I am honoured to give the Mitchiner Memorial Lecture this year, a year in which the Royal College of Surgeons of Edinburgh has held its annual meeting with the Royal Army Medical Corps in Millbank and Woolwich.

There are certain men in our profession who have been outstanding not only for their scientific achievements but also for their personality, which has extended their influence and their teaching far beyond the range of their own medical schools. Lord Moynihan was one, Gordon Taylor and John Bruce; and certainly Philip Mitchiner.

When I was a young medical officer in the London County Council Service at St. Andrew’s Hospital, Bow, I heard considerable talk about a surgeon known as “Mitch”, a chief at Thomas’s whose sayings and doings were not only quoted to

* Given at the Royal Army Medical College, Millbank on 2 October 1979.
me by the Thomas's men such as J A Manifold and Richard Hoey, both of whom became regular officers in the RAMC, but also the Barts, Guys and London Hospital men as well; and I appreciated that here in London there was a surgical chief who seemed to possess the caustic sarcasm of Jock Struthers, the horse sense of Henry Wade, the humour of Jimmy Graham and the kindliness of David Wilkie — the Edinburgh surgeons with whom I was familiar — all rolled into one.

No wonder his remarks were quoted with such enthusiasm in the wards, in the hospital mess, and in "The Widow's Son" and the "Black Bull" and other taverns where the medical students and housemen sought relaxation in those days.

Philip Mitchiner's life and teaching were admirably described by R J Battle in the first Mitchiner Memorial Lecture, and many of his sayings were quoted in Rodney Smith's brilliant study, "Some Masters of the Surgical Aphorism". Others have referred to his legendary reputation as a clinical teacher, his scorn of pomposity, his courage and his great sense of humour. Mitchiner's sound contributions to surgical progress should not be forgotten; his treatment of cancer of the breast, simple removal and clearing the axilla only if the glands were found to be involved, was much in advance of his own times.

Many aspects of the army surgeon's work have been covered in previous Mitchiner Lectures, and last year Guy Blackburn's masterly review of abdominal and thoraco-abdominal wounds has brought this subject up to date. I thought therefore another topic might be discussed on this occasion. There are certain factors which affect men going into battle, no matter to which particular branch of the services they may belong. I am not concerned today with the wider issues of political and religious beliefs, the preparedness or otherwise of their country for war, the state of their training, discipline and experience, all of which have great influence on the fighting spirit as men face the cannon's mouth, but with more direct factors affecting their lives and well-being. The reaction of men to these factors is another story, which can only be briefly referred to today.

The character and the ability of the Commanding General did have, and still has, a profound influence on all those men whose lives are his responsibility. There is a tremendous burden in certain situations on commanders such as Grant at Cold Harbour and Haig on the Western Front condemning thousands of men to inevitable slaughter in order to attain the goal of victory; and an even more tremendous responsibility rested on the supreme commander Eisenhower in deciding the hour of action, D Day.

Field Marshal Lord Montgomery wrote, "Battles are won primarily in the hearts of men". The most successful commanders have understood this well, and though their handling of their soldiers has varied, they have possessed the essential quality which wins their soldiers' hearts, that is the ability to win battles. "That long-nosed beggar who licks the French" as a private in Wellington's army called him, knew that though the Duke gave them very little praise, no one was more careful of their lives on the day of battle than he, keeping them on the reverse side of the slope out of cannon fire whenever possible.

That great commander of antiquity, Hannibal, who led his army over the top of the world against Rome, held an unrivalled place in the hearts of his soldiers, like Caesar and Napoleon, Cortes and Clive, and Sheridan. We read in Plutarch
that before the battle of Cannae Hannibal rode out with his staff to observe the enemy from rising ground not far distant. We can readily visualise the group of generals and staff officers, rather anxious and tense on this vital reconnaissance.

