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The future of thoracic surgery[1]

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Thoracic surgery is taken to mean different things by different people. To some it is the surgery of the lungs, to others it is the surgery of the body from the clavicle above to the diaphragm below. My own interpretation has always been that it is the surgery of the body from the hyoid bone above to the umbilicus below. However it is defined it does usually depend upon some anatomical restriction of surgical activities. The problems of thoracic surgery (as distinct from those of its individual organs) were the problems of the open pleura and of the pleura that had been opened. I hope you will agree that these have already been solved and that the answers to them should be common knowledge to every practising surgeon.

I define a speciality in the surgical context as a part of surgery which has been temporarily separated for special study. This may involve an organ or a system or a group of organs with a common problem. For example, it may be the surgery of the brain, the surgery of the urinary system, or the surgery of the thorax. Branches of surgery may be made into specialities for various reasons and remain detached for varying lengths of time. One of the most important reasons is to advance the knowledge of the subject. This should be a self-limiting process, and, when the advances have been made, they should be incorporated into the general training of surgeons.

Another good reason for segregation is where the amount of work to be done is so large that it occupies a man completely, without leaving him time to do, or study, other things. This, too, should be limited by the surgeon teaching others to do his work and share his burden.

A third reason, related to the above, is where special technical skills take a long time to learn and practise, as, for example, in the surgery of the labyrinth of the ear, or ophthalmic surgery, or where the structure and functions of the part operated on are so complicated that it is a life-time's work to understand them. Neurosurgery is surely an example of this last.

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I define a specialist as a man who studies a speciality. This definition excludes the man who spends his time repetitively doing a standard operation such as removing the lung or stomach. These are not intellectual exercises and can be learnt by any apprentice with an aptitude. Such surgeons are to be pitied, for they have been left behind by the tide of surgical thought. They may be men with a zeal for politics, and it is a pity that they may sometimes have a powerful influence on the destinies of surgeons and surgery without ever questioning the validity of their own exercises.

Before considering the problems presented by thoracic surgery as a speciality, let us look at specialization in general. Much of the science of surgery can be learnt from the work of others, but the art and craft are attained only by our own laborious experiences. This, together with the shortness of active surgical life, places a certain limitation on our accomplishments, but it is probable that we are limited more by opportunity, by our own inertia, and by our satisfaction with what we have already attained, combined often with the knowledge that we are comfortably paid for it.

For the advancement of our subject by research we must take it to bits, and each portion must be scrutinized and tested until its problems have been solved. This can be called the analysis of surgery. It may take some of the best brains of one or two generations to achieve an understanding of the problems and to show how they are to be solved, but when this has been achieved, the knowledge must be put back into circulation, must be taught to the students of medicine and used by surgical practitioners in general. The more surgery is analysed in this way, the more important it becomes that it should be resynthesized. If this is not done the parts that have been sequestered atrophy because of their dissociation from the body of surgery, and surgery as a whole suffers from being deprived of its constituent parts. In the same way, surgery must be incorporated into medicine and medicine incorporated into science.

The analysis of surgery, though often opposed by hospital boards, who have to find the finance

and accommodation, and also by those senior members of our own profession who are by nature unimaginative and by habit stale and obstructive, can be relied upon to continue because it is forced upon us by the enthusiasm, ceaseless curiosity, and ambition of the best young brains. We are, however, seriously lacking in our efforts for synthesis. The main deterrent to synthesis is vested interest, and to discuss this we must tread very warily. When a fragment of medicine is accepted for special study it usually needs special facilities of staff and accommodation and soon develops into a special department. Practitioners meet to discuss their problems, they form an association, they elect officers, and start a journal. All this is good and to the advancement of surgery. But then they tend to become political, rules are laid down about the necessary qualifications for joining the association or practising the speciality which, if applied at the beginning, would have prevented the originators from ever becoming members. The department is given a number of beds and registrars, the subject is given status, and it is surrounded by delineating walls, often of armour-plating. It becomes a vested interest.

