Sir Ernest Rock Carling, Kt.

Kenneth Macfarlane Walker

Sir Stanford Cade, K.B.E., C.B.

Gerald Thomas Mullally,
M.C.

Sir Clement Price Thomas,
K.C.V.O.

Sir Charles Max Page,
K.B.E., C.B., D.S.O.

Philip Henry Mitchiner,
C.B., C.B.E.

Arthur Tudor Edwards

Ronald Ogier Ward,
D.S.O., O.B.E., M.C., T.D.

Grant Massie,
C.B.E.

Sir Gordon Gordon-Taylor,
K.B.E., C.B.

THE MITCHINER MEMORIAL LECTURE THE MAKING OF A SURGEON*

ROBERT COX, M.B.E., M.B., B.S., F.R.C.S.

My first duty as the second Mitchiner Lecturer is to thank the Director-General of Army Medical Services for doing me the honour of selecting me for this task and for the compliment of entrusting the lecture to me.

When the invitation first arrived I was filled with pleasurable emotions which, as soon as I had accepted, gave way to doubts and misgivings as to what subject I might choose to speak on. My instructions were that I might select any subject so long as it dealt with some aspect of surgery and had some *Military* context, however slight.

Unlike my friend Richard Battle, who knew Mitchiner well, I had only a slight personal acquaintance with him, meeting him for the first time across the examination table in Lincoln's Inn Fields in 1938. Subsequently I met him a few times during and after the War but never to know at all well on a personal footing. Of course there were few surgeons who had served in the same theatre of war or who had worked in London who did not know of Philip Mitchiner and most of them had several stories which they could tell about him, about his work and sayings, and most about his kindness.

This lack of close knowledge of the man himself, it seemed to me, must rule out any attempt on my part to deliver another eulogy about him. Furthermore one feels certain that it would not have been to his liking.

In cogitating further on the subject for a lecture, I wondered about the areas of surgery which have particularly interested me and engaged my attention. The surgery of the oesophagus, for instance, is a subject which I have found fascinating and on which I have spent long laborious hours. Every military man has an oesophagus, which most enjoy exercising as exemplified by the case of Colonel A, who was shown to me some years ago in The Queen Alexandra Military Hospital when he presented with dysphagia. A barium swallow (Fig. 1) showed what appeared to be two large diverticula of the pulsion type, and following an oesophagoscopy he was subjected to thoracotomy at which the diverticula were readily displayed and then removed with consequent relief of his symptoms. A simple exercise in the relief of dysphagia due to a rare anomaly of the gullet, epiphrenic oesophageal diverticulum.

Much less easy of management was the case of Mr. F., sometime a private soldier in the Middlesex Regiment, who presented with dysphagia. The barium swallow (Fig. 2) showed not only the hold up of barium due to the carcinoma of his oesophagus but also something which may be none too familiar to the most junior officers in my audience—a right-sided thoracoplasty. This was done as it so happens by Colonel Professor A. L. d'Abreu and, had allowed him to live for the past twenty years as a cured case of pulmonary tuberculosis. It offered at first sight, so far as I was concerned, a considerable added problem in dealing with his oesophagus since I anticipated that an approach through the right chest would be made very difficult by the previous operative interference and consequent adhesions. An approach through the left chest was clearly ruled out as it would entail collapsing the left lung and the consequent diminution of pulmonary capacity might not be tolerated by the patient.

* Given at the Royal Army Medical College on 2nd June, 1970.

Fig. 1.

Fig. 2.

In the event the approach to the oesophagus through the right chest was surprisingly easy, the oesophagus being much nearer the surface than is normal because of the deformity of the chest wall. The lower two thirds of the oesophagus was resected with the carcinoma and his stomach was brought up into the chest to form his new gullet. He made a surprisingly trouble free recovery from the operation.

Some two and a half years later he reported back to the Out-patients Clinic complaining of a return of his dysphagia, and fresh X-rays showed not only a hold up in his barium swallow due to local recurrence of his growth, but also multiple cannon ball deposits in both lungs. It was decided to manage this situation by introducing a Souttar's tube and treating the local recurrence at the anastomosis by super voltage radiotherapy. Once again he tolerated his treatment well and departed swallowing quite reasonably, only to return six months later with more dysphagia. An X-ray showed that his Souttar's tube had slipped, so another was introduced only to suffer the same fate.