One of them, called Gisco, a Carthaginian of high rank, ventured to remark to Hannibal that the numbers of the enemy were astonishing. To which the general replied, with a serious countenance, “There is one thing, Gisco, yet more astonishing, which you take no notice of.” And when Gisco enquired, “What?” Hannibal answered, “That in all those great numbers before us, there is not one man called Gisco!” This unexpected jest made all the company laugh. The Carthaginian army, seeing Hannibal and his staff coming back from viewing the enemy roaring with laughter, concluded it must be profound contempt of the enemy that made their general at this moment of crisis indulge in such hilarity; and the shouts of laughter, spreading along the ranks must have greatly disconcerted their Roman enemies, so soon to be overwhelmed.

In our own times, Field Marshal Erwin Rommel exerted a magic influence over his Africa Corps; and what is perhaps more remarkable, he created a mesmeric admiration of himself among his enemies too, as indeed did Robert E Lee in the soldiers of the Union opposed to him. Rommel had put 80,000 troops out of action, and driven back an army 400 miles. In the tents where we treated the wounded in those bad days of retreat in May and June 1942, when the 8th Army was driven back to the gates of Alexandria, there was bewilderment and anger. “Why are we retreating?” the men on the stretchers lying on the sand would exclaim: So Monty had the task of weaning the 8th Army from its admiration of the Desert Fox and putting its faith in him, and like Slim with the 14th Army, turned defeat into victory.

What a marvellous spirit Monty created in the 8th Army — a tremendous pride, overdone sometimes perhaps, but understandable. Even our camp followers in the Sicilian campaign, civilians among whom Mussolini’s writ had never run strongly, sported the 8th Army shield badge on their shoulders, and swanked about with it in the villages. Monty did not harass the soldiers in his army with too much spit and polish; in fact, he issued only one order on dress. “Top Hats”, he said “will not be worn in the 8th Army.”

Monty sensed exactly the feeling of his army, the great bulk of whom were only temporary soldiers. When a civilian becomes a soldier, and goes into battle, in the words of Robert Burns,

“It’s not the roar of sea or shore,
Would make me longer wish to tarry,
Nor shouts of war that’s heard afar,
It’s leaving thee, my bonny Mary”.

Monty appreciated the importance of men getting their home mail; and indeed the Army Post Office (APO) did its job well. I have here a letter, posted in Edinburgh in March 1941 which reached me in October, after going through over 20 APOs.

Fortunate were the men who served under those great generals who have possessed the ability to think clearly in the very heart of the hurly-burly, and display a supreme imperturbability in the face of death. Wellington at Waterloo, Marl-
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borough at Blenheim and Ramilles, Grant in the Vicksburg campaign — the lives of many thousand men were in their trust and were not betrayed. Glorious victory followed the inflexible resolution, in the face of all criticism, shown by Hugh Dowding in the Battle of Britain and of Bomber Harris who said “We shall light a fire in the belly of the enemy and burn his black heart out”.

But there is the reverse side of the picture. Muddles can occur in any battle; Warwick the Kingmaker’s men mistaking their allies and shooting them up in the fog at Barnet; Monmouth’s fatal mistake at Sedgemoor, counting two ditches between him and the enemy when there were actually three; the confusion of orders before the Charge of the Light Brigade at Balaclava; the shambles on the Western Front on some occasions, and so on. History records many gross errors on the part of individual commanders which have ended in death and disaster for the men in their charge. Ney mistook the small advance guard of the Prince of Orange and his Netherlands at Quatre Bras for the main strength of the Allied Army and did not attack at first, thus losing the opportunity for breaking through to Brussels; one of a number of serious blunders made by the French Command, in the Waterloo campaign.

At Flodden, the English Army under Surrey was extended when crossing the bridge and the ford of the River Till flanking the Scottish position on the hill. But James IV did not attack. The golden moment was lost, and the Scottish Army was destroyed. In a similar situation at Salamanca the French Army under Marmont was extended, flanking Wellington’s position; but Wellington seized the opportunity, swooped down and the French were routed.

