Modern thoracic surgery must not be considered to be a specialty conducted with many secret rites. Even 10 years ago each operation was an adventure, the final outcome of which was problematical. Often the patient was left a permanent invalid with a draining sinus, or kypho-scoliosis, or such diminution of respiratory capacity that his ability to earn his living was seriously interfered with. To-day with advances in surgical technique and anaesthesia, thoracic surgery performed in special centres has become as safe a form of surgery as that carried out on other parts of the body. As an example the operative mortality for lobectomies and pneumoectomy in bronchiectasis is under half per cent., but it naturally rises when surgical treatment becomes necessary in older people with carcinoma of the lung and oesophagus. To-day thoracic surgery is just general surgery conducted within the thorax, the special hazard being that one is dealing with vital mechanisms and uncontrolled interference with their function may cause death within a few minutes.

The functions of these vital mechanisms, for example the respiratory system, are so important, that in order that their efficiency should be impaired as little as possible by any operative procedure, surgery can only satisfactorily be carried out by a team of some size. Whilst the cases in a thoracic surgical centre are normally under the care of the thoracic surgeons, yet constant consultation with the physicians is required. Full-time physiotherapists specially trained in this work are an essential part of the team and to them is given the task of pre-operative exercises and breathing instructions, and the post-operative respiratory and skeletal exercises. In a centre such as we have at Broadgreen and Aintree, consisting of 170 beds we have a staff of four thoracic surgeons, five anaesthetists, three physicians, one radiologist, four surgical registrars, one medical registrar, one physiological registrar, four physiotherapists, and three resident medical officers; in fact a staff of 26.

Last year we undertook 2,300 operations. I feel that I should give you this background to our work to indicate that this is an established branch of surgery and that the number of people who will be returning to industry to earn their living will be large. Their problems must be taken seriously, and I propose to discuss the commoner conditions which we treat surgically, what we expect from the surgical treatment and in what sort of condition they are likely to be when they return to work.

Fractured ribs respond well to simple treatment and are usually healed with loss of local tenderness in six weeks. Persistent pain may be closely connected with the payment of compensation, but not infrequently is a real thing due to the involvement of intercostal nerves in callus or fibrous tissue. Under the latter circumstances injection of the nerve with a long acting anaesthetic or division of the nerve can give complete relief. Such cases should then be referred for further advice if the pain is interfering with the satisfactory re-employment of such a patient some 6-8 weeks after the injury. A persistent haemothorax will give rise to a great deal of pain, and a large one will cause severe dyspnoea. If the haemothorax is left it will form a fibrothorax, one of the most crippling of disabilities where the lung and chest wall is filled by a mass of clot. It can be treated very well, at any rate within the first few months, by surgical evacuation of the clot and decortication of the lung and chest wall. Persistent pain due to pleural adhesions whether following injuries or infections can again be treated either by crushing the phrenic nerve, for it is usually basal, or if this fails, by opening the chest and freeing the lung and restoring the normal anatomy. Following this procedure the lung will, of course, re-adhere but nearly always painlessly. Provided his spirit is willing, a patient with even the most severe chest injury, can usually become fit enough to work at his old job, if he receives careful treatment, physiotherapy and active surgery when necessary.

Empyema following lung infections has for the last few years been rarely a surgical condition. Aspiration and antibiotic treatment has dealt with most, and the rest of the sterile empyemata have been excised. Now, however the pendulum is swinging back, the antibiotics are failing because of the increasing resistance of the organisms and surgical drainage is being more often needed. Provided the drainage is satisfactory and dependent, the patients with drained empyemata rapidly improve in health and strength. They often ask if they can return to work even with a small tube in the chest for some weeks after discharge from hospital. I encourage them to do so because there is rarely any contraindication, and they can usually arrange to have
their dressing done and the tube changed by a district nurse. This is a matter in which the co-operation of the employer in arranging times for dressings can be of great help.

Bronchiectasis, which is common in this part of the country, is by virtue of the persistent cough and sputum which may be abundant and occasionally foul, a disease which may be more distressing to neighbouring work people than to the actual patient. Nevertheless frequent attacks of pneumonitis in the bronchiectatic areas make him an unsatisfactory employee. Postural drainage, performed at home, will make him more socially acceptable, but the only method of cure is surgical extirpation of the diseased area. This procedure is possible in about half of the patients, and the possibility diminishes the older the individual becomes. Dyspnoea increases and is not relieved by removal of the affected areas in adults. Nevertheless they feel better with postural drainage, and their absences due to attacks of pneumonitis will diminish. They usually cannot be employed in any work which requires heavy exertion, but they can be reliable in a sedentary occupation.

Bronchial carcinoma, that disease of modern times which is steadily increasing in incidence, often requires a pneumonectomy. This is a very serious operation from a functional point of view in an individual over the age of 40. Though such a patient may get about quietly without dyspnoea, he is unable to undertake any heavy work. If his job had previously required exertion, re-employment will be necessary in a very sedentary grade. Many of our patients, however, have been satisfactorily fitted into the employment scheme. Fortunately, we have been able to undertake an increasing number of lobectomies for bronchial carcinoma associated with a radical gland dissection of the mediastinum. This has been due to the fact that we now get them at an earlier stage of the disease. The functional result is, of course, much more satisfactory than that following a pneumonectomy and the problem of fitting them in again easier. I do want to make a point clear about the prognosis of bronchial carcinoma. Of all cases operated upon 50% are dead within two years but the remaining 50% appear to have a reasonable chance of being cured. Carcinoma cases, by virtue of being an older age group, do require some months convalescence after their operation before they are really fit to resume duties. If they go back to work too early, they tire easily and cannot put in a day's work even though the duties may be light.

