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Guidelines for Authors

The Editor is always pleased to consider articles for publication in the *Journal.*

Subject. Articles should have some military engineering connection but this can be fairly tenuous, especially if an article is well written and interesting.

Length. Approximately 4500 words plus illustrations.

Copy. Ideally one copy of the text should be submitted, together with a head and shoulders photograph of the author plus a short pen picture.

Clearance. Articles must be cleared by an author's CO where applicable.

Computers. Articles submitted on 3½in discs, or through the e-mail as an attached text file, are very welcome. Please ensure that text is typed with no formatting, ie LH justified only, and please **NO** caps-only headings – all upper and lower case.

Copyright. If an article has been published elsewhere before being submitted to the Institution, copyright clearance must be sought by the author; where necessary copyright clearance on photographs, maps or illustrations must also be obtained prior to submission.

Photographs should be of good quality with sharp definition, and don't forget to add appropriate captions. Please do not submit laser/photo copies of photographs for publication.

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Pseudonyms will not be revealed by the Editor under any circumstances.

Contributions should reach the Editor by:

8 June for the August 1998 issue
Early October for the December 1998 issue
Early February for the April 1999 issue

Submissions before the deadline are particularly welcome.

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All correspondence in connection with editorial matters should be addressed to the Secretary, Institution of Royal Engineers, Ravelin Building, Brompton Barracks, Chatham, Kent, ME4 4UG

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Editorial

THIS is the first time since I have been editor that we have not been able to fill our normal quota of pages in the *Journal*. There has been a paucity in particular of articles submitted by regular officers of the Corps. One can surmise the reasons why but I hope that there are a number of you who have a good story to tell or some advice or experience to pass on who will now be propelled into putting pen to paper.

"... And Another Thing" (CDM, SDR, Bean Counters – Crossing the Rapido), from the author who gave us *The Three Rs*, is a timely article about what some perceive as a further stifling of leadership and flair by the unstoppable march of bureaucracy and which others accept as a formalization of what we should all have been doing anyway but perhaps have not done so as best we might. To the title could be added IIP and EO, abbreviations only recently introduced into army speak along with SDR, and possibly unknown to those who left the Corps more than a year ago. All is revealed in the abbreviations list at the back of the *Journal*.

Another article from a TA officer, *Military Works Force(V)*, gives an insight into a less well known part of the RE TA and the role it plays in meeting the more specialist tasks which come the way of the Corps. It complements well the *The Engineer & Logistic Staff Corps RE(V)* article which appeared in the August 1997 *Journal*.

Although the balance of articles in this issue is weighted heavily on the historic side, the quality of them is no less impressive than we have enjoyed in the past. It appears that public interest in stories about the Second World War is fading – perhaps it is because so much has been published already – but there are nevertheless many untold stories which if not related now will pass away and be lost forever.

Training For The Last War, the first chapter from an unpublished book titled "One Sapper's War 1939 to 1946", is a fascinating account of the entrenched and blinkered views which prevailed when training for the Second World War. It is not difficult to imagine that we might even now be guilty of the same folly.

The extraordinary feat of engineering which enabled the greatest seaborne invasion in history to take place has had much written about it. *The Mulberry Harbours – My Final Assessment* sheds more light however on the foresight and leadership displayed in making a brilliant engineering enterprise succeed against all the odds.

A rather different operation which was taking place some 5000 miles to the east is described in *The Role of Air Transport in the Burma Campaign*, a comprehensive and well-researched account of the key role played by air support in land operations. The scale and intensity of the campaign can be judged by the Sappers achievement in constructing 200 airfields in just six months.

I am conscious that by not mentioning a particular article it might in some way imply it is less highly merited. That is far from the case and, if like me, you also enjoy reading the slightly unusual story, such as the sinking of a submarine by a Sapper in the Mediterranean or escaping from Singapore in a small dinghy, then you will not be disappointed.

As a final comment, and looking a little ahead, soon after this *Journal* goes to press the outcome of the government's strategic defence review will be announced, in general terms at least. Whether its impact will be as significant as *Options for Change* remains to be seen. I expect Engineer in Chief will be able to report on the main implications of the review, as it will affect the Corps, in his Annual Report to be published in the August 1998 *Journal*. I hope that whatever the outcome, it is a fruitful source for more articles!

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" ... And Another Thing" (CDM, SDR, Bean Counters – and Crossing the Rapido)

LIEUTENANT COLONEL A J WILLIS BSc(H) MSc CEng EurIng FIMM MIQA MAPS

Andrew Willis is currently SO1(V) Engrs at HQ 4 Division and among other things provides a focus for engineer matters "within boundaries", juggling definitions of MACC, MAMC, and TOPL within the context of OPCOM, OPCON and ADMINCON. When not resident at HQ 29 Corps Support Engineer Brigade (HQ RETA) where his office is located, he is on secondment from Sir Alexander Gibb and Partners to London Underground where as a civil engineer he heads safety, quality and environmental management for the Track Replacement Project. In this last of a trilogy of musings on motivation in the TA, and in the Sappers in particular, he considers the effect on the military ethos resulting from the move to make employment in the army parallel that of the civilian environment.

THE decanter had made its fourth or fifth orbit, and Mr Vice was looking strained, with a thousand-yard stare focused on too far off relief.