In the great Civil War, David Leslie had managed to box up Cromwell and his Army in a desperate situation at Dunbar, with his back to the sea. But with incredible folly, yielding to the persuasions of the Presbyterian preachers in his camp, the prudent Leslie came down from his impregnable position on the hills to hazard a battle on the open plain. “God has delivered them into my hands” Cromwell exclaimed. He placed himself at the head of the veteran Ironsides, and the Scots were overwhelmed.

In June 1864, General W F “Baldy” Smith was sent by Grant to capture Petersburg, the key to the south. He took the thinly held outlying Confederate lines, but instead of advancing into the defenceless town, called a halt, and his Army had supper and went to sleep. Next day, when Smith was ordered to get a move on, Beauregard had managed to fill Petersburg with 10,000 soldiers and the Federal attack was repulsed with thousands of casualties. The greatest chance of finishing the war quickly had been missed, and it was prolonged for another nine months.

When McArthur returned to the Philippines in October 1944 and landed on Leyte Island, the Japanese put in a three-pronged attack. Admiral Kurita’s Central Force, already mauled by the Americans, advanced towards the Strait of San Bernardino north of Leyte. Admiral Halsey encountered him, and sunk his battleship the Mususki, and Kurita turned back. Then Halsey, considering Kurita defeated and the Southern Japanese Forces safely contained in the Straits of Surigao by Admiral Kincaid, took his whole fleet northwards to meet what he considered the main danger, Admiral Ozawa steaming southwards. Kurita then advanced again,
unchallenged, through the unguarded Straits of San Bernadino and sank some American carriers. The vulnerable transports of the American invasion fleet, deprived of their defenders — Halsey lured away in the north, Kincaid fully committed in the south — lay at the mercy of the Japanese. Victory seemed to be in Kurita’s hands, there was nothing to stop him steaming into Leyte Gulf and destroying McArthur’s amphibious fleet. But with the prize within his grasp, Kurita suddenly turned away. Whether he was shaken by the loss of his flagships, and three days of battle, or had run out of fuel, or was misled by faulty intelligence, it is difficult to say; but his decision was fatal to the Japanese.

Coming lower down the scale, the character and ability of the officer commanding a unit are, of course, an extremely important factor in the morale of his men. Tyrannical colonels and sergeant majors, noble subalterns and privates stalk through innumerable memoirs, novels, plays and television serials. The young civilian consultant surgeon, coming into the Army as a Major Surgical Specialist in 1939, did not take kindly at first in many instances to being commanded by ADMSs Lieutenant Colonels whom he considered his professional inferiors. Those of us who had been in the OTC at school, and were members of the TA or the AER, however, did not find “Regulations, Army Medical Services” and all it implied particularly irksome. I look back with the warmest affection on Lt Col Frank “Daddy” Holmes, our CO at No 58 General Hospital whose unfailing optimism sustained my morale in the desert campaign; and the memory of Lt Col Dan McVicar “Dangerous Dan”, CO of a Casualty Clearing Station at Anzio welcoming me with a glass of Vino as I stumbled into his tent on the beach-head is not forgotten.

It was a wise move of the Army authorities in 1916 at the instigation of Gen Sir Alfred Keogh to bring in a number of distinguished civilian surgeons as Consulting Surgeons to the Army and give them appropriate rank. The surgeons at the Casualty Clearing Stations (CCS) and the Field Surgical Units respected these men and discussed their surgical problems with them as they would have done with their chiefs in civilian life. The visits of Heneage Ogilvie, Philip Mitchiner, Charles Donald, Frank Stammers and Harold Edwards were an immense boost to the young surgeon in the Middle East and Italian campaigns; he knew they understood his point of view when dealing with authority.

