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Editorial

NOT more articles on Kosovo! No, not this time. Having enjoyed some excellent articles in the previous two journals, it is indicative of the reduced tempo of operations in the Balkans that interesting new stories have petered out. Indeed, with the reduced force levels there, sapper units are beginning to enjoy rather longer inter-tour intervals than they have experienced in the past except, unfortunately, for key tradesmen and specialists in Military Works Force whose skills are still in high demand.

As we all know, as one crisis recedes another always emerges to take its place, whether it is supporting the UN in Sierra Leone or providing emergency aid in a disaster area somewhere in the world. "Combat Engineering on a Wing and a Prayer" is an Australian engineer perspective on a disaster-relief operation in Papua New Guinea, while "A Formation for All Seasons" examines how we should best prepare for such disasters, based on our collective experience and frequently-learned lessons of the past.

"Gucci Jobs and Green Kit", from one of our youngest contributors, should impress you not only with the eloquence with which it is written but also for the quality and determination evident in its author. A gap-year (formerly short service limited commission) officer, she is one of 41 female officers holding a regular commission in the Corps. Some may recall Lieutenant Penny Denton, the first female officer commissioned into the Corps in the early 1980s. She and others after her have shown the sort of qualities that have overcome even the severest of sceptics amongst us, and paved the way for others to follow.

"...in my Army?" is an interesting insight into the officer selection process and will no doubt strike a chord with all those who succeeded in passing the regular or TA commissioning boards. There is nothing better than your peer group to help expose one's strengths and weaknesses as a potential leader in stressful situations, which makes the concept of the regular

commissions board so effective and the envy of many other organizations.

More and more units are including battlefield tours in their training programmes. Not surprisingly most arrange tours in Europe but some have gone much further afield, to Africa in the past year on the 100th anniversary of some of the campaigns of the Boer War, and to Vietnam for the author of "Battlefield Tour of Vietnam December 1999". Many come away with an increased respect for the fighting qualities of the former enemy and a less jingoistic view of our own achievements.

Engineer in Chief's Annual Report to the Corps will appear in the December 2000 *Journal*. He will have much to report on as the Corps prepares to implement the largest change in its establishment since Options for Change in the early 1990s. In parallel with this change, the RSME is planning a partnership with a private consortium which could have a far-reaching impact on the way we finance and share with civilians some of our training facilities. The relative stability of the Cold War years is now a distant memory and the only certainty perhaps is that change, in an increasingly unstable world, will be with us for some time to come.

Finally a word or two on the RE Museum and Library. The heritage of the Corps is encapsulated in the outstanding collection of artefacts and documents which our predecessors, with the magnificent help from many friends of the Corps, have brought together and put on public display. In order to safeguard this heritage for future generations in the face of increasing pressure to reduce the MOD funding support, a strategic review of the Museum and Library is being undertaken, looking ten or so years ahead. Decisions which need to be taken in the short term to promote visitor numbers and to enhance the display areas can then be made in the context of the longer term vision for the Museum and its collection.

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Gucci Jobs and Green Kit

SECOND LIEUTENANT J C K JONES

Jennifer Jones, (pictured opposite) after completing her General Certificates of Secondary Education at South Hampstead High School, gained a major academic scholarship and an art scholarship for Haileybury, where she studied mathematics, physics, chemistry and art for A-levels. During this period she was given a Short Service Limited Commission (now renamed gap year commission) with the Royal Engineers which took her to Sandhurst for a month in November 1999. On leaving Sandhurst, and after a 24-hour introduction to the Corps at Chatham, she joined 39 Engineer Regiment, where she was later attached to 53 Field Squadron (Air Support). In October she will study economics at Birmingham University.

INTRODUCTION

THREE and a half weeks after not knowing the difference between a corporal and a colonel, I passed out from Sandhurst with 76 other 18 and 19-year olds who similarly had just been commissioned. Before the blood pressure of the reader shoots to dangerous levels with thoughts about what the army is coming to, I must say that we have all gained Short Service Limited Commissions (SSLCs). In effect, we pass the Regular Commissions Board like all other officers but are given a commission for a year with the army, after minimal training, before going onto university.

In writing this article I assume the readers have knowledge of what the SSLC is, although by far the majority of people I have come across know little or nothing about it. I aim to convey both the benefits and downfalls of the SSLC from the viewpoint of someone holding that commission, and the reasons for spending a year in the army.

DECISIONS, DECISIONS

I WAS faced with a number of options to occupy my gap year with the only certainty that I would do something and not just go straight to university. Those who take a gap year state adamantly that you can tell the difference between those who have and those who have not taken one a mile off. Yet if you speak to someone who has not, they often say that there is no difference. However, my desire to take a year out had less to do with anything as noble as developing my character, and more to do with the fact that I personally believe in taking up as many opportunities as I possibly can.

Initially I was to travel around the world with a friend. This was undoubtedly an easy option, and I

started to plan our intrepid adventure. Then everything went slightly awry because my friend got offered a place at Cambridge to study French and an opportunity to work in Paris for her year out.

My mother was then far from happy with the thought that I was still intending to go, but alone. Frantically she searched far and wide for something special enough to grab my attention, and the day she found out about the SSLC, she struck gold. For quite a while the army has been a source of intrigue for me, not enough to lead me to actively pursue a career, but I had a feeling that I might enjoy it. However that was the extent of it. I grew up in the centre of London and went to a school where the emphasis was strongly on academia and the only sports facilities were a netball court/playground and a small sports hall. Even by the time that I was 18 I knew nobody who was remotely interested in the military or outdoor activities.

So when I walked into the Army Careers office the next day I was not particularly surprised that everyone in there stopped talking and looked as though I had walked through the door by accident, thinking it was the Next shop next door. The sergeant behind the desk was more than helpful, however, even though, like many others I have met since, he had little or no idea about the SSLC. As I was going back to school in a few days he managed to fix an interview with a major who asked me about my background, my grades and got the information required to fill in the forms. Then at the end of the interview he said "Oh SSLC! I thought you wanted a SSC. You can't do that, the closing date for SSLCs was January." I left feeling sure that I could find a way and that it was just a matter of persuading other people to agree.



2Lt Jones at the hanger site at Price Barracks, Belize.

Two days and lots of phone calls later, I had my RCB briefing booked.

WHAT? YOU!

UNTIL joining the army, green, as an adjective, had conjured up images of two main personality traits, jealousy and, as in this case, naïvety. And when it comes to the military I was as green as they come, with my closest experience to anything similar being when I was 12 and a Scout. So I spoke to the head of the Combined Cadet Force who told me to wear a skirt (I prefer trousers) and off I went. To my complete amazement I passed with a “1.” The only people more shocked than me were my peers. On returning from my short absence, everyone wanted to know where I had been. At boarding school it is unheard of for someone to disappear in the middle of the week with no explanation. I did not want anyone to know, for fear of failure, but when I did tell them, nobody believed me. They were even more shocked, although less than me, when I passed my RCB in July. Apparently I was the last person they would have imagined in the army.

One of the main objectives of the SSLC is to introduce the army to an arena where it is considered completely irrelevant or distant, and to try and break the stereotype ideas which civilians have about this organization.

Everyone who knew me thought I was mad and in some ways it is true. I could have been sat on a beach instead of sitting in oversized boots, resembling a green smurf, profusely glowing in an office in Belize writing this article, but then I would not have had anything to write about.

THE SAPPER EXPERIENCE

THERE are many things involved in the SSLC that are difficult. The Corps takes six people each year, and this year it took five men and myself. Turning up at 39 Engr Regt (Air Sp), with only one other female officer, as an 18-year old female “half” officer was certainly seized upon by the sappers. Yet this was nothing unexpected and the novelty soon wore off. I was then attached to 53 Fd Sqn (Air Sp) with an anticipated deployment to Belize on Exercise *Sailfish*.

THE REAL REASONS

One day I WAS asked by a friend via email why I tried the SSLC. I had previously emailed him about the fact that I had to drag myself out of bed every morning at 0530hrs to go for a run in temperatures around 30 degrees. It is an easy question to answer, having answered it so many times already and with the fundamental impetuses remaining the same as a year ago. Firstly, it is because of the experience that I have gained. SSLC officers get all the “gucci” jobs



Tightening bolts at a height of 15m.

because they are part of a PR exercise and “those in the know” want them to finish with the best possible view of the army. SSLC officers don’t, however, live in cloud cuckoo land, because those with any sense realize that others around them are not doing the same things. My experience illustrates the extent and range of opportunities the army has to offer. In this respect the PR job has the desired effect.

Secondly, it provides an opportunity to discover oneself. While in Belize I had the chance to go off for a week with an organization named Trekforce. Trekforce is similar to Operation *Raleigh*, in that it runs programmes with a “let’s help society” feel to them. People are accepted for periods of six weeks to five months during their gap year. OC 53 Fd Sqn (Air Sp) wished me to see what “normal” people do during their gap years, as well as to reintroduce me to the ways of people my own age, including girls!

We would work on the construction project in the morning and sunbathe, swim and do general admin after a late lunch; fantastic. The result was that I had one of the best weeks of the entire tour, and I got on remarkably well with an already formed group (purely because they were genuinely really lovely people rather than anything to do with me). But on returning and being asked if I wished I had done something military instead, I replied “no” unhesitatingly.

It took me a while to rationalize this to my interviewer, but in retrospect it is very simple. Everyone at Trekforce wanted to do something “worth-while” in terms of helping those less fortunate than themselves. They worked hard and saved up a lot of money to pay for the privilege. But the main effect was to discover and develop oneself. I might sound patronizing, but I genuinely think it is a great thing to do and I highly recommend Trekforce to anyone who wishes to do some-

thing along those lines. However I feel that I have all my life to discover myself and I wanted to learn about other people first. It is very easy to remain within your own comfortable bubble throughout life, living with the same people from the same background doing the same thing. I thought it was about time my bubble was burst.

LIMBO

DOING an SSLC makes you an officer, but it also allows you to be one without the same degree of separation from the sapper other ranks as a regular officer experiences. Part of the reason for this comment is that I worked on site with sappers for the first couple of weeks of the tour. I feel that it is something that all officers should experience even as an attachment as it is not viable once commissioned. I have found that it is hard to lead people if you cannot see life from their perspective.

MY REALLY HARD LIFE

THAT is enough psychology for the moment. I am in Belize because I deployed with 53 Fd Sqn (Air Sp) on 7 Feb 00 on Ex *Sailfish*. This is the kind of tour that people can wait ten years for. Since I have been out here, which at the time of writing is now three months, I have passed both open water and advanced scuba diving courses. I have also completed a three-day jungle survival package, and later helped out as part of the team running it. I have had the chance to work with 2 Troop, which was building part of a research station in the jungle and on top of all that I have backpacked around Guatemala, experienced the Cayes, stayed with Trekforce and am off for another four days windsurfing shortly.

The only frustrating factor of the SSLC, and this is more prevalent in the Corps of Royal Engineers than other Corps, is how limited SSLC officers are in what they are able to do militarily. In many of the other Corps, such as the Royal Logistic Corps and the Artillery, SSLC officers go straight from Sandhurst to complete a Young Officers (YO) course lasting approximately three weeks, almost doubling the time spent in training. RE officers however do not do this and for very valid reasons. The content of the YOs' course is difficult enough to condense into 26 weeks, and attempting to cover even the complete basics would be futile in the time frame available, and possibly even detrimental.

Many of the other Corps also allow SSLC officers to command troops immediately after this short period of training. Personally I feel that although there will always be exceptions, the general majority were neither mature enough or well enough informed to take over the responsibility for a troop of soldiers, and I include myself in this. It is a fantastic opportunity for the individual, and possibly not such a bad idea after spending a few months in the Regiment, yet I have to ask how comfortable the soldiers would feel with an SSLC officer, straight from Sandhurst, writing their confidential reports.

In an attempt to overcome the lack of engineering knowledge, on my arrival at the Regiment, I spent the first month dashing from one department to the next, seeing how it was run. I learnt such disparate things as what a G1098 and AF1043 were and how to drive a low-loader, and I began to understand how each sub-division fitted in with the next.

LIGHTS, CAMERA, ACTION!

EVEN with these limitations in place, I have still been able to work on various sites, learn about the running of a troop and become the squadron media operations officer, which principally involved liaising with the British Forces Broadcasting Service and Belizean National TV, for an item that they are doing for "Scene Here" and local radio. It was interesting, especially being shown around the Belize Prison, a major human rights concern; but it did make me appreciate the benefits of the army mentality over the civilian mentality.

The most challenging task that I have been given was to write a combined design and works report for a project the squadron was considering undertaking in the latter half of the tour. The project involved the restoration of a 450ft suspension bridge that looked as though it had featured in an Indiana Jones film. Writing the reports themselves was not hard. However, as I had never seen one but was given two examples and an RETD2 and told to get on with it, a certain amount of self-education was involved.

In terms of engineering and the Royal Engineers, I have learnt a great deal. The main project on the tour was to construct an aircraft hangar to be used by 25 Flight AAC for the maintenance and storage of helicopters needed for CASEVAC. At 40 by 48 metres and standing 15 metres high, it is one of the largest tasks undertaken by Royal Engineers in the last 20 years. The hanger, and lessons learnt from the construction of it, really deserve an article of their own. However it was not so much the technical side of how to put in a 2-tonne stanchion, but learning how to run a troop on exercise, that I began to get a grasp of.

CONCLUSION

I FINISH my commission at the end of July before starting at university. Three years is a long time but I can see myself back in green kit after that. As an SSLC officer I have not been needed or able to give back half as much as I have gained and I have gained a monumental amount from this entire experience. It is likely that this is to be one of the final years that the army runs the SSLC, but for anyone who has a chance to do anything like it, I whole-heartedly recommend it. Just come with a very strong liver.

Exercise Capital Dragon Battlefield Tour of Vietnam December 1999

LIEUTENANT COLONEL J M GUNNS MBE BSc



Lieutenant Colonel Jon Gunns was commissioned into the Royal Engineers in 1977 after completing a civil engineering degree at Imperial College, London. Highlights of his career include six months as the SO3 Vehicle Maintenance to the Multinational Force and Observers on the Egyptian/Israeli border and two years as Chief of Staff of 8 Infantry Brigade. He has commanded 101 (City of London) Engineer Regiment (Explosive Ordnance Disposal) (Volunteers) since August 1998.

BACKGROUND

ON 25 September 1945, Ho Che Minh read out the Vietnamese Declaration of Independence in Hanoi thus leading to the first Indochina War from 1945 to 1954 against the French and the second Indochina War from 1954 to 1975 between the north and the American-backed south.

The Vietnam War is possibly the most minutely examined conflict in history but there are still large grey areas and continuing disagreement over important episodes. Early in 1999, Maj Gen E J Webb-Carter OBE, GOC London District, decided that the main District battlefield tour for the year should examine this war. Planning began in earnest and in December, 33 military personnel visited Vietnam for ten days.

PRIOR RESEARCH AND STUDY DAY

CONSIDERABLE background research was conducted prior to the tour and we were fortunate to have a strong presentation team to set the scene at a study day in London.

The political background was explained by John Colvin, British Consul-General in Hanoi from 1965 to 1967, and Derek Tonkin, a former ambassador. John Colvin suffered the US bombing of Vietnam while serving in Hanoi. In his

view the bombing had little impact on the will of the North Vietnamese to continue to fight but the physical effects of the bombing on some key targets, particularly the port of Haiphong caused significant disruption.

Derek Tonkin outlined the current main concerns of the then Vietnamese government. He made the point that the Vietnamese had been fighting the Chinese for centuries and that wars against the French and Americans were relatively small diversions from this conflict. When Ho Che Minh himself negotiated with the French Government in 1946, against the wishes of most of his supporters, he commented that it was preferable to “sniff French shit for a while than eat China’s all our lives”.

The military background was set by experts in their field and by former servicemen with experience in-country. Tom Abraham, a former officer in 1st Air Cavalry Division, gave a moving description of his service in Vietnam. Of the 62 replacement officers in his draft only two survived. He was awarded three Purple Hearts¹ and

¹ A decoration bestowed on a member of the American armed services wounded in action.

was hospitalized for a total of 16 weeks from wounds. His recollections included:

- A GI killed by a three year old child with a booby trap in a beer can.
- Being ordered to kill civilians and being threatened with a court martial when refusing.
- The life expectancy of a newly arrived second lieutenant in combat being assessed as ten seconds due to inexperience and the threat of being fragged by his own troops.

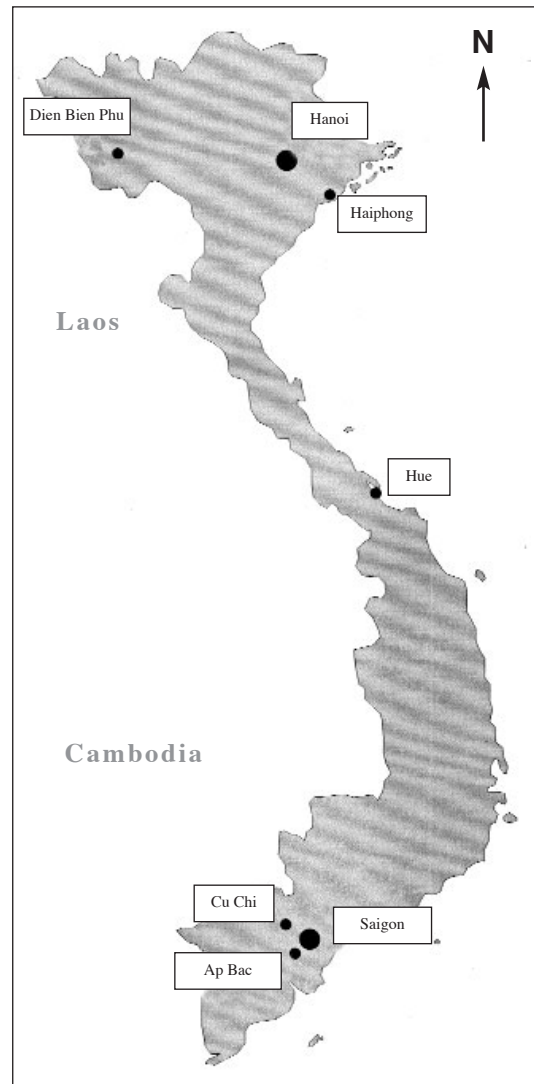
Tom Mangold was with the first British TV crew allowed into Hanoi in 1978. He recounted a story from the guide on the trip from the airport to Hanoi who blamed the still visible battle damage on the Chinese. Following this trip he wrote "The Tunnels of Cu Chi" and he spoke about the tunnels at length.

A number of Anzacs² presented on their Vietnam experiences and John Harding, head of the Army Historical Branch, placed the campaign in perspective and outlined the relevance of studying past conflicts.

HANOI

ARRIVING in Hanoi on 8th December, we were welcomed at an embassy reception where we met a number of embassy staff including Mr Thuy who had manned an air defence battery around Hanoi and claimed a share in bringing down two B52s. We also met up with Colonel Roger Little, the region's British defence adviser, who joined the tour. Two days were spent in Hanoi on visits and orientation briefings while the tour organizers battled with Vietnamese bureaucracy.

In his briefing the ambassador gave an overview of Vietnam today. The government appears to be becoming more liberal and allows some criticism of the party. The government's main aim is to ensure that economic growth continues to improve as a recession is seen as a potentially catastrophic political threat. Vietnam is keen to improve relationships with the international community and is striving to normalize relations with both China and the US. The change in outlook can be gauged by the history of the "Exhibition House of American and Chinese War Crimes" in Saigon. "Chinese" was dropped from the title in 1990 and



Vietnam.

"American" in 1994. Of interest, this museum includes a section on modern-day examples of western atrocities including heavy metal music.

The Vietnamese are naturally very industrious although the country suffers from the legacy of war and its past isolation. The government is attempting to open the country to outside investment and there appeared to be a thriving economy in the larger towns. Attempts are being made to enhance development, overseas links and education, Vietnam has a 90 per cent literacy rate, while simultaneously reducing bureaucracy and corruption. It was easy to forget that

² Member/s of the *Australian and New Zealand Army Corps*, or used to designate any Australian or New Zealand serviceman.



Statue of
Ho Che Minh, Saigon.

this is a communist country and the sight of a statue of Lenin still standing, long after Eastern European countries had toppled theirs, came as something of a surprise.

Ho Che Minh is still revered in Vietnam as the father of the nation and we were able to visit his house, mausoleum and museum. Ho was born in 1890 into a poor family. He was probably influenced by his father's implacable animosity towards the French although his own early years are obscure. In 1911 he started three years of travelling through America, England, France and North Africa. In London he worked for a while as assistant pastry chef at the Carlton Hotel. In Paris he mixed with leftists and was active in the French Socialist Party. Gradually he became a committed Communist and in 1923 he went to Moscow where he was trained as a spy. From there he moved to China and set about creating the Indo-China Communist Party.

Ho Che Minh was a consummate politician and a great realist as well as being a charming man.

He was aware that America was not greatly in favour of the French reassuming control over Vietnam in 1945 and he therefore borrowed heavily from the American Declaration of Independence when preparing the Vietnamese Declaration of Independence. He was essentially a simple man and his own wishes for his funeral were for cremation and his ashes to be spread on a number of anonymous hilltops across the country in order to avoid his grave becoming a shrine. The government had other ideas and his body was embalmed and now lies on public view inside a massive mausoleum modelled on Lenin's in Moscow. It was at Ho Che Minh's mausoleum that some of the complexities of Vietnamese life were highlighted in a sign simply stating "Please do not walk on the pavement".

Since the demise of communism in the Soviet Union the Vietnamese government has become concerned that unwelcome secrets about Ho's early life might be gleaned from old files in Moscow. They have reportedly sent a senior historian to scour the archives. So far Ho's reputation remains untarnished but rumours have recently circulated that he was married at one time. Bizarrely there are also reports dating from his time in London linking him romantically to Mae West.

We toured the Army Museum, which has an excellent display of memorabilia and photographs and houses T54 tank No 843 which led the televised final assault on the presidential palace in Saigon. We were also able to visit the Hanoi Hilton where the bulk of the exhibition is given over to explaining the French treatment of Vietnamese prisoners. This was contrasted with the better treatment given to US prisoners of war as demonstrated in the photographs of smiling prisoners. Although we were exposed to a degree of propaganda of this form at several museums it was apparent that the Vietnamese have adjusted very well in the aftermath of the wars. No animosity was ever shown to any of the tour party, which included two American servicemen.

Hanoi proved to be a fascinating city with much to see and some excellent restaurants. The city is caught in a time warp with bicycles everywhere and few cars. It is a backpackers' paradise with many cheap hotels and restaurants. Culturally there is much to see although an hour in the Hanoi Water Puppet Theatre was enough for me.

DIEN BIEN PHU

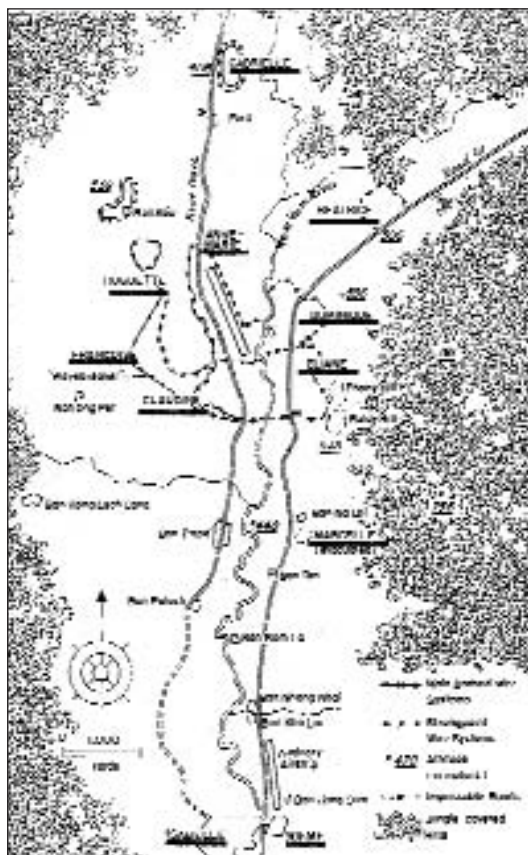
FROM Hanoi we took an hour long flight to Dien Bien Phu to cover French operations which took place there. Upon landing the geographical situation became apparent; the village and airstrip was situated in the bottom of a wide valley dominated by mountains on either side. Clearly any defensive position would be overlooked. This, coupled with a faulty French assessment that the Viet Minh had no long range artillery and would be unable to support more than a two-divisional operation in the area, led to a defensive deployment that could not cope with the threat as it developed.

The defensive layout had been based on a series of strong points around the airstrip and artillery firebase with a second firebase and airstrip some 6km to the south to provide support. Initially the French operation went according to plan and the position was seized in November 1953. Aggressive patrols were mounted to dominate the area. However, there was considerable political pressure on both sides to score a military victory in the run up to the Geneva Conference and Ho Che Minh ordered General Giap, the Viet Minh commander, to mount a major operation to defeat the French.

Viet Minh forces started building up in the area and from January 1954 French patrols encountered enemy troops in increasing numbers from all directions. The Viet Minh strategy was to isolate and destroy individual strongholds before assaulting the main position. The main offensive against the position started on 13th March with a massive artillery barrage followed by human wave attacks against strong point *Beatrice*.

After heavy fighting the strong point was overwhelmed and assaults were mounted on *Gabrielle* and *Anne-Marie*. By 18th March all three northern positions had fallen leaving the airstrip exposed and impossible to use. From this point on no wounded could be evacuated and supplies could only be delivered by parachute. The French artillery commander, mortified by the inability of his artillery to prevent the Viet Minh attacks, committed suicide.

The positions at *Beatrice* and *Gabrielle* have been left very much as they were in 1954. Trench systems can still be traced on *Beatrice* although the artillery battering it received has significantly altered the topography. The faulty French intelligence assessment resulted in an initial gross underestimate of defensive requirements. The bulk of defence stores delivered was



The area of Dien Bien Phu.

used in preparation of the command bunker near the airfield. Also, a decision was taken to strip vegetation from the defensive positions to create defence stores and this removed natural cover. Consequently the battalion was poorly prepared to face an assault.

The position at *Gabrielle* was somewhat stronger. When the strength of the Viet Minh forces was appreciated a competition was run between the battalions with a prize for the best design of field defences which the battalion of Algerian Rifles at *Gabrielle* won. The layout included fighting positions, communication trenches and obstacles in depth throughout. This allowed a more effective defence to be mounted after the forward positions had been overrun but after several hours of intensive fighting the position was unsustainable. A relief force from the airstrip was launched but faced a stiff fight in just getting to *Gabrielle*. The abandonment of the

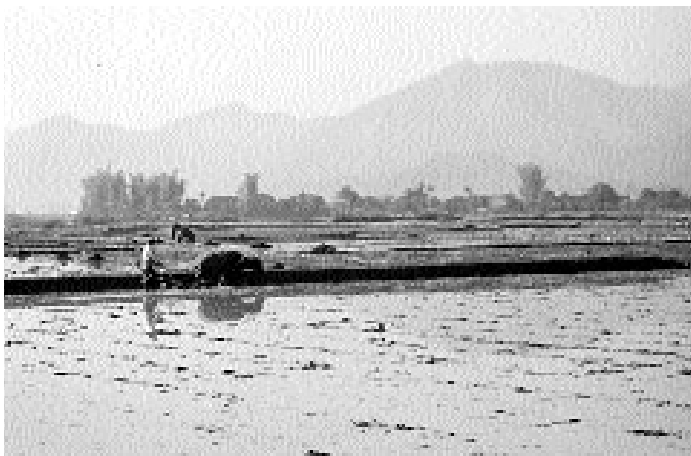


French light tank. Dien Bien Phu.

position and the withdrawal in contact in daylight added to the casualties already suffered.

Gabrielle today is heavily overgrown although some trenches can still be seen. Struggling over the position gave some insight into the difficulties faced by French troops when patrolling. Companies could take hours to move a few miles and would be subject to ambush and artillery harassment. The need to evacuate casualties would almost certainly force an abandonment of a patrol as the bulk of the company would be required to escort and protect casualties back to the aid post.

Giap mounted further human wave assaults at the end of March. These attacks were beaten off



Paddy field on the site of *Isabelle* with mountains beyond. Dien Bien Phu.

with heavy losses on both sides so he then switched to steady encroachment. An elaborate web of trenches closed in from all sides despite repeated French air strikes. To make things worse the monsoon started, flooding many positions.