Most of the table had adjourned to the bar where, with an index finger at the high port and a determined expression on his face, the earnest young Sapper subaltern addressed the colonel. His tone and manner were such that, had the adjutant been in ear shot, he would have earned several dozen "extras."

"There's no place for heroism anymore, you know. You can't move for bloody legislation. All individualism is taken away. When you're operational what's really important is command – leadership, Sir." And he points to a tastefully illuminated print of Cuneo's painting.

It has to be admitted that a life of soldiering, even in peacetime, seems hard to reconcile with the constraints (shackles even) of an apparently infinite and omnipotent bureaucracy. To those whose environment had included the Wednesday afternoon (divinely mandated as a time for physical recreation), where team-building is the name of the game, yet wherein the individual is pitted against himself in discipline and motivation, the prospect of the ISO 9000[1] series as a contact sport may seem a very alien concept. The Construction (Design and Management) Regulations (CDM) seem hardly as inspiring as a "crossing under fire."

But there is absolutely nothing new. In fact, it is the case that things are lost – forgotten; to be reinvented by another generation (and apparently gloriously unencumbered by any desire to learn from the past; or the understanding by their predecessors that it should be made relevant).

For the need for leadership is as great, and greater, than at any time in the past. Those qualities which the Army prides itself rightly in holding high as a training goal are needed even more in this time of illusory peace.

Returning to our young subaltern ... what, I wonder, does he see as the difference between the inspiration for those ghosts at the Rapido, his crossing under fire, and the mundane training

[1] The series of British standards dealing with quality management.

now. Training, which, in his view, has been rendered almost unworkable because of civvy legislation? There he'd be under fire. He's "operational", so all this nonsense doesn't apply, (without thinking how infrequently that excuse is actually admissible). The key to this may lay in his age and experience – and ambition. The colonel listens in silence. He is not asleep, or overly patient. He, like a "good old commander, and a most kind gentleman" is considering how the principles of leadership in command can be conveyed to his young charge. Those principles, which subordinate the unstructured emotional appeal of heroism to the application of logic, analysis, and decision making under stress. Then to make allowances for that abstract bonus, which inspires men to unselfish behaviour for the benefit of others. Integrity at least; self-sacrifice at the end.

Reaction to Change

The contemporary commercial world places great emphasis on success measured almost purely in financial terms – tangible and anonymous. A common denominator is individual competition; but not necessarily the good natured variety that brings out the best. More likely it is characterized by the hidden agenda, the need to become indispensable, paranoia, and the sense of being on your own. At the same time the results of failure are personal, and punishable.

"Bottom line" accountability is a fact of life. It always has been. But as it presents more of a challenge now, so that challenge is accompanied by opportunity – where it can be perceived. Unfortunately, the situation is more often seen as a threat, and reaction is consistent: defensive, falling back on drills (familiar ones which do not suit); and we become prisoners of our own experience. Learning is stilted, and the open mind becomes closed.

The unnecessary difficulties and encumbrances that we, in the Corps, may imagine to be essential to such things as CDM or ISO 9000, are just that – imagined. The problems we perceive are real enough in the civilian commercial world, with which we are forced to compare ourselves. These problems are largely self-inflicted wounds, which should be seen for what they are. They would be condemned in the army as punishable offences, primarily resulting from negligence and lack of professionalism.

In the army the training and disposition of the Sappers places them ideally for tackling such things with objectivity and balance. There is very little in such fundamental stuff as health, safety and welfare, and management standards, which does not have a basic simplicity. The aim can be identified – and readily maintained.

It is not a contradiction that many, especially at Clerk of Works level, can look forward to the prospect of gainful employment in the health and safety field when they leave the army. They have been trained to look for the simple aim. The paperwork is seen for what it is, a means to an end. More importantly, their minds are flexible enough, and their attitude is not defensive, in the face of the need to adapt to change. Having embraced the requirement for change, imposed on them from an essentially alien environment, and reduced the problem to manageable proportions, there is no need for apprehension. The challenge is all that remains.

Why should the challenge of the present be a fearful thing? The Corps has been doing things no more dangerously of late, nor (better) less safely than before, simply because a more prescriptive legislation is in place. A legislative framework constructed to effect control over what had, in some eyes, begun to appear an unaccountable civilian practice. The army has always had a particularly higher safety awareness, but with different jargon and nomenclature.

Change is nothing new. It is in the very nature of almost everything. It is not to be out-manoeuvred. Its pace may accelerate now, and the demands made on soldiering may be more intense than in the past; but it was never absent in the past. The realization to grasp is that the fundamental virtues are still required. Their application may be more difficult to identify – but, therefore, the greater is the challenge to meet. The demands of justifying "green supply chains," satisfying the needs of "customer delight," and inwardly ruminating just what is the Corps' "core business", are daunting. But positive reaction, in some ways, has been both appropriately high profile and inspiring. One needs only to look at the image of the blue bereted soldier in his peace-keeping role, or engaged on humanitarian demining.

Moral Courage

So the parallels between the Rapido and the constraints imposed by modern legislation, young subaltern, are close. Only in many cases, now, the consequences of failure are personally worse on the commercial battlefield. One's exploits on

the military battlefield are, to be sure, pitted against a dire possibility; but they are open, visible. What's more, they are of a simple immediacy – the life and death situation. They are seen by others, committed to the same objectives and sharing common fears. Adrenaline is flowing. The exercise of leadership is obvious, by either its presence or absence; one is either heroic or not. Or if heroism is not the issue, the failure to act with integrity will be condemned. Commercially, the stakes are more subtle. Perhaps the need to do anything is less important, and that which is done is less visible, or the failure to act is less obvious (the sins of commission and omission.) The call of one's conscience is possibly the only stricture, and the whole is the more insidious as the descent into self-delusion starts. The need for moral, as opposed to physical, courage is paramount. The crossing under fire is the easy option.