In spite of every precaution, every eventuality considered, the “best laid schemes of mice and men gang aft agley”. Some totally unpredictable hazard, a piece of good or bad luck may alter the whole course of events in a campaign, however skilfully planned. “Accident often decides the fate of battle” said Ulysses Grant. A bow, drawn at venture, can kill a king and win a battle, as is recorded in the Book of Kings, on the death of Ahab. A goose cackles, sentries are aroused, a night attack is thwarted, and Rome is saved. A messenger takes a wrong turn, is captured, and vital plans revealed. A battle follows, an army is destroyed, and a campaign lost. So it happened in the Second Punic War. “I see there the fate of Carthage” Hannibal exclaimed, looking at his brother Hasdrubal’s head, tossed into the Carthaginian camp after the battle of the Metaurus.

A moonbeam is an unsubstantial, fairy thing, yet its evanescent glimmer once saved our country from the direst peril. In Hitler’s War the German magnetic mines were proving disastrous to the Allied shipping and there was as yet no defence
against them. But one night (22 November 1939) a Nazi air pilot mistook the moonlight reflected off the mud flats of the Thames for water, and dropped his magnetic mine gently into the mud instead of the sea. It was safely retrieved by the Navy, who immediately recognised what the Lord had delivered into their hands; and in half an hour after their experts had worked on it, Britain was master of the secret of the German magnetic mine.

In the great Civil War, Charles II, proficient in the campaigns of Mars as well as Venus, took up a strong position at Worcester, and ordered the bridge across the Severn below the town to be broken down, to prevent Cromwell’s army crossing. His orders were obeyed, but not completely. A single plank was left intact across the swift flowing stream, and on this perilous pathway several of Lambert’s dragoons managed to crawl. They flung themselves into the church on the other side, and held off the enemy with a brisk fire till Lambert’s cavalry was able to cross by swimming or fording the river. The post was secured, the bridge repaired and eleven thousand men passed over. Cromwell seized the initiative and his “crowning glory” the Battle of Worcester was won.

Stonewall Jackson’s brilliant feats in the Shenandoah Valley campaign and in other battles and his happy association with Robert E Lee was an advantage of the greatest value to the South. The battle of Chancellorsville was won thanks to the skill of these two great generals. But when the battle was almost over, and the enemy routed, Jackson was struck by three bullets fired by his own marksmen hidden in a wood, who mistook him and his party for the enemy; and he died soon after. These three bullets, more than almost anything else, won the war for the Union; for in Jackson’s death Lee lost the one man he could not spare.

On one celebrated occasion, indeed, an attempt was made to win a war at a single blow. Robert the Bruce, riding out on a small palfrey in front of his troops to view the field at Bannockburn, was recognised by King Edward and his staff. If the Bruce were struck down, the very mainspring of Scottish resistance would be destroyed, and an English victory assured. So thought the brave De Bohun, and coughing his lance, spurred his great war horse, charging at full speed on the Scottish King. Sir Walter Scott describes what happened:

But swerving from the Knight’s career,
Just as they met, Bruce shunned the spear,
Onward the baffled warrior bore
His course — but soon his course was o’er.
High in his stirrups stood the King
and gave his battle axe the swing.
Right on de Bohun the whiles he passed,
Fell that stern dint, the first, the last.

Such strength upon the blow was put
The helmet crashed like hazel nut
The axe shaft with its brazen clasp
Was shivered to the gauntlet grasp.
Springs from the blow the startled horse,
Drops to the plain the lifeless corpse.
First of that fatal field how soon
How sudden fell the fierce De Bohun.

Such chances of war, and such dramatic episodes are unpredictable, but from the earliest times the good commander has recognised that chance and luck have little part to play in the well-being of an army on a campaign; it is his duty and his responsibility to see that his men are in good health and well fed on the day of battle.

“The chief causes of sickness in an Army in the field are excremental disease such as dysentery, enteric fever and diarrhoea and insect borne diseases such as malaria and typhus fever, while serious losses may be caused by influenza, cholera,
cerebrospinal meningitis, scurvy or plague”. So it is recorded in the Army Manual of Hygiene and Sanitation. It is the distilled wisdom in this RAMC manual which has saved countless lives in the two world wars, and the fulfilling of the instructions outlined therein is rightly regarded as among the most important duties of the RAMC. In early times many campaigns were lost before a battle could be fought by epidemics of deadly diseases now understood and controllable. “More men are killed by bacteria than by the bullets of the enemy” said a veteran of the RAMC, Col H E R James.