His general condition was still remarkably good so something had to be done to relieve his distress and I therefore put it to him that we must re-open his chest in order to introduce another and bigger tube of the Mousseau-Barbin type. In doing this I made a serious error and failed both to draw the tube down snug on top of the growth and also to cut sufficient off the lower end of the tube. The result was that ten days later poor Mr. F. had worse dysphagia than ever and I had the distasteful task of telling him that he must submit to yet another thoracotomy. I shall not easily forget the way he looked at me, but he gave permission and this time his swallowing was greatly improved. We have of course been unable to do anything to arrest the march of his pulmonary metastases and he is doomed to die of his disease. In doing so it seems to me he is living up to the highest traditions of his old regiment, the 57th, and to the example of their commanding officer at Albuhera, Colonel Inglis, who gave them their imperishable nickname with his gallant exhortation "Die Hard".

The great Duke of Wellington, we are told, advised his soldiers never to miss an opportunity of filling their bellies—which involved the use of the oesophagus—or of emptying their bladders. This latter organ and its diseases has also been a surgical hobby of mine and I considered it also when seeking a subject.

The illustration (Fig. 3) shows what the pathologist will immediately recognise as the histological picture of a carcinoma of the bladder with, on greater magnification (Fig. 4), a super added less common appearance which can be recognised as the ova of

Fig. 3.

Fig. 4.

the worm *Schistosoma haematobium*. The fascinating life history of this dioecious trematode with its intermediate host, the snail *Bullinus contortus*, underlies the disease familiarly known to the troops in the last War as “Bill Harris” and named after the Austrian, Theodor Bilharz, who was at one time Assistant Professor of Medicine in Cairo. Schistosomal disease affecting liver, gut or urinary systems in man is now very widely spread through Africa, Asia and Central and South America; in its various forms it is probably one of the major killing tropical diseases to-day.

Urinary bilharziasis has ravaged the inhabitants of the Nile Valley since time immemorial and was expected to be seen in returned soldiers after Hitler's War. In fact I have yet to see an ex Service man with the disease, all those who have presented in my practice being either Arabs, Mauritians or Seychellois.

The relationship of schistosomiasis and cancer of the bladder has long been a subject of discussion. There are those who maintain that the apparent connection between the two diseases is no more than the concurrence of two diseases, both common in the communities under review. However, there is good evidence to show that in cases of Bilharziasis without cancer there is an increase of twofold or more in the urinary ortho-aminophenols and of the beta-glycuronidase, both of which substances are known to be important factors when present in the production of carcinoma of the bladder. If bladder cancer is present with the schistosomes, then the concentrations of these substances are increased to very much higher levels.

Oesophageal disease and carcinoma of the urinary bladder, while both are common and important diseases, did not seem to me to be suitable subjects for a lecture such as this where the audience might be expected to be made up of medical men and women of many disciplines.

I therefore cast about again in my mind and gave consideration to the man, whose life and work we are here this evening to remember. Philip Mitchiner was a surgeon, a soldier and a teacher, and it is this last aspect which attracted, in this context, my

attention. As a student, resident and registrar I have been the recipient of much surgical teaching and over the last twenty-five years have been involved not only in the teaching of undergraduates but also in the training of residents and registrars. Of more recent years it has fallen to my lot to become involved to some extent in discussions concerned with national programmes of surgical training.

I thought, therefore, that I would take as my subject the Making of a Surgeon and draw upon my own experiences in sitting at the feet of a number of great surgeons and teachers, nearly all of whom were contemporaries of Mitchiner's, and each of whom exemplified some particular surgical virtue. I would like also to comment on how surgical education and training have changed over the last thirty-five years not, let me say immediately, entirely for the better. I wish also to say something about the training of a Military Surgeon, some few aspects of which differ from those of his civil counterpart.

Making surgeons is in a sense like making anything else, one has to have suitable materials, suitable facilities and good and skilled folk to work in the production line.