The final assault started on 2nd May. Some of the heaviest fighting was on the small hill at *Eliane*, which had been the sight of the governor's house. As the battle raged the French decided to abandon the forward (eastern) slope of the position and concentrate on holding the reverse slope. Enemy positions were now a matter of metres apart. The Viet Minh started tunnelling operations

from the eastern side of the hill and the garrison requested geophones be parachuted to them to assist in monitoring this activity. Forays were made to destroy the tunnelling works and also on one occasion to recapture a parachute container of stores that had fallen outside the French perimeter. The élan with which this latter mission was executed was perhaps influenced by the fact that the container contained wine to assist in celebrating a Foreign Legion battle honour.

The conditions at *Eliane* towards the end were horrific. The hill was knee deep in slippery mud. There was virtually no cover and any surviving trenches were flooded. The combatants were subjected to heavy rain and the French to fierce artillery fire. The hill was covered in hundreds of dead from both sides, creating a stench and a health hazard. The end for *Eliane* came when the Viet Minh exploded a mine in the tunnel beneath the defenders and followed up with a mass attack. Those survivors capable of withdrawing retreated to the airstrip east of the Nam Yun River to rally with survivors from the other positions before the inevitable final result; the main HQ and all forces, less those at *Isabelle*, surrendered on 7th May.

The position at *Isabelle* was established 6km to the south in

order to provide artillery support to the northern positions. It was established around a river crossing on low-lying ground. Today the area is covered with paddy fields, an indication of the wetness of the area. The defensive positions were flooded during the battle. *Isabelle's* defence was boosted by the tactical use of four light tanks to assist in counter attacks. It was also the scene of one of the more bizarre incidents of the battle. The commander at *Isabelle* was convinced that a particular unit had not pressed home an attack with sufficient vigour and ordered the selection of a number of soldiers from the unit to be executed. Fortunately he subsequently rescinded this order.

In hindsight the faulty French assessment that the Viet Minh had no long range artillery and would be able to support no more than a two-divisional operation in the area proved their undoing. Once Giap had concentrated four divisions and more than 100 large calibre guns in the area there was no possible French tactical solution to the situation. The French lost 8,200 soldiers as casualties and 9,500 captured. Viet Minh casualties have been estimated at 20,000. Wearing by the war that had become increasingly unpopular at home the French government accepted an international settlement hammered out in Geneva in July.

French prisoners of war were initially well treated by the Viet Minh. However, as peace negotiations dragged on the prisoners became political pawns and were increasingly neglected.

Dien Bien Phu village is now considerably larger than in 1954. There is a large museum housing memorabilia from the battle. It also has a large diorama of the battlefield that lights up to display features in time to a film outlining the battle.

HUE AND THE TET OFFENSIVE

VIETNAM was experiencing disastrous floods while we were visiting and Hue was particularly badly affected. All flights in and out were cancelled but we were fortunate to have political pressure on our side which allowed Vietnam Airlines to run a special charter flight for our party. We were subjected to heavy rain throughout our 24 hours in Hue and the airstrip had more than a passing resemblance to a paddy field. Of concern to some members of the party was the closure of the Apocalypse Now bar due to flooding. This prevented them

from completing a hat trick of Hanoi, Saigon and Hue Apocalypse Now T-shirts.

Hue was made famous as a result of the Tet Offensive of 1968. This offensive was planned to be a major joint North Vietnamese Army/Viet Cong attack taking advantage of the annual Tet celebrations and holidays. The offensive was aimed at shattering the South Vietnamese Army and dealing such a blow to the US Army that American public support for the war would crumble. It was also believed that the attacks would initiate a general country-wide uprising against the southern regime. The siege of Khe Sanh, an American firebase in the north of the country, was mounted simultaneously as a diversionary operation. Although the offensive had military aims there is little doubt that the primary aim was political.

In the event a Viet Cong mix-up led to some attacks being mounted 24 hours early. This probably resulted in increased southern complacency as intelligence indicators had been received of a major Communist offensive and the premature attacks, which were easily contained, persuaded many that they constituted the sum of the threat.

Taking advantage of the Tet celebrations, Communist soldiers mingled with the holiday crowds to smuggle weapons into towns and cities. Altogether 84,000 Communist troops were fielded to attack 36 of the 44 provincial capitals, five of the six autonomous capitals and 64 of the 242 district capitals.

By dawn on 31st January Communist troops had seized all of Hue except for a small enclave of South Vietnamese troops and US advisers. It took 12 days before most of the New City was relieved and the Imperial Palace in the Old City was not taken until 24th February. The US and South Vietnamese suffered 531 dead to the Communists' 5,113. Up to 5,000 South Vietnamese civilians on political "hit lists" were executed during this occupation.

Further south in Saigon, Viet Cong sappers' targets included the presidential palace and the American embassy. Knowing how long it would take journalists to arrive at the embassy the Viet Cong planned an attack with the aim of maximizing publicity. The embassy assault was easily countered. However, pictures of US civilian staff helping to dislodge enemy guerrillas followed by pictures of the same guerrillas lying dead on the well-kept embassy lawns came as a

shock to the American people who had been led to believe that the war was being won.

Militarily the offensive was a blow for the Communists. They lost an estimated 30,000 men, indeed the Viet Cong was rendered largely ineffective and the forecast popular uprising did not occur. Politically however the offensive was a great success, achieving a massive swing in US public opinion against the war and ultimately leading to a US withdrawal.

During our visit to Hue we were fortunate to be joined by Tom Eagen, a former US marine officer who had fought there in 1968. On a tour of the town he explained that the marines were completely unprepared for street fighting and undoubtedly took casualties early on while developing new tactics which included:

- Using artillery to destroy buildings. This was particularly effective against the lightly-clad local buildings.
- Developing simple infantry/armour cooperation. This included the use of tanks to lead assaults in built up areas and to evacuate casualties. Communist troops were not well equipped with anti-armour weapons and tanks therefore survived.
- Using the Ontos, a tracked and lightly armoured vehicle carrying a six-barrelled recoilless rocket launcher, to blast a way forward. This was particularly used to provide direct covering fire when crossing road junctions.
- Using the Perfumed River, that runs through the city, to manoeuvre and resupply units.

While much of the town was destroyed in the fighting and has subsequently been rebuilt, the imperial palace in the Old Town still presents an impressive appearance. The Red flag that flew briefly over the citadel at such cost in 1968 now flies there again.

There is a museum of the war near the citadel with its obligatory collection of rusting memorabilia and ordnance. Here we were regaled with the story of the nine communist girls who wiped out a US battalion. Unfortunately our hosts were unable to confirm which battalion suffered this fate.

SAIGON

FROM Hue we flew to Ho Che Minh City, more commonly known as Saigon. Saigon is more western-looking and developed than Hanoi. Mopeds, cars and traffic jams, have replaced bicycles and bicycle-rickshaws. The pace of life is faster and less pleasant. Costs are generally higher and there are more foreign tourists and

businessmen. Many restaurants have been established to cater for western palettes. Vietnamese food is a mixture of French and Chinese dishes with fewer spices than either. Although we were keen to sample local food, the chicken's penis on offer at one restaurant was a temptation we managed to avoid.

In Saigon any lingering doubts I might have had about the star rating of the local hotels were dispelled. Each floor of the Rex Hotel boasted a servant to attend the luxurious air-conditioned rooms 24-hours a day. The complementary silk robes were ideal for lounging in the room with a gin and tonic or for the short walk to the rooftop swimming pool. When my adjutant needed to get in touch with me he was able to send a fax direct to my hotel room.

Our stay in Saigon was not a rest cure however and we had two busy days with much travelling in a cramped bus to visit a number of sites.

14th December was set aside for a visit to Ap Bac, scene of a battle in 1963 between the South Vietnamese Army with US advisers, and Viet Cong guerrillas. Two battalions of South Vietnamese infantry advanced towards Ap Bac with orders to destroy a radio transmitter. As the battalions advanced they came under fire and called for helicopter-borne reinforcements. The Viet Cong were undeterred by artillery shells and napalm and stood their ground. As the helicopters arrived they opened fire and disabled two troop carriers and a gunship. The South Vietnamese were also supported by a section of newly deployed M113 armoured personnel carriers (APCs). The APCs were able to manoeuvre effectively in the paddy fields but were unsuccessful in breaching the Viet Cong positions behind a dyke. As night fell the guerrillas slipped away leaving 18 dead against 80 South Vietnamese and three Americans. Lt Col John Vann was the US adviser on the ground. He described the showing of the South Vietnamese Army as "... a miserable performance just like it always is."

The Viet Cong won by their courage and determination. A force of 350 guerrillas had fought off a force four times more numerous and equipped with APCs, artillery, airpower and helicopters. The South Vietnamese commanders were considered to have displayed an alarming level of indecisiveness. Some heroism had been displayed however, particularly by the machine gunners on the APCs whose guns were completely exposed. All of them were killed during

the assaults and as a consequence a shield was later fitted around the guns. The APC section commander had felt hampered by political considerations. He assessed that he could get his APCs onto the top of the dyke behind which the Viet Cong were sheltering but that they would then run the risk of becoming stranded and destroyed. The APCs were new into service. Major losses at this early stage could have resulted in a political and morale crisis.

The battle at Ap Bac is commemorated by a small museum at the site and by silhouette models of APCs and helicopters in the paddy fields to mark the ebb and flow of the battle. The village has grown considerably since the war and a new school occupies the site where one of the troop-carrying helicopters crashed.

On 15th December we were scheduled to visit Firebase *Coral*, an Anzac position some two hours' drive from Saigon. It quickly became apparent that there was a significant difference of opinion between our local guides and the bus driver over which was the best route to take. At one stage as we travelled down a particularly small track our bus driver was concerned by the state of a small bridge in our path. I was invited to carry out a quick bridge classification, which thankfully proved accurate, and we carried on. Unfortunately we continued to be geographically embarrassed and never found the battlefield. We were forced to settle for a map brief on the battle over a cold drink.

The Anzacs considered themselves to be experts on the occupation of firebases but a number of problems occurred with the insertion into *Coral*. They found themselves unbalanced at the end of the first day of the operation and had a tough fight on their hands. An Anzac officer briefed us on the battle and the general lessons learned during the war.

Unlike the Americans, Anzac units were formed and underwent six months' collective training before deploying to Vietnam. This was considered to be far better than the US system of trickle posting individuals into existing units. The predeployment training, including jungle training, was also considered to be of significant value. Very heavy artillery support, including the frequent use of "Danger Close" missions, was found to be critical. All soldiers were required to fight as infantry at some stage during their tour. The Anzacs deployed Centurion tanks and these were found to be extremely valuable.



Tunnel entrance. Cu Chi.

Having missed *Coral* we moved on to visit the tunnels at Cu Chi. This site has become a major museum where a tunnel can be seen as well as a film show and photographic displays. The obligatory propaganda was evident with photographs bearing captions such as:

"Strategic hamlet inhabitants rised up to wipe out tyrants and oppressors and to secure civil rights."

"The Cu Chi woman guerrillas stirred up so much panic among the enemies."

"The Saigon soldiers, being in extreme panic, took off military goods and equipment when running for dear life."

The tunnels at Cu Chi started as a series of individual air raid shelters for huts in the various villages. As the war progressed these were joined by



Tunnel Rats.
 Photo: Duong Thanh Phong (1967).

communication tunnels thus starting the development of a complex system. Realizing the potential of the tunnels for both security and to gain surprise for offensive operations some strategic direction was given on their construction but it is likely that local resourcefulness was the most important factor in the design and layout.

Ground conditions around Cu Chi are particularly favourable for tunnel construction. The red laterite soil make a good construction material and the water table is typically 10-20 metres below ground level, allowing tunnels to remain dry. All construction work was carried out by hand using simple tools and the extraction of one cubic metre of earth per day was considered to be the norm. As tunnels developed they incorporated increasingly complex layouts and some included four or more levels linked through trapdoors. Tunnels contained kitchens, latrines, hospitals, workshops, theatres and temporary

graveyards. Traps were frequently incorporated into the construction. One tunnel was found to be built around a buried M48 tank.

In the early days when tunnels were uncovered only a cursory inspection was undertaken but it was later realized that they might provide a useful source of intelligence and more intensive explorations began, leading to the formation of units of tunnel rats. Tunnel rats worked in small teams and would typically be armed with a pistol, knife and torch. A grenade would be dropped down the entrance shaft and then pairs of rats would be lowered into the tunnel. Torches were held to one side with pistols at the ready, visual contact was always maintained between pairs. On encountering a trap door shots would be fired through the trapdoor before it was lifted. Point man was always changed after every two trapdoors. No more than three shots were fired on any contact and the point man would then swap pistols with his number two who would reload.

Tunnel rats whistled Dixie on surfacing to avoid blue on blue contact. The tension of searching a tunnel can be imagined and tunnel rats were all volunteers. On one occasion a team penetrated more than a mile and a half underground without reaching the end of the tunnel.

When attempts were made to demolish the tunnels, hand grenades or explosives were used initially but to little effect. CS gas was also dispersed within the tunnels but this proved ineffective after only a few days. At times air blowers were used to force acetylene or CS gas into the tunnels and unsuccessful experiments were made with liquid explosives. It was estimated that to destroy 500 metres of tunnel would require 700lb of explosive, 300lb of calcium carbide and 50 gallons of water.

Entering the tunnels today gives an idea of how unpleasant life must have been within them. The tunnels are extremely cramped for westerners and progress is made on hands and knees. Tunnels are hot and there is no movement of air; we all very quickly started sweating heavily. The reports of wounded Viet Cong being treated in underground hospitals gasping for a breath of air and begging to be killed can be well understood. Little light is provided from the small wattage electric lamps that in the 1960s would often have been oil lamps with their inevitable impact on air quality.

The guides delighted in displaying a number of booby traps from the period and we were shown a great variety of cunning devices

incorporating spikes and swinging weights. The Viet Cong became masters of improvisation and much abandoned US equipment was employed in tunnel construction and in manufacturing arms. Large quantities of explosives were generally available from unexploded American bombs.

The tunnels started as a defensive counter to the American bombing of the free-fire area around Cu Chi. They were used for offensive and defensive guerrilla operations and were also the staging posts for North Vietnamese soldiers on the way south. Many of the guerrillas and soldiers assembling for the Tet Offensive against Saigon sheltered in the tunnels. Few returned and the tunnels became somewhat of a sideshow. They had a brief revival in 1975 when General Van Tien Dung deployed his HQ in the tunnels while planning the final assault on Saigon.

CONCLUSION

I WAS brought up at a time when the Vietnam war was everyday news. On researching the war before the tour I was surprised to discover how many misconceptions I had made.

The scale of the war was much larger than I recalled. Statistics such as 10,000 French aircraft sorties at Dien Bien Phu, 5,000 US aircraft destroyed between 1965 and 1973 and 500,000

North Vietnamese soldiers killed during the war brought home the scale of the conflict.

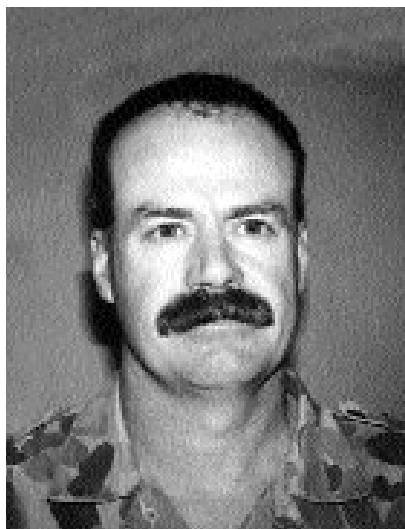
I also assumed that the US had lost the war. Former Consul General John Colvin had an alternative theory and suggested that the US involvement in Vietnam was a strategic success. Intervention was predicated on the fear that the fall of one Asian state to communism would be followed by the domino effect as others fell. By delaying the fall of South Vietnam until 1975 other Asian nations were able to develop in peace without undue external influence and were sufficiently strong to resist the threat of communism in their turn. Additionally, the US effort in Vietnam led to US/Chinese reconciliation and the historic visit of Nixon to China.

I had also thought that the Tet Offensive had been a major military victory for the north while the case was in fact the reverse. This was an excellent example of political success being wrested from military failure and underlined Ho Che Minh's grasp of the political implications of the use of force.

The tour was a wonderful opportunity to study the Vietnamese wars and to correct misconceptions. I learned a considerable amount about the history of the war as well as having the chance to examine the politics, strategy and tactics employed. I came home significantly better informed.

Combat Engineering On A Wing and A Prayer – Post-Tsunami Relief Operations in Papua New Guinea

MAJOR D C WREN, ROYAL AUSTRALIAN ENGINEERS



Major Doug Wren enlisted in 1980 as an army apprentice carpenter. Accepted for training at the Royal Military College Duntroon, he graduated into the Corps of Royal Australian Engineers in mid-1987. He spent the next three years as the well drilling troop commander in 22 Construction Squadron, Perth, then 12 months as recruit (B1) troop commander before being promoted to a captain aide-de-camp appointment in January 1991. Two regimental jobs preceded a posting back to Duntroon in 1993 and two excellent years as a field training instructor. Major Wren then served in Israel for 12 months as a United Nations Monitoring Officer on the Golan Heights before returning to Australia as an officer commanding in the 3rd Combat Engineer Regiment. Major Wren credits his time as an officer commanding with giving him the strength to manage his next posting as a student on the 1999 Command and Staff College course. He assumed his current appointment as senior instructor counter mobility at Minley in 1999, having established his family in Cove, sans dog and their treasured car.

WHAT is the best way to prepare combat engineers for humanitarian operations? It is generally accepted that we train them for war-fighting and adjust to suit each humanitarian situation. At least that is the major finding from my time as a squadron OC in a high readiness combat engineer regiment; a regiment directed toward war-fighting but in reality largely tasked to execute peace support operations.¹ This article illustrates some of the issues from a very short notice, high tempo humanitarian operation. I thank you in advance for your interest and hope that you will see that while the UK's forces have quite a deal of experience in this area there have been other, non-Balkans, operations in places much hotter and just as troubled.

THE TSUNAMI

THE 17 July 1998 tsunami hit the West Sepik area of Papua New Guinea (PNG) early in the morning and during the school holidays. Many survivors told of hearing the tsunami approach and thinking it was an aircraft flying low over

the village. Others told of their sheer surprise that a 13-metre-high wave could appear so quickly leaving them no time to evacuate. The disaster covered an area of about 10km x 40km containing approximately 10,000 people.² Many died from drowning and their bodies floated for some time in Sissano Lagoon, the centre of the population area. Some survived the initial wave only to be killed by a second wave of lesser height but no less ferocity.

At the time of our arrival, non-governmental organizations (NGOs) and local aviation firms were evacuating the injured to Vanimo, a 40-minute plane flight along the coast to the northwest. It has an excellent C130-capable strip fortuitously refurbished by PNG-based Australian sappers in the late 1980s. Vanimo also has the only hospital in the area, although the scale of the disaster soon overwhelmed its 12 beds and small (non-surgical) staff. Senior government officials had wanted to send casualties to Wewak in East Sepik, a one-hour flight south-east from Sissano. However, senior provincial

¹ Similar to "Other Military Assistance and Limited Operations" in "Design for Military Operations" (1996).

² The death toll later reached just over 2000 people, many of them children and the aged.

players made a strong case for keeping casualties within their *wantok* (family) systems and Vanimo consequently became the centre of the deployed force effort.

**PRE-DEPLOYMENT
TOWNSVILLE, 0100HRS,
SUNDAY 19 JULY 1998**

I HAD just returned to my office having completed my commitments on a brigade CPX with my battlegroup CO and his staff. On the verge of a few hours' kip I was awoken by my CO with the news that he wanted to see me in his office at 0400hrs. Now as many of you know, a message to see your CO at that time normally means one of two things. You have said something far too controversial the night before or he has a job for the squadron that can't wait until Monday morning! Luckily the latter applied and when I arrived, Lt Col Rod West hit me with three bits of news – a tsunami had destroyed a large part of the northern coast of PNG; he had been appointed the commander of CJTC 110³ the relief force; and my squadron HQ team and I were to take on the command and control (C²) of the relief area operations.

We knew little else about the operation at that stage but nonetheless spent the remainder of the evening working through several possible courses of action. Fortunately HQ 3rd Brigade⁴ staff and key formation players were still around post-CPX. This expedited the planning process and set what limited time we had for battle procedure in the right direction. My staff worked miracles by organizing an operation built on what was at that stage still an operation based on a deployable joint force headquarters – land⁵ (DJFHQ-L) warning order. By 0800hrs we had received direction to rendezvous with the majority of the force at the Townsville APOD⁶. The key relief element, 1 Parachute Surgical Team (1 PST)⁷ was to meet us in Port Moresby en



Map showing relative positions of Townsville, Port Moresby, and the disaster area.

route to the disaster area. Several readiness issues then set the whole show back somewhat. While it was clear that most of CJTF 110 could meet the four-hours notice to move, others could not. The RAAF had a major airlift planned for that weekend, having been tasked to move the rotation force for our Bougainville (province of Papua New Guinea) regional peace keeping force (in place to ensure a smooth transition to autonomy for the province from Papua New Guinea), and to provide substantial troop lift support to the year's major land force exercise. Both these activities required significant crew time and we were doomed to wait until the RAAF sorted it out! In the end 86 Wing⁸ performed magnificently and re-tasked three C130 lifts⁹ to move us to Port Moresby, 900km from the disaster area. Other players arrived from low readiness units and had to be quickly brought up to speed, medically, by our medical officer; it is surprising how many needles one can endure in 12 hours.

³ Combined Joint Task Force 110 – later to include French, NZ, USA, and Australian personnel.

⁴ The Australian Army's single high readiness formation pre-East Timor. 2 x BG supported in the engineer sense with an airmobile field squadron each.

⁵ The Australian version of the UK's permanent joint HQ – responsible for operational-level conduct of certain key Australian defence force plans – also formed the HQ for the international force in East Timor.

⁶ Airport of departure: a joint civilian/military airport with excellent military movement handling facilities.

⁷ Normally supports the airborne force.

⁸ 86 Wing command most C130 and tactical STOL squadrons.

⁹ One from Guam, via Darwin to Townsville!

On arrival in Port Moresby, Lt Col West, a medical representative and myself were whisked off to a briefing at the Australian High Commission, the location for the coordination of international and local support. Australia took the lead in the disaster management and coordinated support from New Zealand, France¹⁰, and the USA. The planning we had done at the unit and en route in the C130 crew compartment now began to come together. Given the scale of the disaster and the need for immediate care Lt Col West tasked me to move to Vanimo and establish a medical facility area that would, as our mission later read, “alleviate immediate suffering in the west Sepik area.” Major Paul Taylor, (ex-RAMC) OC 1 PST, and I briefed our teams and launched from Port Moresby at about 0300hrs, Monday 20 July. Paul and I had a clear plan for what was required on the ground and after a very short meeting on arrival in Vanimo, his team had their first patient on the operating table by dawn.

My squadron staff quickly set about establishing the myriad of things required to coordinate the force. The support provided by the locals was amazing as we had expected little left to use and possible trouble with accessing government infrastructure given the poor state of the government apparatus in that part of PNG.¹¹ Vehicles and fuel were provided free and, more importantly, a largely abandoned self-contained Army barracks was allocated as our deployed force site.

MEDIA

AN immediate concern for me was the presence in Vanimo of a massive media contingent, representing many different print and electronic media bodies. My media training at that stage had been quite scant but I soon got into the swing of things largely thanks to the brigade public relations officer we had deployed almost as an afterthought.

Many interviews later I found that Lt Col West had been right when he briefed me on handling the press. His advice to stick to our core message¹², regardless, and to publicize our successes, worked well and we soon found the media less intrusive. Moreover, we all felt that most of the

press supported our work and were quite willing to promote the force’s achievements.

HOSPITAL AND C²

HAVING established the medical facility we launched into a series of tasks to support the deployed force in Vanimo and outlying areas. These were at times quite complex as air support became scarce, communications failed and problems arose in handling the arrival of other relief teams. Examples of the latter were the arrival at various times of a US rescue dog team, a Japanese surgical team, Pakistani ophthalmologists and a French airportable surgical response team. These and other “participants” were part of the worldwide response to the disaster and they had to be moved through the system either to Vanimo or as in the case of the dog team out into the area of operation. Most issues were resolved at a twice-daily briefing, which provided the medium for both medical and support staff to clarify immediate and longer term concerns. I must say that never having worked for a medical team before we initially had difficulty coming to terms with their sense of priority until confronted with the reality that they were about making people well and most of what they required, while seemingly odd, was in fact nearly always critical!

MEDICAL SUPPORT

PRE-TSUNAMI medical care was provided by Vanimo hospital, and by the village church and NGO health centres. Barely coping under normal circumstances, these places lacked basic mass trauma commodities like oxygen and Xray machines. Paul Taylor’s team was able to provide the same level of medical care normally available in Port Moresby and, in some cases, provided by specialists in Australia.

Agreement was reached early on to move casualties to Vanimo and Wewak hospitals once they were fit enough to move. This necessitated the movement of civilian medical staff and supplies and became a quite complex, but nonetheless gratifying task.

We also established surgical teams at each of the five major care centres. This proved a real

¹⁰ Through the medium of a vague but nonetheless long-standing disaster management agreement.

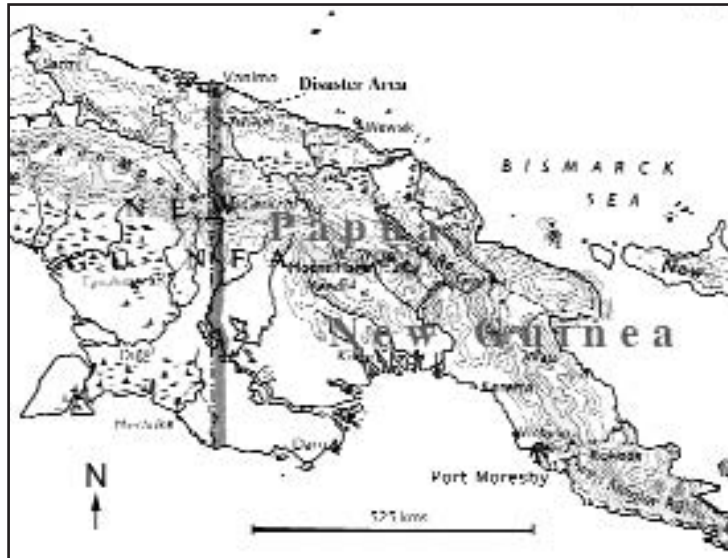
¹¹ The provincial governor had laid off his disaster management staff just prior to the tsunami.

¹² Cooperation with the PNG defence force and government, our role and end state.

success and not only supported those personnel in place but also provided us with an ongoing picture of the scale of the task. These teams were all fluent Pidgin¹³ speakers and well versed in operating under trying circumstances.

WAR-FIGHTING TRAINING – HUMANITARIAN EXECUTION

Lt Col West had been quite specific about our roles. He would remain in Port Moresby, at the operational level if you like, coordinating our efforts with the High Commission and DJFHQ-L, through his soon to be expanded staff. My role, at the tactical level, was to control and coordinate relief efforts in the disaster area. We learnt several lessons in this period. Firstly, there is no substitute for good communications. This was particularly so when we had to coordinate issues between Vanimo, Port Moresby and our village post-disaster care centres.¹⁴ We were indebted to our signallers for their skills both with modern satellite devices and third world trunk systems. Secondly, the value of a good civil affairs plan became evident. Having attended many early coordination meetings with provincial staff I was able to allow my sole civil military operations (CMO) Sgt to largely take over that role, as things became routine. He was a senior sergeant and a very capable CMO operative to the extent that he was an accepted part of the provincial planning team within a week of our arrival. Finally, my staff and many of our deployed personnel were from war-fighting units. Their ability to adapt to this unusual situation simply confirmed my belief that training for high intensity war-fighting is great preparation for this type of operation. This manifested itself in many ways but the most obvious to me as a combat engineer was demonstrated by our medical reconnaissance teams. We formed these around a combat engineer WO2 (plant) and a signaller, who



Papua New Guinea and Disaster Area.

took on personnel to suit particular tasks, the most notable of which was the initial casualty reconnaissance; providing badly needed information to verify the scope of the task. The combat engineer/special forces/medical/communications team flew around reporting back on what was actually required in terms of work for 1 PST, and on broader health and infrastructure support issues. This information proved critical to our subsequent planning and allowed us to re-direct scarce air, communications and medical resources. Information from this task also led us to open up an old airstrip closer to Sissano that RAAF Caribou (short take-off and landing) aircraft could use to move people to the main casualty clearing posts.