Sennacherib led his crack troops up against Jerusalem; the Assyrians were the most formidable fighting men of their time, and the fall of the city seemed inevitable. They came down, in Byron’s dramatic description, like the wolf on the fold. But “the Angel of Death spread his wings on the blast”; the malignant malaria quiescent in their blood streams was activated by the cold Judaean heights and those formidable hosts melted away.

The largest expedition the Athenians ever mounted was directed against Syracuse, and in the earlier part of the campaign Nicias the Athenian General made some headway. But the deadly malarial mosquito, bred in the stagnant swamps of the river Anapus which falls sluggishly into the sea near Syracuse took their toll of the Athenians, and weakened by great losses from disease, Nicias’ expedition came to utter disaster.

Two thousand years later another great army landed in Sicily, flushed with African victory. Proud of their toughness many soldiers scorned taking the necessary prophylactic mepacrine tablets, and the same thing happened to them as to the Athenians. The men of the 8th Army went down like ninepins with malaria; my own CCS was filled with the 51st Division, and, as Monty wrote, “We suffered almost as many casualties from malaria as we did from enemy action”.

In some Army units, however, mepacrine discipline was good. On a troopship going out to the East, Bobby MacCormack the thoracic surgeon informed me that on one occasion a private of the Gordons paraded before the OC Troops with a complaint: “Well, my man” said the Colonel, “What is it?” “It’s the food, sorr” came the reply, “It’s awful, and without my daily mepacrine tablet I’d be bloody well starved”.

The Walcheren Expedition in 1809 was well planned and splendidly prepared, but it encountered an enemy it could not overcome — the deadly Walcheren fever. 7000 died of pestilence, thousands more were disabled and the expedition became a total disaster.

Sir Ian Fraser has also drawn attention to this vital factor in war; the high mortality due to smallpox in the unvaccinated French Army compared with the trivial loss in the vaccinated Prussian Army in the war of 1870; and the ghastly toll of deaths due to typhoid fever in the Boer War compared with the trifling losses in subsequent wars following compulsory vaccination against enteric.

The depots of new shoes prepared by Marlborough for his soldiers marching to Blenheim; the trains of bullock waggons accompanying Wellington’s army before Assaye; the convoys of the RASC trucks on desert tracks to Alamein and beyond — though less dramatic than the guns were a vital factor in those great victories. Hitler’s much vaunted intuition did not rise to providing winter
clothing for his troops in Russia, and Von Paulus’ Sixth Army froze to death before Stalingrad.

The British Army now recognises the importance of the Dental Surgeons. If men have bad teeth, they cannot eat their rations, and they cannot fight well. Bad rations, or inability to eat them, has a cumulative effect in wrecking morale. The commander of the Field Bakery at Bengazi, after Alamein told me he had no idea how universal bad teeth were in the 8th Army, judging by the number of callers with hard luck stories he was told when the loaves of fresh white bread were baking. A Major told him the pitiful tale that eight of his men were starving, as they had toothache or had lost their dentures. “Could he let him have a few loaves for these poor soldiers?” “I noticed the Major had a particularly sound row of teeth himself” said the Field Bakery man, “but I knew whom one of those soldiers would be”.

One of the most potent factors affecting men in battle is fear, an ever present menace in war. Fear is like death; in Milton’s words, “Black as night, fierce as ten Furies, terrible as Hell”. The use of terror in various combinations of horrific sights and sounds is well understood by those waging war; psychological warfare is one of the weapons in the modern sophisticated armamentarium of total war. Fear of the unknown always exaggerated by the anxious mind has been exploited as a weapon since the earliest times.