Turning first then to raw materials, what is required? First let us agree that there is no one type of man who is destined to be a surgeon. Clearly there has already been some pre-selection, since basic general medical education and qualification must have been achieved before our young prospect starts on his career. But many of those who have qualified as doctors are quite unsuitable for surgical training even though they may suffer from the ambition or imagine themselves to possess the requisite qualities.

Of these basic educational requirements I believe a good broad early schooling to be most important. In recent years there has been a great tendency towards early scientific specialisation, partly in response to the enormous and continuing explosion of scientific knowledge. It seems to me that it is the very speed and continuance of this scientific advance that makes early specialisation not only undesirable but actually wasteful. Much better that the young man should have some classical education, a good knowledge of the use of his own language and history so that he may have developed a sense of values which will direct his mind through the rest of his life. Sir Ernest Rock Carling was such a person, displaying remarkable erudition based on a classical education. He was a contemporary of Mitchiner's and clearly a friend. It was to Carling in the old Westminster Hospital that Mitchiner went when he needed to undergo an operation in the late 1930's, and although complication followed complication the eventual outcome was favourable. Carling was not only erudite in a general sense but also scientifically and had the trick of making his juniors envy the former and despair of the latter.

Carling and Mitchiner had much in common, not least of which was military service in early life. He served in the Boer War and also in France during the Kaiser's War. I vividly recall how he recounted to us the occasion when he operated on the batman of Noel Chavasse, already the possessor of one V.C. Chavasse died soon after admission to the C.C.S. but the news of his death was kept from his batman by common agreement for several days until a new Chaplain coming to the unit gave away the sad information to the patient. As Carling put it, the patient turned his face to the wall and died. The unfortunate Chaplain never made much headway in that unit and least of all with Carling who was a man of strong likes and dislikes. In fact his judgements of other men were often faulty and his ability to choose men for higher training was

unsound—his swans were so often geese. One other striking characteristic of Carling was determination, which at times appeared as ruthlessness, and so long as this quality is balanced by other considerations it can be a most useful asset to a surgeon. It was Carling's determination and ruthlessness in overcoming opposition which made the building of the new Westminster Hospital possible, and it stands to-day as a memorial to his special characteristics.

I have used Sir Ernest as an example of the advantage in a candidate for surgical training, of a broadly based general education. This is something which can be arranged for a boy if his parents and teachers are well advised, but there are other even more important qualities which we would wish to find; some are inbred, such as courage and intelligence, and some are the result of early training mainly in the surroundings of home and family. It is in these early years that the basis of integrity is laid, the quality which impels a man to act truthfully and honestly and prepares him for situations where sick people put their trust implicitly in him and are never let down or betrayed. Fortunate is the boy whose early years have been spent in a happy home where discord is seldom in evidence and where the older values of honesty, good manners and fair dealing are constantly presented as examples by parental behaviour.

Another advantage which stems from early educational direction, though it can often be discovered later in life, is a facility in writing and authorship. In our present day and age the young surgeon who is an applicant for surgical posts is expected to have published papers in the medical press. This naturally calls for some experience of research work which the paper is to describe, but some men do the writing easily and with facility, others find it the hardest of all labour, not to be eased even by continued application. Kenneth Walker, Urologist to the Royal Northern Hospital, was such a one. That he was full of original ideas is shown by his record of winning the Jacksonian Prize of the Royal College of Surgeons in 1911 and giving not only the consequent Hunterian Lecture but being awarded two further Hunterian Professorships in the 1920's. When I was his House Surgeon he told me that he considered it of great importance to make at least two contributions to the medical press each year, and I was unkind enough to think this was a form of advertising. However, his literary output continued as the years rolled by and many books on philosophical and para medical subjects flowed from his pen and continued to do so long after he had retired from practice. Kenneth Walker illustrated another aspect of the requirements of the surgical candidate; his manual dexterity was of a low order and he was the first to acknowledge this shortcoming—nevertheless his patients did extremely well since his judgement of when and what to do for them was outstanding.