A GOOD PADRE

MANY personnel were employed in relative comfort in Vanimo. However, a substantial number were exposed to sights of mass trauma, death and the heart wrenching grief felt by the locals. Flying over the area did little to indicate the overpowering stench of decaying bodies that had been lying in the tropical heat. Thankfully Lt Col West deployed our regimental Padre,

¹³ PNG's national language.

¹⁴ Run by a special force patrol medic, a signaller and NGO staff.

Glynn Murphy, 24 hours after the initial deployment. Glynn and I spoke at length about the scale of the disaster and how it would affect our troops. To his credit he worked tirelessly to ensure that it was all put into perspective and people understood that there was little we could do to help the dead but much to do for the injured and displaced. He instigated several small-scale tasks that at once provided living space for families waiting for their injured relatives to recover. These people were miles from their village areas and feeling quite alone. Glynn also managed to persuade our Kiwi and Australian special forces patrol medics that by refurbishing an old school area they could play a big part in reuniting families. This directed their energies toward something positive and took their minds off the carnage they had witnessed in the village care centres. Glynn also undertook some very good liaison work with local clergy and was able to direct their efforts to support the rapid repatriation of families back to the Sissano area.

CLOSURE, END-STATE AND AIR SUPPORT

OPERATION *Shaddock* evolved through four phases. Phase one was battle procedure, deployment and the establishment of immediate medical coverage. Phase two included the treatment and short-term rehabilitation of the injured and the build-up of relief supplies in the disaster area. Phase three covered the repatriation of casualties to village areas by service and hire aircraft. Phase four ended the operation and redeployed the force home. Having discussed the first two phases I will now attack the latter two, the shortest but most demanding parts of the whole operation.

It took many meetings and several high-level VIP visits to put some meat onto our plan beyond the establishment and operation of medical and supporting facilities. The need to move families home became an issue not only in Vanimo but internationally. Many countries offered places for displaced people until they were ready to move home. However, this caused

some dismay to the PNG government which was quite practical in its desires. The government wanted those that could, to be repatriated to their villages as soon as possible to relieve the burden on Vanimo and to facilitate a return to normal in the disaster area. It is hard to fathom the strength of the ties these people had with their kin and their land. Many had suffered unbelievable trauma and loss but steadfastly wanted to return home.

Repatriation created a major challenge because up to that stage everything had been directed at medical care and pushing relief forward to Vanimo. During the first 72 hours we had handled on average 15 daily C130 equivalent flights into Vanimo, a strip normally used by utility helicopters and small twin-engined missionary aircraft! Still, air movement planners set to and provided a plan. The final repatriation to Sissano occurred smoothly and the RAAF created history by aero-medevacking the largest number of casualties since the Vietnam War.¹⁵ An additional bonus was the freedom given to me at this stage to hire local aircraft, something we had little experience of. PNG commerce and the local expat aviation firms are at best pretty relaxed. Hevilift¹⁶ provided most of the support and squadron members became adept at faxing off contract details, at times while the aircraft was already on task for us! This proved to be an excellent arrangement in particular given the lift support provided by their MiL and Huey utility helicopters.¹⁷ It was so humbling to have to beg for aircraft once we returned to the brigade fold.

An unambiguous and attainable end-state is every commander's ambition. Luckily DJFHQ-L gave Lt Col West such an end-state. In our case this involved the completion of all surgical cases, the removal of all casualties from the deployed medical facility, the closure of all contract arrangements, the hand over of all relief responsibilities and the redeployment to home locations of CJTF 110.

With a redeployment date agreed and patients gradually moving to Vanimo hospital¹⁸ we set about clearing up our contracts and tying down

¹⁵ A C130H bound for Wewak and Port Moresby with patients requiring further specialist orthopaedic and spinal care.

¹⁶ Also contracted to support non-warlike PNG defence force operations in Bougainville.

¹⁷ DJFHQ-L could not release Blackhawk or Huey airframes given their tasking in Bougainville and drought relief operations in Irian Jaya.

¹⁸ Now augmented with NGO surgical staff and mobile hospital facilities.

arrangements to hand over ongoing relief operations to the UN.¹⁹ We withdrew our special force medical teams over a three-day period and after a post-operational debrief with some senior military and foreign affairs staff we turned toward getting everyone home. Needless to say the RAAF had thinned out substantially by then and this caused much heartache, as we had to move home three times the size of force that initially deployed.²⁰

A final note on closure. The locals wanted to put on a “Sing-Sing”²¹ as a display of gratitude to the force. This was to occur one day after our planned redeployment and some had to be convinced about the value of the entire force staying for this activity. Padre Murphy made it quite clear that we had been on the go for so long that the locals had had little opportunity to thank us properly. To go would be rude. He also harboured a quiet hope that celebrating what we had done would go a long way to getting rid of some of our bad memories and allow personnel to see the good that had been done. The “Sing-Sing” proved to be an emotional event at which the locals festooned us with flowers and gifts as we walked from the ceremony area to the airport. Glynn had been right of course!

LESSONS – OLD AND NEW

WHILE many of the lessons we took away from PNG are commonplace they bear highlighting if only to show that the Australian Army is no different, when it comes to successes and failures, from that of the British Army.

Readiness. The majority of the force came from high readiness units and this allowed more time to be spent on broader issues like in-country tasks and not on inoculations or shipping plans. Having just finished a CPX also meant that my SHQ setup was handy and had just been exercised for a week. Ideal preparation some might say.

Air Movement. At one stage we felt that we were a bit like Alice in Wonderland – each time we looked skyward a plane landed and deposited something for us. That was fine until we realized that Vanimo was small and could only handle so much – we badly needed air terminal support forward. Air Movement also assisted our movement during the repatriation and redeployment phases.

Host Nation Support. A little like the ideal exercise. The locals and their elected officials could not have been more helpful. In particular they realized the significance of letting us get settled in order to get casualties cleared from the hospital.

Padres. Glynn Murphy confirmed the importance of this vocation. His ability to deal with the trauma problem was tremendous and in hindsight added much to our mission’s success. It should be noted that DJFHQ-L deployed a psyche trauma team to assess us in the field and they found that the majority of the team were quite at ease with themselves. As a footnote, Glynn also deployed with the 3rd Brigade and 3 Combat Engr Regt into East Timor as part of the initial lodgement in mid-1999.

Medics. Combat engineers do not normally provide surgical goodies like Stymen pins nor are they usually flexible enough to move blood and medicine at the requisite speed. After some initial concerns we convinced the medics that they could trust us to execute their requests as quickly through the deployed force network as they could organize them over a satphone through their home-based unit pharmacy. The fact that we moved mountains to ensure supplies were forwarded quickly also went a long way to enhancing good relationships with our medics.

Civil-Military Operations. My CMO training allowed me to appreciate early on what had to be done to get us enmeshed into local disaster relief issues. This was largely left to our CMO sergeant and he worked tirelessly to provide the nexus between government/NGO and the deployed force. He also confirmed that a smile and a handshake will do wonders when things are not going as planned. He became so accepted that when it came time to leave we had to drag him out of the arrangements he had made.

Media. Seldom had we seen so many people clammering for information about our work. Yet we realized that our story had a short shelf life and that we needed to make the most of having reporters in our area from agencies like Reuters, CNN and *The Times*, all happy to promote the success of the operation.

Training and Tempo. It has been said time and time again – good training is essential to

¹⁹ UN recce parties had been in the area since day one and had proven a real help in this transitional stage.

²⁰ Nearly 200 personnel, including civilian medical staff, deployed into Vanimo.

²¹ A native celebration involving dancing and singing.

prepare for operations. In the case of CJTF 110, many personnel were from lower readiness units and perhaps lacked some of the requisite stamina and basic skills. Conversely, our sub-unit and unit training had prepared my team well and they subsequently adapted to high tempo operations.

CONCLUSION

MY memories of Vanimo will last forever. Previous exposure to humanitarian issues had

largely been during my time as an UNMO in Palestine and were really quite different from the “in-your-face” situation in PNG. Operation *Shaddock* also confirmed my faith in the Australian Army’s ability to deploy at short notice and to adapt fundamental war-fighting skills to suit situations a lot lower down the spectrum of conflict. To be able to help the PNG people was quite an unexpected, but nonetheless important diversion for our very small and close-knit combat engineer family.

Corps Hockey in the Nineteen Fifties

MAJOR E G M PEARCE

RECENTLY, Major General Peter Pellereau wrote an article recording the Corps' splendid achievements in the Army Cup in the late forties. It occurred to me that some Sappers, ancient and perhaps modern, might like to know how Corps hockey progressed into the fifties.

By 1950, the Corps had revived and built up its pre-war fixture list, which included all the top London clubs and Cambridge University. Only Oxford University was missing – but more about that later.

To achieve this, the Corps must have raised a very good team and some able administrators. After a little research some key names came to light. They included Pat Ronaldson, Peter Pellereau, Steve Goodall and Jerry Duke. Others involved were A Perkins, J G Hanson, Eric Valdo and the splendid goal keeper, WOII Kent. There were also two excellent full backs; Peter Park and Peter Jackson. Four other key players of that period came through into the Fifties teams. They were Frank Reynolds, John Glaskin, Dodger Green and Danny Daniels. Apologies to those left out in that early period, and in the later period for that matter, but it is fifty years ago!

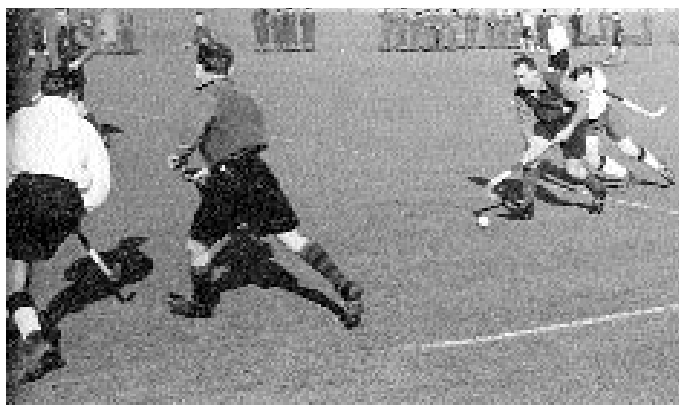
From 1951 to 1959 the Corps team was undoubtedly one of the top club teams in the country. In our London circuit only Hounslow, Southgate and Old Kingstonians concerned us. Cambridge University, who trained six days a week, were a bit hectic to cope with, but making them chase the ball, using the Corps' passing skills, soon wore them out and they were usually defeated fairly easily.

At one stage the Corps team were undefeated for three seasons, not too surprising in the view of the talent available. At full strength there were Dodger Green, the 1948 Olympic left-wing, and John Glaskin, who played centre-forward for Great

Britain. In the half back line there were Frank Reynolds, the 1948 Olympic centre-half and Dennis Eagan, the 1952 Olympic centre-half. There was also Danny Daniels, an England final trialist (the England place being held by ex-Sapper John Cockett). Add to this Combined Services players Roy Quinlan, Stan Ireland, Ronnie Proctor and Maurice Turner, the latter getting an England Cap a little later.

With a team based round these players one could expect good results. However, there was a major snag. Immediately after Christmas, the Army started playing in much the same London club top circuit, training up for the Inter Services matches. The Corps team lost between six and seven players every Saturday. So the Corps had to take on top teams calling in reserves from various regimental teams which probably rated about fourth or fifth in London Club XIs. Much credit was due to these players and the much weakened Corps side was rarely defeated although there were many hard fought rear-guard actions.

Now and again there was much merriment when the reserve, or "amateur", team defeated a team that the Army had lost to, even with all the Corps "professionals". There is no doubt that the Corps team provided an excellent base for players to develop skills and teamwork, enabling



Sapper/Gunner match 1952, Woolwich.
John Glaskin (GB) wrong foots a Gunner.
Dodger Green (GB) in support.

them to be selected to higher levels of hockey.

Mid-week, the Corps played other Corps and Regimental teams but only the Gunners began to give cause for concern. Not having defeated the Sappers for over twenty years, they put their devious Gunner minds to the downfall of the Sapper hockey team. A very keen major was put in charge of the plot, and, it being National Service days, he recruited every international player he could catch to the Royal Regiment.

Their great day arrived at Woolwich and with a star-studded team they set out to beat the Sappers.

The star-studded Gunner forward line was Right Wing Chris Key (England), Inside Right George Tembe (Oxford University), Centre Forward Richard Norris (England and Oxford University), Inside Left Ian Burnett (Scotland and Oxford) and Left Wing Stuart Hicks (England). Within fifteen minutes they had scored three goals. However, the Sappers got into their stride and by full time had won 6-3. They tried again at Chatham the following

year and the Corps won 8-3.

The Corps team at full strength was entirely regular, but the "amateur" side had excellent support from a number of National Service players. The Corps' overall success was not only founded on individual talents but several other factors. One was the splendid leadership of Dennis Eagan over a number of seasons. His pre-match briefings of opposing strengths and weaknesses were detailed and precise. Also his ability to change tactics and even strategy during a match were remarkable and very effective. He also blended the best of Indian and British styles of hockey, almost unique at the time.

A high standard of turnout was maintained and it certainly had an effect on some of the rather poorly-dressed civilian sides. Another factor was dedication. If selected the only excuse not to play was injury or illness. Unless you gave that undertaking you were not considered for the team. Now and again, military duties got in the way but were always disposed of at the



The Corps' moustached team.

LtoR: Inky Reeves, Danny Daniels, Dodger Green, Roy Quinlan, Eric Valdo, Bob Foley, Ted Pearce, Frank Reynolds (the only real moustache), John Humphries, Mike Batterham, Dennis Eagan, (John Glaskin took the photo).

highest level necessary! The only exception was overseas postings and even then AG7 were quite apologetic about it.

On a lighter note, getting the Oxford University fixture back from pre-war days was fun. For ages they declined a fixture as they played the Army, so why should they play a mere individual Corps?

A major joke was called for! A fixture with them was contrived at the prestigious Folkestone Festival. The plot was based on playing them with twelve men, the twelfth being Frank Reynolds. He didn't wish to play as he was playing for England in the afternoon. The ruse centred around Frank's huge moustache. At the start of the game, Frank introduced the Oxford Captain to a lined up Sapper team. All wore huge false moustaches and were introduced as "Frank This" and "Frank That". This ploy enabled Frank to go on the field with the rest of the team unnoticed. The umpires, having been well briefed, stopped the game after ten minutes and said "Sappers, you have twelve men on the field". We all looked round and said, who wasn't

selected? We then chased Frank off the pitch – we didn't need England and Great Britain's centre half!

Oxford's young men could hardly believe they had been hoaxed by a much older military group. They were even more put out when they heard that Frank had not touched the ball at all. In the event, the Sappers won 4-1. Within a few days, the fixture was restored and enjoyed for many seasons.

The plot did backfire in one respect. Trying to play hockey on a very windy pitch with a large false moustache was no joke at all!

In conclusion, it may help to revive some old memories if some other Corps players of those days are mentioned. Bob Gerhard (Wales), Inky Reeves (Combined Services), Bob Foley (Army), Mike Batterham (West), Gerard Noel, Tony Garrick, Roger Howard, John Humphries, Bill Askew, John King, Mike Harrison, Ian Mitchell, Alan Lloyd, Alan Blanford, J Cuff and J Williamson (the latter all Corps players). Apologies to those missed out.

It was certainly a wonderful experience and a great privilege to be part of the Corps team in the Fifties.

Operational Expeditionary Infrastructure Works The Air Support Way

MAJOR M A P J SULLIVAN P SQ(W)



Major Mark Sullivan joined the Corps as a Sapper in 1983, and after a tour in 9 Parachute Squadron was selected for officer training and commissioned into the Corps in 1991. Since then he has served in 22 Engineer Regiment as an armoured troop commander and squadron 2IC, deploying to Kenya, and to the British Army Training Unit Suffield.

After a short tour as officer commanding Engineer Wing and SO2 Engineer at the Royal Armoured Corps Centre, he was summoned to the dark side and completed the Professional Engineer Training (Plant) course before taking command of 53 Field Squadron (Air Support). Working closely with specialist teams Royal Engineers, he has deployed to the Middle East and Mediterranean to undertake many “fast track” expeditionary infrastructure tasks in support of the Royal Air Force, activating Pristina Airfield being the highlight. He has recently returned from a construction tour in Belize, and is about to take up a post within the Defence Evaluation and Research Agency.

AIR SUPPORT OPERATIONS IN THE MEDITERRANEAN

I HAVE been following the debate over the command status of specialist teams Royal Engineers (STsRE) with some interest. As a commander of an air support field squadron I have been fortunate to experience both sides of the debate. As the lead air support squadron, with 529 STRE under command, 53 Fd Sqn (Air Sp) Gp successfully completed an operational “design and build”¹ task to establish twelve Tornado GR1 at Solenzara Air Base in Corsica. Shortly after returning from this operation, the squadron was again on the move to set up an airport of disembarkation (APOD) at Pristina Airport in Kosovo. Once again 529 STRE deployed under my command; but this time with a startling difference. In Corsica 529 STRE was the military design authority (MDA) with the ability to work undeterred with the military construction force (MCF).

¹ Maj Carey Wilkes in his article “Designing Air Power”, Aug 99 *Journal*, describes 529 STsRE relationship with air support squadrons, and how the “design and build” concept works.

However, once on Op *Agricola* and in a LAND dominated operation, technical and financial control was held centrally by HQ BRITFOR and KFOR, and subsequently we lost the autonomy that had become the very life-line of the “design and build” concept to expeditionary infrastructure works. It is with these experiences, and many more working alongside 529 STRE that I swing my stick at the hornets’ nest stirred up by Major Daren Bowyer² to support his request for a review of how we as a Corps should undertake expeditionary infrastructure works on operations.

OPERATION ENGADINE – CORSICA

Background. Solenzara Air Base was selected as the preferred option for the forward deployment of up to 16 GR1 Tornados in support of Op *Engadine*, following a joint RE/RAF reconnaissance of various air bases in the Mediterranean over the period 30 Apr to 2 May 99. A forward operating base activation party from the squadron, with elements of 529 STRE under command, subsequently deployed to Solenzara

² “Skippy Goes to Skopje”, Aug 99 *Journal*.

Air Base on 13 May 99 to initiate the design and build of the operational facilities for the RAF. As the first designs were being resourced I called forward a field and support troop to undertake the tasks. On completion of the design phase 529 STRE returned to the UK on 25 May 99 to provide a rear based MDA capability. The squadron recovered on 15 Jun 99 in time to be redeployed to Kosovo.

Mission and Tasks. The squadron was tasked to establish Solenzara Air Base as a forward operating base for 12 GR1 Tornados, with the capability to reinforce to 16 aircraft. Provision for air transport was also required. The initial operating capability³ was to be in place by 1 Jun 99 and full operating capability was to follow as soon as possible.

The major tasks were to build/refurbish:

- Explosive storage and weapon preparation areas.
- Concrete aircraft revetments.
- An operations, command and communication centre.
- Domestic accommodation.
- Technical accommodation.

The total cost of the tasks was in excess of £900k and they were achieved, using a combination of works service contracts and military construction, within five weeks of the forward operating base activation team arriving in Corsica. The deployment was very successful and demonstrated the unique capability within 12 (Air Sp) Engr Bde to “design and build” expeditionary facilities to a critical operational deadline.

A Step in the Right Direction. The major step forward that enabled this expeditious and complex task to be completed to meet the operational time-lines was the initial deployment of PJHQ civil secretariats (CIVSEC) with the activation team. With direct access to CIVSEC our designs were quickly given financial support. Moreover, before they left theatre, sensible delegated authorities were embedded within the RAF detachment to support the MCF’s standing contractual delegation and resources procurement. The ability to setup and manage civil contracts greatly enhanced the MCF’s capability. However, the operation

was not without its frustrations. When the CIVSEC left theatre and the delegated financial authority would not cover the cost of a project, a 36-hour delay was imposed until CIVSEC authorized the expenditure. And likewise with contracts, most exceeded the delegated authority and had to be referred back to Defence Estates; although I must add that Defence Estates was very quick with a positive response. The “design and build” doctrine developed by air support Sappers is not perfect, but it is a big step in the right direction.

OPERATION AGRICOLA – KOSOVO

Background. Pristina Airfield was selected as the preferred option for the NATO APOD to support military and humanitarian operations in Kosovo. As part of a joint reconnaissance team, a four-man RE component deployed to Macedonia on 10 Jun 99 ready for the move into Kosovo on K-Day (12 Jun 99) only to see Russian forces from Bosnia take control of Pristina Airfield. After a seven-day stand-off, during which the key components of a “design and build” team deployed to supplement the force, the reconnaissance team flew into Pristina Airfield behind a Russian AL76 to start the long negotiations that would determine the future of the APOD. The *Helsinki Agreement* and *Military Technical Agreement* brokered with the Russians became the baseline for all works on the APOD.

Mission and Tasks. Once it became clear that the Russians, although responsible for all infrastructure matters under the *Military Technical Agreement*, had no capability to undertake the work, Commander British Forces Pristina gave the MCF the mission “... to design, resource and complete the infrastructure works necessary to allow daylight military and humanitarian flights to operate from Pristina Airfield.”

The major tasks were the:

- Bed-down of RAF personnel including temporary field accommodation foundations for a 625-man camp.
- Repairs to, and provision of, utilities in the air terminal and fire station.
- Construction of the air traffic control tower and joint operations centre.
- Repairs to the aircraft operation surfaces, including scab and crater repair using bomb damage repair mats.
- Construction of the NATO heliport on the northern taxiway.

³ The number of aircraft sorties with a set payload that can be achieved in any one day.

Only when the military mission tasks had been designed and resources procured did the remainder of the squadron deploy to undertake the works. Once the works phase was underway, 529 STRE again recovered to the UK to provide a rear-based MDA consultant service.

Command and Control. Before reading on to discover the constraints placed upon the MCF, they must be put in context against the complicated coalition command and control arrangements, not only for the squadron but also for the APOD as a whole. In the operational chain, HQ KFOR Chief G3 (Air) commanded Chief of Air Movements (NATO title for Commander British Forces APOD Pristina). As a HQ Strike Command asset, the squadron was commanded by Commander British Forces APOD Pristina and was considered a KFOR asset; it was certainly employed as such. In the administration chain, the UK RAF detachment had brigade status, and therefore was under administrative control of HQ BRITFOR. Consequently, 53 Fd Sqn (Air Sp) had to use the engineer logistic system to procure materiel for national tasks and the NATO Accounting and Management of Services Agency (NAMSA) for KFOR tasks.

The dynamic and efficient “design and build” concept developed in Corsica was immediately checked and stifled in a joint and coalition environment. With no credible delegated financial or contractual authority from either headquarters it could not take advantage of works service contracts to enhance capability to deliver the operational requirement in good time. More worrying was the lack of authority to control either the quality or safety of the contractors employed by NAMSA and HQ BRITFOR to work on our sites. The central control of finance and contracts degraded the MCF’s military efficiency to the point where it was at times ineffective. To overcome this inertia I deployed a resources specialist team to the point of purchase – KFOR rear and the engineer logistic squadron in Macedonia – to procure and deliver materials to the APOD. This measure provided a relatively “fast track” capability, but in no way compensated for the autonomy experienced in Corsica.

G3 OPERATIONS VERSUS G4 INFRASTRUCTURE

Allies or Adversaries. At times it seems as though these two worthy allies too often become adversaries when undertaking expeditious

infrastructure works. The bones of this conflict I believe lie in the sometimes dogmatic adherence to “Royal Engineers Technical Directive No 2” and the project manager’s and planning supervisor’s (usually one and the same on military projects) responsibilities to “Construction Design Management (CDM) Regulations”. The unconditional adherence to these two documents rather than supporting the need for the MCF and MDA to work hand in glove to achieve the operational requirement, created delay and despondency for both parties in Kosovo. Please don’t think of me as some maverick taking construction law and procedures into my own hands. I am a great advocate of the procedures in the first document and the legislation of the second. What I wish to promote is a more realistic and user-friendly interpretation that encourages teamwork, speed and excellence when faced with expeditionary works.

Royal Engineers Technical Directive No 2. This document is a marvellous procedural directive on how to undertake a construction task from conception to completion. Without it much of what we take for granted as best practice would not be with us. However, it does have its limitations and would benefit from its first amendment. The process of initial and detailed reconnaissance followed by a works report and confirmatory reconnaissance is somewhat long-winded for operational works.

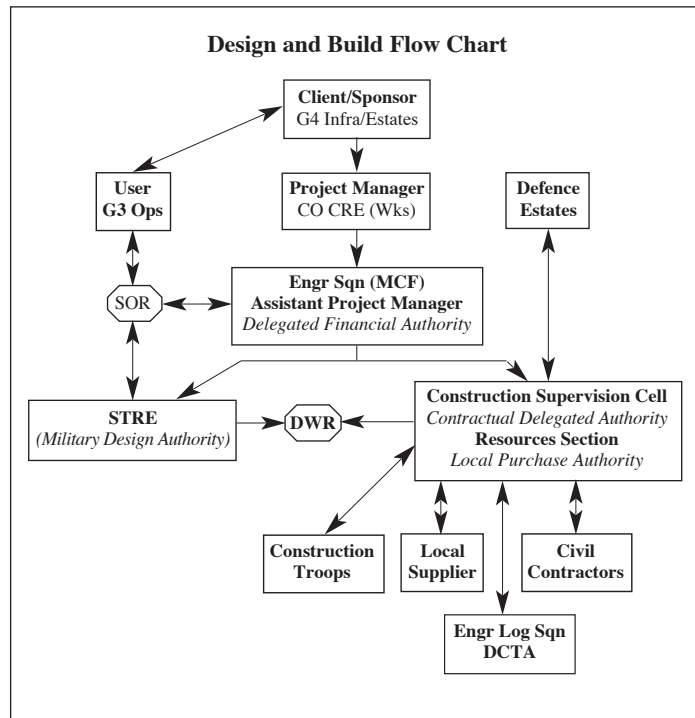
Many operational deployments forgo any form of reconnaissance until the MCF and MDA arrive in theatre. It is then even more important that they work closely together. The OC of the MCF determines the requirement with the user (read the next paragraph before shouting “client not user”) whilst the OC of the STRE develops his designs to meet the operational constraints of the user and the resources available. This approach supports the need for a design and works report format within which the responsibilities of both parties to the project manager and CDM are fulfilled.

Project Management and CDM Regulations. As I understand it, the project manager’s responsibility is to ensure that a client (or sponsor in the case of the military) gets value for money and, in his planning supervisor role, that the works are conducted in accordance with CDM regulations. Fundamentally G4 Estates stands as the military client and a representative from the Military Works Force,

normally a CO of a Commander Royal Engineers Team, the project manager and planning supervisor. He in turn nominates a design authority and agrees the principal contractor. This works well in the military when the client has more than an administrative and financial responsibility for the project. Unfortunately at times the client (G4 Estates) only has a limited understanding of the user's (G3 operations) requirement. The act of retaining a demarcation between the design and construction responsibilities can delay the provision of important facilities, which in turn may reduce the operational capability of the user. The MCF commander, acting as assistant project manager, can work with the STRE under command, to "design and build" the infrastructure required by the user without compromising CDM. The Military Works Force should retain the project manager and planning supervisor roles, as ultimately they must be the interface with the client. However, as Lt Col D W Taylor so wisely said "Neither OC will meet the higher commander's intent if he forgets that flexibility and cooperation are more important than treading on each others toes." To avoid these unnecessary confrontations let us, as a Corps, develop a "design and build" doctrine that will ultimately support our vision for the next century – a highly professional, capable and flexible Corps of military engineers.⁴

COMMAND STATUS OF STsRE

Now to add to the long and controversial debate over the command status of STsRE. Many arguments, such as competence, financial probity and conflict in command have worked in favour of an STRE retaining its command status. But I find myself agreeing with Major



Daren Bowyer, that in an operational environment the STsRE should come under command of the field squadron. The Corps is organized to provide specialist support at all levels. At close and general support⁵, squadron commanders take time and considerable energy to understand and reinforce their superior commanders' intent and concept of operations. It is this knowledge coupled with the technical expertise of the STRE that should determine the infrastructure requirement. As a squadron commander in 12 Bde I believe the air support way of doing business, described earlier in this article, has a wider application in the Corps. The fact that air support squadrons are established with construction supervision cells is a distinct advantage and one that greatly assists us in having a close relationship with STsRE. However, a component of a regimental construction supervision cell under the command of the MCF commander could provide a similar capability.