More difficult is the reaction to a domestic political reality, where national policy is determined by registering popular reaction to leaked and indistinct ideas. A favourable response is deemed to be the basis for action aimed primarily at ensuring party political survival. Probity, and a wider good, seem often to be less important than expediency. The key principles of logistics: foresight, planning and robustness, are not at a premium. Maintaining the aim, that of integrity and objectivity, will be hard and any success is unlikely to be publicized and, therefore, much less understood for its real worth. But the Corps, which has no standard to bear its battle honours (but has nevertheless been everywhere – consistent service and integrity has been needed for the army), in its dealings with this new world order, stands perhaps quite well prepared. The crossing under fire is an everyday event. Our numbers may dwindle, and it may be, to paraphrase Shakespeare again from the same play, that you will be the "few, the happy few. The band of brothers" upon whom survival of a tradition may depend.

An Enemy Within

Within the ABCA (Australia/Britain/Canada /America) framework, probably nobody has devoted so much time and effort to analysis of the way "the army does its business" than the US military. One of their foremost thinkers, a civilian consultant by the name of Paul Cowart, in considering empowerment, conjured an analogy which we could do with taking on board here – and now. Consider the military organization as a lake. Problems such as submerged rocks, tree trunks, rubbish, and the like (things which may litter the bottom), pose no threat to the thin skinned assault boat provided the water is deep. You can keep the problem submerged as long as you have plenty of water in the lake – resources: money, manpower, and so on. But this is expensive, and the luxury is not always present. This is especially the case at present, where the question of how to fund UK plc in general, and the armed services in particular, is under scrutiny. The unit of accountability offering the easiest quantification, and opportunity for reduction, is the soldier (generally in multiples of a regiment or battalion). Where manpower was not a problem, promotions were easier to come by and competition was a lot less cut throat. But as "options" go deeper, boards are faced with deciding which excellent officer is to be promoted over another excellent officer. A tendency to promote paper soldiers results. A perceptive individual, recognizing this, will protect his (or her) career by avoiding damage. The way to do that is to avoid taking risks. Thus, a risk-averse mentality is engendered among leaders, which is the best means of career advancement in peacetime, but mediocre at best in war. Thus, while a culture is developed which tolerates and promotes competition among its officers (as opposed to cooperation), it does not tolerate damage, which almost invariably accompanies risk-taking. It is as well to be clear what risk taking means. Not the foolhardy gamble or reliance on change, but the rapid, trained and nurtured-to-the-point-of-intuition ability to assess and act (taken in our context as being aimed at achieving the "superior commander's intention"). The point at issue is that, again, the requirement for another soldierly attribute is threatened. Still needed it would seem, at the right time, but paradoxically discouraged.

Overlay on this the devolved responsibility for some management activities most did not join to experience – like budgetary control – and the situation becomes untenable. Reacting possibly correctly to the request for appropriate control to be placed where it most immediately had an effect, the civilians passed it to those in uniform. But with the best will in the world this devolution was not accompanied by the intensive training needed to make it work, and such as was available had to be undertaken against a conflicting operational and traditional training

timetable. And in any case this was no true empowerment, as the policy for the highest level of control remains a vacuum.

To keep one's motivation in such circumstances is no easy thing. When will SDR be unveiled?

Relating the Message

Soldiering is pretty basic stuff. It deals with people in situations which are (or should be) unusual – catastrophic often at the personal level – and emotive. The strengths and skills needed have today become obscured by management-speak; by psycho-babble which seeks to deny the basis of what we are all about. This is a shame because, as observed above, those qualities are even more in demand.

There is a problem here. On the one hand there exists the need to promote the importance of preserving and retaining "soldierly" values from a "traditional" military ethos; importing them into the real world of change – project management legislation; and accepting that they are vital in defining the way ahead, in ensuring survival against the enemy within. But on the other lies the very real threat of reducing the attraction, which we know attracts and retains the TA soldier (the "something different"). The TA soldier may find himself employed, if at all, for the value of his civilian skills, when what he really wants is to sleep out under the stars and eat "MRE". The "one army" concept is looking a little thin, and the point of it all seems questionable.

Training For The Last War 1936 to 1939

GENERAL SIR WILLIAM JACKSON GBE KCB MC* MA

After winning the King's Medal at the Shop, he was commissioned into the Corps in 1937. Some 30 years later, he was the last Commander-in-Chief of Northern Command, then the Quartermaster General of the Army, and finally the Governor and Commander-in-Chief of Gibraltar. On retirement, he joined the Cabinet Office Historical Section, and wrote the last three volumes of the British Official History of the Mediterranean Campaigns. He also joined The Times *as shadow leader writer, book reviewer and obituary writer. Amongst his 20 published books, there is the draft of his wartime autobiography,* One Sapper's War, *of which this is the first chapter. He has left the full manuscript to his grandson for publication on the hundredth anniversary of the Second World War when interest in such personal accounts of that war may be higher than it is today.*

LOOKING back over 60 years, it is hard to imagine the military ethos of the late 1930s in which my generation of regular British Army officers were trained. We started our careers as "Gentlemen Cadets": a title that stressed the yawning social gap between ourselves and the plebeian "other ranks." Buying commissions had been stopped in Victorian times, but our parents still had to pay for us to enter the Royal Military Academy, Woolwich, or the Royal Military College, Sandhurst, and to subsidize us until we were commissioned; and even then they had to provide personal allowances for those who chose to join fashionable regiments. Sappers, Gunners and Signals, who passed out from Woolwich, could just about live on their pay. The Sappers were considered rich men because, as elite qualified engineers, they drew "Corps Pay" – an extra half crown to add to a second lieutenant's princely salary of ten shillings a day!