One cannot but be sympathetic with a man who has spent his life building up a department in this way and is unwilling to see it disintegrate, but if we look at the problem not as one of disintegration but of integrating the speciality into the body of surgery as a whole, then we surely have a more pleasing prospect. This gives the specialist the wider horizon with a permit to contribute to the whole of medicine and surgery and not only to a small fragment of it.

If we could devise some scheme whereby specialities could be split off, but not too rigidly labelled, so that they automatically became a part of surgery again, we would avoid the trauma that attends the present system. It would, for example, be a help if orthopaedic surgeons were not so called but were surgeons with a special interest in orthopaedics, and similarly if plastic surgeons were called general surgeons with a special interest in the problems of reconstruction, which is indeed what they very often are.

It is perhaps particularly appropriate that at this time we should consider the case of thoracic surgery, because we have reached a stage at which so much has been accomplished, we have become highly efficient, and the speciality still rests on the shoulders of men with young and vigorous minds. Let us therefore look at our own situation.

The problems of dead space in the chest, open pneumothorax, and respiratory function in relation to thoracotomy (the problems that delayed the development of thoracic surgery) have been overcome, and it is high time that these lessons are thoroughly understood by anyone who is a Fellow of the Royal College of Surgeons or who holds consultant status as a surgeon. The problems of chest infections, in so far as they are surgical, can be dealt with adequately or have largely disappeared. Pulmonary tuberculosis has virtually ceased to be a surgical problem. Carcinoma of the lung is treated by surgery now as well as it ever will be treated by surgery. This is a technical exercise, but the ultimate solution to carcinoma of the lung must surely be a biological one and not a surgical one. The bogey of the opening bronchial stump has been laid. The oesophagus is a thoraco-abdominal problem and is very often tackled by competent abdominal surgeons and quite rightly so. Mediastinal tumours can be dealt with as any other tumour if the opening and closing of the chest is safe. What is left?—the heart. If we equate the heart with thoracic surgery we still have a great future, but this is as bad as equating the stomach with abdominal surgery.

These considerations lead me to the conclusions that thoracic surgery should be integrated with the rest of surgery, that it should form an essential part of general surgery and general surgical training, that no one should be appointed to the general surgical staff of a British hospital who is not trained in thoracic surgery, and that no one should be appointed to the staff as a thoracic surgeon—this does not prevent a man from being appointed as a surgeon and taking a special interest in the diseases that affect the thoracic organs. Furthermore, the Society of Thoracic Surgeons should set an example and bring its distinguished and honourable life to a close rather than be allowed to fall into disreputable decay and be kept going by artificial respiration and pacing. Its present functions should be distributed between the Cardiac Society, the Thoracic Society, and those small groups of men who may meet to discuss their own particular problems or to travel abroad.

Sir James Hayes said 'The beginning of error may be and mostly is from private person, but the maintainer and continuer of error is the multitude.' Thoracic surgery has had a brilliant past, but it will soon become an error. We as the multitude should not be responsible for continuing it.

You may say all this is very destructive, but it is not necessarily so. Can we not put our hands back into the lucky dip and pull out something fresh? Let us perhaps have a regrouping of our services so that what has already been achieved

can be carried on by the average practitioner of our subject, and the imaginative minds can be freed for fresh advances. We might, for example, have surgeons whose main concern was with the respiratory tract from the nose to the lung alveoli, some whose main concern is with the alimentary tract from the mouth to the anus, and some interested in the heart and blood vessels. Such men would be working with physicians, radiologists, and physiologists in their chosen field, rather than being grouped together according to their ability to open and close the pleural cavity.