⁴ An extract from the "Engineer in Chief's Vision For The Corps of Royal Engineers Into The 21st Century", Dec 99 *Journal*.

⁵ I include air support, airmobile, parachute and commando units in the term close support.

DELEGATED FINANCIAL AND CONTRACTUAL POWERS

THE contractual delegation for works services and the deployment of CIVSEC finance experts from PJHQ to Corsica enabled the fast track construction of the infrastructure required to activate the deployed operating base. Furthermore, the flexibility shown by Defence Estates when requesting single tender action above the delegated contractual authority displayed a true understanding of the operational imperative. In contrast, the lack of contractual authority delegated to MCFs in Kosovo, and the constraints⁶ placed alongside the limited delegated financial authority hampered operational effectiveness of units and significantly delayed the construction of important operational facilities. Minor items key to the completion of works could not be procured without entering into a lengthy debate, and with no authority to control contractors, the standard of contract work was invariably poor and their practices unsafe.

ONE-STEP FORWARD – TWO STEPS BACK

THE success of the expeditionary works in Corsica raised hopes that a culture change regarding the control of money and contracts was on the horizon – Kosovo shattered my optimism. I believe we should take the delegation of these powers to a new level and follow the lead of many other NATO forces⁷ and empower the MCF. The most dynamic and efficient method of undertaking expeditionary infrastructure works is for the MCF to be delegated sensible powers from the outset of an operation. I disagree with those who believe construction design and management and financial and contractual probity is unachievable in an engineer squadron: the OC, as the assistant project manager, is granted financial delegation, the garrison engineer contractual local purchase, with the resources NCO, and the STRE under command acts as the MDA. A

squadron commander has nothing to gain in short-changing the user and likewise must be prudent, as all expenditure must be justified to the project manager and client. Placing trust in the ability of squadron commanders to project manage works can only enhance the tempo and quality of operational construction tasks.

THE WAY AHEAD

TO bring all the proposed enhancements together whilst retaining the CDM responsibilities and procedures, the way in which we do business should change to a dynamic “design and build” method of project procurement. The project manager retains overall control of the tasks on behalf of the client, but instead of selecting a separate designer and contractor, he will be able to employ a MCF with a STRE under command. The MCF commander, acting as the assistant project manager and advised by the STRE, then liaises directly with the user to determine the statement of requirement. At this stage a rough order of costs is established and presented to the project manager. He in turn requests from the client the corresponding financial and contractual delegated authority for the MCF. This allows long lead items to be ordered and contract tender action to start. The STRE and works supervision cell then work closely together to determine the detailed design and works requirement. As modules are designed and resourced the construction troops or contractors start work. Once the design and works report is complete and the project manager content with the method of construction and, wearing his planning supervisor’s hat, that health and safety procedures have been met, then the STRE can re-deploy. A MDA representative may be retained to authorize variations and monitor the quality of works, but if the MCF has a dedicated works supervision cell, similar to those in air support squadrons, then they can complete design changes within their competence, and a representative may not be required. The MCF commander in accordance with Defence Estates contracts and RETD accounting procedures manages the project. He is answerable to the project manager for the completion of the project on time, to the required standard, safely and to budget. By combining the strengths of both the STRE and MCF and providing them with the delegated authorities to “design and

⁶ A financial delegation of DM10,000 was given to regimental commanders. However, before committing any funds all tasks had to be authorized by a SO1 Infrastructure at HQ BRITFOR.

⁷ Canadian engineer regimental commanders are delegated contractual and financial authority in the region of Canadian \$5M.

build”, future expeditionary infrastructure works will be a more efficient and effective component of the superior commander’s fighting power.

CONCLUSION

I HAVE not set out to be controversial but rather, using my own experience as a backdrop, to express the frustrations a MCF commander can experience, and recommend a way

forward to enhance the Corps’ ability to undertake expeditionary infrastructure works. Design and build should be the way ahead. It may mean a culture change on all our parts, but the benefits of rear basing STsRE at a time of overstretch, and enhancing the capability of the MCF and construction supervision cell with delegated financial and contractual authority, can only help prepare the Corps for the challenges of the 21st Century.

Journal Awards

The Budget, Investments, Membership, Scholarship, Memorial and Publications Committee announces the following awards for articles of special merit published in the December 1999 issue:

- POWER TO THE PEOPLE! RESTORATION OF POWER IN KOSOVO
by Colonel J M Heron MBE – £100
- BRIDGE CLASSIFICATION ON THE ADVANCE THROUGH THE KACANIK DEFILE
by Captain M P Walton-Knight – £75
- PREPARING FOR OPERATIONS IN KOSOVO
by Captain P E Houlston – £50
- LE GENIE – THE FRENCH CORPS OF MILITARY ENGINEERS
by Lieutenant Colonel J D Beaumont – £50
- AND THEY THOUGHT IT WAS ANOTHER SWIMMING POOL!
by Major G R N Holland – £50
- OPERATION AGRICOLA SEX SCANDAL
by Major R K Tomlinson – £50
- FAST TRACK CONSTRUCTION – IS IT POSSIBLE IN CROATIA?
by Captain S W Davies – £50

And annual awards for 1999 were agreed as follows:

- Montgomerie Prize** for the best article on a professional subject (£90 or set of Corps History):
Major M W Whitchurch MBE for AN APPROACH TO CLOSE SUPPORT FOR THE NEXT CENTURY
- Arthur ffolliott Garrett Prize** for best contribution on the technical aspects of logistic engineering (£120):
Captain M P Walton-Knight for BRIDGE CLASSIFICATION ON THE ADVANCE THROUGH THE KACANIK DEFILE
- Best Junior Officer Prize** for the best article by an officer of the rank of captain or below (£60):
Lieutenant D Holdsworth for A BRIDGE AND A PLAN AT DEMIR KAPIJA
- Best Article Of The Year** prize (£120):
Colonel J M Heron MBE for POWER TO THE PEOPLE! RESTORATION OF POWER IN KOSOVO

And awards for articles of special merit published in the April 2000 issue:

- JUST A BACK-ROOM BOY
by Colonel G Taylor OBE – £100
- AUTUMN IN KOSOVO
by Major General E Fursdon CB MBE – £100
- EOD OPERATIONS IN KOSOVO
by Major A W Phillips – £50
- CLOSE SUPPORT TO A LIGHT BATTLEGROUP – 9 PARA SQUADRON AND 1 PARA ON OPERATION AGRICOLA
by Major C L Tickell – £50
- CLOSE SUPPORT TRAINING FOR YOUNG OFFICERS – A COHERENT APPROACH
by Lieutenant L F Ngwenya – £50

Become British, Boy!

LIEUTENANT COLONEL P O M CHITTY MBE

WITH hindsight my life was changed when in 1949 I was sent as a brand new 2nd Lieutenant commanding two full strength field troops, on a road project in the New Territory of Hong Kong. I also had about 1200 Chinese coolies and their families as an added challenge. My colonel, in an interesting slant on incentive-led man-management, made the National Service subaltern under me an acting captain, probably to show him what a full career in the army had to offer.

Before my squadron commander was removed from the regiment, for putting his pet chimpanzee on the strength and payroll of the squadron and then promoting it, he espoused my cause and put my mini injustice to the colonel. It was explained to me later by the adjutant at a very personal hearing and very slowly, that Sandhurst trained officers were not eligible for acting rank. Curiouser and curiouser, I felt, but by that time the regiment was already a paid-up member of the “Mad Hatter’s Tea Party.”

For a while I enjoyed being somewhat piqued and sulky, but then I received a windfall from God, or rather Allah – a letter addressed to me as a captain in the Pakistan Engineers Reserve of Officers. This was probably because my father and I had both been born on the North West Frontier and I had omitted to read and act on the Nationality Laws that came following Independence in 1947. I casually flaunted my “promotion” to the colonel with the remark that it was nice that someone, somewhere, appreciated me. He countered with a supremely short and succinct reply. “Become British, Boy!”

So I did, at the High Commissioners’ Office and at a cost of fifteen Hong Kong dollars. But not a really true Brit, alas, just a British Citizen of the United Kingdom and the Colonies. Worse, my Naturalization papers were irrevocably stapled into the front of my passport, so there was no gainsaying my eastern origin.

And there was precious little gain in saying to the US immigration officials at JFK Airport some years later, that I was travelling through New York on a NATO Travel Permit, because the Brooklyn Brute claimed that he had no

NATO on his list of approved countries. That, no visa and the revelation of my pariah status from the front of my passport, caused me to be included on the illegal immigrant list, and I was confined paperless to the airport area for the next twenty-four hours.

A day and a night propping up the bars in the VIP lounges passed quickly, and just after dawn I was thrust onto an aircraft, after all the other passengers had embarked, by two heavily armed security men. With unholstered weapons, they handed my passport to the chief steward with an order not to give it to me until we had cleared US airspace. This secured for me both notoriety and interest and, much more usefully, a mass clearance of all nearby seats, allowing me to enjoy first class space within the tourist class.

But the next racist attack came from nearer home, from the vetting unit at Woolwich which picked upon the one really weak part of my eldest son’s Army scholarship application form – me and my origin. I wasn’t really surprised when the letter came, but faintly hurt for at that time there must have been thousands of illegal Pakistanis happily living in Bradford. Perhaps there were fewer of us in Hampshire, so we stood out from the crowd.

The questions posed in the letter addressed to me, a serving officer at the Royal Engineers Diving School were quite simple really, but surprisingly hard to answer – “when did you leave your village?” “Why did you leave your village and what was the name of your headman?” I think on this occasion I tried my best to answer their questions, although the last produced difficulties. I got around that by Indianizing the name of my father’s colonel which I had found on my regimental birth certificate. Ahmedadam Grantbahadur – was accepted without contest.

So far so good, but then two developments arose. Firstly the inevitable progression for my eldest son was from Army scholar to university cadet and finally entry to Sandhurst. A logical pattern most would have thought, for once on the educational gravy train then university and Sandhurst just followed on naturally. But not

so with the vetting unit, for each change of status had to be renegotiated by them, with the inevitable same three questions – “When did you...?”

Secondly, I had three further sons – conceived within five years – and although one spurned the military life, the remaining two joined big brother in the triple-vetting-fiasco. Thus, by close of play, I was to receive nine letters questioning my rural origins in Pakistan.

The first three I treated with some care trying my best to be helpful and polite, but by the sixth, a certain acidity was evident, provoked possibly by the fact that the vetting officer was a Gunner, so for his benefit I wrote the eighth reply in easy to understand single syllable words taken from “Postman Pat.” This initiative failed to derail the inevitable for I soon received a ninth and possibly the last questionnaire in the series from Woolwich.

By this time I had little to lose, so I sent two pages of doggerel verse explaining how some years before I had emigrated from Pakistan and had crossed the Channel to Dover hidden within a lorry load of coal from the Ruhr. As that very week the government had granted amnesty to all from the sub continent who had been in the UK for over five years, I suggested that my Pakistani origins now mattered not one iota – I was now legally British and so that went for my sons too.

After this I was rather surprised that my fourth son was accepted for Sandhurst without any obvious demur, although he claimed later that his platoon officer kept checking on the colour of his skin in both artificial and natural light, and his Guards company sergeant major, who had once been stationed (?) in Doolali at the end of the war, kept calling him off parade to take a “Chitty” to the adjutant. A small price to pay perhaps for their subsidized education.

Historical Perspective – 101 and the City of London

CAPTAIN K D FROST BENG



Captain Keith Frost was commissioned into the Corps in 1991. After completing 106 Royal Engineers Young Officers' Course and the Armoured Engineer Troop Commanders' Course he was posted to 31 Armoured Engineer Squadron in Germany, a tour cut short by the requirement to study for a degree at the Royal Military College of Science at Shrivenham. A Phase 2 training post promptly followed with 55 Training Squadron, cut short again by the opportunity to serve as Operations Officer in 5 Field Squadron, joining them in time for eight weeks on Exercise Grand Prix in Kenya. Currently in post as Adjutant 101 (City of London) Engineer Regiment (Explosive Ordnance Disposal) (Volunteers) he is a keen sailor, holding Army Colours for this sport.

INTRODUCTION

THE Lord Mayor of the City of London graciously granted 101 Engr Regt (EOD) (V) City of London status in recognition of its continued connection with the City. With this grant the regiment has been retitled to: 101 (City of London) Engr Regt (EOD) (V) with effect from 1 April 2000.

CORPS OF ROYAL ENGINEERS PERSPECTIVE

THE current EinC can claim direct descent from Bishop Gundolph, military engineer to William the Conqueror and builder of the White Tower of the Tower of London. Between Bishop Gundolph's time and this the Royal Engineers, and their predecessor units, have enjoyed a long association with the City.

The earliest recorded use of military engineers raised in the City comes from 1346 when Edward III directed Andrew, the Smith of the Tower, to select smiths and other artificers for him in the City of London. Some 314 engineers, gunners and other artificers were recorded as part of the besieging force at the siege of Calais and were also present at the battle of Crecy.

And military engineers have played a part in defence of the City. During the Scottish Rebellion of 1745, London was threatened and planning was put in hand to “. . . cause the

several entrances to the Cities of London and Westminster to be examined, and to consider forthwith what may be the most effectual means of stopping up or obstructing the same in case of necessity.”

The plan involved the erection of forts and redoubts at key points, linked by a line of communication with small bastions. Fortunately, the rebel army withdrew after reaching Derby and construction of the fortifications was abandoned.

Royal Engineers have also enjoyed more peaceful contacts with the City. In 1848 sappers and miners were employed to carry out a survey of London, including the City, prior to making “sanitary improvements”. To assist in the triangulation for this survey a temporary observatory was constructed above the cross of St Paul's Cathedral.

St Paul's is the site of the Kitchener Chapel which was dedicated to the memory of Field Marshal Earl Kitchener in 1925. The altar and the recess for the Rolls of Honour were provided by the RE Kitchener and War Memorial Fund, not only in remembrance of Earl Kitchener but also to the memory of all ranks of the Royal Engineers who fell in the Great War, including the Sappers and Miners of the Indian Army.

In more recent times Royal Engineers were involved in military aid to the civil community

tasks in St Paul's Cathedral. The funeral carriage of the Duke of Wellington, who died in 1852, had been stored in the crypt since his funeral and by 1973 was in a poor state of repair. The 18-ton carriage was dismantled and moved to Chatham where it was refurbished before being replaced in the crypt. In 1981 a month-long operation was mounted to refurbish the carriage again and move it from the crypt to the Duke of Wellington's ancestral home at Stratfield Saye. The latter task was commanded by Captain J M Gunns, now CO of 101 (City of London) Engr Regt (EOD) (V).

101 ENGINEER REGIMENT PERSPECTIVE

101 ENGR Regt is the only RE regiment based in London, and traces its history through two lines:

- It is a successor unit to the 1st Middlesex Volunteer Engineers, formed at Kensington in 1860. The regiment served as divisional engineers to the 47th (London) Div in France in WW1 and as divisional engineers to the 56th (London) Div in the Middle East, North Africa and Italy in WW2. In 1967 the regiment was disbanded as part of a major reorganization of the TA.
- During WW2 25 RE bomb disposal companies were formed, a large proportion being based in or near London. At the end of the war there was a major reduction in the number of units and by 1988 the Royal Engineers' bomb disposal capability, both regular and territorial, was vested in a single regiment. It was then decided that the four TA squadrons warranted their own HQs and 101 (London) Engr Regt (EOD) (V) was reformed.

A direct link to the City of London exists through the actions of bomb disposal officers during WW2. Heavy bombing of London started on 29 August 1940 and the City suffered as heavily as anywhere else. Approximately 10 per cent of all bombs dropped failed to explode and had to be dealt with by bomb disposal companies. The heaviest attack across London was recorded on the night of 16/17 April 1941 when 446 tons of bombs were dropped, resulting in 237 unexploded bombs. The City itself suffered worst on the night of 29 December 1940 when the Square Mile was showered with fire bombs and high explosives.



The CO 101 (City of London) Engineer Regiment (EOD)(V) receives the new regimental title from Alderman Clive Martin OBE TD DL, Lord Mayor of the City of London.

There are many recorded instances of heroism being displayed by the soldiers involved in bomb disposal during the blitz. One particular example highlights the problems and bravery involved in dealing with these. At 2.25am on Thursday 12 September 1940, a 1000kg bomb fell at the South West corner of St Paul's. The bomb failed to explode and penetrated under the clock tower. A 20ft-deep shaft was dug to the bomb where it was discovered to have a long-delay fuze protected by an anti-withdrawal device. No safe disposal method had yet been found for this type of fuze and instructions at the time were to destroy such bombs where they lay. There was little doubt that if the bomb had exploded the cathedral and surrounding areas would have been very badly damaged and a decision was therefore made to take a chance and remove it. The bomb was removed successfully after a three-day operation and was driven quickly, by the bomb disposal officer personally, to a bomb cemetery in Hackney Marshes where it could be disposed of safely.

Congratulations for saving the cathedral poured in from as far away as South Africa, and the Home Secretary recorded that "only the courage and tenacity of the officer, his NCOs, and the men prevented St Paul's being levelled to the ground".



The officer, Lieutenant Robert Davies, and Sapper George Wylie, were awarded the George Cross, and two NCOs received the British Empire Medal for this action. Sapper Wylie's George Cross was purchased by Charterhouse Japhet in 1984 and donated to St Paul's.

In another incident on 12 October 1940, bomb disposal officers defused a 250kg bomb in the Apothecaries Hall, making it one of the few Livery Halls to survive the blitz. The Society of Apothecaries made a presentation to the regiment in 1999 to commemorate this action (*see November 1999 Sapper, p196*).

Royal Engineers were also involved in demolishing unsafe buildings and in other work following air raids, including the removal of rubble and steelwork after a bomb exploded in the booking hall of Bank Station during the night of

11/12 January 1941 creating the "largest crater in London". To get traffic moving, a temporary Bailey bridge was constructed by the Royal Engineers and opened by the Lord Mayor on 3 February.

MODERN CONNECTIONS WITH THE CITY

THE regiment continues to have a strong connection to the City through its affiliation to five of the City's livery companies: the Carriers, Pattenmakers, Constructors, Lightmongers and Fan Makers.

The Honorary Colonel of the regiment was a Lord Mayor of London in 1997, Alderman Sir Richard Nichols, and the regiment has been proud to take part in the Lord Mayor's Parade in recent years.

The regiment continues to be based in London with 217 Field Squadron (EOD) (V) stationed close to the City in Holloway.

The black cat motif (*above left*) used by the regiment represents Dick Whittington's cat and symbolizes the strong links between the City and the regiment.

“ ... in my Army?”

LIEUTANANT COLONEL A J WILLIS TD BSc(H) MSc CEng FIMM MIQA AMICE



Lieutenant Colonel Willis has served for more years in the Territorial Army than he cares to recall, and in his “day job” he is part of a management team engaged in the construction of metros in the UK and Portugal. Currently recycling from one of the discontinued engineer posts at Divisional Headquarters to a more useful contribution as a Territorial Commissions Board vice president, and before probably grinding to a halt, he observes the demands for objectivity, consistency and deliberation on the part of the assessors in evaluating candidates as potential officers. The mechanics of the selection also provide an opportunity for energetic, and positive, introspection. Most of the readers of The Royal Engineers Journal will have recollections of the Regular Commissions Board or Territorial Commissions Board, or both (!). That the amusing, intriguing, or worrying, behaviour sometimes exhibited by the current aspirants may be merely a rehearsal of a common past is worth reflecting on.

“YOU touched green, number fourteen!” exclaimed the group leader. The deputy president and I exchange glances, and I feel my ritually expressionless face disturbed by the involuntary raising of my left eyebrow. For what seems like ten minutes the group stands motionless – no mean feat with one of them suspended from the green scaffolding over the “bottomless chasm”. But it is actually only a couple of seconds before the group leader continues, “so carry on,” his back to the group so that only I can see his pained expression.

But even that momentary aberration serves to yield much needed evidence about this grey group of aspirants on this grey and dismal morning. The furrowed brow of number seventeen catches my attention. He obviously failed to appreciate the humour, if that was what it could be called, of the situation; and seemed bewildered. He seemed at least a little intellectually challenged. Worse, he was actively seeking eye contact with the group leader. Was he seeking inspiration, or approval, or moral support in an alien and unsettling environment? I file a mental note against the opportunity I would later have when I interview him.

The Regular Commissions Board and Territorial Commissions Board process is a fascinating one. Often more fascinating for the

assessors than the candidates, perhaps. Their necessarily narrow field of vision will be focussed on the terrors, real or imaginary, of the assessment process. It is probable that they did not register the closing elements of the president’s address: the reference to being prepared to kill or even be killed; beyond the likelihood that relatively youthful enthusiasm and energy is likely to place them at risk during the leaderless and command tasks. Note, no euphemistic metaphors here. It is as well to realize from the start what – ultimately – may be demanded of those whose potential we seek to identify and realize. And it’s not the placing of oneself in harm’s way (well, if you’re going to fall into the trap of transatlantic euphemism, this one is more acceptable!), that is the issue. Our society is not totally honest when it reveres the sacrifices made by those who laid down their lives for us, but glosses over the not so melodramatic fundamental that Society may expect its soldiers to kill on its behalf.

The presence of physical and moral courage is something the assessment will address. But the attendant intellectual capability and the potential demonstrated to be trainable into what the Army needs are the more urgent considerations.

Number seventeen, cleaned up, changed and in his blazer, collar and tie, is now in front of me for

a brief interview. I, unlike the group leader and deputy president, know who he is, and something of his background. Why, I ask him, does he have a personal trainer? I'm not concerned that his background in "the City" is such that he can afford such a concept; and that having made the choice to apply for a commission, and recognizing the need for physical fitness, he has employed one. I am, merely, I say to gauge his reaction, intrigued as to why I witnessed him doing Garfield impressions by repeatedly throwing himself at, rather than over, the wall in the gymnasium. No lack of physical courage here. An interesting lack of imagination, though, if he hasn't recognized the damage he can do himself (the MoD property is not at risk). Imagination related to extension of immediate and relevant reality, that is. In terms of the application of imagination to "Asymmetric Threat" as explored by the Royal United Services Institute or Tom Clancy, all the candidates seem to be a little away with the fairies. Why, I wonder, do all candidates see themselves as contenders for the Army Board or as heroic players in some wide-screen drama? I, and the team, need to see how they relate to a reality which will oscillate erratically between tediously boring and bowel-grippingly personal. Anyway, what impression does number seventeen think his performance has made on us, me?

Constructed more or less scientifically to provide a more consistent quality of officer candidate in response to a wastage rate accelerated by wartime, the Commissions Board has refined the process of assessment to a degree of repeatable thoroughness and accuracy which is the envy of many modern management consultants. What would at first seem to be a concentration on numerical techniques in gathering and recording observational data should not be misunderstood as an attempt to reduce the complexity of human behaviour to abstraction or absurdity. Rather, given the relatively short time available to the assessors, the carefully derived and tested methodology is intended to provide a logic and formality to the identification and evaluation of aptitudes, skills, and traits, and a weighting for them in assessing potential. If the spark is there, can Sandhurst fan the flames? Is the spark there in the first place?

The key attributes to be explored comprise a profile of a dozen dimensions, grouped into four main categories which define the potential to successfully respond to training. Those potentials

which the Army requires can be generally categorized as intellectual, problem solving, physical, and personality and character. The regime of testing and observation is constructed to evaluate those dimensions which are more or less innate, and those which, although possibly dependant on the candidate's age, can be trained; and how the external imposition of stress may affect the ability of the individual to function as a leader.

Intellectual potential encompasses intelligence, educational standard (achieved, or imminent – at a pinch), and the ability to communicate using the written and spoken word. Intelligence testing covers abstract, numerical and verbal reasoning. These do not define explicitly; and they can be learnt – to a degree. But like most "psychometric" battery tests, and when taken in conjunction with other evidence, they are strongly suggestive of a candidate's comparative ability to solve a range of problems. Communication is not simply the ability to be understood, but the ability to assess and present reasoned arguments. Put all this together with a view of maturity and the age with which it should be consonant, intellectual drive and determination, and a view will be formed as to a candidate's ability to react to the challenges of change and demands in training, and beyond.

Problem solving potential is more or less the physical complement to the mental facility assessed in intellectual potential, the practical implementation of the intellectual capability. Given sufficient promise in the intellectual area, "problem solving" can be promoted and trained.

Physical potential speaks for itself. For the "*mens sana*" to operate appropriately, "*in corpore sano*" is a fundamental requirement.

Personality and character – the soul of the potential officer. Impact, interaction. The extent to which respect and trust may be engendered: being liked is nice, but by itself it will not necessarily provide sufficient currency for a leader in difficult circumstances.

Group dynamics on the basis of six to eight members of a syndicate have been found to provide the best mechanism through which the dozen dimensions can be measured. Individual attributes (such as number seventeen's ability to get over individual obstacles) aside, the interaction between the aspiring leaders is observed by directing staff whose *modus operandi* must be as impartial and neutral as possible. Aside from intervention if and when the group grinds to a

halt, we stand much as cows looking impassively, and with only generally benevolent disinterest, over the hedge into the field in which our team members strive to overcome the various tasks we set them.

And the assessors? The matrix of cells produced from interviews and testing “events” on one axis against the twelve dimensions on the other axis contains some one hundred numerical entries variously supplied by four experienced officers, three from an all-arms background, and an educationalist.

However, *reductio ad absurdum* by way of numbers on the final Boarding conference screen is not the aim. As soldiering, at the commissioned level at any rate, is greatly a matter of interpersonal relationships (from the extreme of long range message delivery through the medium of direct fire weapons, to the very personal arena in which you have to convince others that this grid square is worth dying for), the assessment system must allow for input on the basis of intuition and experience.

And why not? Consider the output from computer analysis of quantitative data. To succeed it will have been achieved by rapid application of a programme designed to manipulate variables into which a statistically large population of data has been fed. If you consider the most advanced computer available, the human brain, and allow intuitive sub-routines to function within the programme parameters of the Board, to operate on the data of experience, why should the output be considered any less valid?

If we’re looking for validation and verification, it gets better. We can even become management-system trendy and present a case that the principles of ISO 9001 applies to the process. Under clauses 4.4.7 and 4.4.8 it is even possible to verify and validate your design to select suitable candidates. For example, as well as the four officers of the “contact” team concentrating on the candidate, the Regular Commissions Board has advisers who will be on hand, and the Boarding is likely to be attended by the president; also, as often as not all the above-mentioned will be present whilst assessing the most “difficult” candidates. There’s credibility.

But, from where is “difficulty” likely to arise?

I look back from his CV and supporting reports, into the eyes of number seventeen. “Why do you want to be,” I ask, “an officer in my Army?” I have to personalise it. It is a question which has

to be asked without humour, but without arrogance. Just at the moment I should represent, to some extent, that towards which this youthful individual presumably wishes to aspire. I am the custodian of a concept and philosophy, indeed a history. Do I project the correct image to this candidate? Given my years, do I appear appropriately distinguished; alternatively am I at least, in Billy Connolly’s words, wind-swept and interesting? If I can’t manage that, then this is fraud and perhaps I should indeed retire. I must at any rate avoid sounding patronizing and pompous.

“I think I will be a good leader,” comes the reply. I think: excellent, that means I can get right to the heart of it. “What is leadership?” While he pauses I look even more directly at him. But I focus beyond him, right into the experience of another past, with all its embarrassments, some triumphs, failures, doubts, the sodden discomfort of a stand to in the dark heat of the jungle, exhaustion in the driving rain and fear on a mountainside, petulance in the biting cold of a desert sunrise, close companionship in shared difficulties, the sadness and humour.

The text book will cite all the positive and desirable leadership attributes. How did I answer the question? Did I live up to the expectations of others, or myself? If objectivity has been preserved, and self-delusion dispelled, I should certainly know that for myself. At any rate I have a responsibility to be as accurate and sure as I can with this candidate.

Number seventeen provides his answer.

In fact, I think to myself, why do you want to be in the Army at all? It might be that in this context it is an unfair question. After all, the candidate’s here; and all we’re charged to do is to run a comparison of this individual’s inventory of physical, intellectual and temperamental attributes against our yardstick. But understanding motivation is part of getting into the deeper, darker areas of your potential officer’s soul. Asking the question invites a response which need be no more complex than admitting perhaps, “because I’ve always wanted to be;” delivered with only enough nervousness to allow a measure of self-awareness. Self awareness is what it’s all about; it’s in the other “selves” that liabilities are found.