All prospective Sappers went to the Royal Military Academy, Woolwich, – "The Shop" as it was called – where Gunners, Sappers and Signals were trained together as the "technical" arms in those horse-dominated days. The Shop entry was considered to be the scholarship intake of the army since only those coming within the top quarter of the army entrance exam results and had a reliable enough grasp of mathematics, were accepted. The rest went to Sandhurst to join the cavalry or infantry, for which no qualifications were needed, except for an assumed potential in leadership and man-management.

The Shop, compared to Sandhurst, was an academically and psychologically enlightened institution. Military and academic studies were given equal weighting in the syllabus; and discipline, though strict, was not designed to create unthinking automata as might be said of pre-war Sandhurst or in the Prussian style of West Point. The Shop prided itself in developing original thought, and not being hide-bound by tradition. Intellectual training was designed to bring us up to the standard required by universities to accord us exemption from the first year of three-year degree courses. In this it was an undoubted success: but the outbreak of war soon revealed weaknesses in the military side of the syllabus.

It is perhaps unfair to blame our instructors at the Shop for their shortcomings in foresight and imagination in handling our military curriculum. They were training us for the war they themselves had experienced in 1914-18 and which was still vivid in their minds. The Shop's standards in the 1930s were professionally superb when judged against amateur attitudes accepted before the First World War. Sadly, there was an ostrich-like syndrome at work that blinded our mentors to the great advances in air power, mechanization and radio

General Sir William Jackson GBE KCB
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communications taking place, which reshaped the military world by 1940.

The most grievous misjudgement of the army as a whole, clearly reflected in the Shop's routine, was its continued worship of the horse, almost to the point of idolatry, long after it should have been pensioned off into honourable retirement and put out to grass. A third of our time was spent in riding schools, and we were still learning to charge with lance and sabre as late as 1937. The only mechanization that we experienced as Gentlemen Cadets was riding bicycles in formed columns of pairs from the academy parade ground down Shooters Hill to and from the riding schools behind the Royal Artillery barracks. The greatest hazard was getting a wheel stuck in the tramlines; many a cadet came to grief, usually bringing down several files of those riding behind him!

We also spent an inordinate amount of time on close-order infantry drill *en masse* upon the drill square in front of the academy buildings, reaching standards not far short of Trooping the Colour by the Brigade of Guards. I would not have decried close-order drill's value in creating corporate spirit and discipline, if it had not been for the stark contrast with the total lack of time spent on actual weapon training and firing on the ranges. I never fired my rifle at all, and only went on pistol practice once in my 18 months at the Shop: sword drill was considered much more important!

The tactics we were taught were based on the victorious battles on the Western Front and Palestine in 1918; and on the War Office pamphlets written in the 1920s, supplemented by military history of the Napoleonic Wars. The possibility of a damaging air attack was largely discounted; and the crippling impact of an adverse air situation on land operations was beyond most of our instructors' comprehension. They made a number of specious assumptions, which denigrated the effectiveness of air power: aircraft could not lift a worthwhile payload; could not bomb with any accuracy; and were too vulnerable to adverse weather conditions and anti-aircraft gunfire – all arguments with some validity in the 1920s but none in 1939.

Possibly the most enduring theme in the Shop's training was the inculcation of the highest personal standards, discipline and courage, none of which could be faulted in the 1930s before "progressive" teaching softened the country's postwar educational standards. Speed of action and reaction was instilled by the tyranny of constant quick changes: for instance, from gym kit into full riding order with pipe-clayed breeches and impeccably polished boots and leather gaiters; or into infantry drill order with perfectly wound puttees; all to be done in not a second more than 15 minutes, if the penalty of punishment drills, known as "Hoxters", was not to be incurred. Total steadiness on parade with no movement, even of the eyes, bred self-discipline; absolute cleanliness and smartness of turnout at all times stayed with us for life; but the most prized quality in a Shop cadet was courage inculcated and proven on the sports fields and in the boxing ring.

In the 1920s, there had been the notorious initiation ceremonies, which new intakes of cadets were put through to test their courage. They had been stopped relatively recently after a fatal accident. In their place came the "snooker" (1st Term cadet) boxing competition, in which all the new cadets had to fight for three rounds against equally matched colleagues. Weight was the only matching criteria and not boxing skill. The competition was held in front of the whole academy and senior officers of Woolwich garrison. No one, however outclassed, ever dared turn away from an opponent, knowing the disgrace that he would incur. The greatest credit went to those losers, who fought on regardless of the battering they were receiving.

