40 per cent long-term. This explains why the short-term traumatic case beats the long-term case on the waiting list, because we have to keep the latter longer on the waiting list to balance things out. If we did not do this we would end up so easily with the centre full of long-term cases, and this, of course, would destroy the entire morale of the organization. The important thing is that a patient comes into a set-up where people get better; where they feel that it is a stepping-stone to something else and not the end of the trail.

The three main functions of a medical rehabilitation centre are basically to restore maximum physical function, to restore confidence and to assess work capacity or its equivalent, social competence, in those who are over working age. This afternoon I will concentrate on a few of the problems involved in restoring confidence and work assessment.

We built a bus in the workshop from plans and some odd bits and pieces provided by London Transport, a full-scale back end of a bus. There is nothing original about this, but it illustrates the point that nobody ever went to work in an ambulance. You have to deal with the problems of transport with the disabled *pari passu* with their other treatment. We teach patients how to get on and off a bus with a stick and they follow this up with trips on public transport (because our model bus does not go away before the patient is ready) with one

of the staff, then with another patient, and then entirely on their own. As another example, patients are taught to walk on not entirely level tarmac and other surfaces. One problem is that you cannot assess a patient if you keep him entirely in a gymnasium—you have got to get him out on different types of surface. One patient was made to garden on uneven ground; this man had a severe fracture involving his left ankle and the problem was whether or not his ankle would stand up to work on uneven ground. Another patient (I put him in partly because of the help that you have had from Geigy in organizing this meeting) was a medical representative calling on doctors. He had a stroke but gradually improved and has been taught to drive a car specially adapted by the British School of Motoring. He is now back doing his rounds and he says doing very much better with the doctors because they all ask him how he got on with his stroke, and this gives him a wonderful opening gambit.

Incidentally, it is obviously necessary to assess people for motor-propelled tricycles. Through the generosity of one individual, we have at Camden the only dual-controlled invalid tricycle in the country which will hold patient and instructor at the same time; I am sure you will agree that this ought to be normal and not unique.

We find it a practical proposition to assess the work capacity of the patients during the remedial programme. As progress occurs, the emphasis shifts from remedial exercises and games to the development of confidence and to assessment. For example, an above-knee amputee may be put to treadling on a lathe with a special adaptation; so while he is building up his stump muscles and the stump is shrinking sufficiently for him to be fitted with a proper prosthesis, he is also doing something useful such as wood turning.

As an illustration of assessment, I might mention a patient who was not fit to go back to his previous job in a timber yard. We thought he might be able to do a job on the checking side and so we used him in this way for parts of the day for a few weeks, checking the wood as it arrived for the timber yard at the centre, and were able to tell the employer that he could in fact cope with his job. This is something which is quite impossible to do in a consulting room. It is really only this simple commonsense trial and error method which finds out the answers for you.

We find gardening of particular use in patients who have neuroses or who are depressed. Whereas they are unhappy working in the noisy workshops, they will plug away quite happily in the gardens and benefit from it.

Some patients do production work for a local firm. We organize it so that the patient is not paid (because this would produce prob-

lems) but the organization is paid, and the Comforts Fund is given the appropriate equivalent, so we do not get into trouble with the unions.

To bear out what I was saying about a practical test, I might mention the case of a scaffolder who had to hand big steel tubes up and down to his mates. He had an amputation of the index finger and part of the next finger of his right hand. It did not seem as if this would be an insuperable bar to going back to his job, which was not a precision job, but in actual fact, you cannot hold a scaffold pole vertically without both index fingers; you need them to steady the pole, and so we could not send him back to that particular work.

Sometimes there is a problem in relation to height. We had a patient who was a decorator and who refused to go up a ladder after his amputation, so we put him in a room with a high ceiling and with a very dim labourer with a stiff shoulder and we said to him, " You can't climb the scaffolding, but will you watch this chap and see that he makes a decent job of washing down the ceiling? " Well, you know what happened; within 24 hours he was up the ladder. Some of our patients will have to work at a height in the building industry or are dockers or stevedores who have to get back to climbing before they are fully rehabilitated; for them, we use a simple form of scaffolding. This is, of course, terribly important, because if we carry out assessment at an advanced level, it is the patient who comes to us saying, " Why can't I have a final certificate to go back to work for which I get paid, instead of coming here five days a week all day for nothing? " This is fine; we give him a final certificate and he gets back to work.