After the closing race, the deputy president bids his charges farewell. In the next few days, he informs them, they will receive the Board’s decisions. They should bear in mind, he adds, that

whatever the verdict, it has been reached with two considerations in mind. Firstly, are the qualities demonstrated by the candidate in accord with those particular and peculiar to the Army's needs? Secondly, in the event that the former is not the case, the decision does not imply failure, and is made with a view to what is best for the individual. Best wishes for the future, and success in whatever venture you undertake.

The final Boarding takes place. The final Boarding conference screen is projected onto the wall. Obvious things are dispensed with quickly. The candidate is fit, enough; and in any case has youth as an ally and can be trained. Intellectual capacity is not in doubt. Self awareness and self confidence seem appropriate. But what of the deeper aspects of character and motivation? The final Boarding conference screen displays the completed matrix of numbers – the numerical representation of independently derived observations.

Those deeper characteristics are to be explored. The discussion will revolve around the so-called innate characteristics of our candidate. There seems little doubt that this candidate has Impact and “naturally assumes the lead of the group who readily defer to his views”. There is evidence of a high level of self confidence, enthusiasm and involvement, and the ability to exert strong influence on the course of events. But the conversation develops. Two of the Board seem not to have the same numerical score in the relevant boxes. The group was, on the whole, lacklustre. In fact, the effect on the group was accompanied by some display of insensitivity to the effect the means of achieving the aim had on others. There was determination, sure. The president, roving between groups under assessment, confided that he had been aware, on his albeit brief acquaintance, of the candidate watching the directing staff. The doubts are aired, and a consensus persuaded within the Board.

The definition of innate, and therefore of what is supposedly unchangeable in an individual, is open to a certain amount of debate, and it must always be a consideration as to how much effort the Army can sensibly put into training a person. Where resources are not an issue, it might be expected that there are very few people who could not be “reached” given sufficient hard work and application by sufficiently trained and equipped instructors. But the Army is not an “outward bound” charity with a limitless budget. There is an unfortunate convergence of circumstances now which

may in due course lead to real problems for selection Boards. As the role and utility of the Armed forces as a whole become the target for close scrutiny by a government with specific fiscal imperatives, so the justification for costs associated with a concept not so easily subject to “quick fix” accounting as the quality of officer material becomes more difficult. With a concurrent change in society as a whole in respect of perception in respect of military service – both in terms of familiarity with those who serve and the moral basis on which even such service should be understood – the raw material for officer candidates is perhaps not so readily available. It is possible to see how the pressure on the assessment process may be not to amend the evaluations made, but to adjust the thresholds for acceptability. The current trend would appear to be towards expediency, and downwards.

But for the moment, we work with what we have. The discussion is critical and has involved, by now, all eight of the possible maximum of Board members. I shudder to think of the hourly rate.

I refer to my notes to remind me of the opinions expressed, if any, by number seventeen in the group discussion on the topic, “Should the Ministry of Defence be liable for the cost of treatment for ex-servicemen suffering from PTSD (post-traumatic stress disorder)?”

What did the expressed opinions reveal? Simple nervousness, shallowness or ignorance? Diffidence or intransigence? Did behaviour elsewhere in the leaderless and command tasks, interviews or planning exercise even, indicate a comprehension of the sense of duty?

The decision is reached and a recommendation made.

We have tested a lot of our candidates' attributes. We have glimpsed at least the potential of physical and moral courage. Physically, the candidate is expected to dive through “the window” when addressing the individual obstacles. If this is the first time this obstacle has ever been encountered, then if undertaken with appropriate sang-froid there would appear to be no problem; although clearly robust physical fitness and youth make this perhaps only a slight problem. And if this has been practised (and who would believe that word of this obstacle hasn't got round?), then practise and technique are everything. Morally, we have applied some pressure, induced stress in certain aspects of training. We must take a chance, however, a calculated risk.

If one accepts that courage is a commodity supplied in finite quantities, and given that there are no longer any reliable templates for the operational environment, we are still taking considerable responsibility for not just one individual.

Did we get anywhere near replicating the stress which may attend our aspirant's eventual real-life job? Could we even hint at “real life” possibilities? Of course, “strain” is the more correct word. An individual's spiritual and moral resilience will be stretched. It will not be possible to predict how a soldier will react. But at least intelligent training and preparation can be undertaken.

Where are our officers drawn from now? A common “cry” at the Board is that the youth of today have no stamina, little physical ability, and a shallowness of character. If that conclusion is supposedly derived from observation in current Boards, then it is surprising – and one would hope based on prejudice rather than fact. It might even be worse, for if, heaven forbid, there has been a conscious attempt to lower standards rather than accept the appearance of dwindling suitability, then twice as much damage has been done. First, standards have been lowered from a norm which in no way requires to be re-assessed against some skewed criteria of non-exclusivity driven by a desire to appease modern anti-elitist

populist banality. And, second, the behaviour of those who appear in front of the Board, in respect of self-discipline, sense of responsibility, unselfishness, and a good many other things should be reckoned largely against the absence of role models in society at large. Those even wishing to confront a Board aspire to “our” values almost by definition. A little over the top? Probably – but try and find a lesser and acceptable scale of values.

The throughput at Regular Commissions Board and Territorial Commissions Board has shrunk. But as the Army, regular and reserve has shrunk, this is hardly surprising. A glance at *The RE List* shows that there is commensurately still a healthy interest in what we do.

I met a “successful” candidate who had by now completed his officer training. His most striking recollection of his time at RMAS was the Stable Belt. That's a bit of a guided description – green nylon with a self-adjusted “Staybrit” buckle. The important feature was the buckle: the RMAS crest with the embossed words, “Serve to Lead.” That, he said was what he remembered. That was what is important. The lesson was clearly not wasted on him, then. And the Board's decision looks like having been the correct one.

A Formation For All Seasons A United Kingdom International Rescue Force

LIEUTENANT COLONEL P E CROOK

British Liaison Officer l'Ecole Supérieur D'Application du Génie Angers France
(The French Engineer School)



Lieutenant Colonel Philip Crook has now the enviable job of being the liaison officer to the French Army engineers based at the engineer school in Angers in the Loire Valley. However before being selected for his current post he had to earn his spurs with tours in Northern Ireland, the Falkland Islands, command of 15 Field Support Squadron during the Gulf War and in Bosnia with HQ ARRC where he was responsible for engineer G2 and mines.

Calmer times were spent as the Operations and Training Major with 78 (Fortress) Engineer Regiment

(Volunteers) which was followed by language training. Now after nearly six months in France he has just about got the hang of the job but will probably need several more years to fully justify his appointment! He is pictured (above) with the Engineer in Chief (Army) during a recent visit to France.

- Bangladesh 1991
Cyclone Gorky, storm surge – 139,000 deaths
- India 1993
Maharashtra earthquake – 6,348 deaths
- China 1998
Yangtzekiang floods – 3,650 deaths
- Honduras and Nicaragua 1998
Hurricane Mitch – 9,200 deaths
- Turkey 1999
Izmit and Koaceli earthquake – 17,000 deaths
- Mozambique 2000
Floods – deaths unknown

and next ...

INTRODUCTION

THE latter half of the 20th Century was plagued by a rise in devastating natural disasters and there is much evidence linking this rise to global warming and to the consequences of man's actions. Disasters range from floods, earthquakes, famine, winter storms, fire to major accidents. *The 1999 World Disasters Report*

stated that 1998 was the world's worst record for natural disasters creating 58 per cent of the world's refugees and, since the 1980s, over a quarter of a million people have been killed by natural disasters alone with many billions of dollars expended in post-disaster repairs. Over the last 50 years the cost has risen from \$38 billion to \$535 billion per disaster when adjusted for inflation. The world's population has increased from 1.5 billion in 1900 to 6 billion in 2000 and is estimated to rise to 8.5 billion by 2025. Growing populations are leaving the land to swell the already highly populated mega-cities that are developing in increasingly vulnerable areas such as flood plains and low-lying coastlines, cities such as Sao Paulo (15 million) and Bombay (12 million). And, natural disasters aside, there are numerous long running wars such as in Angola and Ethiopia which have created their own humanitarian catastrophes.

World reactions to major catastrophes are often slow, poorly led and directed, and therefore less

effective. Each country reacts to a disaster differently supplying financial support, or aid such as food, or military assistance. The UN is too large for rapid decision-making, is bureaucratic in its operations, and lacks decisive management skills on the ground. Aid agencies, though well intentioned, are also generally poorly organized and unable to protect themselves in areas where there is potential hostility. Their efforts and resources are often duplicated, lacking the real co-ordinated muscle to make a truly effective difference during the early, critical stages of a disaster. The UK's effort is regarded as being one of the best but still suffers from a lack of central control and co-ordination, the end result being a confused relief effort. The recent political saga over deployment of helicopters to assist with flood relief effort in Mozambique is a prime example of this lack of co-ordination.

Military forces on the other hand have proven to be effective, have the means and equipment to bring about quick relief and are able to deploy to regions even though the situation may be dangerous from either war or climatic conditions. Military forces by their very nature are trained to confront danger and regularly operate in situations of high risk.

THE WAY FORWARD

THE UK's military forces have demonstrated for many years their capabilities not only during campaigns but also during disaster and humanitarian operations. Even though on many occasions these operations have been secondary missions and the force balance deployed not designed to deal with disasters and humanitarian situations, the military have made major contributions to relief efforts. The work of the British military in Bosnia received many accolades for effort, professionalism and leadership. During the crisis in Rwanda both British and French military forces provided effective relief in a very hostile environment. The UK's military are recognized as one of the leading armed forces in the world demonstrating a high level of leadership, co-ordination and initiative even though under resourced compared with other countries such as the USA. It has been publicly stated that the UK gets exceptional value from its armed forces considering its size and current global commitments.

Therefore, with natural and humanitarian disasters requiring the qualities often demanded from

military personnel, the UK should consider forming an "International Rescue Force" based on military ethos and qualities. A force trained and equipped along *gendarmerie* lines with medical, communication, transport, logistic, search and rescue, aircrew and engineer personnel. A force that is directed with the minimum of "red tape" and which can deploy rapidly to a disaster area to effect rapid relief.

MISSION OF THE UNITED KINGDOM'S INTERNATIONAL RESCUE FORCE

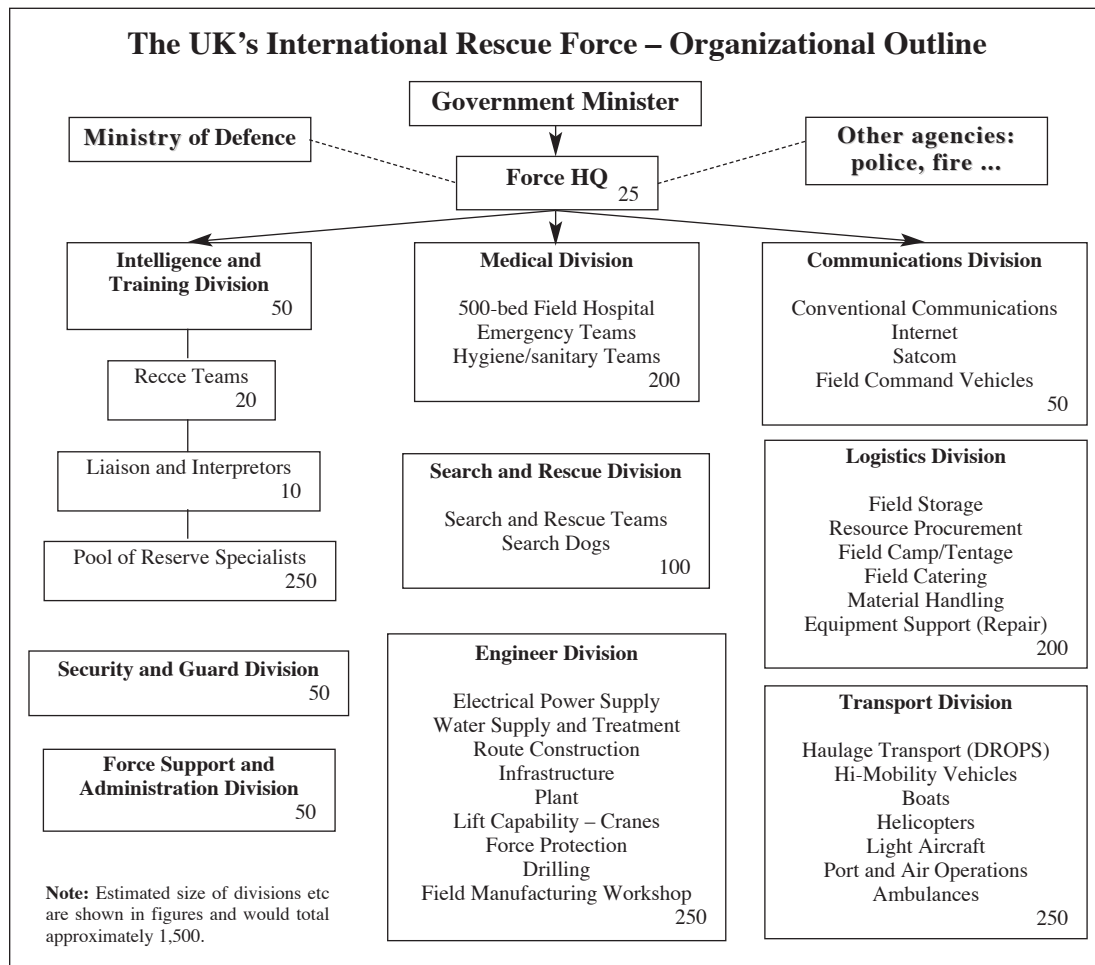
"To provide rapid relief to a disaster zone in order to save lives."

Principal Tasks:

- To provide emergency relief support to UK national agencies in the case of a disaster within the UK.
- To deploy forces to effect relief and to save lives on a global footing where disasters or humanitarian crises arise. This could be in the form of search and rescue in the case of earthquakes to food distribution for famine areas where logistic and transport elements would be required.
- The collation and maintenance of a database on worldwide disasters linking in with global intelligence on meteorological, geological, geographic and economic forecasting in order to produce a model for the prediction of disasters and therefore aiding rapid response. There already exist some international agencies that provide such data particularly for the insurance industry. The Geoscience Research Group is dedicated to monitoring global natural disasters.
- To provide training for emergency relief forces of disaster-prone countries.
- To conduct preventative global project work. For example, the construction of water drainage courses, improvements to road communications, water treatment plants, etc, in countries prone to natural disaster.

THE ORGANIZATION OF THE FORCE

Command. The force should be based on military lines with a military style command structure. This would enable it to deploy rapidly to operations in dangerous areas using military disciplines, training and experience. The force should be a stand-alone organization (similar to the police and fire brigade), not necessarily under command of the armed forces but directly under a government minister for ease of rapid response, ideally within the ministry responsible for international development and aid. However, the force should have close ties with



the armed forces and other national bodies for administrative support, mapping, access to training facilities, recruiting and certain specialist and logistical support such as shipping and transport aircraft.

Size. The force size would be in the region of 1,000 to 1,500 personnel with options to call on a reservist pool of about 250 specialists. See diagram above for an outline structure.

Personnel. The force will need skilled, experienced and motivated individuals with the same qualities expected from service personnel.

Each year about 15 per cent of our armed forces personnel are discharged. Many highly trained and motivated individuals leave as relatively young women and men. After 22 years' service, at age 40 or so, they have an abundance of practical experience within a trade or management field. These individuals would provide an

excellent source of trained personnel. Other recruiting areas could be the police and fire services using their expertise in diving and search and rescue. This is not to say that the force should not recruit directly from every walk of life, selecting personnel who would add value to the force. For example, university leavers would provide an excellent source of "younger" members as well as giving them invaluable experience. However recruits from outside the military sphere would need to be instilled with the military ethos and these qualities would be further developed once they joined the force by working with the ex-military personnel. Civilian recruits should therefore attend military recruit training courses before joining the force.

A career in an International Rescue Force would be attractive. It would provide a high level of job satisfaction; be exciting and challenging;

require a wide range of skills; and, for the ex-military, be a continuation of service.

Training. Although generally recruiting well-trained individuals, the force will need to be moulded into a cohesive unit and develop specialized skills such as search and rescue and collective organizational skills. The training will need to be phased, run consecutively, properly resourced and set within a realistic time-frame. Operational personnel should be trained along *gendarmerie* lines, which will help maintain the military ethos, professional bearing and discipline. They should also be trained in skills like small arms, mines awareness and first aid for both personal and collective protection reasons. Once operational the force will need to carry out continuation training, recruit development, the development and training of new skills and techniques as well as conducting regular collective worldwide deployment exercises. The force would need to be on a high state of readiness to effect its missions and tasks.

Location. The force should be located on, next to or at least close to an airfield capable of heavy strategic lift. This will enable direct deployment by air to disaster zones. An additional option is for pre-positioned seaborne rescue forces which, like the US amphibious marine assault formations, are pre-positioned globally. A seaborne base not only provides a heavy lift capability but also a helicopter platform, a support base for deployment, a floating hospital and an element of security for personnel. The utilization of sea ferries or ex-naval vessels would provide an ideal vehicle for mounting worldwide humanitarian disaster relief operations for elements of the force. This would provide a relatively flexible means of rapid reaction when combined with good intelligence of potential disaster situations.

MODUS OPERANDI

Political Acceptability. In advance of any force deployment to a disaster region a memorandum of agreement will have to be made in advance with potential host countries that lie within high-risk regions. Such an agreement would assist with the rapid deployment of the force when time is critical. For countries that regularly experience natural disasters this should not present a problem, as assistance from a professional body would be welcomed during a time of national crisis. However in conflict situations deployment may prove more difficult especially when there is a risk to the force. It must not be perceived as a

“military intervention force” and this is why it should be trained along *gendarmerie* lines and not directly be part of the Ministry of Defence. The force, though, by its very training should be able to operate in regions of high tension and risk to effect relief to those who need it.

Capability. The force, which would have modularized deployable components, should be capable of conducting relief operations for up to four to five minor disasters or two to three medium ones, or a combination of both. For major disasters the whole force should be capable of deploying. Once operational the force would operate as follows:

Pro-active Operations:

- **Database and Reconnaissance.** Armed with a global database of meteorological, geological, geographical information and political-economic situations, a best-effort model of disaster prediction could be produced. Reconnaissance teams would be permanently deployed in high-risk regions throughout the world. They would provide a continual flow of information so that plans could be updated to aid rapid deployment of relief effort.
- **Contingency Planning.** Small command teams would be preparing contingency plans, which could be activated and modified to fit the situation. The command teams would deploy in advance of any force main body to tie in with the reconnaissance teams already *in situ*. The command teams, themselves modularized, would then command any force elements deployed.
- **Operational Training.** Operational training exercises would be an ongoing process prior to deployment. Ideally force training deployments would be to high-risk areas to gain first hand experience and provide preventative works in those regions at risk. Operational training could take the form of:
 - Medical staff working in accident and emergency units or deployed as “flying doctors” in areas of the world short of medical support as part of preventative aid.
 - Engineers on construction project work either in the UK or again on preventative works in a high-risk region.

OPERATIONAL DEPLOYMENTS

Pre-deployment. Armed with political clearance (the memorandum of agreement), and the latest intelligence picture, the command team would deploy followed by a modularized force grouping. The command group takes command of the UK effort, which may include other UK non-government organizations, and co-ordinates the relief plan. This should occur within 24 to 36 hours from the host nation confirming requirement of assistance.



Sapeur Pompiers evacuating a casualty. A practice exercise now but during a disaster a vital professional skill.

Deployment. The whole or modularized components of the force would then deploy direct from the UK by air or direct from a pre-deployed land location or by sea-based vessels. The size and composition of the force would depend upon the nature of the disaster, the host nation's ability to deal with it and other international effort. For example a modularized UK force could consist of the following:

Command team	Logistic team
Communications team	Engineer detachment
Field hospital – 100 beds	Search and rescue teams
Transport detachment	Liaison & interpreter cell

say 200 to 300 personnel.

Duration of Deployment. The force should deploy to provide immediate relief but may have to remain to conduct such relief work for several weeks. The force itself would be changed and re-modularized in-country to meet changes in the relief effort.

LOGISTICS

THE force would need to hold first-line logistics to effect immediate relief. For example search and rescue teams would be fully equipped to carry out their mission on arrival. The field hospital would be completed using either modular buildings or tentage. Engineers would hold their own generators, earth moving equipment and so on. For second-line support off-the shelf purchasing/leasing of tentage, specialized equipment and consumables such as food aid would

be the preferred option to prevent unnecessary storing. With good intelligence, contingency planning and pre-drafted contracts the purchasing of additional resources should be a quick process. In addition certain items may be available from the host nation or obtained from natural resources such as timber and stone for road repairs.

FUNDING

THE funding for the force would come from existing governmental funds, ie from what the UK already donates in aid and overseas assistance and sponsorship from industry, and in particular insurance companies. Contributions from charitable organizations and the National Lottery are also possible. These sources would see their donations being utilized by an effective, professional and fully accountable organization.

CHALLENGES

THE major challenges confronting this concept are to find, encourage or induce:

- the political will to take the idea and turn it into reality;
- international political acceptance to allow such a force into their country;
- governmental departments, including the Ministry of Defence and non government organizations to direct funds to support the force.

Finally, the National Health Service and the Armed forces have great difficulty in retaining/recruiting trained medical staff, therefore the option for a mandatory reserve liability call-up/out may be necessary.

SUMMARY

WE are a nation of givers and our charitable contributions are second to none, but our global disaster relief efforts are not led, organized or co-ordinated well enough to prove truly effective and much money and effort is therefore wasted. The UK's Armed forces, however, already lead the world in their ability to work with limited resources, and they are highly valued, have a wealth of first-class expertise and display an exceptionally high level of initiative and innovation. This source of manpower, combined with the other sources mentioned, could be moulded into a rescue force which would make a major impact on the stage of international disaster relief, providing a truly focused effort working for the benefit of mankind.

Engineer Officers' Training With The Madras Sappers 1944

CAPTAIN JOHN IRWIN CENG FIMECHE FIEE FIMGT



John Irwin, when an Officer Cadet RE in 1943 was posted to India to complete his training with the Indian Army. He was commissioned into the Royal Engineers and served with Queen Victoria's Own Madras Sappers and Miners Group, Indian Engineers, in India and the Far East between 1944 and 1947. The following article covers the period he spent at the Engineer Officers' Training School affiliated to the Madras Sappers at Bangalore, Mysore.

LIKE Kamikaze pilots, hordes of huge flying ants dive-bombed the hurricane butti (pressure lamp) indiscriminately. Then, devoid of wings and partially stunned, they crawled about without any sense of direction all over the tent floor. Both Offr Cadet Atkinson, my room-mate, and I found it difficult to concentrate on writing up the first of our lectures at the Engineer Officers' Training School (EOTS) at QVO (Queen Victoria's Own) Madras Sappers & Miners (S&M) Gp, Indian Engineers (IE) at Bangalore in Mysore, South India.

Despite the presence of the flying ants – or as some wit might have put it, because of them – the EOTS was a highly exclusive engineering training establishment. Formed in January 1940, with the wartime need to expand the Corps of IE, the EOTS had, by 1944, three classes in residence, each averaging 25 British and Indian cadets, the average proportion being seven British to one Indian. When we of 21 Class arrived in 1944, all the permanent living accommodation was fully occupied by the cadets of 19 and 20 classes and hence we were housed in the ubiquitous Indian Pattern Tents. This large room-like tent proved commodious for the two cadet occupants, each of whom had a table –

placed front to front between the tent-poles – a chest of drawers and a charpoy complete with mosquito net. Behind the tent was a supplementary bathroom tent, providing adequate reassurance that there was no diminution of our recently acquired officer status in India.

Twenty-five sapper cadets (who had been posted from Wrotham Pre-OCTU in Kent to finish their training in India) had just arrived from the Offrs' Trg School at Mhow, in the state of Indore in Central India – a wartime extension of the Indian Military Academy at Dehra Dun – where they had completed a six weeks' acclimatization and transition course for the Indian Army. Though the 72-hour rail journey had been long and tedious, it gave some idea of the size and complexity of the Indian Railway system. At Khandwa Junction we had transferred from the metre gauge Bombay, Baroda and Central India Railway to the broad gauge Great India Peninsular Railway on which we travelled via Manmad Junction to Dhond where our carriage was detached and we slept in a siding overnight. This part of the journey was mainly through barren country, but after we changed once again to metre gauge at Guntakal Junction on the Madras and Southern Mahratta Railway and started to approach Mysore State, the

scenery became wild and rugged like the Grampians in Scotland; however the oppressive heat, the coconut palm trees and the monkeys which swarmed over the platforms at country stations gave the lie to that illusion. The number of major railway junctions through which we passed on our route was an indication of the importance of railways in India; in 1930 the total rail mileage was 41,724. India is a land of large rivers and I was fascinated by the great variety of bridges over which we crossed. I got some concept of the contribution made by civil and military engineers to Indian railways when I learned later that the system had over 100,000 bridges of which 8000 were major bridges.

By adopting a gauge of 5ft 6in for the main trunk routes in 1850 – a figure in between the standard British gauge of 4ft 8.5in and Brunel's Great Western's 7ft broad gauge – James Andrew Broun Ramsay, Tenth Earl and First Marquis of Dalhousie, Governor General of India, an administrator and no engineer, gave Indian Railways a significant advantage in carrying capacity in terms of both goods and passengers. Twenty years later when because of the high cost of construction of the 5ft 6in gauge, the railway engineers involved could not agree on whether a smaller gauge of 2ft 9in or 3ft 6in should be adopted for feeder routes, another Governor General (once again, an administrator), Richard Bourke, Sixth Earl of Mayo, made the decision. He recommended that because "Six feet in the interior of a vehicle will be sufficient to carry gun-carriages for the heaviest artillery whose wheels do not, in scarcely any case exceed 5ft 3.5in, a gauge of 3ft 3in should be used as it would give the necessary accommodation."

During the first month of the 33-week EOTS course for 21 Class, lectures formed a large part of the training schedule, though naturally time was made for drill, PT (at 0700hrs) swimming parades and of course learning Urdu, the *lingua franca* of the Indian Army: it was mandatory to pass both written and oral examinations in order to obtain Indian Army rates of pay. Logically, our first lectures introduced us to the organization of the IE. When Indianization of the officer corps began in 1932, it was decided that Indian officers who had been trained in the "Woolwich" wing of Dehra Dun would be given King's commissions in the "Corps of Indian Engineers". From October 1933, all Sapper recruits from the Indian Army were enrolled into the new Corps

instead of into one of the three S&M Corps whose histories stemmed from the three Presidency Armies of Madras, Bengal and Bombay of the East India Company. However this new arrangement did not prevent a man joining the Sapper Corps of his choice and the three S&M Corps continued as separate groups with their existing titles and their distinctive customs.

Following the declaration of war in 1939, it was recognized that expansion of the three S&M Corps could only meet the needs of divisional and corps troops and a number of additional groups were formed for the purpose of raising specialized units. Thus, in 1944 the Engineer in Chief (India), a major general, had under his command the following engineer formations:

- EinC's staff at GHQ(I) and engineer staffs in Army commands.
- QVO Madras S&M Gp, IE.
- KGV (King George V) Bengal S&M Gp, IE.
- Royal Bombay S&M Gp, IE.
- No 1 HQ & Depot Wks Svcs (Elec & Mech) Gp, IE.
- No 3 HQ & Depot Wks Svcs (Const) & Heavy Bridge Gp IE.
- No 4 HQ & Pioneer Gp, IE.
- No 6 HQ & Depot Mech Excavating Gp, IE.
- MES.

The Transportation Directorate together with the old No 2 Gp, IE (Docks & Inland Water Transport) and the old No 5 Gp, IE (Railways) were under command of the QMG at GHQ (India) while the Survey Directorate and the Survey Gp, IE were under control of the General Staff at GHQ(India).

An Infantry division's engineer HQ comprised the CRE, (Lt col) and adjutant (capt), intelligence officer (lt), two field engineers (lts), five havildar clerks (sgts), one motor transport naik (cpl) and 13 Indian other ranks. A field company in an Indian infantry division had a total of five British (or Indian King's commissioned) officers, one British CSM, one British sgt, five Indian Viceroy's commissioned officers (VCOs), 246 Indian Sapper other ranks and eight followers, non-combatants such as *bhistis* (water carriers), mess cooks and sweepers (who deal with latrines and the disposal of waste). However British warrant officers and NCOs found themselves in an unusual if not invidious position in an Indian Sapper unit. Enlisted under the British Army Act, they had no powers under the Indian Army Act

and so could not command Indian sappers. Consequently, they could only exercise their authority, particularly with the VCOs, by dint of personality, character and an ability to function effectively without the force of King's Regulations behind them.