The "Hoxter" was a dreaded and effective punishment system, which was self-perpetuating unless you had the will-power and determination to fight your way off its treadmill of the early morning punishment drills. The first tripwire was filling out your own charge sheet for such heinous crimes as having a speck of dust in your rifle's barrel; a suggestion of rust on your bayonet's blade; a minute stain or bit of fluff on your tunic; being a few seconds late on parade; or, worst of all, letting your eyes wander when standing to attention Writing out the charge had to be done with meticulous accuracy to the satisfaction of the under-officer who had given you your hoxter. Every word and punctuation mark had to be correct otherwise you were liable for an additional extra punishment drill.

The drills took place at 6am under the permanent staff drill instructor on duty that day, but the preliminary inspection was carried out by the duty cadet under-officer. It was easy enough at that early hour to commit other unforgivable dress crimes such as having a crease in the knot of your tie, or a scratch on your highly polished boot toe-caps. Once the drill started you could commit any number of crimes such as failing to respond to a word of command quickly enough. Further hoxters could be your lot until you found yourself spending every

morning trying to clear off the self-generating backlog and indignity of extra drills.

By contrast, training in leadership and man-management was deemed unnecessary. After all, we were Gentlemen Cadets and *ipso facto* born leaders, which some of us clearly were not. Our only acquaintance with the British soldier was through our enforced reading of the Manual of Military Law, which told us all about his faults and vices, but nothing of his strengths and virtues. I, for one, had never met men from the slums of our great industrial cities, and would have profited by some advice on how to handle the reservists, who joined my first unit at the outbreak of war from the back streets of Glasgow.

Linked with lack of advice on man-management was an equal dearth in practical administrative training. We were given no instruction on how to live in the field; how to combat fatigue; and even how to feed ourselves and our men. We were never shown the army's latest field cooking equipment, which was, in fact, very good; nor the new "Compo" ration packs for ten men that we would soon be meeting for the first time on the battlefield. Survival training was unknown in those days. The only practicable tip on living in the field that I can remember came from our riding instructors, who insisted that we made sure that we bought field boots with thick enough soles to prevent the stirrup irons freezing our feet!

The worst deficiency of all, however, was lack of any attempt to warn us of the psychological effects of fear, despite most of our instructors having seen active service in the First World War. It was again taken for granted that our family breeding would automatically protect us from the demoralizing effects of battlefield noise and casualties. For instance, we had no conception, nor had our instructors, of the levels of fear that would be generated by the terrifying scream of the German dive-bombers. No one at that time had thought up the idea of battle inoculation to counter fear induced by the *Blitzkrieg* because even the Germans did not appreciate the potency of their tactics until they used them during their Polish campaign in 1939.

In brief, we were about to go to war as superb horsemen, who knew how to look after our horses but not our men, and who knew little or nothing about air or mechanized warfare. We were confident that our inherited genes and Shop discipline would enable us to handle any of the human frailties likely to be induced in us by the hideous crunch of future battlefields.

Those Gentleman Cadets, who passed out from the Shop amongst the first 15 in the Order of Merit, could elect to become Sappers. They then had to undergo a further two years education at Cambridge University, reading Mechanical Science to give them a broad-based engineering degree, which was followed by another year's practical field engineer training at the School of Military Engineering (now the Royal School) at Chatham.

Under normal circumstances, any young army officer would have been delighted to be given a place at a Cambridge College to read Mechanical Science at the government's expense, and on full pay. But the circumstances were not normal: the dark clouds of war were already gathering when I arrived at King's College in October 1937. I, personally, had mixed feelings about going up to Cambridge at all. I felt that the War Office would have been better advised to have sent us direct from the Shop to Chatham to complete our field engineer training as quickly as possible. Two more years of academic study seemed a total irrelevance with preparations for war gathering everywhere except in the extreme liberal cloisters of King's College.

With hindsight and greater maturity, I am glad that we did complete our degrees, but we were far less ready for war in September 1939 than we might have been. The Mechanical Science Tripos gave us an excellent multi-discipline engineering education; and university life made us more rounded individuals. Both were of benefit in the longer term, but neither made a scrap of difference when we came to face the German army in anger in Norway in April 1940.

The pre-war atmosphere of King's College was determinedly Left Wing with an undercurrent of pacifism and anti-imperialism, which may have chimed in well with the Oxford Union's notorious debate on not fighting for King and Country, but was anathema to Shop trained regular Sapper officers. We tended, in consequence, to enjoy the environment of the RAF's University Air Squadron club and mess than our own college halls. There were too many potential and actual Burgesses, Macleans and Blunts amongst the dons and undergraduates at that time for our liking.

We were just starting our second and final year when the Munich crisis began. Recalled to Chatham, we said fond farewells to our "bedders" never expecting to see them again, and feeling immensely important as we were sure that we were setting off to war. To our chagrin, Neville

Chamberlain returned from Berchtesgaden, brandishing his worthless letter from Hitler and declaring that he had negotiated "peace in our time". We suffered the indignity of having to return to Cambridge to complete our degrees.

We did complete them in July 1939, and went back to Chatham for our field engineer training, which was programmed to keep us out of field units for another year. Like the Shop, Chatham's curriculum was primarily based on the lessons of the First World War, and upon the requirements of imperial policing, particularly in India, where the horse was worshipped with even greater veneration than at home. But unlike the Shop, which enjoyed everything that it needed within reason, Chatham was hampered by a total lack of modern engineer equipment and the cash to buy the latest earth moving machines, which were beginning to revolutionize construction work.