We cannot make the patients come; we cannot do anything about it if they do not come, and we do not pay them any allowances for coming—they draw their National Health benefits exactly the same as if they were not there. Yet the average daily attendance, including justifiable absenteeism (by that I mean going to hospital for review or to see an employer) is 95.7 per cent over the eight years, and the average number of attendances of the patients discharged is 37, which is roughly equivalent to seven weeks as the average stay of each patient.

We run our staff meeting through the lunch hour so as not to waste time and we have all the staff round the table and discuss the patients' progress; we decide what is likely to happen next, who should be referred to the disablement settlement officer, and so on, all the various complications which arise in connection with the individual case. Each patient's progress is recorded on a board and altered if his programme is altered, for contol is vital in a centre. If you start a

patient on weight-bearing who should not be weight-bearing, that is the last patient that orthopaedic surgeon will send you, quite apart from what it might do to the patient.

Our results show 42 per cent returned to original work, 20 per cent to different work after being at the centre, 15.6 per cent with optimum function (these are people who are over working age), 0.6 per cent referred to industrial rehabilitation units, and 1.1 per cent to training, 17.1 per cent admitted to hospital or for treatment at home, 2.2 per cent self-discharged, and 0.7 per cent making no progress at all. I do not think that there is anything dramatic about the figures—we did not expect there would be. We reject less than three per cent of the total patients referred to us, and that of course influences the figures here. One figure which is interesting is this low percentage of patients referred to an industrial resettlement unit, but even that is not surprising because the Piercy committee report long ago said that if medical rehabilitation is done properly the need for industrial rehabilitation is small.

In conclusion, I would like to acknowledge the tremendous help that we have had from Queen Elizabeth College. We realize that we cannot do any of this work on our own; we are dependent on the hospital, the Ministry of Labour and welfare authorities, and therefore it really is an example of integrated teamwork. In the recent past the government training centre at Slough has been most helpful in supplementing our assessment in particular cases, and in adapting equipment when we wish. As you know, this is all provided as a part of the National Health Service at no cost to the patient. The cost, as perhaps you are aware, of a patient's being in a hospital varies from £28 to £45 a week in a public ward, £45 being the teaching hospital maximum, and £28 the average for the non-teaching hospitals. The cost of an inpatient in a medical rehabilitation centre is £15 per week, so you can see that it is not particularly expensive. The cost of an outpatient attendance at a London teaching hospital now averages 32s. and the total cost of having a patient at Camden Road all day, including his three-course lunch, his tea in the morning and tea in the afternoon, and his tea after his lunch (because nobody will do any work now unless they have practically an intravenous drip of tea) is 36s. per day.

I apologize for giving such an unbalanced account of the work at the centre, but I feel that with Dr Wynn Parry in the morning and Dr Cooksey after me, you will end up being quite happy about what these kind of organizations are meant to do. What I hope I have made clear is that they exist to treat people not disabilities, and that they can materially shorten the total disability periods,

providing as they do an essential link in the facilities which should be available to the disabled.

REHABILITATION IN MEDICAL DISORDERS

F. S. Cooksey, *O.B.E.*, M.D., F.R.C.P. (*London*)

This afternoon I am putting to you the difficult problem of the rehabilitation of medical cases. Dr Sommerville said that about 42 per cent of the patients attending his centre were suffering from medical disorders. The main difficulty in the rehabilitation of these conditions is that they are unstable in that they are subject to exacerbations and remissions or progressive deterioration which may be rapid in some cases and slow in others. Thus we are fighting a losing battle in the rehabilitation of these people because it is likely that they will return sooner or later with an exacerbation or further deterioration and we have to start all over again. This may be repeated and each time we achieve less than before.

These disorders include chronic bronchitis, multiple sclerosis, coronary and cerebral thrombosis, degenerative and rheumatoid arthritis. In the early stages it is usually possible to achieve full rehabilitation but as disability increases patients may require surgical appliances or aids to toilet, dressing, feeding and movement such as a second hand-rail on the stairs or an invalid motor tricycle to get to work.

Employment

Some patients will have to change their work sooner or later and when this should be advised is one of the most difficult clinical decisions that a doctor has to take. Whether to advise a man to change his job in good time or to carry on depends on the type of work and the nature of the disability. For instance, people with rheumatoid arthritis working in heavy industries may not be able to carry on for long, whereas office workers with similar lesions might be able to do so.

Two common conditions illustrate the difficulties the clinician faces in advising his patients. The chronic bronchitic can carry on