Other requirements in the surgical postulant are application, industry, persistence and determination. A man may achieve consultant rank as a surgeon without these characteristics but he will not go far nor rise above the level of mundane. My old teacher, colleague and friend, Sir Stanford Cade is a wonderful example of these virtues. He qualified in 1917 and starting his surgical career as a House Surgeon, by hard work and persistence he forced his way onto the staff of Westminster Hospital where he quickly developed an interest in malignant disease which was to be his life-long study. In particular he was a pioneer with Carling in the use of radium in the treatment of cancer, on which subject he wrote three books, the first a slim, single volume published in the late 1920's; the next was a much larger, bulkier volume published in 1940, of which very few copies exist since practically the whole stock was destroyed by fire in an air raid by

the Luftwaffe on Bristol. Stanford Cade is alone among my exemplars as having served in the R.A.F. and, as soon as that episode was over, he returned to work on the third edition of his book; universally acclaimed as being one of the most authoritative and exhaustive works on the subject and running to four large volumes which embodied his own already vast personal experience in the many different forms of cancer. Later he was to contribute important lectures and papers all over the world, always based on his own personally observed cases and therefore always authoritative. But his persistence and determination, though shown in his literary activities, really was seen by his students most clearly in his approach to his patients, many of whom were referred to him when other surgeons had exhausted their ideas and resources of management. He was constantly in demand as an opinion in the difficult, unusual or abstruse case of neoplasia. Cade would always study the history carefully and then check it equally carefully by interrogating the patient. This of course was followed by physical examination, nothing was ever accepted on hearsay, and then all the radiological, histological and other information was personally reviewed. I never ceased to marvel how often he would then pick out some small detail of information which had eluded everyone else and which would throw light on how the case should be further conducted.

When I had decided on my subject and title for this lecture I was somewhat put out to find that there existed a book of the same title written by the late Ian Aird and if anyone in my audience retains any interest in the subject after this lecture I would strongly recommend he should read that book. Aird puts better than I can another aspect of the toughness, which is a composite of determination and endurance, which is required in a surgeon's make up. He says "The surgeon must be capable of an intense prolonged and unremitting concentration of visual and mental alertness capable of being sustained hour after hour over long periods of time. This faculty is an innate one though it can be improved and extended by training. If a man does not possess it he cannot be trained for surgery."

Among my teachers this faculty was shown in a very high degree by Sir Clement Price Thomas. Price Thomas had a common bond with Mitchiner in that he started his military career in the ranks. By the end of the 1914-18 War he had risen to the dizzy rank of corporal in a hygiene section. Before enlistment he had been a dental student but gave this up to start medicine on his demobilisation. The part that he played in developing modern thoracic surgery is a whole story in itself, but to see him operating on a difficult lung case was a wonderful illustration of intense concentration. His close interest in thoracic surgery was an illustration of something which he once said to me: "The place of the specialist surgeon is to get to know about the problems and difficulties and to solve them so that later the operations become simple and straightforward to the extent that they will lie within the scope of the informed and capable general surgeon". This is a broad-minded and generous sentiment to which many more dedicated "specialist" surgeons of to-day would not readily subscribe. Clement Price Thomas started his thoracic surgery alongside Arthur Tudor Edwards, who I mention because he belongs among Mitchiner's contemporaries, because I hero-worshipped him as a student and because he had one advantage in early life which may turn out to be a blessing or a curse, namely wealth. This can give a man immense help in his surgical career but if his character is not sound it may remove one of the spurs to hard work and advancement.

Having said something about raw material let us turn now to the process of training.

The broad programme is well known though the details, and indeed some of the principles, have come under close scrutiny of late and are the cause of adverse comment from certain quarters.

Having qualified and done his pre-registration jobs the young man wishing to embark on a surgical life must first and with the least delay get his F.R.C.S. for which there is a prescribed minimum number of appointments which must be done. The Primary examination for the F.R.C.S. is a hurdle which all too often delays the candidate for too long a time, and there are those who would argue that time spent on detailed anatomy and physiology and principles of pathology should be reduced. It is not a question of time spent so much as the standard of knowledge required and shown by examination to have been attained by the candidate that matters. Especially in relation to anatomy has the value of a strong foundation been questioned. "Oh, you can learn the anatomy as you come to it" they say, but there are certain surgical situations, notably in trauma and neoplasia, where the anatomy must be known and cannot be learnt as the student goes along.