Sappers have four broad operational tasks: in advance, to open routes forward through battle devastated country in which most bridges have been demolished, roads mined and towns and villages reduced to rubble; in attack, to breach the enemy defences; in withdrawal, to demolish bridges and to mine roads; and in defence, to build fortifications. These tasks need dry and floating bridging; earth moving machinery; and mines and explosives. At Chatham, such bridging equipment as existed was only fit for a horsed army; even the simplest of bulldozers for earth moving had not yet been seen; land mines did not exist; and what explosive was available was largely commercial and not designed for rapid demolition work. It was a sad story, which was to dog us for the first two years of the war.

Our very worthy engineering instructors had to cut our practical training to their available cloth. Building First World War trench systems needed little more than rough timber, barbed wire, and picks and shovels, which were cheap to buy and plentiful. We built complex field fortifications and dug saps *ad nauseam*; and constructed timber trestle bridges in the style used to open up the Canadian West. We even did a fortnight's tunnelling under the nearby chalk downs, emulating our forbears' feats under the Messines and Vimy ridges. Anything requiring modern equipment, however, had to be reduced to paper exercises.

The worst failure of Chatham's training lay in demolitions and mine warfare, which were to be our principle tasks in the early months of the shooting war as opposed to the "phoney" war in 1939 and the beginning of 1940. Practical demolition was confined to simple tasks like cutting steel girders with guncotton, blasting stone in quarries with gelignite, and blowing up tree stumps and making craters with powdered ammonal. Methods of destroying real bridges were taught in the classroom and, being theoretical, were largely impractical under battle conditions as we were to find to our cost later. The instructors were keen to teach ways of creating maximum effect for minimum explosive. Economy in the use of explosive was their primary consideration, which led them to teach us elegant theoretical but time consuming methods, which we were to find useless in practice. In the event, the need for speed and certainty of success were to lead to our abandoning finesse in favour of crude demolition, using massive overload charges.

Training in mine warfare was farcical. Only two prototype anti-tank mines were available at Chatham to show us what they would probably look like. There were no antipersonnel mines at all, and no mine warfare training manuals, although the Italians had been making extensive use of both types of mine in their Ethiopian campaign in the mid-1930s. We were shown what was said to be an effective way of stopping tanks: coils of plain fencing wire, which were expected to entangle their tracks and bring them to a halt in the arcs of our antitank guns – if we had any!

War was declared in September 1939 when we were in the midst of one of the most outdated and useless exercises – laying light Decauville trackway, beloved by First World War Sappers for running trains of small tipper wagons, carrying ammunition and supplies of all types, up to the front across heavily cratered ground. The exercise was never completed. We collected our mobilization orders instead and set off to join our designated field engineer units full of enthusiasm and misplaced confidence.

We – and the army as a whole – had forgotten a lot since 1918 and had even more to learn in 1939. We were going to war psychologically unprepared to meet the totality of the ruthlessly planned German land/air *blitzkrieg*. As young officers, we had been meticulously trained for four years for a continuation of the battles of 1918 and not for the beginning of a new era in warfare. We were still mentally horse-bound; lacked appreciation of air power; and were unready for the conditions under which we would be living. The old rule book had to be torn up; we would have to rewrite our own.

50 Years of the Army Survey Course

LIEUTENANT COLONEL J F PRAIN MA MSc FRICS

Lieutenant Colonel J F Prain has been Chief Instructor at the Royal School of Military Survey for nearly three years. This is his second tour as an instructor. Prior to returning to Hermitage, he was the Chief Geographic Officer with the United Nations' Peace Force in Zagreb and before that with Headquarters United Kingdom Support Command (Germany) as the Acting Chief Geographic Officer. His hobbies include collecting initials after his name and his ambition is to fill two lines in The RE List.

Origins

The training of Royal Engineers officers and soldiers joining Military Survey is undertaken by the Royal School of Military Survey, which was established in 1833. The origin of the Army Survey Course (ASC) for officers, initially known as the Long Survey Course (LSC), is linked to the creation of the Land Surveyors Division of the Royal Institution of Chartered Surveyors (RICS). Both these were born at the Commonwealth Surveyors Cambridge Conference of 1947. The Long Survey Course was designed to provide professional and technical skills for military surveyors, government surveyors of the Joint Survey Service, who would work for the Ministry of Defence, the Ordnance Survey and the Directorate of Overseas Surveys, and Commonwealth surveyors sponsored by their respective governments. The course was designed to prepare students for the intermediate examinations of the RICS. Number 1 LSC began in April 1948 with Captains F M Sexton and G A Hardy plus six civilian colleagues.

Hermitage

Hermitage is a small village northeast of Newbury and has been home to the Royal School of Military Survey since 1949, when it moved from Longleat and ended a nomadic existence caused by wartime necessity. Over the past 50 years, the railway has disappeared, the M4 has arrived and the Newbury by-pass is becoming a reality. The camp itself was a wartime hospital though never fully activated as the Normandy landings sustained fewer casualties than anticipated. The hutted camp was far from perfect as a training facility but the Nissen huts were maintained into the 1970s. A purpose designed camp was built on the site and was officially opened by Her Majesty the Queen in 1980. One aspect of the classroom specification was that it was written in an era when each student was allocated a double desk space, one for work, and one for his (no ladies at this time) adding machine and seven figure log tables. However the pocket calculator was brought into military service around this time and thus removed the need for two desks.