The first sight of Hannibal’s elephants, monstrous beasts lumbering out of the mists, must have had an appalling effect on the Roman sentinels on the Alpine outposts. The first sight of the Viking’s long ships with their terrifying dragon headed prows; a Zulu impi rushing on its foe with flashing assagais; the war paint of the Iroquois, the plumes of the Masai Elmoran, all struck terror into their opponent’s hearts. The glittering ranks of the French curassiers at Waterloo, the menacing rub-a-dub-dub of the French drums, appalled some of the Allied troops opposing them, and the Cumberland Hussars ran away. Going over the top in the mud and blood of the trenches and the tremendous thunder of the guns at Loos and Passchendale must have been a moment of terror, only to be endured with the rifle in one’s hand and shouts of one’s comrades in the ears.

The countless numbers of Darius’ Persians on the plains of Gargemala, the noise of their camp like the distant roaring of a vast ocean, so wrought on the veteran Parmenio’s nerves that he suggested a night attack, to minimise the effect on the Greeks. But he got the celebrated answer, from a greater man than he. “I will not steal a victory” said Alexander. In our own times, a maximum of terror was achieved by the Blitskreig, the awful menacing sight and sound of advancing enemy armour, the machine gunning from low flying planes, and the dive bomber. I well recall my own feelings during dive-bombing attacks on a number of occasions, especially at Anzio. When one heard the noise of the plane’s engine coming nearer, nearer, nearer, clearly distinguished by the straining ear through the accompanying roar of the ack ack guns, and then heard the whistle as the bomb fell, then indeed one experienced what terror is. The tumultuous beating of the heart, the dryness of the throat and tongue, the short panting breathing, the tremor of the hand, the stimulant to evacuation reflexes — till the loud crash of the bomb nearby relieved the tension, and one could draw a normal breath again. A distinguished
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naval officer has told me that in a similar situation the involuntary knocking of his knees together was his most disconcerting physical reaction.

It is natural to experience fear, and to be kept fully occupied is the best prophylaxis against it. As General Hart puts it, "Inactivity at a time of tension breeds fear; and the best antidote to the poison of fear is purposeful action". All the more credit to the ranks of the RAMC, and the Army nurses who have endured the terror of the battlefield without the relief and satisfaction of hitting back. When actually engaged in operating, or dressing wounds one could ignore or at least contain one's fear sufficiently to see things through; but terror is a very real, a very horrid thing.

Terror's handmaiden, Rumour, is another potent factor which influences men's morale in battle. Spreading faked intelligence is one of the commonest techniques of psychological warfare designed to perplex, confuse, bewilder and confound. It is amazing how quickly false information spreads and grows. The Colonel commanding the CCS relieving ours at Anzio mislaid his kit temporarily on landing at the beach-head, and he arrived at the camp site minus his valise. The rumour immediately went round that he had lost it in enemy action. The story snowballed and by next day, at which time his valise had safely arrived, it was being asserted confidently that half his unit had gone to the bottom. But rumour generally has a kernel of truth in it somewhere. The news of the sinking of HMS Barham off Tobruk, and the sinking of the British warships by the Italian frogmen in Alexandria harbour reached our camp in the desert by intangible untraceable means days before any official news.

It is a good policy therefore, as General Hart has emphasized, to tell the soldiers the truth and keep them informed of the news as far as is consistent with security, and not to feed them with false propaganda. The captured German Luftwaffe pilots in the Battle of Britain demanded of us, when we had patched them up at Shorncliffe Military Hospital, to send them to the nearest German Unit. When we told them that the only Germans in the United Kingdom were prisoners of war, they scoffed and said they knew that Scotland at least was in Nazi hands. Disillusionment followed.

The weapons used in warfare must always be a subject of study for the military surgeon; he should know something about the instruments which have produced the wounds he has to cure. In earliest times personal hand to hand weapons were the most important. Flints were succeeded by bronze, and bronze by iron. As Winston Churchill recalls, men armed with iron entered Britain from the Continent and killed the men of bronze. "At this point", he writes, "We can plainly recognise across the vanished milleniums a fellow being. A biped capable of slaying another with iron is evidently to modern eyes a man and a brother. It cannot be doubted that for smashing skulls, whether long headed or round, iron is best."