Of recent months there have even been rumours that the Primary F.R.C.S. may be put back so that it can be taken between the pre-clinical and clinical periods of undergraduate studies. Quite apart from any other considerations this would have the most unfortunate effect on any scheme to change the curriculum in the direction of so-called vertical integration, putting the young man hoping to be a surgeon at a great disadvantage in schools where such action was taken, and one can only hope that the Royal Colleges in their wisdom will see fit to leave things as they are.

Sometime before or about the time when he gets the F.R.C.S. the young trainee will have passed from being a Senior House Surgeon to a Registrar, and then after a period in this rank will need to find a vacancy as a Senior Registrar. If he has been fortunate in his early Registrar appointments, has passed his exams on time and perhaps produced some contribution to the vast flood of surgical literature, the promotion step may not be too difficult; but there are large numbers who find that they are held up for far too many years, and many who come to this country to be trained as surgeons achieve the F.R.C.S. and then find a Registrar appointment, where the N.H.S. unashamedly makes use of their services without providing any help to further and continuing training. Even after gaining Senior Registrar level there has been a tendency to utilise the man's services, to neglect his further training, particularly by failure to widen his experience and give adequate time for study, reflection and research.

It is for this reason that the Royal Colleges have set up a joint machinery aided by the specialist surgical associations to plan a scheme of training to ensure that proper standards are maintained and to produce a programme at the end of which the trainee will receive a certificate of completion of surgical training. This kind of exercise is relatively easy when one is dealing with a specialist branch of surgery such as orthopaedics or neurosurgery, the outlines and confines of which are reasonably clearly drawn, but it becomes more difficult in the case of general surgery. Moreover there are those who question the value, except perhaps to the overseas student, of such a higher training certificate. In itself it has little value, what matters to the man is that a consultant appointment or similar ranking post should be gained, and this is done by appearing before an Advisory Appointments Committee who select the best candidate

from those who choose to apply. Inevitably the standard will be higher than that of the newly certified surgeon.

The original intention in proposing the higher training certificate was praise-worthy and intended to help the young surgeon, but there are those who see in this mechanism added to a vocational training register or specialist registration administered by the General Medical Council a most undesirable increase in bureaucratic control.

This is but one of the many ways in which the training of a young surgeon has changed since Mitchiner's days. Now it is easier for a man to be accepted for training, and once accepted he has an income on which it is possible to live, albeit frugally, and the likelihood of continuing at least in another job of the same grade. Then it was more difficult since the number of training appointments was smaller, the entry therefore more difficult, and the pay so poor that only the most determined would face the ordeal. The change may be considered by some to be for the better and is certainly in keeping with the changing social scene where the State is continually expected to cushion and smooth the slightest difficulty in the path of the citizen. That uncertainty of employment and financial anxieties should be removed is admirable, but it should be matched by an awareness of the necessity to recognise and then to eradicate at an early stage those who are really unfitted for training by reason of idleness, lack of ability or some other defect.

This brings us to the teachers, the men who have come to occupy a position where the training of young men in surgery is part of their work. It must be admitted that there are some in such positions who do not pay as close attention as they might to this aspect of their duties, and a notorious few who quite unashamedly use their Registrars as pairs of hand without any attempt to forward their training.

To be a first-class teacher of surgery a man needs both to be interested in young people and to possess some quality of personality in himself which either attracts or commands the respect of the young. Such a one was Sir Gordon Gordon-Taylor, who had the distinction of serving as acting Consultant Surgeon to the 4th Army in the First World War and as Consultant Surgeon in the Royal Naval Medical Service in the next. "G.T." as he was affectionately known to so many, was a real surgical giant who appealed to the imagination. Always he was interested in young people and generally got on well with them. He was a great teacher in every way, an anatomist of exceptional knowledge, a bold and rapid operator, a good speaker and lecturer and a fine writer. Anyone interested in military surgery who has not read his small book entitled "The Abdominal Injuries of Warfare" has not only a gap to fill in his education but also a pleasure in store. It recounts many of the astonishing achievements of surgeons working in C.C.S's on the Western Front in 1914-18 in an era when anaesthesia was by modern standards crude and primitive, when blood transfusion and methods of resuscitation were in their very infancy and antibiotics were unthought of. Surgical results that could hardly be bettered to-day were accomplished by well organised and rapid evacuation of casualties combined with trained and skilled surgery.