The classroom space offered up by a reduced student population and reduced desk space requirement were some of the factors which led to the camp having to be shared with the operational units of military survey. The school became absorbed into 42 Survey Engineer Group in 1983. The marriage of operational and training units led to many successes. School staff and resources became more integrated in support of overseas operations. However the school's name was to disappear from the front gate until 1997 when the school was granted the Royal accolade by Her Majesty the Queen.

Lt Col J F Prain
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Impact of Technology

The technology of the postwar era centred on the plane-table board, the chain and the Wild T2 theodolite (acquired from Germany by the liberation forces!); slotted template and the multiplex stereo plotter; and the Crabtree printing press.

The school has always been well resourced and has kept abreast of technology. The advent of the Tellurometer microwave and the Geodimeter electro-optical distance measurers revolutionized field surveying. This then changed again with Transit Doppler and the Global Positioning System, both based on the use of navigation satellites.

On the photogrammetry side, the school had a full studio of Zeiss DP1 anaglyph plotters which required the skills of an artist more than those of a scientist. The school also has a fleet of Wild B8 plotters which are marvels of opto-mechanical technology. These have been updated with mechanical plotting by pantograph being replaced by digital encoders. Today the school is investing in fully digital systems.

For many years the school used Hewlett-Packard calculators and computers. However with the rapid growth of personal computers, networks computers and workstations, the school developed a new information system strategy. The provision of computers has increased four-fold in the last five years and now ASC students are issued with personal notebook computers.

In the reprographic area, lithographic technology has continued as photocopier systems are not yet robust enough for field deployment. However it is only a matter of time. In the meantime, the Heidelberg fleet is bearing up well and reflects a wise choice. As in other areas of the school, the department is well abreast of new technologies with the acquisition of a scanner and an image setter.

The Syllabus

The original syllabus stemmed around the needs of geodetic surveys, topographic mapping and cadastral mapping. This latter area reflected the need to map the Commonwealth in order to settle farmers in new lands after the war. Such students were well versed in land law and highly proficient in the technical skills as well as professional skills. To prepare for this work, the students would conduct an individual "estate survey". The first one done was by Mr B L Hammond of No 1 LCS in Somerset. Then over the years these surveys developed and in 1958

Number 4 Long Survey Course, 1950.

became known as the "trial survey". In this last form, these were undertaken in the areas of Bridport in Dorset and Crediton in Devon with each student being required to map his allotted farm. In 1976 air survey plotting was included as one of the tasks. During this period students learned to appreciate the hospitality of the farmers' families with whom they were staying. Some

The Plane-Table. WW1 technology.

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The Tellurometer, 1960s technology.

students roped in wives and girlfriends to assist as bookers and "chainboys". The drawback of this form of help was that these ladies soon lost interest and could become "insubordinate"!

Other changes worth noting include the introduction of both the "directions method" of surveying and the Multiplex stereo plotter in 1953. The military qualification of "SVY" was also awarded (initially to students only, hence the instructors were less than happy!). In 1956, the RICS accepted the LSC as a fully exempting course thus removing the need to sit additional RICS examinations. In 1958 the course was extended to 14 months to reflect the new electronic distance measuring and air survey technologies. In 1963 the syllabus was revised and the course split into Part I and Part II, now exempting students from RICS final examinations.

By the early 1980s the relevance of farmyard surveying was fast becoming untenable with the disbandment of the Directorate of Ordnance Survey and the Joint Survey Service. The students' practical work was made more appropriate to military needs and syndicate working was developed, with the students working in the Devizes – Salisbury area. So began a period of rapid development. This gained further momentum with the appointment of John Knight as the Principal Lecturer. The aim of the course was redefined with greater emphasis on professional management as opposed to technician skills.

Cranfield University

In 1991 a review of officer training within the Ministry of Defence led the team to conclude that the Army Survey Course was of Master of Science degree standard. In 1994 Cranfield University, through the Royal Military College of Science, accredited the course and on 19 July 1996 successful students from 80 ASC graduated with their MSc Degrees in Defence Geographic Information. The links with Cranfield have strengthened the teaching style but have left the syllabus within full control of Military Survey.

Students of the 1990s.

International Students

The success and richness of the Army Survey Course comes from the international students. In the early days these chiefly came from the Commonwealth. However the end of the Cold War has seen students coming from a variety of countries in eastern Europe and Scandinavia. The first civilian overseas students joined No 2 LSC in 1948 and the first military overseas officer joined No 10 LSC in 1952. The ASC has now attracted students from 50 other countries.

One figure who did much to mould the Army Survey Course was the late Archie Hamilton who was the second Colonial Probationer (later the Overseas Supervisor), a post he held for 20 years until retiring in 1968.

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Military Survey has always been keen to develop its links with other countries and the provision of training has been linked as part of many of Military Survey's formal exchange arrangements.

The Next 50 Years

In order to strengthen its claim to being a centre of excellence, the school is seeking to develop its research programme using both staff and students. Military Survey has always been in the vanguard of technological development in the geographic field. However the exponential rate of development has put more pressure on the organization to monitor trends in all relevant areas and commit to those programmes that will last longest as the military machine has a great deal of inertia, and change can be difficult and costly. The research capacity of the ASC students will be key to this.

The principal success has been the fellowship of the staff and students. The geographic business is a very special club and the ASC has been a key component in establishing international friendships that will serve surveyors well throughout their professional careers.