We must make a clear distinction between personal specialization and the splitting up of surgery into sections and departments with highly adhesive labels. If a man has a good all-round education in general surgical principles and in the function and diseases of the organs of the body, if he can achieve haemostasis, avoid sepsis, eliminate dead space, and control the metabolic requirements of the body before, during, and after surgery, he should be allowed to study in detail—that is, specialize in—the surgery of any part of the body that interests him, no matter how small this may be. We who are his colleagues should help him and give him every support in his speciality. If enough of these surgeons undertake similar interests, let them by all means form a society and run a journal, but as soon as the time comes for making this into a fixed and permanent body with political influence, then is the time for it to be dissolved and a fresh regrouping sought along scientific lines. I submit that this is where thoracic surgery stands to-day.

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It is appropriate that at this moment the Society of Thoracic Surgeons should discuss the future of thoracic surgery. We are in a period of enormous technical change, and there is no indication that the pace will slacken in the near future. We cannot know what the technical changes of the next few years will be—in that sense the future of our speciality is no more than guesswork—but we can consider how best to meet the changes. Those who were trained in thoracic surgery 20 or more years ago have seen such changes that practically no procedure used at that time has survived. It says much for the background training of a thoracic surgeon that he has been able to adapt so readily to his evolving speciality. Our problem is to decide whether we can best meet the further evolution of our type of work by continuing to exist as a separate speciality or whether, as Professor Allison suggests, we should re-synthesize with general surgery. On the answer to this will depend the recruitment of the men we need to do this work.

Before we go further, perhaps I ought to define thoracic surgery, and I will define it as the surgery done by a thoracic surgeon, *i.e.*, patients referred to a man who is recognized as a thoracic surgeon. The problems they present constitute thoracic surgery for that man. This means in practice that one thoracic surgeon will be entrusted by his colleagues with the care of patients with carcinoma of the stomach or those requiring splenectomy, whereas another man will establish a reputation in the treatment of retrosternal thyroid. Some thoracic surgeons practise cardiac bypass surgery and others do not. All, however, in virtue of their enthusiasm and special study of problems related to the chest, are recognized as thoracic surgeons. There is no rigid wall bordering thoracic surgery, and therefore it is quite obvious that any reasonable doctor can be trained to do thoracic surgery, but the operative words are 'can be trained'. Thoracic surgeons have worked alongside their colleagues for long enough now for their ideas to have infected the main body of surgery.

It is therefore surprising to find that in even quite well-run general surgical units it can be fatal to put an intercostal drain into a patient. It is not that nobody has any idea how to manage it or even that they are unable to read the books on the subject, but fundamentally a general surgeon finds the care of an underwater drain beneath his dignity, whereas thoracic surgeons do not find the care of chest drainage beneath their dignity. It is the enthusiasm of the specialist that allows him to devote to small details the attention that is demanded for success. Everyone knows that Philip Allison's results using Roux loops to replace the oesophagus were better than anyone else's, and early on I went to see how this miracle was performed. He did nothing that is not fully described in papers, and anyone can read them; the only difference between his work and that of

anyone else was that he took more time, care, and trouble, and this alone explains his excellent results.

Although it is possible for the odd man to train in thoracic surgery and still be a good general surgeon, he would need to be quite exceptional to be able to keep up with the literature in both subjects, still less to make any new contributions and advances. Furthermore, a man who sets out with the best of intentions and really does look after his chest cases properly is sooner or later, if not in a sheltered academic position, going to find himself swamped by the waiting-list of piles and hernias. He must think twice before spending a whole day on some intricate thoracic problem which would take the time in which he could operate on 12 men all waiting to get back to a job. Worse still, the prospect of an easier way of earning money may well lure him away from the paths of virtue, and few of us are big enough and courageous enough to resist both the pressures and the temptations. Even in the United States of America, where for a long time thoracic surgery was done by general surgeons, there is an increasing tendency for the man who does thoracic surgery to do nothing else.