Quite a different type of person with whom I personally had much closer contact was Grant Massie. Like Gordon Gordon-Taylor he was a fine anatomist and a precise and elegant operator. Grant Massie, however, exemplified what was in his own opinion a virtue, though it would now be questioned as such. He was a skilled orthopaedic as well as general surgeon and enjoyed practising both forms of his art much to the

irritation of those who wished to see orthopaedic surgery as a closed shop. Grant Massie enjoyed teaching the technique of operating, and I personally shall be always grateful that fate and the authorities arranged that I should be posted to serve under him at a stage in my career where such instruction was invaluable to me. Another quality he showed was a dislike of red tape and a strong desire to simplify administrative methods, which cannot have helped to lighten his burden when he became Consultant Surgeon in India.

Much of success in surgery depends on close and unrelenting attention to detail, and quite the best trainer of my experience in this aspect of our work was Ronald Ogier Ward, who, as his picture shows, was also no mean warrior. He had served as a young man in the Balkan War of 1912 in a Red Cross Unit where Max Page was the senior surgeon. In 1914 he mobilised with his battery of The Honourable Artillery Company which he eventually commanded until invalided home in the summer of 1918, collecting on the way a D.S.O. and M.C. and bar.

He was draft conducting officer when I went to France in 1939 and within a few weeks came to No. 3 General Hospital as our Officer in Charge of the Surgical Division. Here he drilled us in the handling of casualties until we knew exactly what was required of us. No detail was allowed to be imperfect; any defect and the work had to be done again until it was right. This close attention to minutiae characterised his operative and endoscopic work. I well remember the box of cystoscopes he took with him to war and seeing them back at St. Peter's in Covent Garden after the war when I became his clinical assistant. He had used 3 bulbs and had one lead soldered in six years due to the minute care with which he handled the instruments and the way he taught his theatre staff.

Not only does the young surgeon require someone who will teach him the facts and how to think about his trade and how to do his operations, but he also needs I believe someone who sets him an example in virtues which are less obviously of technical value, the virtues of honesty, which we sometimes disguise under the word integrity, of humility and of kindliness.

My example in this respect was Gerald Mullally who was very much a contemporary of Mitchiner's. They were both founder members of the Travelling Surgical Club which was formed after the Great War to foster and preserve friendships made in C.C.S's on the Western Front. They were fellow members of the Court of Examiners of the Royal College of Surgeons.

Mullally was not widely known in his time though he was held in very high regard by every single person who came in touch with his work. He had a rather shy manner eased by a gentle and ready sense of humour. He was a beautiful operator, quick and supple and with a technique where everything had been simplified as far as it could be. His teaching both to undergraduates and to post-graduates was clear and orderly and his classes and rounds were always very well attended. Whenever things went wrong—which was less often than with most other surgeons—he would always start by enquiring where he himself might have erred, and always the error would be held up for the examination of the students so that they might benefit and learn. Likewise, when during an operation if difficulties arose, he would positively delight in demonstrating to his assistants how he might have avoided the situation if he had set about things in a slightly different fashion or used more cunning anticipation. Never ever did he blame his team or become angry or lose control of him self. If one of the team made a mistake

or had been careless or wantonly forgetful they would be told about it in unmistakeable terms but always quietly and coldly. The absence of heat from the rebuke made an even deeper and more permanent impression and all of us hated to feel that we had failed him. Once he had settled in his mind that an assistant was reliable and had reached a certain degree of capability he lost no opportunity of giving him responsibility, appreciating that the acceptance of this is a most potent factor in developing the young surgeon. Having told his assistant to take on a case he would not readily interfere and would offer advice or criticism only if asked. This did not mean he had lost interest—far from it—he was observing closely both the quality of work done and the effect of greater scope on the pupil.

Another facet of this wonderful personality was the kindness amounting almost to tenderness with which he managed his patients, who almost universally repaid him with devotion.