Major Hirst, RE, the chief instructor (CI) was a perfectionist! This was immediately obvious not only from his immaculate turn-out at any hour of the day, but from his attitude to the performance of both the class and the cadets in it. Woe betide any cadet who felt he could scrape his way through the course with a minimum of work. The intensive nature of the wartime courses meant frequent working into the small hours on a wide variety of subjects from triangulation surveys to composite bridge design and from water supply schemes to a construction project for emulsion macadam roads. The CI ingrained into us that the measure of what one had learnt was what one remembered in the heat of battle. He attempted to simulate these conditions by holding examinations at irregular intervals after periods of sustained physical exertion combined with mental frustration. However the major indicated that he would let us off easy with our first "block test" which he sprung on us on the afternoon of our fourth Friday at the school and which lasted four hours. Then on Saturday afternoon, each cadet had to attend an interview with the CI to be told what he thought of us and our examination results. I was glad to learn that I had done reasonably well. Soon afterwards, however, we learned that we still had to experience the real thing, viz block tests specifically designed to test our mettle at times when we least expected them.

The standard of cadet turn-out was expected to be and indeed was immaculate. During one morning uniform parade, Major J Fone RE, second in command of the EOTS, chided one cadet for having boots lacking the appropriate shine by saying, "Good God man! How do you expect to command a platoon if you can't get round your bearer?" I doubt if any cadet at the RE OCTU at Newark had his leadership called into question for such a



The munshi who taught our group Urdu, poses with Officer Cadets Irwin, Atkinson, Chivers, Smaill, Binnie and Wollan, after successful examination results.

minor offence. Punctuality was vitally important. On one occasion the CI awarded me ten rounds of the parade ground perimeter at the double with my rifle at the trail, for arriving fifteen seconds late for parade. Truly it proved an uncomfortable experience, especially as my late arrival was due to internal disorders.

Much to our surprise, we had to undergo a driving test at Bangalore – our third in less than six months! Many cadets fared much worse than they expected; despite having passed two previous driving tests at pre-OCTU, Wrotham and at the OTS Mhow, they were failed and had to take further instruction each day between last parade and dinner until they passed. This confirmed the reports we had heard both on HMT *Orontes* en route to India and at the OTS Mhow, that the standards demanded by the Madras EOTS were extremely high. I was even more surprised when Captain F J Bowyer, RE – the officer in charge, inter alia, of motorcycle and vehicle driving instruction – asked me to become an EOTS temporary unpaid driving instructor (the only other cadet instructor being due to leave), and so I had to work three evenings a week till 2000hrs bringing some cadets up to standard. I was also invited to become a temporary unpaid lecturer in automotive engineering.

Early in the course it became clear that each cadet in turn would be put in charge of a scheme so that he could demonstrate the leadership



4 Kensington Road, the rather splendid bungalow in which the author and several cadets were billeted, was in complete contrast to the initial tent accommodation.

qualities he did or did not possess. My turn came when I had to organize a three-day battle training camp for the class now numbering 27 cadets, planning rations, ammunition, medical supplies including anti-malarial mepacrine, and equipment required for going into battle. This exercise taught me to think on my feet. But as well as schemes we also had to study airfield and road construction, demolitions, engineer intelligence, air-photo interpretation, engineer stores supply, the principles of war, advance to contact, advance to attack, river crossing, appreciations and orders, gas weapons, modern jungle warfare and the organization of Indian divisional artillery, the Indian Medical Corps and Royal Indian Army Service Corps, (RIASC) fondly known as the “rice corps”.

To those of us who had no knowledge of surveying, lectures followed by practical exercises in the field gave us a sound understanding of the principles. Experience in plane-tabling, chain surveying and theodolite traverse gave us an insight into how things were done when time was available and accuracy was required, but in a battle area we learned that the less accurate prismatic survey would be more appropriate. On one such exercise Officer Cadets Atkinson, Bewley and I sallied forth in an open three-tonner to survey a countryside graveyard together with its approach roads and culverts. Having taken a number of readings, we were poring over maps in the back of the truck when there was a sudden downpour which stopped as suddenly as it began. I glanced up and high upon the branch of a large ancient banyan tree, was a male monkey who had

deliberately relieved himself in our direction. It was difficult to tell whether he was actually grinning at our discomfort.

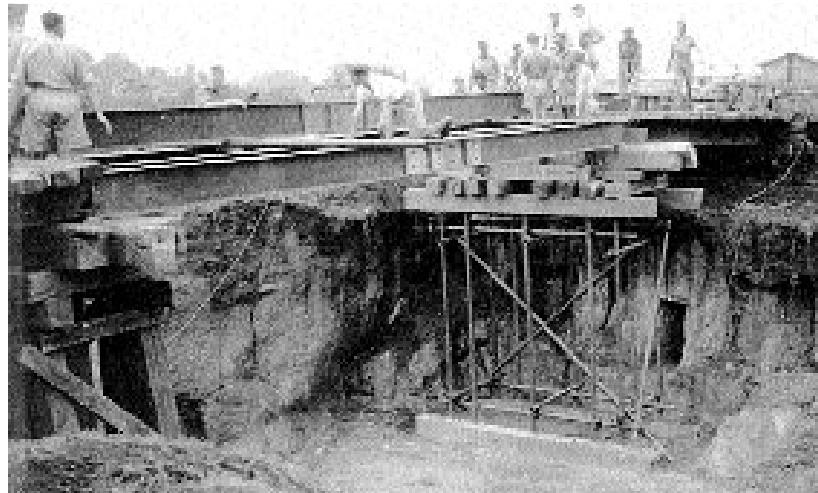
Another survey exercise began on a hot sunny afternoon and ended much later than we had any right to expect. We cycled – each cadet had a cycle for normal transport – some ten or twelve miles to an attractive hilly site outside Bangalore where we were met by our class officer, Capt Whitehouse, who had come by truck, together with the CSM. Leaving our cycles beside the truck as instructed, we climbed up the hilly ground where, in addition to a survey, we had to sketch the area where the CRE had to report to the divisional commander on the feasibility of constructing a temporary road to enable the division to get through the hills. When we had completed the exercise we were told to report back to the EOTS, but found that our bicycles were no longer where we had left them! While we had been doing our survey, they had been loaded onto the truck and taken back to base. We recognized the pattern of events, not only had the class to use their initiative to get back to the EOTS without transport, but it was likely that a block test would await us on our return. That was exactly what happened.

Although we were attached to one of the S&M Gps, the last thing we envisaged was having to do any mining. Working in syndicates of four, we had to dig a 5ft x 3ft sap into a cliff face of consolidated sand, breaking off only for thirty minutes at normal meal-times. The plan was that starting at 0800hrs two syndicates would dig separate saps at 90 degrees to the face and then dig towards each other to meet at 2300hrs. But it was 0400hrs the next morning when our syndicate linked up and then, in true Sapper style, we had to help other syndicates to finish. It was 0700hrs before we could break off for a wash and breakfast before first parade and carry out the normal morning’s programme; however as it was Wednesday, we had the afternoon off which was richly deserved after 23 hours uninterrupted back-breaking mining (with picks!) in temperatures of 90 degrees!

Bridging and watermanship was an essential and indeed expected part of the course. Near Meanee Lines, which was the HQ of QVO Madras S&M Gp IE, there was a large man-made lake called Ulsoor Tank. We spent several happy days building Bailey rafts and pontoon bridges on the Bridge Hard at Ulsoor Rock and several evenings on six-oar cutter practice in our own time. Not only did we have training on Bailey bridges similar to those

we built over the River Ribble at No 1 TBRE, Clitheroe, in Lancashire, but this time we had to design them for particular load classifications and specific spans, thus adding significant engineering content to the course. I was surprised to learn that no liberties could be taken with the Bailey bridge as there is NO factor of safety and failure to observe the rules would result in a bridge collapse!

We also were required to design a composite bridge, using RSJs, tubular scaffolding and 12-inch baulks of timber and this gave me an opportunity to use, for the first time in practice, Macaulay's (of King's College, Cambridge) method of calculating deflections of beams, which I had learned at college. This method enables one continuous expression for bending moment to be obtained and can prove to be extremely useful in dealing with deflection problems when the bending moment is discontinuous. When at college I was first introduced to Macaulay's method, I felt about calculus just as Keats felt about Chapman's Homer, "Yet never did I breathe its pure serene till I heard Macaulay speak out loud and bold." We were to build a large composite bridge across a deep nullah (dry river bed) in the bridging area and this gave me, a mechanical engineer, a new insight into bridge building. Our syndicate of eight cadets managed to finish the design shortly after midnight on Sunday but others got no sleep at all that night. At a discussion later, we learned that our design although satisfactory was not chosen as the bridging instructor felt the class would have more fun with another design. Needless to say, the only people who had fun were the instructors who watched as we toiled for hours, loading and unloading 12in x 5in RSJs and baulks of timber onto and from heavy trucks prior to starting the bridge construction, digging and building the abutments, constructing piers, fixing the load-bearing beams in position and



View of the tubular scaffolding pier of the composite bridge behind which can be seen an opening of one of the saps dug by 21 Class.

finally laying the deck. The monsoon arrived at 0755hrs on the second day. Rain fell solidly for several hours and the piers of the bridge were almost washed away by the torrential flood of swirling water which gushed down the nullah that had been a dried-up river bed.

One could readily appreciate the simplicity and the ease of handling of a Bailey bridge when building the composite bridge and even more so when dismantling the heavy steel and wood components after the routine test drive.

However an even more exacting experience of bridge building was still to come. It began with an engineer conference in a battle situation in which a bridge had to be built over a wide river so that the division could make an assault at 1500hrs the next day. Between 1400 and 2000hrs 21 Class loaded 25 trucks with the Bailey equipment required for the tasks. At 0300hrs the next morning the class was wakened and in just over an hour set off with the bridging train for a site some thirty miles away. The gap was wide, the virgin site difficult and the Indian sun, when it rose, unrelenting on cadets who perspired freely as they lifted the panels and transoms into position. The CI was also unrelenting in that he intended to withhold water and rations until the gap was bridged "as an object lesson on how officers should not treat their sappers!" Fourteen hours' hard labour without food and little water in the heat of a Mysore day in summer had its effect. Touchdown had still not been made three

hours after the completion deadline and the rate of progress had slowed down to the point where clearly the CI had made his point and finally allowed the ration truck onto the site. A noticeable improvement in morale followed the meal and resulted in a rapid completion of the bridge. After the ceremonial drive across by a three-ton truck, dismantling began. A full 24 hours after setting out, we set off back to the EOTS – to a welcome meal and an expected well-earned rest. But this was not to be! Immediately the meal was over, we were told to report to the examination rooms for a four-hour block test on bridge design and associated subjects.

Halfway through the course, Colonel M M Jeakes MC, Comdt of the QVO Madras S&M Gp, IE, and the CI pronounced judgement on each cadet's performance. I climbed the stairs to the Comdt's office in the "Monkey House", as the HQ building was affectionately known, with trepidation – but I survived! Towards the end of the course, out of a total of 43 cadets who had been on the roll of 21 Class, only 21 remained.

In one of those remarkable coincidences which happen in wartime, Lt T Samuel Lucas, who had been my section officer at 99 War Party at Clitheroe, arrived. We spent quite a bit of free time together and one evening compared the Sapper officers' course at the RE OCTU in Newark, which he had attended, with the one at the EOTS, Bangalore. While it was obvious that we fared better in certain respects, such as having

mess bearers and rooms and did not have to do guard duties, it was most encouraging to hear Sam say emphatically that the Newark course was not as arduous nor as rigorous as our engineering course at Bangalore.

I was also pleased to meet again my Indian friend from OTS Mhow, Offr Cadet Nagrani, who was continuing his training at the Indian Army Infantry OTS prior to joining the Indian Elec & Mech Engrs. Through him I met a number of professional Indian civilians at the Bangalore Institute of Science. I was invited with him to a dinner given by Professor Hirani, a biochemist friend of his who had introduced the manufacture of penicillin in India. One guest, the head of the Department of Aeronautical Science, Dr Nilakantan, invited me to see his laboratories. This social event gave me an intimate insight into Indian hospitality and, as a former pupil apprentice mechanical engineer in the aircraft industry, I found the visit most instructive.

Early in November Major E D W B Hirst was given a farewell dinner which also welcomed his successor, Major J E Ralph, an Australian who had just returned from Burma where he had been OC 422 Fd Coy IE, (20 Ind Div Engrs). He brought a degree of reality plus experience of jungle warfare to the EOTS assuring us that "There are no snakes in the jungle!" and that when you were there, "Your OCTU grading counts for nothing!"

An important part of the course was the four weeks spent in Shimoga jungle in a camp situated on high ground overlooking the fast-flowing River Tunga in north-east Mysore. Colonel J F D Steedman inaugurated this camp for jungle training shortly after he became Comdt of the Madras Sappers in 1942. As we were in all likelihood destined for Burma, at Shimoga Cadets were trained in the subtle techniques of jungle fighting with live ammunition as well as carrying out major field engineering projects appropriate for that terrain. 21 Class had two such projects. One was building a Class 24 Trestle Bent bridge across a dry gap, cutting live timber and using elephants in lieu of mechanical handling equipment; however we were shocked to find



The Quarter Guard at the "Monkey House", the elegant HQ building of the Madras Sappers. The Commandant's office was on the right of the first floor verandah.

that the elephants refused to work after approximately 1600hrs each day! The second major project was constructing a flying ferry to carry a vehicle across the wide and fast River Tunga.

As for most officer cadets, pass-out day for 21 Class was a memorable occasion. It was held in the morning with the Comdt of the Sappers and Miners, Colonel M M Jeakes MC, taking the salute. But the real highlight was to come that evening. Unlike OCTUs in the UK, the Madras EOTS cadets obtained their commissions at midnight. Following the toasts and speeches at a superb pass-out dinner, the EOTS instructors, including the CI, carried out tasks set by the cadets who at last had a chance to get recompense for the sustained gruelling physical and mental endurance to which they had been subjected. The forty officer guests were as amused as the cadets to see instructors crossing a "tank" in a bath tub and the CI climbing into the rafters to track down hidden bamboo. Finally, ten minutes before midnight, led by the Comdt and CI, the cadets danced wildly round a mammoth bonfire outside the mess singing "The CRE". As the rousing Corps song ended, it was with relief and mounting excitement that we ripped the blue cadet tabs from our shoulder-straps and tossed them with gay abandon into the flames. As midnight was striking, we lined up in the mess for the final commissioning ceremony. The Comdt fixed a pip on one shoulder and the CI did likewise on the other. Then as the CI called out each newly commissioned officer's name, the new 2nd Lt had to go through the ante-room door and run the gauntlet through the gauge – a 90ft long obstacle course of sofas, easy chairs and other furniture, lined on either side by officers armed with rolled newspapers and magazines who did their best to impede the progress of each cadet to the end of the gauge where a friendly major welcomed him. Among those commissioned from 21 Class were officer cadets: Atkinson, Binnie, Chivers, Davidson, Gardner-Hill, Irwin, Jacobs, Nambiar, Orange-Bromhead (JD), Pymont, Saunders, Small, Smaill, Todd, Trimmer, Turner and Wollan. OC Nambiar, an outstanding Indian cadet who had been a VCO, was commissioned into the IE and later served with the writer in 21 (QVOM) Engr Bn IE.

Having moved into the QVO Madras HQ Officers' Mess the following day, we still had to complete a further two weeks' Sapper officer training on earthmoving and other mechanical equipment before going off on ten days' leave. We learned how to drive and operate a range of machinery such as Caterpillar D4 and D8 diesel-engined crawler tractors including hydraulically-operated angledozers, the Le Tourneau Carryall scraper, Rooter and AD-3 Crane, the Caterpillar-engined grader model 12, the 8-Ton Huber Diesel-powered road roller and the Muirhill dumper. Instruction covered the uses of each machine, its output and maintenance and even involved dozer operations in pitch darkness. Sessions in the HQ workshops introduced us to heavy stationary plant such as a large stationary Deutz Diesel engine, electric generators and pumping equipment.

After the war ended in 1945, the two other engineer officers' training schools at the Bengal and Bombay S&M Gps were closed down and engineer officer cadet training in India was centralized at the Madras Sappers in Bangalore. Since its inception in January 1940, the Madras EOTS trained a total of 39 classes of British and Indian Cadets, the last class passing out in September 1947; it reached its maximum strength of 210 cadets in 1946.

In retrospect, I feel privileged to have had the opportunity of attending the EOTS affiliated to the Madras Sappers. It not only equipped me for service in the field and proved to me that prolonged physical effort can be sustained, but it also gave me a breadth of engineering knowledge and experience which, as a mechanical engineer, I could never have obtained elsewhere.



Officer Cadets Small, Pymont and Mitchell, look out from the anteroom of the EOTS mess which was behind Kensington Road.

Memoirs

BRIGADIER D C CAMERON CBE

Born 11 May 1912, died 2 July 1999, aged 87.



BRIGADIER Donald Charles Cameron was born in Quetta, Pakistan, where his father was serving as a regular officer in the Indian army. He was brought up, mainly by his grandparents, in Scotland. His grandfather, Captain Henry Johnstone was a Royal Engineer who had taken early retirement due to ill-health, and had become military lecturer at Edinburgh University and a regular correspondent for *The Scotsman*.

Educated at Fettes College, Cameron went on to the Shop and was commissioned into the Corps in 1932. He received the Pollock Gold Medal. After his degree course at Clare College, Cambridge, he was posted to 5 Field Company at Aldershot. In 1938 he spent a year with Ordnance Survey, transferring to 19 (Field Survey) Company in January 1939. On the outbreak of war he went to France with 13 (Corps) Field Survey Company, and

returned in May 1940. In October the same year he was appointed DAD Survey at GHQ Home Forces and remained in that post until, after six months as OC 520 (Corps) Field Survey Company, he went to the Staff College at Camberley for a six-month 'Intermediate Staff Course'.

Staff College was followed by a short tour of seven months as DA QMG (Ops), South East Command and another of a year as Brigade Major at the School of Military Engineering at Ripon. Early in 1945, Cameron, now a temporary lieutenant colonel, was at last posted out of England to South East Asia Command filling a number of different staff jobs in succession: AQMG (Ops) in Calcutta, AA & QMG in Rangoon and AAG HQ ALFSEA in Kandy. From November 1945 to the following July he reverted to the rank of major to take up command of 2 Field Company but was back at a staff desk in July as AAG (Ops and Plans) HQ ALFSEA/FARELF remaining overseas, apart from a brief home leave, until May 1948.

It was then back to earth with a bump, and reversion to his substantive rank of major for two years, as DCRE Inverness, at least in his beloved Scotland. This posting was followed by a course at the Armed Forces College in Norfolk, Virginia, from which he joined the British Joint Services Mission in Washington as GSO1 (Ops and Int). Two command tours followed, the first as CO of 8 Training Regiment at Elgin and, on its disbandment in 1954, of 102 Corps Engineer Regiment TA, the regiment which was, after his time, to develop into 71 Engineer Regiment.

In 1956 Cameron was appointed Chief Engineer Home Counties District where "...his influence and personality were marked and the GOC thought highly of him ..." From there he went out to Singapore as Colonel GS in GHQ FARELF. His two final postings in the Army before he retired were as Chief Engineer Scottish Command and Brigadier Engineer Plans in the Ministry of Defence.

After leaving the Army in 1967 Cameron worked for the Officers Association particularly involved in the resettlement of retiring officers of all three Services.

He and his wife, Jan, whom he had met at Cambridge, went to live in Swanborough, near Lewes, in 1977. He worked for the Citizens Advice Bureau, of which he was a trustee and

member of the management committee; and for the League of Friends of the Lewes Victoria Hospital. He was a loyal supporter of the Church for which he was Treasurer and formed a bell-ringing team. An accomplished musician, he had played in the Cambridge University orchestra and sang in many choirs round the world including the Edinburgh Bach Choir. He was also a keen

Scottish dancer, including sword dancing, which he taught wherever he was posted. He brought to these activities the same qualities that had marked his service throughout which he was known as a "...most charming and vivacious man..." "...excellent company and great fun, with the knack of making everyone around him happy."

His wife survives him with their daughter and son.

PEMB MWB

MAJOR W C S CARRUTHERS MC

Born 8 August 1919, died 28 November 1999, aged 80.

CAPTAIN Bill Carruthers, 3 Troop Leader, 77 Assault Squadron, landed on Queen White sector of Sword Beach at H Hour on D-Day, 6 June 1944, five minutes before the first wave of assaulting infantry of 3rd British Infantry Division. He commanded the gapping team that included two flails from 22nd Dragoons. One AVRE on the craft was allocated to obstacle clearance. It was carried by LCT 1094. Carruthers' task was to make a gap through the mined dunes from the beach to the road behind them.

On the final approach the LCT hit a submerged obstacle at speed and after highly skilled manoeuvring by its skipper, beached further to the east. To add to the difficulties, the tanks detailed to give covering fire all sank before they could do so. Bill Carruthers went straight on behind the flail and dropped his log carpet between two houses. It did not come off the tank properly but fell in a heap. While straightening this he was wounded by a grenade. But he persevered under heavy shelling and succeeded in creating a second route for the Squadron's 4 Troop whose LCT had been shot up and from which only one flail had been able to land. Despite casualties 57 out of the 76 all ranks of the squadron got ashore. These two routes, and a third by 2 Troop, all open within an hour of the landing, were used by the whole Division moving forward to Caen. Carruthers was awarded the MC

for this action. Later in the war he also displayed outstanding courage getting assault troops across in the Rhine crossing and leading his squadron with distinction to the Scheldt estuary.

William Charles Sinclair Carruthers, a man proud of his Scottish ancestry, was born in Llandudno and, after education at Bootle Secondary School, Liverpool, joined Unilever as a laboratory technician. On the outbreak of war he volunteered for the Royal Engineers, and went to France on 11 October 1939 with the BEF, as a corporal in a chemical warfare unit. After being evacuated from Dunkirk with head and thigh wounds he was posted to an officer training unit in Inverness in 1941 and later to 77 Field Company, at Thorpness.

On release in 1948 as a major, Carruthers travelled on a tramp steamer around the world with his younger brother, before gaining a BSc at Manchester. He returned to Unilever, where he later became a director.

After retirement in 1972 he bought a house in Kent, using his inventive mind to convert a below-ground dairy into a plunge pool. He employed himself in pottery manufacture, creating replica Saxon and other drinking vessels, some of which were inadvertently displayed by museums as genuine.

Short in stature but immensely strong, Bill Carruthers had a strong social sense and a powerful personality.

He never married.

ICBD

Extracts courtesy *Daily Telegraph*.

COLONEL G S HARRIS

*Born 24 June 1923, died 29 October 1999,
aged 76.*



COLONEL George Harris served the Corps in one capacity or another for 45 years. Commissioned in 1943, he volunteered for airborne forces and, after a spell as a party officer at Clitheroe, joined 4th Parachute Squadron and took part in the Arnhem operation. In the course of that he was injured in a mortar attack on his jeep which had killed the rest of his crew. Later he was badly wounded and taken prisoner after successfully assaulting a machine-gun nest.

After the war he returned to airborne forces and went to Palestine with 6th Airborne Division RE in October 1945. Initially he was with 286 Airborne Park Squadron and soon transferred to 1st Airborne Squadron. The CinC's commendation for bravery, which he was awarded in 1946, used the following words: "Captain Harris was aware of the death of one of his friends on that day from the explosion of a railway mine. There was not any technical information at this time. The

mine was almost completely buried in ballast under the rail. Captain Harris worked alone, dictating his actions to his driver, who was at a safe distance. After about half an hour, Captain Harris was able to attach a cable to the mine and pull it clear. During the action, he succeeded in obtaining the details of a new and deadly firing mechanism. The mine was eventually destroyed. During the previous six weeks, Captain Harris had been responsible for dealing with many mines. At all times his work was of the highest standard and he showed great personal courage."

Postings then followed as Adjutant of 8 Training Regiment at Elgin (1950-53), SO3 E1a in the War Office (1953-55), in BAOR as OC 57 Field Squadron, 36 Engineer Regiment (1955-57), and as OC of the Cadet Squadron at the RSME (1957-59). There he was an excellent mentor to hundreds of budding young Sapper officers, and many national service officers remember him with affection.

He then had three years at the US Army Engineer School at Fort Belvoir as one of the first exchange instructors in the Combat Engineer School. He was a popular choice. He and his wife, Anne, played a full part in the life of the base. The Americans with whom George worked both respected his military record and appreciated his regard for their way of doing things. He then returned to the UK to become the GSO2 at the School of Infantry at Warminster.

In 1965 he was appointed, on secondment, to the command of the Malaysian Engineer Regiment engaged in operations during Confrontation with Indonesia, returning to England in 1968 as Chief Instructor Field Engineer Wing at the RSME. He was highly regarded as one of the best practical field engineers of his generation and this combined with his qualities as a leader made him an excellent Chief Instructor. While he was at Chattenden he became Master of the Royal Engineers' Beagle Pack, a sport he much enjoyed and which he had also followed at Warminster. After a spell in a NATO appointment at Izmir in Turkey, he was promoted full colonel and went to BAOR as Garrison Commander Rheindahlen, after six months between postings as Deputy Commandant RSME.

From there he returned to Chatham for his last posting, as Deputy Commandant RSME, retiring in 1978. It was an ideal appointment in which his experience, complete understanding of the

field engineer and his common-sense approach to the training of both officers and men were able to give the Commandant strong support. It was a period when the Services were going through particular financial constraints and suffering a pay freeze. George Harris' immense understanding of the needs of the serving soldier and his robust approach contributed to reconciling the conflicting demands of soldiers, maintaining the traditions of the Service and the colossal pressures from Government. He faced everything with enormous calm and logic.

After a brief flirtation with business in civilian life, George Harris was pleased to accept the offer of Controller REA, which he held for eight years. He brought to this post the same qualities of integrity and loyalty which had marked his military career. A tribute in *Sapper* magazine on his retirement recognized his contribution to modernizing the aims and structure of the

Association and his encouragement of the post-war generation of members then beginning to take control of its affairs. It also acknowledged his personal involvement in the thousands of benevolence cases with which he dealt. The respect in which he was held as Controller throughout the wider Corps continued after his retirement from REA affairs. He was a devoted supporter of Corps functions and it was notable how, when he was among past members of the Corps of all ranks, not only would he be greeted by those with whom he had served or worked, officer or sapper, but how he remembered everyone's name and background and brought good cheer with his fund of anecdotes and buoyant sense of humour.

His wife, Anne, whom he married in 1948 died in 1996. Four sons and nine grandchildren survive them.

GBS ECO'C KHB SEMG JAW PHB

MAJOR A B SHADBOLT MBE MC

*Born 23 October 1919,
Died 28 November 1999, aged 80.*



ARTHUR (Sailor) Shadbolt had two careers in the Corps, first and foremost as a fighting soldier engaged in two of the hottest campaigns of the Second World War, and second for ten years in command of the Kiel Training Centre.

Arthur Shadbolt joined the Army as a regular soldier in the ranks before the war, was commissioned in the Middle East in 1941, at the OCTU in Cairo, and posted to 54 Fd Coy in Baalbek, Syria. The company was part of the relief force that went into Tobruk at night to relieve the Australians during the siege in late 1941, and, as a subaltern, he played a major part in the mine clearance for the breakout by the Black Watch in 1942. He was awarded the Military Cross for gallantry at Tobruk and an even rarer honour by the Black Watch for, in their own words "The only Sassenach to be allowed to wear their red cockade". DFC, a sergeant in 54 Fd Coy at the time,

remembers him as "a colourful character, equally at home with, and admired by, both officers and men." His No 2 Section later built the Black Watch Memorial on the Tobruk Perimeter.

After a spell training in India, still with 54 Fd Coy, he went into Burma with 70th Div, which became the Chindits. Arthur, now a captain, took part in Wingate's second expedition in April 1944, again attached to the Black Watch. At Indawgyi Lake:

*Two fighting patrols had been sent out, but none returned. I volunteered and after some hesitation the CO sent a message "accepted". I was detailed with some fifteen men to follow the same route, along a ridge with a steep drop to one side. We proceeded for some five hours, when going down a steep incline a machine-gun opened up on the other side. It was on a fixed line, fired over my head and killed five men immediately behind.

After six months (he could not be relieved after the normal stint of three months) Arthur Shadbolt marched out of Burma with his column, piped out by Piper Bill Lark.