The fitting in of the patient who is or has been suffering from pulmonary tuberculosis, is one of the greatest problems and there are others more competent than I who should discuss this. I do, however, hold certain views which might be aired.

It is undoubtedly the unknown case of pulmonary tuberculosis in a factory or an office which is the real danger. Provided a known sufferer from pulmonary tuberculosis has had a period of sanatorium treatment, he should have learned how to dispose of his sputum and to avoid infecting others. This entails a certain social conscience and moral obligation which appears to be more developed in the younger people, but which in my view gradually deteriorates the older the patient gets. Provided a patient is passed as quiescent by the tuberculosis authorities he can be allowed to mix with others, but I myself have the gravest doubts of the advisability of permitting an open case of pulmonary tuberculosis to mix, particularly with young female employees. The quiescent case can, however, become an open case for a long period of time before he will cry off work and during this period he is a menace. If employment is to be given to the open case of pulmonary tuberculosis, and many of them are, of course, very fit and able to undertake a good day's work, I can see no alternative to running a special workroom or factory for them. It is the only safe way. As far as the quiescent case is concerned, the co-operation between the tuberculosis authorities and the industrial medical officer should be very close, but since most employees do not come under the care of industrial medical officers, the problem of the deteriorating case who for economic reasons feels he must go on working, is a serious one.

In order that cases of pulmonary tuberculosis may have a better chance of remaining quiescent, both from their own point of view and others, we in Liverpool for the last three years or more have been working on the principle of removing the main foci of disease from the lung, after a period of chemotherapy and medical treatment. Any disease that is left in the lungs is considered unlikely to break down and can be eventually healed by natural processes. We have now done some 800 such cases and we believe that they will be much more acceptable to industry than before. They have had pneumonectomies, lobectomies or segmental lobectomies, mainly the latter two, and so far, though it is early days yet, we are pleased with the results. We usually permit them to return to work in 9-12 months after operation. They should not, of course, be employed on heavy manual labour but they are usually quite suitable for most of the lighter occupations. We believe they can be allowed to mix with reasonable safety. Their chest physicians do keep a very close eye on them and very few have broken down again.

A patient who has had a thoracoplasty with the diseased lung left in situ will usually require much longer convalescence than a resection case before he can return to work. A thoracoplasty is merely a start in most cases to get his disease
under control. Although many thoracoplasty cases have very good movements of the shoulder and scapulo-thoracic joints, others may have considerable limitation which may require them to undertake a different form of work from that which they originally did. Patients having artificial pneumothorax treatment will need a sympathetic employer who will permit them to attend the clinic once a week for refills.

Though the employment of tuberculous and ex-tuberculous people is not a very economic proposition, the numbers are so great and their economic problems just the same as those of any other individual, employers would be rendering a great service if they could see their way to taking on a small number. A few firms have generously provided segregated employment for groups of open cases and if only we could have just a few more centres, it would ease the problem greatly and improve the morale of such patients immensely. Admittedly their sickness rate must be higher than those of healthy employees, but it is a social duty which many of the bigger firms might be able to undertake. We know of the official schemes for the resettlement of the tuberculous case, but somehow the private arrangements seem to work more satisfactorily.

What of the chronic bronchitic and the progressively emphysematous individual? Here degenerative changes are taking place and fitting these people in is very difficult. There is little that we can do as medical men to help them and their continued employment becomes virtually a charitable act. Nevertheless, one is impressed by the number of firms both large and small who try to carry them along, particularly if they have given long service.

Oesophageal conditions do not present a great problem from the point of view of resettlement. Cardiospasm is now relieved completely and finally by Heller’s operation, and the unfortunate individual who used to spend the whole of his lunch time in the canteen trying to swallow the first course can now take his place with the others. In fact the whole difficulty now is to prevent them getting too fat because they so enjoy swallowing, after having almost forgotten what the sensation is like. Resections of part or most of the oesophagus with oesophagogastric anastomosis for carcinoma do not interfere with the re-employment of the patient so long as the general condition is satisfactory. Radiotherapy for carcinoma of the lung, oesophagus and mediastinal conditions will render the patient difficult to re-employ, because the systemic effects of any large dose of radiotherapy are severe. Asthenia, anaemia and anorexia may persist for a long time. After some months, if the radiotherapy has been curative, re-instatement may be considered.

Among the operations in cardiac surgery, the operation of mitral valvotomy for mitral stenosis is now being undertaken in considerable numbers in the 20 - 40 age group. In the favourable type of case the results of the operation are extraordinarily good. Patients who have had to give up their employment because of progressive dyspnoea, now we find that they can live a normal life, undertake considerable exertion without dyspnoea, and in fact will ask for their job back. We have, of course to remember that the operation may relieve the stenosis in the mitral valve, but we are still dealing with a myocardium that has been affected to a greater or lesser degree by the rheumatic process and has suffered progressively increasing strain over a period of years due to the stenotic area in the circulation. Such patients will need at least six months’ convalescence after operation, but after this time they should be able to carry on their employment, preferably in a sitting position.

A patient who has had an intrathoracic operation must not frighten you. He will often manage surprisingly well and he is well worth giving a chance to see what he can do. We observe all our cases carefully in our follow-up clinics and if we believe we can help them further we let their medical practitioners know. I have tried to show you that one of the guiding principles of our work is to ensure as far as possible that the patient will be able to return to some form of work, preferably to his original job. The nature of the condition for which we have to perform thoracic operations, entails that except in the occasional case, such work cannot be of the heavy labouring type. There is still, however, an enormous field for them, but it frequently requires the sympathy and encouragement of the employer and the industrial medical officer to place them comfortably.