It is not surprising that because of this kindness he, like Mitchiner, was the person to whom people often turned for advice, or when in trouble, and because of his surgical skill he was the surgeons' surgeon in Westminster Hospital. I have been wonderfully fortunate in having had a number of great and inspiring teachers but Mullally was of them all the one whom I most admired and respected and to whom I think I owe the greatest debt.

There have been over the last quarter of a century tremendous changes and developments in every aspect of surgery and whole new fields have been opened up, such as open heart surgery, the use of prosthetic joints in orthopaedics, stereotaxis in neurosurgery and organ transplantation to mention but a few. Each of these new areas of work call for additional basic knowledge, prompt further research and require wider scientific skills to an extent which was only imperfectly foreseen by the men of Mitchiner's time. I have referred to open heart surgery, and it serves as a good example of the complexities of modern techniques; complexities of such a degree that a computer is helpful to solve the questions that arise and provide information to guide the surgeon and anaesthetist in their work as it proceeds.

All this is reflected in the training which is longer and more arduous than it was in the past, since there has been little which could be jettisoned to lighten the load and compensate for all the newer knowledge which must be acquired. It is fortunate that in some fundamental sciences the methods and standards of teaching appear to have improved, but one cannot help but feel that in some areas of basic surgical knowledge the standards required in the examinations have fallen. Because there is so much to learn and such a large amount of experience to be acquired, it is important to organise and streamline the trainees programme—one cannot leave it to be worked out in the same haphazard way which was so common in the past.

All this together with pressure to improve standards in each surgical speciality has led to the scheme for higher surgical training to which reference has already been made. Another factor in the contemporary scene is the proposal to introduce a specialist register, and this with vocational training and early specialisation will have results which I feel have not been as closely examined as they should have been.

Certainly the effect for the military surgeon could be unfortunate. The current tendency, as we have seen, is to force men into narrower and narrower specialisation at earlier and earlier stages in their careers. This is all very well for the civilian surgeon

working in a large hospital or hospital group where there are readily available all the other surgical specialities which may be needed, but what about the military surgeon who is the last of the general surgeons and who needs to keep in use the widest range of skills? It is perfectly true that the Service in its training schemes has sought to provide young officers with opportunities to gain a wide range of specialised knowledge and to encourage them to gain further experience, but it cannot arrange to increase the size of military establishments and bring into being hospitals of a size which would warrant the employment of specialists in the number and variety which are found in the civil scene.

The thing is well illustrated by the work which is done in Dheran Hospital in Nepal where the surgeon will have to deal not only with both orthopaedic and general surgery but also plastic surgery and obstetric and gynaecological surgery, and no doubt if he has the skills there will be opportunity for him to dabble in oto-rhino-laryngology. That he may not by some be expected to provide such a high degree of skill as his civilian brother in the U.K. is not the point; we may be establishing a training system which will not readily produce a man to fill such a place.

Another problem which the military surgeon faces in his training is the limited age group and high standards of physical health in general of the community with whom he works. This has the effect of restricting both the quality of experience and the amount of professional work so that he is perforce idle for part of the time. The lack of a really busy day's work when continued over long periods is apt to have an inimical effect on keenness and morale which cannot be wholly compensated by reading of journals and text books.

So far I have talked about the military surgeon in his peace time role, and we all most earnestly hope that he will not be called on to exercise his other role in a major conflict. If such a disaster should ever fall upon us the medical and surgical problems will be enormous—the Regular Army has been run down to dangerously low levels and whatever its number would need dilution or reinforcement from civil sources. Are these civil sources available as in days gone by? It is generally recognised that the establishment of the N.H.S., while adequate, is not over generous at any rate in numbers of trained and trainee surgeons, for its requirements. Equally it is well known that if all the doctors born outside the U.K. were to leave for their homes—a not unlikely occurrence in the event of war—the effect on the N.H.S. would be a total and disastrous breakdown and would certainly nullify it as a depot of reinforcement.

Leaving aside what seems to me to be these most formidable logistical problems, what else do we have to think of in the surgical scene when it changes from peace to war? This has happened in a major way twice in living memory and there have been all the other more restricted wars in addition. In the case of major wars, because of the interval between them old well-learned lessons are forgotten and have to be re-learned. I believe I am correct in saying that within five years there will be no officer serving in the Army Medical Services who will have seen a battle casualty inflicted in a major conflict.