*So we arrived in India and as I weighed only 100 pounds sprue was diagnosed. Straight into hospital on a diet of raw liver and bananas for three months.

Arthur Shadbolt's second career in command at Kiel for ten years, took him to retirement in 1974. It included the period of the Kiel Olympics and, for some three years before the event he and his wife Sheila, gave accommodation to the Team Manager, his wife and six yachtsmen during the preparations. Arthur was on the Olympic Committee, attending meetings in the headquarters in Munich and was responsible for all British nationals, for interpreting and for their comfort in the Olympic Village flats at Kiel.

For many years after leaving the Army, Arthur ran a holiday business in Westward Ho, near Bideford in Devon, before finally retiring. Also for many years he attended the annual reunion of Chindits in the South West – largely ex-members of 45 Reconnaissance Regiment – and last appeared on Saturday the 30 October 1999. The night before he had attended the first reunion of 54 Field Company held in the same hotel.

His wife and one son survive him.

DD DFC WHL

*Quotations from "March or Die. The Story of Wingate's Chindits" by Philip D Chinnery, (Airline Publishing 1997.)

**LIEUTENANT COLONEL STUART
NESBITT WHITE CD**

*Born 7 November 1917,
died 30 November 1999, aged 82.*



“TUBBY” White was born and raised in Belfast where he attended Campbell College. He was a keen supporter of the OTC in which he rose to the rank of CSM. He was a crack shot and competed at Bisley for the School VIII. He also played rugby football for the XV.

From Campbell College, in 1936, Tubby went to the RMA Woolwich, and, after commissioning into the Corps, to St Catharine’s College, Cambridge, where he took a degree in mechanical sciences.

In 1939 and 1940 he was with the BEF in France, posted to 4th Div. He played a full part in the demolition programme to delay the Germans’ advance through Belgium and finally, at Dunkirk, organized the construction of walkways on vehicles to enable retreating British soldiers to reach the rescuing boats. During this work, Tubby was wounded in the leg and eventually evacuated. On

his recovery he rejoined 4th Div in England and served with the division in North Africa before joining 78th Div and being involved in the Sicily landing and the long hard fight up Italy. He was twice Mentioned in Despatches.

After the war, Tubby attended the British Army Staff College in Quetta and was then posted as the RE Exchange Officer to the Royal Canadian School of Military Engineering in Chilliwack, BC. He was later appointed Chief Instructor, a singular achievement for a non-Canadian.

He returned to England, and was posted to the War Office, before retiring from the British Army in 1955.

The family emigrated to Canada in 1956 where Tubby joined the Canadian Federal Emergency Measures Organisation in Ottawa, working on survival planning for nuclear war. Over the next 28 years he undertook ever increasing responsibilities, eventually retiring in 1984 as Director General (Plans) Emergency Planning, Canada. He was held in such high regard that, on his retirement, a research fellowship was established in his name.

A strong military interest continued throughout Tubby’s life. While in Canada he was the Commanding Officer of 3rd Fd Engr Sqn, Royal Canadian Engineers (a militia unit) from 1959 to 1965 and was its honorary colonel from 1972 to 1983. He was an honorary life member of the Military Engineers Association of Canada and was its president from 1972 to 1974. He supported the Royal Canadian Legion and was instrumental in saving from extinction the branch in Westport, Ontario, where he lived for a number of years.

In 1989 he returned to live in Northern Ireland. His major project there was a history of the 16th (Pioneer) Battalion Royal Irish Rifles, the unit in which his father had served during the First World War. “The Terrors” was published in 1996.

A senior NCO once described him as “a Prince of a man”. He was a person of great intellect with enthusiasm for a wide range of subjects. He had compassion, loyalty, integrity and honesty. He was also a practical person with a well-developed artistic talent. Socially, he was a fun loving, witty, humorous man with an infectious laugh.

He leaves his dearly loved wife, Helen, (whom he married in September 1941), two sons, two daughters and nine grandchildren.

JNB

LIEUTENANT COLONEL W A B CHAPPEL

*Born 30 June 1925, died 21 December 1999,
aged 74.*



BILL Chappel was a truly regimental officer whose main motivation was "service not self". The well-being of his soldiers and the maintenance of the Corps' high reputation for military support and efficiency were his primary concerns.

William Arthur Brian Chappel was the son of Major General B H Chappel DSO** of the Indian Army. Bill was one of several Marlburians who, in October 1943, joined a Cambridge University short course. A contemporary writes that he was a popular member of the course with his cheerful forthright manner and outspoken attitude. Basic training at Colchester and Clitheroe was followed by OCTU at Newark and a commission in April 1945.

Bill immediately volunteered for parachute training and joined 591 Airborne Squadron just before they flew to Norway where their main task was the supervision of German prisoners clearing their land mines. In February 1946 Bill

was posted to join 9 Airborne Squadron in Palestine. Six months later the CRE brought him into his HQ as his field engineer. He soon became a popular officer in the divisional HQ and in its sapper units. In May 1947, in the run down of units in Palestine, Bill joined 3 Airborne Squadron in England and moved with 2 Parachute Brigade to Schleswig-Holstein. The brigade was later transferred to the Hanover area and 3 Airborne Squadron moved to Hameln taking the number of the oldest of the division's pre-war units: 9 Independent Airborne Squadron. As a troop captain Bill greatly helped 9 Squadron, then the only all-regular soldier unit in the army, build its present reputation. He was the fly half in the squadron rugby team which won the BAOR major units cup and won through to the final of the UK and BAOR Army Cups; the first minor unit ever to do so. He was much liked and respected by his troop who responded well to his sometimes extravagant demonstrations of their, and others', military shortcomings.

In May 1949 he was claimed back by his former CRE, who had become Commandant of the Army Airtransport Training and Development Centre to be an airportability instructor at Brize Norton. While there he played rugby for the Corps. His next posting was to Chatham as a second-in-command. During the year there he married Sheila Ibbotson, a WRNS officer, before becoming adjutant of the Royal Monmouthshire Royal Engineers and spending two enjoyable years at Monmouth. In July 1956 they flew to Malaya to join 51 Field Engineer Regiment in Kluang where he was to be adjutant. He then joined the Malayan Federation Engineers, first in their HQ at Kuala Lumpur and, eighteen months later, to an early command of 2 Malay Field Squadron based on Ipoh. Their main task was the building of the Ipoh Road. He and Sheila came home in December 1959.

After a two-year posting as SO2 RE to Engineer Branch in Rheindahlen he was appointed OC 29 Field Squadron in Hameln in May 1962, with 11 Infantry Brigade. An enthusiastic and impulsive leader he was proudly dedicated to his squadron, its independent status and the protection of his sappers.

In April 1964 he became Senior Instructor Bridging at Chattenden. It was the busiest job in the school at that time with many different types of equipment in service or coming into service. Many of the then YOs will remember him as an

energetic commander insisting on high standards of planning, preparation and building. At the same time he could always see a funny side to mistakes (including his own) and was invariably dismissive of any military pomposity.

From Chatham in October 1966 Bill was posted to HQ Wales District and also, initially, HQ 53 Division in Brecon. It was his only non-RE appointment but as a GSO 2 he was much involved in the Aberfan disaster for which his engineer background was helpful.

It was for his next appointment as DAA & QMG at the RSME that many will remember him most. With his wide experience of Chatham matters he was often asked for information and advice. The commandant at that time writes that he was lucky to have Bill as a senior member of his staff, and that he was one of the most loyal officers he ever knew.

Bill's final appointments were with HQ Engineer Support Group in Woolwich and in London from 1971 to 1977 as a lieutenant colonel deputy inspector.

On leaving the army he joined Halcrow Engineer Consultants as an administrator. The chairman writes that the success of the organization when it combined with Balfour for a massive job in Saudi Arabia, which entailed the bringing together of a staff of 300, was largely due to Bill's persistence, hard work, attention to detail and good humour. He retired from Halcrow in 1990 after heart trouble for which he had to have a by-pass operation. He later had a stroke which badly affected his eyesight but he bravely coped and overcame the problems, although he had to give up driving.

Sheila, their two sons and six grandchildren survive him.

DJNG SEMG DLJ DP DCW DAB-W

MAJOR J T HANCOCK

*Born 2 November 1929, died 10 April 2000,
aged 70.*



WHEN Major John Hancock retired after 30 years of soldiering to take up the appointment of Corps Librarian (RO3) in April 1978, he was fulfilling a destiny for which he had been preparing, perhaps subconsciously, for many years. It was to prove an exceptionally fortunate destiny for the Corps and one which was to last to the day of his untimely death.

John Trevor Hancock was educated at the Stationers' Company School in London. Through his father he met many Indian Army medical officers during the war years. Listening to their tales of peacetime soldiering in India, he decided that was the life for him and entered the Royal Military Academy, Sandhurst, in 1947. Unfortunately Partition and withdrawal from India put paid to his ideas of joining the Indian Army so he decided to settle for life in the Corps. His first posting after commissioning in July 1949, to 37 Engineer Regiment, initially in Wales and later at

Osnabrück in BAOR, certainly offered fun and he enjoyed "riding six days with pig shooting on the seventh."

After a year-long spell at Shrivenham and the YOs' Course, John was posted to 66 Independent Field Squadron in Trieste. Although this was not officially a family station, his wife, the former Barbara Walker, whom he had met during the YO Course, was able to join him and two happy years ensued. A brief spell back in the UK was followed by a three-year tour in Malaya. This was marred by his contracting sprue, which took him away from the satisfying work as a troop commander with 75 Malayan Field Squadron, largely on jungle road and helicopter pad construction, to an administrative post with CRE North Malaya.

The next posting, to 43 Field Park Squadron, in Hameln, in 1957, marked the start of a trend in John's career towards resources. After Hameln all his appointments were in the UK except for one emergency six-month tour in Aden during which he, with two wireless operators, "...organised and controlled a combined sea and air emergency withdrawal of large quantities of both RAF and RE plant from Ahwar, where they were building a very large earth dam." The only two non-resources jobs he held, before his final one as Second-in-Command of the Depot Regiment, were as a TA adjutant and as SO2 at RE Records, both of which he thoroughly enjoyed. John always flourished under pressure and where people (and horses and dogs) were involved.

By great good fortune, while SO2 RE in the MoD, he "... discovered the delights of the MoD Library and, as a result, spent most of his time reading and researching military history." From then on he began to assemble the huge and detailed archive of references to military engineering in the Peninsular War which now resides in the Corps Library and is one of his many legacies to future generations.

His arrival at the Library was still ten years away at that stage, and could not have been foreseen. However, the chance came in 1978 when he was offered redundancy and when the vacancy arose as a result of the death in post of his predecessor. He was then informed that the post of Librarian was to be combined with that of Editor of *The Sapper* magazine. Undaunted he tackled that task with particular flair. His competence in the two unconnected roles was an object lesson in management skills. His

encouragement of the clerical staff in developing their talents in both areas had highly beneficial results for the Corps. *Sapper* developed into the popular and attractive journal it remains to this day, and in John's time nearly doubled its circulation from 4,500 to 8,900 when his own 9,000 target was frustrated by financial restrictions.

This work on *Sapper* with its relentless deadlines could have become dominant. However, by skillful delegation and trust in his subordinates, a trust which was fully reciprocated, John limited his time on his editorial responsibilities in such a way as to put his main effort into the reorganization of the Corps Library that he realized, once he had taken stock of things, was now long overdue. Central to this was the introduction of the computer system in the design of which he developed rapidly from sceptic to expert. The result, by the time he retired in 1992 after fourteen years, was the first complete classification of the 70,000 photographs in the collection, and cross-referenced records on 10,000 people, 1,500 units and 100 subjects amounting to a total of some 200,000 records. His stated aim in retirement was to advance his researches into his own field of historical interest, at which he was an acknowledged expert. In particular he wanted to continue developing an archive on the

Royal Staff Corps whose origins as "The First British Combat Engineers" he had so notably recognized in the *RE Journal* (Dec 74).

However, his ambition to help the Corps Library was a powerful draw. He was always ready to come back when asked to help out. After his retirement, and during a period of staff shortage in the Library, he continued to drive the project to put all the books onto the computer, the final step in producing the service that he felt the collection deserved. Much of this work he did at home, continuing a habit that he had started ever since the introduction of the computer. Indeed, he was at his computer when he so suddenly died.

John Hancock never sought any reward in the shape of fame or fortune. He frequently joked (he had a wry and self-deprecating sense of humour) that the hours of extra work he put in were immaterial because "... after all, they were paying him to work at his hobby." His much-merited award of the Cooper's Hill Memorial Prize medal for outstanding service to the Institution in 1989 surprised him.

John drew great strength from his family life, showing pride in and always giving them his support. His wife, Barbara, their son and two daughters survive him.

FRB GWAN AAT WBW MM

COLONEL H A STACY-MARKS

*Born 14 February 1924,
died 18 December 1999, aged 75.*



TONY Stacy-Marks was born in Entebbe in Uganda, his father being the harbour master in Mombasa. At the age of six, he and his sister were sent back to the UK for their schooling. In 1938 he went to Haileybury and from there was in the Home Guard until going up to King's College, Cambridge, for the short degree course in 1942. Although commissioned into the Corps in 1943, he originally wanted to go into the Royal Navy but the necessary papers for his entry went to him via Kenya and arrived too late. Joining 79 Asslt Sqn shortly after D-Day, he was mentioned in despatches before being wounded in 1945 and evacuated to England. At this time he had not seen his parents or his sisters for eight years.

Post-war service as a field company second-in-command and on the staff took him to Kenya, back to the UK and then to the Canal Zone until attending 17 Supplementary Course in 1950. After two more postings he attended Staff College in 1955, followed by a posting to

Cyprus as a GSO2. He and his wife, Jenny, whom he married in 1955, lived in Nicosia in the difficult circumstances of the continuous threat from Eoka. Their son, Roderick, was born in Limassol in 1957.

Returning from Cyprus, Stacy-Marks spent nearly four years at the RMA Sandhurst, first as an instructor and later in the headquarters. From there he attended the Joint Services Staff Course at Latimer before being posted to Malaya to command 11 Indep Fd Sqn. Three UK appointments then followed, as Second-in-Command of the Junior Leaders Regiment, at Long Marston, and in the MOD on the staff of the Chief of Personnel and Logistics. By this time the family had moved into their home at Westfield near Hastings which was to become his base for the rest of his Army career and where he settled in retirement.

In 1971 Tony joined the Nato Defence College in Rome as a student and this led to his two penultimate appointments in the Army, first as Deputy (Army) UK National Military Representative at SHAPE, at Mons; and as SACEUR's Deputy Representative to the Nato Military Committee in Brussels. For much of this time he commuted weekly by motorcycle from Brussels to his home in Sussex. Finally he returned to the Corps in 1977 as the first Regimental Colonel, based at Chatham, and so became the architect of what has now become one of the key posts in the Corps. It was appropriate that someone so widely respected as Tony was selected for this task being able to bring to it the practical common sense and sympathetic insight that had marked his Army career.

These skills, accompanied by a great sense of fun, made him much in demand in local affairs after his retirement from the Army. He was heavily involved in village and local life – a number of committees had the benefit of his wisdom and his humour as well. He was the local district councillor, with considerable success, for over six years. At the same time he was running three residential homes for the elderly in Brighton, Worthing and Egham.

Sport was a major part of Tony's life. In his younger days he was a keen cricketer, rigger player, hockey and squash player and a sailor. In later life these gave way to tennis, fishing and shooting. It was while out shooting that he died.

His wife, son, two stepdaughters and six grandchildren survive him.

ABE

MAJOR GENERAL R C A EDGE CB MBE

*Born 21 July 1912, died 30 December 1999,
aged 87.*



MAJOR General “Joe” Edge’s appointment as one of the last Directors General Ordnance Survey to hold that post as a serving Sapper was the pinnacle of an adventurous career in Survey.

Raymond Cyril Alexander Edge was educated at Cheltenham, Woolwich, (where he was a Prize Cadet) and Gonville and Caius College, Cambridge. He was commissioned into the Corps in 1932, and in 1936 was posted to India where the appeal of the Himalayas enticed him into the Survey of India.

“Edge’s first task was to survey the Garhwal and Kumaon Himalayas, to which he went with a party which included Sherpa Tenzing, later to become famous as one of the first two men to set foot on the summit of Everest. Frostbite and snow blindness made these early ventures hazardous, but Edge made the first ascent of Uja Tirche (20,350ft). Later projects included mapping the jungles of the Deccan and an air survey of the North West Frontier.

“After the outbreak of war in 1939, Edge was moved to more mundane duties in Delhi,

but in 1942 he was posted with 3 Fd Coy to establish hurried harbour defences in Ceylon and the Maldive Islands. This task completed, he was posted to Fourteenth Army in Burma as AD of Survey in XV Corps. He served throughout the Arakan offensive and the Japanese attempt to break through Imphal, and later witnessed the Japanese surrender ceremonies in Rangoon and Singapore.

“In 1946 Edge, back with the Survey of India, was posted to the North West Frontier during a period of turbulent unrest. After partition in 1947 he became DG of the new Survey of Pakistan and had the onerous task of determining disputed boundaries. On one occasion he prevented a lynching by driving a shot-down pilot to safety in an open truck through a hostile mob.” Spells at the War Office, in BAOR (AD Svy 1), Ordnance Survey (DD Geodetic Control and, later, D Fd Svys) and Cyprus (DD Svy MELF) completed his career before becoming DGOS in 1965. In that post, he supervised the move from Chessington to Southampton where he was able to welcome the Queen to open the new buildings. After retiring from the Army, General Edge participated in many international and national committees, commissions and study groups on survey matters and contributed to the “History of the Ordnance Survey”. He was also appointed a Department of Transport Independent Inspector, undertaking a number of major enquiries. “All these inquiries”, he recalled, “were interesting, controversial and sometimes noisy, especially at Winchester, where I gained some notoriety by ejecting the Headmaster of Winchester College from the meeting for bad behaviour.”

He married first, in 1939, Patricia McKee, who died in 1982. They had a son and a daughter. He married secondly, in 1983, Audrey Muers-Raby, who survives him.

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Brigadier J Constant writes:

WHEN I was CE, MELF in 1960, Joe Edge was the much-respected DD Survey. Our paths did not really cross professionally, but I found him most courteous, and particularly helpful as a guide to the intricacies of the huge HQ at Episkopi in Cyprus. Joe and Patricia were also most kind to my family and myself in the busy

social life of a Joint HQ. Eight years later, when I had been offered the civilian task of carrying out the Feasibility Study for a “fixed link” between Britain and France, on behalf of the Minister of Transport, I left the Army to do so. My very first impression was of the lack of any maps suitable for this purpose. It was necessary to plot the exact location of each of the seismic surveys, and of the exploratory bore-holes being drilled for geological purposes both on land and at sea, along with the altitude (above and below sea-level) of each deduced stratum. Topographical maps were equally necessary on which to plot the roads and railways, as well as the built-up areas and other obstructions on both sides of the Channel. I was

fortunate in finding Joe Edge as DGOS, as his fraternal sympathy for the situation led to the immediate co-operation of his French opposite number and of the Hydrographers’ Departments of both nations. They all agreed that the Ordnance Survey should produce two map series, one at 1:10,000 for the geological studies, and one at 1:50,000 for communications planning. Both were to cover the whole area of land and sea at these scales with metric contours and spot-heights: the first such British maps. It was Joe Edge’s enthusiastic understanding, which encouraged all the four authorities to work together in producing those essential maps so speedily, and to a high standard, so that our feasibility studies could proceed.

MAJOR REDMOND CUNNINGHAM MC*

Born 1916, died 1 December 1999.

MAJOR Redmond Cunningham MC*, Irish architect and distinguished assault engineer who played a key part in the D-Day landings, died in Dun Laoghaire on 1 December 1999. As Comd 1 Tp 79 Asslt Sqn, Cunningham landed on Queen Red beach. After successfully clearing obstacles there (albeit after twice evacuating shot-up tanks), and helping the neighbouring troop whose progress had been held up by the intensity of the fire, he moved to the canal lock at Ouistreham which “he held against fierce attack, and also personally located and removed explosive charges which could have immobilised the canal.” Later in the campaign, “in the Rhineland, as the most senior officer upright and breathing and aged 26, he led a combined infantry-engineer assault on German positions, taking 200 prisoners...”; For this feat, he gained a bar to the MC he had been awarded for his D-Day exploits and was awarded the Croix de Guerre. He continued to serve with distinction throughout the war, including in the Buffalo operations in the Schelde.

Some appreciations recently received:

“He was always called ‘Red’. It suited his dynamic personality. Wherever Red was there would the action be. He was a born leader and led from the front whether appointed to do so or not ...

“Absurdly brave, he inspired all ranks to do better than their best. He was charismatic, demanding, outspoken, unorthodox, intolerant, supportive, a natural crusader. He led during the day and again at sundown when the corks popped.” (IHGW)

“He was ...very confident and self-possessed ... He had a quick grasp of the technology which we had to master, especially the Churchill tank, the appalling 19 set and he had his troop very much under control. Redmond was always imaginative and iconoclastic – by which I mean that he found his own way to solve problems and was not too bothered about what those above thought of his actions.” (AJN)

After the war Redmond Cunningham returned to his practice in Waterford. “He was a legendary figure on the racing circuit, and his hospitality was all-embracing and perfectly lethal.”

*Extracts courtesy The Irish Times
unless otherwise attributed.*

COLONEL BRIAN COOMBE GM

*Born 25 July 1921,
died 19 December 1999, aged 78.*

Addition to memoir published in April Journal.

PFA-F writes: my two and a half years serving as a field squadron commander in 35 Engr Regt under the then Lt Col Brian Coombe, were among the happiest of my Army life. He was an exceptionally able man. Highly intelligent and also strong intellectually, he was a first-rate CO and ran an efficient and happy regiment. Invariably cheerful and always full of enthusiasm, he had a ready and engaging smile, which more often than not broke into a very contagious laugh. Innately kind, he was very easy to get on with and readily approachable by all ranks. In sum he was a man of considerable charm and very much a soldier's soldier.

His good leadership qualities were plainly evident, as was his adroitness at dealing with problems and difficult circumstances. One particular example occurred on the night of John F Kennedy's death, which coincided with our annual BAOR Sappers and Signals joint dinner night in Roberts Barracks, Osnabrück. The dreadful news from Dallas came over the radio as we were going into dinner, certainly not more than two minutes earlier. At the end of dinner, after the loyal toast and national anthem, the RE Chatham Band played the American national anthem. Brian then stood up and, without a note in his hand and with no hesitation whatsoever, for several minutes gave us a brilliant eulogy for the late President. It really was a quite remarkable performance not to mention an impressive and stirring tribute. In retrospect it was not more than we had learned to expect from a man of Brian's calibre but by any standards it was a real tour de force.

Memoirs in Brief

Brief memoirs are published below of distinguished men whose deaths have been notified recently in the press and who served in the Royal Engineers

Lord Mackenzie-Stuart, who has died aged 75, was the British judge at the European Court of Justice in the years following Britain's entry into the Common Market in 1972; he was president of the court from 1984 to 1988. A wartime sapper, he was commissioned in 1942, completed an engineering short course at Edinburgh University and went to France shortly after D-Day, subsequently serving in Holland and Germany. After the war, he was promoted to captain and posted to Burma, then to Northumberland where he helped clear mines from the beaches.

Alexander John Mackenzie-Stuart, born on 19 Nov 24 in Aberdeen, was the son of a professor of Scottish law. He was educated at Fettes and (after the war) at Sidney Sussex College, Cambridge, where he took a First in Law. He then read for his Scottish LLB at Edinburgh (gaining a distinction) and was admitted to the Faculty of Advocates in 1951. He was a convinced Europhile before his appointment to the European Court and remained an eloquent advocate of Community law after his retirement. He exhorted politicians to build on the existing solid basis of the union: "...take away the concept that Community law not only imposes obligations on the individual citizen but confers rights on those citizens and you have destroyed the

feature which sets the community apart from all other endeavours in the field of cooperation."

In 1996 he warned that proposals to curb the Powers of the European Court could trigger the break-up of the single market. The court, he argued, acts "... as a bulwark against the Balkanization of Western Europe and we undermine it at our peril".

Lord Mackenzie-Stuart is described as "... a kind, charming and civilised man ... a keen collector of paintings and drawings and very widely read."

© *Daily Telegraph*.

Sir Lindsay Alexander, who died in May at the age of 79, was a wartime sapper who served in the Western Desert on mine-clearing operations, was captured near Tobruk, and made his escape from a prison camp in Italy in 1943 after the Italian capitulation.

After the war he took a degree at Oxford and made a career in business, largely in the shipping trade during some of its most difficult times. He was Chairman of Ocean Transport and Trading from 1971 to 1980 and subsequently on the board of several leading companies including Lloyds Bank, British Petroleum and Hawker Siddeley.

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Correspondence

A NOBLE CRUSADE – THE HISTORY OF THE EIGHTH ARMY 1941-45

From: Lieutenant Colonel G E P Mulhern OBE

Sir, – Included in the book reviews in April's *RE Journal* is "A Noble Crusade – The History of the Eighth Army 1941-45". Within this review it states that the Sappers get a fair coverage ... that their tasks were many and varied and often extremely dangerous.

The latter is far from overstated for, from the top of my head, aged 92, having served as a captain on the Staff of the Army's Chief Engineer, I recall the following fatal casualties in North Africa from Alamein in chronological order:-

- 1 Major Baker Cresswell – the first RE casualty at the Battle of Alamein. His 2IC, Captain Jones, took command and won his MC.
- 2 Major Freddie Field – killed in action – such a light hearted, inspirational leader.
- 3 Major Ginger Bell – ex 4th Indian Division and then G2 13 Corps ... another happy warrior and so unlucky. In his jeep with his driver they rode the railway track rather than the soft sand south of Mersa Matruh and went bumpedy bump – bump bump and then were blown up by a German teller mine. Amazingly three trains had already rode the track but the added compaction killed poor Ginger. His driver escaped.
- 4 Ronald Gerrard – the much loved Commander of 1st Field Squadron.
I stayed overnight at his camp at Derna a few days before he, in his jeep, went into a minefield to rescue a tank that had strayed. One of its crew jumped out onto a nest of anti-personnel mines. Ronnie had captained the Bath and England rugger sides before the war and his widow continued to manage the Bath team afterwards.
- 5 Brigadier Frederick Kisch – Chief Engineer Western Desert Force and its successor, the Eighth Army.
- 6 Colonel "Daddy" Shannon – The South African Deputy Chief Engineer, Roads.
- 7 Major Bell – The South African Engineer commanding a road construction company.
- 8 Captain Voight – The latter's Afrikaans second-in-command.
- 9 Major David Purser – OC Field Company.
- 10 Major Clive Tandy – HQ 10 Corps staff officer.

All those numbered 5 to 10 inclusive* were together killed in a minefield. [*See Apr 93 Journal, p69.*]

I believe that one of the eight stretcher bearers that went to recover the bodies (killed and/or wounded) tripped over a wire attached to an Italian picket mine which killed them all. Yours faithfully, George Mulhern.

*Also referred to in correspondence columns of the *RE Journal* of August 1993.

LT COL M J ANDREWS OBE

From: Major J Chilton

Sir, – The death of Lt Col M J Andrews, OBE, reminds me of an inadvertent act of his which introduced a new phrase to what was then the new world of international peacekeeping.

As our CRE in Cyprus, he found himself on Boxing Day of 1962 as GSO1 to General Sir Peter Young, in Nicosia, where long years of simmering hatred between Turkish and Greek Cypriots had suddenly erupted into open warfare. A hastily formed British force was rushed in to separate the two sides; but first, a boundary had to be identified and marked across the city.

As the officers studied the map, to a background of crackling small-arms fire, the GOC turned with an outstretched hand: "Give me a crayon, Mike", he said; and Mike passed him a green chinagraph.

Thus the Green Line was drawn, to be accepted as official terminology when the first Canadian UN troops arrived on the island many weeks later. Yours sincerely – Major John Chilton.

DRESSED TO KILL?

From: Major K Johnson,

Captain M J N McPhee and Captain A D Boyle

Sir, – We are writing to express our support for the proposal voiced by Lt Col Whitchurch MBE, that the Corps should consider reverting to the 1897 pattern Mess Kit. For those readers who have not seen it, we commend the colour photographs in the December *Journal* or a visit to view the real thing in Golding's Camberley branch. Furthermore, we have canvassed views quite widely and can say without fear of contradiction that there is a considerable body of

support for this plan. Many serving officers view it as an excellent idea, Lt Col Whitchurch's points about our current Mess Kit and the need to be proud of our heritage should be borne in mind. He also explains that the practicalities and cost need not be anything like as difficult as many people imagine and makes a powerful and practical case for change.