The spear and the sword have played a major role in the last 3000 years. Adamson in comparing ancient and modern weapons in their effectiveness has recorded that the wounds inflicted in close combat by the heroes of the Homeric epics, the Iliad and the Odyssey were almost invariably fatal. In medieval times the knight in shining armour on his warhorse with his lance couched at his side
was accounted the elite of an army. We know what destruction was caused by the rush of the clansmen at Killiecrankie, sweeping their enemies away with irresistible strokes of their claymores. At Culloden the hero Gillies MacBain set his back to the wall and cut down thirteen dragoons with his sword before he was shot. And Sergeant Ewart’s feat at Waterloo, slaying three Frenchmen when capturing the Eagle, cleaving them with tremendous blows, testify to the importance of cold steel in close combat.

In modern warfare close combat with personal weapons has ceased to be a major factor. I saw only one bayonet wound in the 1939-45 War, and that was caused by an over-zealous sentry plunging his bayonet into one of his own colleagues returning from a night out in Alexandria.

But, from the earliest times, missile weapons have proved their worth, and have played an ever increasing part in winning battles. David’s simple projectile, a smooth pebble from the brook, slung with formidable skill at Goliath’s middle meningeal artery, proved more that a match for that man of war’s enormous spear and ponderous armamentarium. At Mount Galboa the battle went against Saul, the archers hit him, and he was sore wounded. The horse archers of Genghiz Khan and other Mongols with their short powerful composite bows were terrible and the Parthians played havoc with the Roman armies at Carrhae. Even today a Parthian shot can sometimes prove very effective.

It was the long bow of the English archers which showed, when it came to the crunch of decisive battle, at Crecy, at Poitiers and at Agincourt that an English bowman of yeoman stock with his plain leathem helmet, racked with dysentery though he was at Agincourt, was a more effective unit in the field with his death-dealing archery than a French knight, for all the gorgeous trappings of his war-horse, his costly armour and long pedigree. It was said, with a large measure of truth also that an English Bowman carried the lives of twelve Scotsmen in his quiver when he went forth to war across the border.

The heavy lead bullets of the early muskets and the stone balls of the primitive cannon have been followed by a great range of firearms projecting shells, shrapnel, incendiary, tracer and explosive bullets, all capable of causing gross injuries. Nowadays the high velocity projectile is widely used with its deadly destructive effect on all tissues in and around its path. Studies by RAMC officers, Lt Col Michael Owen Smith in particular, have shown the appalling effects of these projectiles. We can only speculate about what the future holds in the development of new destructive agents — atomic bombs, nerve poisons, laser beams, sinister applications of electronic technology and the problems to be faced when we endeavour to salvage what remain of the human flesh and blood opposed to such agents.

Now we come to one of the most important factors affecting men in battle — how are their wounds treated? Robert Cox summed up the fundamental principles in his Mitchiner Lecture, and General Kirby in the McCombe Lecture this year reviewed the progress in the treatment of the wounded from earliest times till today. I would like to refer to one particular type of wound — burns.

At Shorncliffe in 1940 during the evacuation from Dunkirk and the Battle of Britain, we treated burns with careful preliminary cleansing and then applied a coagulum, consisting of one per cent gentian violet, 10 per cent silver nitrate and
10 per cent tannic acid. The use of tannic acid had been advocated by Mitchiner among others and there is no doubt by preventing loss of fluid from the burnt surface it is a valuable method of treatment in superficial burns of large extent. Unfortunately, if sepsis develops under the tan, gross complications can follow; and when applied to fingers the tan may constrict the blood supply and produce necrosis. It has been shown also that tannic acid when reaching the blood stream in sufficient quantity can cause centrolobular necrosis of the liver. So this form of treatment has fallen into a certain amount of disrepute. Other methods have been used for treating the local burn wound. The Bunyan Stannard bag—the “envelope treatment”—has its advocates and A B Wallace’s exposure treatment has been widely used. Excision of large burn areas and extensive grafting has been practised from time to time. “Tangential Excision” is a new concept of early excision and grafting introduced by the Yugoslavian surgeon Zora Janezekovic. The procedure consists of removing the necrotic tissue down to the bleeding layer and then immediately covering with a graft of the patient’s own skin. Dr Janezekovic’s studies of the pathological processes in burnt areas are a sound basis for advocating early excision, for she has shown that thrombosis in the vessels in a burnt area is more extensive than previously supposed. The removal of dead tissue is the best way of minimising sepsis.