Two personal experiences of forgotten lessons at the outset of wars may be instanced. In 1939 I was posted to serve in No. 3 General Hospital in the British Expeditionary Force. We were situated in tents outside Dieppe and were used largely as a transit and evacuation Unit. Among the patients admitted to my ward in one convoy were a few

Cypriot muleteers with some ailment of their feet which completely baffled me. Their feet were painful, very slightly swollen and dusky in hue; the problem of diagnosis was not eased by language problems. Not knowing what I was dealing with I turned to my colleagues and then to my Officer-in-Charge of Division, Lt. Col. Ogier Ward, to whom I have already referred. No-one knew the answer, but Ogier Ward said "We must get the Consulting Surgeon, Major-General Sir Charles Max Page to come and look at them and he will tell us what is wrong". In due course the great man arrived, took one look and then pityingly informed us that the diagnosis was trench foot, a condition which it so happens he had been the first to describe at the summer meeting of the British Medical Association in 1914, having seen it in the Balkan War of 1913. Everyone had forgotten about it by the winter of 1915 when it appeared in large numbers, and so it was not surprising that with an interval of 25 years together with the disappearance of the puttee from every unit in the Army except the Cypriot muleteers we had failed to recognise these mild cases.

When the spring of 1940 arrived everyone felt that active fighting must start at any time, and as I had what was then called the Travelling Surgical Team I turned my attention to our equipment which consisted, as far as I can recall, of a box of surgical instruments, a few drums for dressings and a field operating table. I was astonished to find that the instruments included a complete set of Lanes bone plates and the screws and the screwdrivers, etc. needed for their use, but there was no haemostat longer than 7 inches. I longed for just 2 pairs of nine-inch cholecystectomy forceps in case I should have to cope with bleeding from some deep dark hole. No Quartermaster even made the effort to understand my anxieties and it was not till in the course of my travels I came across Brigadier John Weddell that I met with an intelligent and sympathetic hearing and, more important, the authority to draw the coveted instruments if I could find them in any medical store.

Although there is really little difference between an operating theatre in 1917 and 1942, or indeed much difference in the mode of treatment, the lessons have to be re-learned each time.

In the period of the "phoney war" all the young surgeons newly taken into the Army had it repeatedly drummed into them how a gun shot wound must be treated. The wound is enlarged by generous incisions in order to relax tension and to give access so that devitalised tissue and foreign bodies can be removed and haemostasis secured. The wound is then left wide open under a suitable dressing and the limb is splinted. These are the essential and simple principles of the primary operative treatment of war wounds, learned in the war of 1914 to 18, taught to us and re-learned by us in 1939 to 45 and still applicable to-day despite the introduction of powerful antibiotic agents.

During the Suez Crisis of 1952 one of the surgeons present told me that his main task was taking out the stitches that had been put in elsewhere. All the lessons learned in two world wars and constantly taught to military surgeons in their training had failed to be remembered.

These fundamental principles of war surgery do not change, only the stage on which they are set. Recently the manuscript diary of Major Harold Upcott came into my hands through the good offices of my friend John Harland, F.R.C.P. A picture (Fig. 5) from this diary shows some of Harold Upcott's Unit 37 C.C.S. outside their mess hut. The dress is a little different and so is the climate and terrain depicted in my next picture

Fig. 5.

Fig. 6.

(Fig. 6), but otherwise it would be easy to fail to observe that 25 years separated Major Upcott and 37 C.C.S. in France in 1917 from my friend Major Bernard Williams and his No. 6 Field Surgical Unit in the Western Desert in 1942.

These men and many others like them had to learn new ways of working and living and caring for their patients. That they did so was possible because they had received a sound basic surgical training and were given good military instruction by such men as I have mentioned to-day and typified in the highest degree by Philip Mitchiner, Surgeon, Soldier, Administrator, Author and, as he liked to call himself, a Teacher of Practical Surgery, who devoted so much of his life to the making of surgeons and the teaching of young men so that they could with efficiency and humanity care for their sick and wounded comrades in arms in two world wars.