Let us close by saying that in our opinion this is a splendid idea and the sooner this project becomes a reality the better for all of us. For too long we as a Corps have been far too modest about who we are and what we have done. The absolutely staggering level of ignorance that one encounters from other officers (particularly the Infantry) about the Sappers is really infuriating. So anything we can do to stand out and proclaim our history, which is usually longer and more distinguished than most other people's, the better.

There will be grumbles against this proposal, but we are of the mind that now is the time for some characteristic Sapper imagination and style. A simple ballot of serving officers would resolve the matter.

We have the honour to be, Sir, Your obedient Servants, K Johnson, A D Boyle, M J N McPhee.

DRESSED TO KILL?

From: Captain Rupert Baddeley

Sir, – I would like to take issue with the letter from by Capt W D B Wishaw, published in the *April Journal*, in that he opinions our mess dress lining is too thick for modern centrally heated messes, a line of buttons on a proposed new waistcoat does no justice to a typical male belly if he is aged over 28 and out of training and the 1897 shoulder ensemble is rather ostentatious.

Firstly the lining is such that it gives shape and form to the cut of the jacket, yes the lining could be "reduced" but the jacket would then become considerably less durable and shapeless; besides, if Capt Wishaw finds the kit too warm why doesn't he have the lining removed by his tailor. Secondly not everyone over the age of 28 has a belly and indeed if the wearer finds his proportions embarrassing then he should put the biscuits back and get in the gym – it appears that Capt Wishaw is protecting the minorities at the expense of the majorities. Finally, the sartorial elegance of the shoulder ensemble is outstanding. The Corps is very bad

at publicising itself so let's be daring (NOT vain or ostentatious) for once and wear some gold. Hurrah for the 1897 pattern Mess Dress! Yours faithfully, Captain Rupert Baddeley, AI Soldier Trg, (9)4661 2408.

DRESSED TO KILL OR IS IT THRILL?

From: Lieutenant Colonel P E Crook

Sir, – I fully agree with what Lt Col Whitchurch has said about changing our mess kit but come on fellows, should we not be taking the Corps forward and design a mess kit suitable for the 21st Century rather than copy what has been. A lightweight modern mess kit is what we should be striving for, something new and practical which reflects the Corps of today. Let's make history and not follow it – follow the Sapper! Yours sincerely – P Crook.

DRESSED TO KILL? SOME ANSWERS TO QUESTIONS ON THE PROPOSED (AND REVIVED) NEW MESS KIT

From: Lt Col M W Whitchurch

Sir, – There have been several questions raised about the proposed mess kit that were not covered in the article published last December. Some questions and answers to them are:

Is the kit accurate in detail by 1897 regulations as some think it is not?

The details of the design were checked by two different sources – both came up with the same design for mess dress. Readers may recall the similarity of the tunic worn by Stanley Baker when playing Lt Chard in the film "Zulu". This is the tunic that is quite different albeit with identical shoulder boards and grenades. The *actual authentic* design was key to my argument for the revived mess kit.

Is the kit uncomfortable?

No. If a good tailor makes the kit it is not. I have worn it and can vouch for its comfort because the tailoring was good.

Short service officers will not want to convert because of their length of service?

As the article stated, allow five years for conversion as this will allow short service and those who can foresee their leaving within five years not to convert *if they wish*. It would be bad form to ask brother and sister officers to do anything else.

Senior Lieutenant Colonels going on promotion would have to buy the Gneral Staff kit in future. Please comment.

Not really. The current practice during the last ten years is to push on with the same kit worn at Regimental duty. Indeed research showed those cap badges with this 1897 style wanted to keep it as it was smarter and saved them money. Equally many wanted to remain visibly looking like they were from their cap badge – (comment: *floreat* the Regimental system!) After all, argued one colonel, if you've got it (a smart mess kit) then flaunt it!

We should look to the future and not to the past. Comment.

This statement is too glib. We should look to the future mindful of successes and failures of the past. Old is not necessarily bad and new is not necessarily good.

Why bother with mess kit at all?

I ask readers to revise the arguments in the original article. Second, I offer the assertion that combat kit has its place but so does smartness. The original Battle Dress was seen as just that and other forms of kit for barracks and *Mess* were recognized and *retained*. As an aside it was thought-provoking and instructive to learn from one friend who said the other day his soldiers were impressed when he went into the office wearing "barrack" dress "looking like an officer" (the soldiers exact words) because he was sporting brown shoes and service dress trousers. Do we really have to be camouflaged trees when we drive a desk or be in barracks all day or most of the time? Indeed accountants will say it is cheaper to wear a barrack dress. The view of these soldiers touched a chord with me because as an ex soldier of three years I expected my officers to be smart and distinguished as well as good leaders. Returning to mess kit I conducted a straw poll in KFOR that revealed none would be without it and were seriously impressed with the proposed RE mess kit – power dressing? Certainly. Perhaps a view from a brother officer who is not RE and commented on the idea would help debate: "You Sappers have a reputation for hiding your light under a bushel and this revived kit would help expose it better".

Your Obedient Sapper, Sticky.

WHAT IS GOOD WRITTEN STYLE?

From: Major G E C Woollatt (retd)

Sir, – Captain Provan's article reminds me of two events which did much to influence my

working life. As a PQE student, during Colonel Eddie Peel's inspiring leadership of the Civil Engineering School, I will confess to having largely ignored a short series of lectures based on Fowler's "ABC of Plain Words" given by the school's RO, Colonel Dinwiddie. I thought I knew all there was to know about writing in my mother tongue! During our attachments to contractors and consultants we were required to submit monthly reports to the chief instructor – direct I mistakenly assumed. I spent many hours, without secretarial help in the days of manual typewriters, preparing my first report, a perfect document with the text in boxes fitted so neatly around my original photographs lovingly cut and pasted into place, a work of art.

Imagine my surprise when it was returned, rejected by Colonel Dinwiddie and just covered with red pen corrections to both my spelling and my grammar. I am ashamed to say that I wrote back complaining that I didn't think he had the right to stand between me and the CI. I received a most polite, gentlemanly but very firm response advising me that my report would be passed to Colonel Peel when it was fit for presentation. "Right I thought, I'll show him!" And of course that was exactly the reaction he wanted. We developed an amicable contest, back and forth over the following months, until I did eventually succeed in producing an acceptable report first time.

Many years later, in civilian practice, I was hired to head up the newly formed international division of one of Canada's larger firms of consulting engineers. The company had just won its first ever overseas assignment, to provide construction supervision on a World Bank financed water treatment plant and transmission line in Accra, Ghana. Tenders had already been called for the main pipe supply contract before we were appointed and the documents had been forwarded to us in Vancouver for evaluation. This had been completed by the head of our Pipeline Division and copies of his report were hastily thrust under my arm as I left for the airport on my first trip as a managing director, to meet our new client, set up a local office, hire a local associate and finalize our staffing schedule.

On arrival in Accra I went straight to the Ghana Water and Sewerage Corporation office and was received by a Mr Ray Cook, a meticulous professional engineer of the old school, who was filling the dual role of World Bank

Project Monitor and Technical Advisor to the Ghana Water and Sewerage Corporation. I presented my credentials and gave him a copy of the pipeline tender appraisal report. He started reading the document while I stood and waited. After a while I glanced at my watch, it was quite late in the afternoon and I needed a shower and some sleep, so I suggested that I could leave the documents with him and come back in the morning. He closed his copy and pronounced a somewhat grammatically awkward sentence which has remained engraved in my memory ever since. "Mr. Woollatt, there are three spelling mistakes in the Letter of Transmittal, if you cannot spell why should I be persuaded that you can engineer? Please resubmit"!

On reading the document in my hotel room later that evening, something I should obviously have done before leaving Vancouver, I saw that it fell far short of Colonel Dinwiddie's standards so, yes, I went all the way back to Canada and had the whole document rewritten to my satisfaction and that of Mr Cook.

Since that day I have insisted on being at least the coordinating editor if not the author of all company proposals and reports submitted to overseas clients. I have irritated many professional engineers who did not believe that I had the right to "correct" what they had written. I have consistently refused to accept documents with spelling errors and those that promise "As can be seen in the diagram overleaf" but it isn't overleaf, or "As will be found in Appendix C" when in fact it is in Appendix E. I really believe that much of my success as the manager of other peoples' engineering in the highly competitive international marketplace, can be traced to the fact that all my engineers know that I keep an endless supply of red pens in my desk drawer and am not afraid to use them, no matter who the original author may be. (And incidentally neither do I have any problem accepting corrections to my own drafts, which are often far from perfect – initially.) Arithmetic is either right or wrong, so are grammar and spelling. All three are equally important facets of successful engineering practice.

Sometimes we fail to realize that while we are in the services all our reports go to members of the same profession who understand our acronyms and recognize the standard formats taken from "Staff Duties in the Field," or whatever its current replacement may be. In civilian practice in

Europe and North America the client, whether government or private sector, is almost invariably another engineer who understands the same technical language, but when we get into the so-called "developing countries" the client's representative is often a bureaucrat who does not understand our sloppy shortcuts, abbreviations and jargon. No matter how experienced, technically competent or specialized an expatriate engineer may be, his value in the third world will always be limited by the level of his ability to communicate his proposals and recommendations and to argue a point logically, in language that can be understood by non-technical clients. Ie, back to the beginning – "The ABC of Plain Words".

I disagree with those who suggest that grammar and spelling are no longer important in the age of the computer. "Spell-check" and its like simply makes us lazy and can lead to many pitfalls as is shown in the following poem.

Eye have a spelling checker,
It came with my pea see.
It marques quite plane four my revue
Miss steaks I cannot sea.
I've run this poem threw it,
I'm shore you're pleased two no,
Its letter perfect in its weigh,
My chequer tolled me sew.

Try it! Yours sincerely – Geoff Woollatt.

WHAT'S WRONG WITH THE NUMBERS? A QUESTIONING LOOK AT PROBABILISTIC RISK ASSESSMENT

From: Colonel (ret'd) R D Garnett MBE

Sir, – As a successor to Jack Crawford both on the Ordnance Board and the Australian Ordnance Council I read his article in the April *Journal* with particular interest. Since leaving the active list nine years ago I have been much involved with the question of Risk Assessment and Management, but in the field of IT security rather than safety. Can I offer a few comments from that perspective?

My first comment arises from advice I received from a mathematician in the Ordnance Board's S Div. When the curve of the normal distribution curve is as flat as it is at 1 in 10^9 , no one really knows whether they are at 10^8 or 10^{10} . I was also advised to ask for the confidence level attributed to any assertion.

The second comment is more practical. Human procedures nearly always have a part to play in safety or security. We mortals screw up frequently and often, a failure rate of 1 in 10^2 is realistic. Just think how often you failed to open a combination safe first time. A “two person” rule helps, but consider the recent nuclear fuel scandal that required the collusion of a number of people. Whenever I hear the outcome of an air crash investigation it nearly always seems to be “pilot error”. The message seems to be, for high assurance – keep humans out of the loop.

Thirdly, mathematical probabilistics tend to assume random causes and normal distributions. This allows the wonders of $p \times p$. With security this is hardly ever the case. The security risk assessment model considers a number of factors such as asset value, vulnerability, threat population – and their capabilities, and the outcome of compromise. An attacker, whether thief or terrorist, looks for the weakest point and exploits it. Assessing the risk is essentially a matter of judgement as is assessing the countermeasures required to reduce the risk to an acceptable level. One thing is certain, countermeasures need to be varied and deployed in depth. I thoroughly agree with the requirement to record all assumptions, assertions and judgements. There may be a

board of enquiry and, at the very least you need to be able to disprove negligence. It might even be possible to learn why it all went wrong.

Software reliability raises even more complex issues. If there are mistakes or additions in a programme they will always be there, and they don't occur at random. Testing will confirm that a programme does what it says on the label. More testing is required to see that the introduction of new programmes do not upset existing systems. You can test for what is conceivable, but what if you plain forgot. I was once involved with an electronic demolition time fuze where neither the statement of requirement nor the system designer considered what a minimum “fail safe” time should be. It turned out to be about five seconds.

Finally, some consideration needs to be given to the acceptable level of residual risk. Hand grenades are unsafe to untrained users – but they are not as unsafe as home-made bombs. In spite of the “precautionary principal” we accept residual risk when it suits us. We all use road transport, and some even go bungee jumping. As soldiers we know that “who dares, wins”. We also know the need for a reserve to greet unforeseen opportunities or setbacks. Yours sincerely,
Roger Garnett.

Reviews

120 MILLION LANDMINES DEPLOYED WORLDWIDE: FACT OR FICTION?

ILARIA BOTTIGLIERO

*Published by Pen & Sword Books Ltd,
47 Church Street, Barnsley, South Yorkshire,
S70 2AS, for Pro Victimis, 4 rue de Rive,
CH 1204, Geneva.
ISBN 0 85052 731 7*

ILARIA Bottigliero's first chapter is headed "Does the Issue of the Number of Landmines Deployed and Stockpiled Worldwide Really Matter?" She concludes it does and gives her reasons for the conclusion and I suppose they are valid, well, at least, they are valid debating points. However, what I would like to know is: what areas of significantly important economic potential are being denied exploitation because of land-mine infestation and what effort is required to restore these areas to economic use?

Whether an area contains ten or a thousand mines, the amount of time required to clear it is virtually the same. Some areas which are currently mined are of little economic potential and could well be left mined and fenced off to allow effort to be deployed on areas of significant economic potential, such as access to water supplies, quarries for building materials and areas of good quality agricultural land. Of course, I know that the materials used to fence off mined areas are soon stolen, representing as they do great wealth to the desperately poor people of the area. But, unless the area is causing a constant stream of casualties (not always the case), it could be given a low priority for clearance.

Ms Bottigliero has spared no effort to accumulate anecdotal evidence of mine numbers which, frankly, does not answer her question, not that it really matters. Her "Executive Summary" is worth reading and it might spur you to reading the rest of the book. Unfortunately, I do not agree with a lot of her conclusions, which essentially say that it is important to get an accurate number of mines deployed. It is virtually impossible to do so. Does it matter how the UN came to its conclusion that there are 120 million mines deployed? God forbid that we should spend any more money on trying to find out.

Ms Bottigliero pleads for "much more accurate and precise estimates – a precondition for fashioning of a more realistic and coherent mine-clearing policy around the globe which can be fully funded and effectively carried out." Amen to the realism and coherence! It would be great to get an agreed system for marking mined areas for a start (this is not even standardized within an individual demining organization in some cases let alone between organizations). The numbers of mines may be of interest to academics but to serious humanitarian deminers the issue is restoring land. Sadly the mine numbers are used as bargaining chips to release funds from well-meaning donor organizations who are still not asking the right questions before releasing funds.

Never mind, it was a good try by Ms Bottigliero and anything which raises the awareness of the problem is to be welcomed. Do read it. You can get it free of charge from Pro Victimis.

JHH

LETTERS BETWEEN A VICTORIAN SCHOOLBOY AND HIS FAMILY 1892-1895

EDITED BY DAVID & JULIE CRANE

*Privately published. ISBN 0 948545 11 9.
Price for Royal Engineers £30 incl p&p,
from: 11 Springwell Ave, Durham, DH1 4LY.*

THIS is a fascinating collection of 318 letters from and concerning a Clifton College schoolboy preparing to join the Corps, covering the years 1892-95. Lt Col Tankred Tunstall Behrens (1878-1939) was commissioned in 1897, after passing out 3rd from the Royal Military Academy, Woolwich. His career in the army was marked chiefly by his service on various international boundary commissions (Anglo-German in Uganda 1903-06; Bolivia 1910-13; Austro-Italian 1920-23.)

About half the letters were found at the top of an Army tin trunk which had travelled with Tunstall Behrens to East Africa in 1903, in a rusted file headed "Letters from Home, Mr Brown's House. Sept 1892". The letters give a vivid and detailed sense of what life was like for

the boy at Clifton in the last decade of the nineteenth century, and they are particularly interesting for the information they provide about the hopes and fears of a boy who decided early upon a career in the Royal Engineers, and about the education thought suitable for a candidate for Woolwich at a school notable for its success in getting pupils through the very stiff entrance examination for the Royal Military Academy.

Tunstall Behrens' father, an immigrant German merchant who had left his home in Wiesbaden at the age of nineteen because of the rise of Prussia, was himself the skilled son of a master saddler, and he valued not only the respectability of an army career but the usefulness of being an engineer. He also wished his son to be a gentleman but not an idle and unproductive one: "In the Army & particularly in the Royal Engineers you are supposed to find studying & reflecting men, in fact gentlemen." His mother's letters reflect similarly high ideas for him.

The entrance examination was a severe test. We learn in these letters exactly what kind of mathematics was required; we discover that other subjects, less evidently technical, were also greatly valued, the ability to draw, for instance, and to write good essays, even though in the mid-1890s it was the science course at Woolwich which was being extended and strengthened. It took all the boy's effort and ability to pass as he did, and he has left us in this volume of letters an intimate and often touching account of his struggle: "I am glad the exam is nearly over; I believe I have at last overworked myself, I can't get rid of a headache I seem to have continually now." DC

THE BIG BANG
A HISTORY OF EXPLOSIVES
G I BROWN

Published by Sutton Publishing Limited,
Phoenix Mill, Stroud, Glos.
Price £9.99 ISBN 0 7509 2361 X

NORMALLY I start a book by skimming through it from back to front to get an idea of the way it is laid out. In this case the first things I met were appendices of chemical formulae, which to my O-level-only chemistry looked like hard work! I therefore went straight to the front and started reading. To my delight the book is nothing like

hard work – in fact I found it a delight to read and well illustrated.

The book is a chronology of the development of explosives from the very first down to the biggest bang of all, the hydrogen bomb. It starts even before there was the capability to make a bang, with a description of the use of fire pots by the Assyrians in 900BC, and the development of Greek Fire from the attack on Delium in 424BC, down through the centuries to its use by the Byzantine Empire for defence from 673AD until the final fall of Constantinople.

It was during the Byzantine period that gunpowder was probably invented by the Chinese and the book then follows the coming of gunpowder to Europe and the very real logistic problems that nations had in acquiring enough saltpetre to manufacture adequate supplies. This even led to King James I issuing an edict ordering every one in England to "preserve men's urine and that of beasts" under threat of severe punishment so it could be used to make the substance, an ordinance that fortunately did not stay in force long.

The book goes on to describe the development of gunpowder for both military and civil use and graphically pictures the horrors of using it for mining. It then turns to nitroglycerine, Nobel and his dynamite and on through smokeless powders and the problems of initiation to the atomic and hydrogen bombs. In all this history the leading characters in each development are introduced. Many of those involved, such as Roger Bacon, Guy Fawkes, Alfred Nobel and Robert Oppenheimer are world famous but many others less well known played crucial roles and to these the book gives due attention. It also highlights the roles that explosives have and continue to play in the various forms of warfare and in the civil world from sport shooting to civil engineering. It quotes numerous examples where they have made an impact on history from the building of canals and railways to the desperate expansion of the explosives industry in Britain by Lloyd George in 1914–15.

The author, G I Brown, served as a technical officer in the SOE and with the Services Reconnaissance Department in Australia before becoming a chemistry master at Eton College and the author of several chemistry text books. He has a very broad knowledge of his subject and as a result the book is immensely informative and readable. It chronicles a fascinating and

remarkable field of human endeavour and covers a broad mix of social and historical information. If at times the chronology comes through a little too strongly, this is but a minor criticism of an otherwise excellent read.

JEK

CRIMEA
THE GREAT CRIMEAN WAR 1854-1856
TREVOR ROYLE

*Published by Little, Brown and Company,
Brettenham House, Lancaster Place, London,
WC2E 7EN. Price £22.50
ISBN: 0 316 64849 3*

THIS substantial book concentrates on the diplomatic and political aspects of the Crimean War and is particularly interesting for its coverage of the activities of the British ambassadors in Constantinople, St Petersburg and Paris in the lead-up to the war. A serious military historian might be disappointed at the rather limited coverage of the Crimean battles, although this is a well-rounded book which addresses all aspects of the war, including the preliminary landings in Bulgaria, and the naval activities in the Baltic.

The familiar shortcomings in logistic support to the British force are contrasted unfavourably with the thoroughness of French preparations. Advances in military technology are mentioned; the telegraph line was extended to the Crimea during the war, the removal of the three-week lag in communications with London proving a mixed blessing to the British commanders, and the superior accuracy of the British Minié rifle foreshadowed the increases in casualty rates which became all-too-apparent in the American Civil War. And the book puts the British commitment in perspective, making it clear that our forces were heavily outnumbered (during the siege by 20,000 to 90,000) by the French, of similar strength to the Turks, and scarcely more numerous than our Sardinian Allies.

The Royal Engineers get few mentions; General Burgoyne deployed as Chief Engineer at the age of 71 and is credited with the decision – unfortunate in retrospect – to invest Sebastopol from the south; and Brigadier General Williams (described as a former military engineer) receives praise for his stout defence in command of Turkish forces at Kars. French engineers

receive credit for their sapping and mining skills, but the principal engineering plaudits are reserved for the Russian, Lt Col Todleben, who laboured heroically to strengthen the Russian fortifications, and later built a bridge of boats to allow the Sebastopol garrison to escape to the north side of the harbour. Rather surprisingly, the light railway connecting Balaklava with the British lines was built by a civilian contractor and there is no mention of the part played by Sappers in constructing the much-needed hutting. Of course, it was not until after the war that RE officers were amalgamated with soldiers from the Royal Sappers and Miners to form the Corps as we know it.

Having been fortunate enough to visit the Crimean battlefields, one can appreciate the topography, particularly the wonderful natural harbour of Sebastopol – still the home of the once-mighty Black Sea Fleet, now divided between Russia and the Ukraine – and the remarkably narrow and sinuous harbour of Balaklava. It is possible to understand only too readily how Raglan, from his almost bird's-eye position on the Sapouné Heights, was unable to appreciate that the guns on the Causeway Heights which the Russians were attempting to carry away were in dead ground to Cardigan. And the visit brought home how the same ground was fought over again – perhaps even more fiercely – in 1944, when the Red Army recaptured Sebastopol from the Germans.

There are some 40 illustrations, mainly portraits of the principal diplomatic and military figures. Surprisingly, none of the few photographs taken in the Crimea is credited to Roger Fenton; a set of his remarkable photographs is held in the Corps Library.

Now that the Crimea is no longer so inaccessible, a visit to the battlefields can be thoroughly recommended.

CPRB

GREAT BATTLES OF THE GREAT WAR
MICHAEL STEDMAN

*Published by Pen & Sword Books, 47 Church
Street, Barnsley, S70 2AS, price £16.95, illus-
trated in colour, ISBN 0 85052 702 3*

GALLIPOLI, Somme and Ypres are names that will forever be associated with the triumph of

human endeavour over adversity which we, in our sheltered and protected lives, can hardly imagine. Even now, some 82 years after the Armistice, they still bring a chill of remembrance to Britain and her Empire partners who fought in the Great War.

This book was written to support an ITV series that your reviewer has not seen. The three campaigns – they were not strictly single battles – are dealt with by the author and his photographer almost as a tourist guide against pictorial history and topographical details.

First Gallipoli, Churchill's idea to use the might of Britain's naval power to land a force in the soft Aegean underbelly, thus turning the southern flank of the Central Powers. Regrettably, what seemed strategically sensible was compromised by poor preparation. Doughty Turkish opposition, failures in leadership and planning, and an unwillingness to exploit at risk, led to the ANZAC and British forces being bogged down against an effective and determined enemy. After almost eight months in that hellish peninsula, all allied forces were evacuated in a textbook operation, the final evacuation taking place over the period 8/9 January 1916.

The first Battle of the Somme, intended to bring the German Army to battle and destroy it, was to be where Kitchener's 50-division volunteer army was to cut its teeth. Regrettably, poor planning and the ineffectiveness of the preparatory bombardment, were a direct contributor to 60,000 British casualties on 1 July 1916 of which about one-third were killed – devastating

to the social fabric of the nation, particularly into the late 1930s. The operation finally drew to a close in November 1916, after 630,000 British and Empire casualties, with advances little more than those of the first day objectives.

The Salient around Ypres evokes the epitome of horror. During the Great War this small part of Belgium was fought over continuously. Shelling destroyed the drainage system in the rich polder soil overlying clay. The ground therefore resembled a muddy, bottomless sponge. First Ypres (1914) and Second Ypres (1915) and Messines Ridge in June 1917 are not treated in depth. In Third Ypres (Passchendaele) which began on 31 July 1917 as a phase 2 to the Messines operation, the Allied plan was eventually to strike north to capture both the U-boat bases and the strategic railheads in the German rear area, potential jumping-off points for an attack against the British-held Channel ports. Whilst air support, sophisticated gun ranging methods and radio were used, the end game relied on infantryman, from Britain and the Empire. The costly and poorly controlled attacks resulted in huge casualties. The Allies persevered and, eventually, the Canadians captured the high ground around Passchendaele village on 6 November 1917.

These are the main stories emerging from this attractively presented book, together with the backgrounds to the campaigns. Though not strictly a military history, it would form an ideal companion for a walk around the old battlefields.

MDC

Explanation of Abbreviations and Foreign Words Used in This Journal

AA	.....	assistant adjutant	KFOR	.....	Kosovo Force
AAC	.....	Army Air Corps	LAND	.....	Land Command
AAG	.....	Assistant Adjutant General	LCT	.....	landing craft tank
ALFSEA	..	Allied Land Forces, South-East Asia	Mech	.....	mechanical
AD	.....	assistant director	MELF	.....	Middle East Land Forces
AVRE	.....	Armoured Vehicle RE	MES	.....	Military Engineering Services
BAOR	.....	British Army Of the Rhine	MoD/MOD	.....	Ministry of Defence
BATUS	..	British Army Training Unit Suffield	NATO/Nato	..	North Atlantic Treaty Organisation
BEF	.....	British Expeditionary Force	NCO	.....	non-commissioned officer
BC	.....	British Columbia	NZ	.....	New Zealand
BG	.....	battle group	Log	.....	logistic/s
Bn	.....	battalion	OC	.....	officer commanding
BRITFOR	.....	British Force	OCTU	.....	Officer Cadet Training Unit
CASEVAC	.....	casualty evacuation	OTC	.....	Officer Training Centre
CE	.....	chief engineer	Op	.....	operation
CO	.....	commanding officer	PJHQ	.....	Permanent Joint HQ
Const	.....	construction	PR	.....	public relations
Cpl	.....	corporal	PT	.....	physical training
CPX	.....	command post exercise	QMG	.....	Quartermaster General
CRE	.....	Commander Royal Engineers	RAAF	.....	Royal Australian Air Force
CS	.....	o-chlorobenzalmalononitrile gas used to control riots etc	RAF	.....	Royal Air Force
CSM	.....	company sergeant major	RAMC	.....	Royal Army Medical Corps
DAA	.....	deputy assistant adjutant	RE	.....	Royal Engineers
DAD	.....	deputy assistant director	RETD	....	Royal Engineer Technical Directive
DCRE	.....	deputy commander RE	RMAS	....	Royal Military Academy Sandhurst
DCTA	..	Defence Clothing and Textiles Agency	RMCS	.....	Royal Military College of Science
DD	.....	deputy director	RSJ	.....	rolled steel joist
DG	.....	director general	SACEUR	..	Supreme Allied Commander Europe
DGOS	....	Director General Ordnance Survey	Sgt	.....	sergeant
Elec	.....	electrical	SOE	.....	Special Operations Executive
Engr	.....	engineer	Sqn	.....	squadron
FARELF	.....	Far Eastern Land Forces	Svc	.....	service
Fd	.....	field	TA	.....	Territorial Army
G3	.....	operations and training	TBRE	.....	Training Battalion RE
GB	.....	Great Britain	TV	.....	television
GHQ	.....	General/Garrison HQ	UK	.....	United Kingdom
GOC	.....	General Officer Commanding	US/A	.....	United States/of America
Gp	.....	group	VIP	.....	very important person
HQ	.....	headquarters	Wks	.....	works
Int	.....	intelligence	WO	.....	warrant officer
IPB	..	intelligence preparation of the battlefield	WRNS	.....	Women's Royal Naval Service
ISO	.....	International Organization for Standardization	YO	.....	young officer

Please note: the above abbreviations are those which appear within articles published in this edition of the Journal only, and are printed for the benefit of our many foreign and non-military readers.

Appointment abbreviations (which appear on the first page) can generally be found in the back of The Royal Engineers List.