Thoracic surgery makes demands on equipment and resources far greater than general surgery. There is a certain rivalry in any hospital between the different surgical units, and if thoracic surgery had to take its place in the queue with others it would never get anywhere. In my own hospital, for example, the thoracic unit consistently spends more on equipment each year than the whole of the rest of the large general hospital group, and our colleagues rightly accept that our needs for expensive equipment are greater. Some preferential treatment has to be given, and if there are not special people doing this work and getting preferential treatment it will not succeed. Furthermore, a thoracic surgeon has to build up a team, and teamwork is by no means as yet fully accepted in the field of general surgery. Any of us who have had the experience of trying to work with other people's assistants and other people's anaesthetists to do the odd chest emergency in a strange, even first-class hospital will know what a nightmare experience this can be. The enormous difference in the results obtained in special centres from those in a general unit was most clearly demonstrated in the last world war. Specialized neurosurgical units did get far better results for head injuries than the units trying to deal with all types of casualties. This did not necessarily reflect the experience or technical ability of the surgeon in each unit but the effect of concentration of effort and equipment to a single end and relief from the distraction of priorities.

There is a very real danger that men engaged in a speciality can become rigid and entrenched in their ideas. To avoid this in our own speciality I would like to lay down certain rules.

1. Training programmes must be such that a reasonably good man can become a consultant in his early or mid-thirties. If there is no chance of this, all the good ones will go into other specialities or to the United States or Australia or somewhere where they are properly valued, and not hang around here until their enthusiasm has gone and they are appointed consultants to work out their time to retirement.

2. We must accept that there will never be a truly general surgeon in Britain again. Twenty-five or 30 years ago a surgical registrar in addition to abdominal surgery did colporrhaphies and hysterectomies, a little plastic surgery, all the genito-urinary surgery and orthopaedics that came his way, traumatic cerebral surgery, the odd eye operation, all the acute mastoids, and even the odd chest. This simply would not be good enough now, because we know so much more about all these things that no man could be sufficiently proficient at all of them to justify letting him loose. This may still be the ideal training for some of the underdeveloped countries, but it is idle to pretend we will ever see that pattern again in this country. It was once possible for a bright student on the last day of his final examination to know the whole of theoretical medicine. This will never again be within the grasp of one man.

3. There must be no rigid pattern of admission to the speciality that stops a suitable man from getting in by the back door. It may well be that in future men with an interest in vascular and cardiac work may split off from both thoracic and general surgery, and, if this is the pattern that develops, it must be allowed to do so and no artificial restraint must be applied. Our rules should be such that men are helped to devote themselves to their particular interests, not excluded if they have not followed the prescribed pattern.

4. Thoracic surgery must be as much an undergraduate teaching subject as abdominal surgery. If special units like thoracic surgery are tucked away from the teaching centres and regarded as some esoteric cult, they will lose, and the whole body of medicine will lose. They must enter into the exchange of ideas and knowledge in general hospitals, and although they must keep themselves intact so that they can maintain their standards,

they must on no account allow young doctors to qualify without having studied the most important half of the body and its diseases.

5. The initial training of a surgeon should be directed at teaching him surgical principles and simple technique. This can be learned as well from a thoracic surgeon as from an abdominal surgeon. A post on a thoracic unit should therefore be acceptable as initial training for any surgical speciality.

6. Some procedures are extravagant in their demands on our total resources of money and man-power and are liable to be expensive in life and suffering during the initial stages. Procedures such as lung resection once was and bypass is now must be restricted to people who are prepared to devote the time and energy to them to make them justify themselves. Once the possession of specialized equipment becomes a status symbol, or the occasional performance of a difficult procedure a party piece for exhibition to visitors, that branch of surgery is effectively sterilized.

In conclusion, if we disband this Society and our speciality we will go back to being general surgeons, and each man will have to decide the priorities between the demands of the different disciplines on him and his resources. I see no prospect at all of any of us being able to decide those priorities on our judgment and inclination. Once we lose the label of our speciality we will be at the mercy of administrators and politicians who could push us into devoting our time to less expensive forms of surgery that make a more immediate impact on waiting-lists. Cheap mediocrity could be encouraged and expensive initiative stifled. The Society of Thoracic Surgeons—if it is prepared to adapt—can be our best protection against this danger.