Recently homografts for covering skin defects, usually from cadavers or with heterographs of porcine skin, have proved valuable temporary dressings; and the ingenious mesh-skin graft advocated by Tanner and his colleagues has greatly helped when covering wide areas of burnt skin. The pendulum swings, and silver nitrate has come back into favour as a topical dressing (a 0.5 per cent aqueous solution) extensively used in different centres. Dressings of solfratulle followed by gauze and firm compression gamgee and bandages are also widely employed.

It is now appreciated that lung injuries are common in extensive burns and the importance of looking for pulmonary complications is recognised. Monitoring of blood gases, intermittent positive pressure ventilation with high O₂ content via an endotracheal tube or tracheostomy are steps in the right direction in handling this problem.

Profound pathophysiological changes commence once a patient has been badly burned. As John Settle has remarked, “The insidious leak of plasma from the patient’s circulation is less dramatic than when bright red blood is spurting out on to the floor, but it can kill just the same”. Assessment of fluid requirements, and the importance of replacing the lost plasma proteins are of the first importance. The work of Moore, Wilkinson, Dudley and Le Quesne and others has done much in recent years to make us understand these problems. Burns are tedious and difficult to nurse. The treatment need not be expensive, as Rangabashyam has shown in South India, but much dedicated and patient skill is required to treat burns well. We must keep the treatment of burns as one of our major priorities, as they play such an important part in the injuries of war.

These advances, aided by determination and skill show what can be done to save apparently hopeless cases. When faced with the problem of the very gravely injured man, we would do well to heed what Richard Wiseman wrote over three
centuries ago: "Almost all these wounds of the thorax made by gunshot are mortal; but it is not consistent with religion or humanity to leave such people without help. For sometimes we haply prolong the life of some of them and now and then effect a cure".

The soldiers of Word War I and II were spared the horrors of amputation without anaesthesia such as men endured in the Napoleonic campaigns, so vividly described by Tolstoy in "War and Peace"; but the callous treatment of the wounded by the Japanese is a dark page of history, illuminated by the heroism, skill and ingenuity of devoted medical officers such as Edward Dunlop in the horrible camps of the prisoners of war.

A keen observer of men in battle wrote:

"I learnt during the 1939-1945 War that four things contributed to the saving of life: (1) Blood transfusion. (2) Surgical teams well forward in the battle area so that badly wounded men could be dealt with at once without having to be moved by road to hospital. (3) Air evacuation direct to a base hospital many hundreds of miles in the rear, thus saving bumpy journeys by road or rail. (4) Nursing Sisters working well forwards in the battle area. When I joined the 8th Army in 1942, nursing sisters were not allowed in the forward battle area. I cancelled the order. Their presence comforted and calmed the nerves of many seriously wounded men, who then knew they would be properly nursed. No male orderly can nurse like a woman..."

This observer was General Bernard Montgomery. The man going into battle and knowing that if he falls, the best of expert attention and care are ready for him, has an immense boost to his morale.

The psychological factors in war has been assessed by General Frank Richardson in his enthralling study "Fighting Spirit", and General Hart has recently made a penetrating dissection of the many factors affecting determination in battle. I have mentioned briefly some of the factors which affect the lives and well-being of men in this most dramatic of human activities. The patterns of war are constantly changing, but whatever happens in the future there will be always a need for men of valour, men of renown, like Philip Mitchiner.
Men in Battle

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