Other Memories

Originally, ASC students dressed in civilian clothes reflecting the ethos of the course – training gentlemen surveyors to map the Commonwealth. It was the bizarre dress sense of 67 ASC that forced the then commandant to order the course into uniform. Military dress and a military purpose has continued ever since.

Initially there were two courses per year with three courses overlapping for several months each year. This reduced to one per year in 1982. In terms of student numbers, the course is now geared to taking 16 students of whom half will be Sapper officers.

Over the years the ASC has trained (including No 83 ASC) 273 RE officers, 118 UK civilians, 207 Foreign and Commonwealth military and 325 civilian surveyors; a grand total of 923. Many of these have since gone on to head their own national survey organizations.

Survey project c1996.

The first lady student was Clare Hadley of the Ordnance Survey on No 66 ASC who is currently serving as one of the external examiners. The first lady Sapper was Susie Clarke on No 75 ASC.

The high regard for the course is reflected by the prizes sponsored by industry (the Simpson-Leica prize), the City (the Worshipful Company of Scientific Instrument Makers prize) and the profession (the RICS prize).

A Celebration

To celebrate 50 years of the Army Survey Course, there will be a garden party at Hermitage on Saturday 18 July 1998. It is hoped to attract some of the past 1000 students, staff involved with the courses, and their partners.

Number 82 Army Survey Course, 1996.

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The Role of Air Transport in the Burma Campaign (1941 to 1945)

CAPTAIN K D NELSON ED BSc CEng EurIng FIEAust FGS MICE

Ken Nelson is a graduate in Civil Engineering of Cardiff University. During World War Two he initially enlisted in the Royal Air Force, but was later commissioned in the Army. His signals unit served in Burma, at Imphal and then at Monywa, Meiktila and Rangoon. After the war he emigrated to Australia to work on irrigation projects. He also served in the Supplementary Reserve of the Australian Army.

Introduction

When describing the seven key battles on the Central Burma front in 1944, Major General I H Lyall Grant later wrote:

"Three of the battles ... could not have been won without air-dropped supplies and all the others were dependent on reinforcements and supplies flown in to Imphal by air. 17 Division was in fact supplied by air for exactly one hundred days and the whole Imphal garrison of four divisions for eighty-six days. Never had an army been so utterly dependent on air supply. ... The greatest credit is due to the RAF and USAAF for their remarkable achievement in one of the most hostile climates in the world and it is a story that remains to be told."[1]

Two factors were responsible for our reliance on air supply: firstly, the poor road system, made worse by the devastating effect of monsoonal rains and, secondly, the success of the Japanese "road block" tactic.

The Japanese Advance

After France's capitulation in June 1940 Japan obtained the Vichy government's permission for its troops to enter French Indo-China, and within a year they occupied the whole of the French protectorate. Germany's successful *blitzkrieg* across Europe had convinced the Japanese that a new military order was emerging, one capable of taking over the world. They were determined to be a part of this new order.

The bombing of Pearl Harbour on 7 December 1941 crippled the US Pacific Fleet. Two days later the British battleship *Prince of Wales* and the battle cruiser *Repulse* were also sunk. Allied naval forces in the Pacific were hopelessly outnumbered. On land, too, the Japanese made rapid progress. On 8 December they forced Siam[2] to allow passage of their troops, thus gaining access to the entire 1200-mile border with Burma, and began their invasion of Burma by bombing the capital, Rangoon, on 23 December 1941, killing more than 2000 people and creating such terror that more than 100,000 civilians fled the city.[3]

The ground invasion of Burma began in January. The British defence force consisted of

[1] I Lyall Grant, *Burma: The Turning Point*, The Zampi Press, Chichester, West Sussex, 1993, p224.

[2] Name officially changed to Thailand in May 1949.

[3] F Owen, *The Campaign in Burma*, Arrow Books, London, 1957, p25.

Captain K D Nelson
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two partly-trained divisions, 1st Burma and 17th Indian. They were no match for the well-equipped and battle-hardened men of the Japanese 33rd and 55th Divisions. The Japanese also had the advantage of superiority in the air.

When the battle began, near the eastern border of Burma, 17th Division met with disaster at the Sittang River and lost half of its men. Rangoon had to be abandoned and the remnant of the force retreated northward to Prome. On 13 March 1942 General Slim was sent from Iraq to take command of the British force in Burma. Working closely with the American General Stilwell, who commanded the Chinese troops in eastern Burma, Slim decided to head their beleaguered troops across the border to Imphal, in India. The monsoon season was approaching, and the "road block" technique employed by the Japanese was very effective. A block was usually located at a bend in the road. Nearby bridges or culverts were destroyed. Rocks and trees were pushed down slopes, abandoned vehicles added to the barricade and mines placed among them, and the whole was fanatically defended by Japanese soldiers hidden in nearby bunkers. Despite all this, and the deficient transport facilities at his disposal, Slim managed to get his men to Imphal before the monsoon broke. Torrential rain then ruled out any large-scale military action for five months, thus allowing time for retraining and re-equipping.

Planning the Counter-Attack

Because the Allies needed all their landing craft for the European theatre, an amphibious attack on the Japanese was ruled out. Burma would have to be retaken by troops advancing along the same route that they had used for their retreat. Slim realized that air supply could be the answer to Japanese road blocks. In 1931-32, as a staff officer, he had experimented with air supply on the North-West Frontier of India, so he had first-hand knowledge of its usefulness.[4] Slim later said:

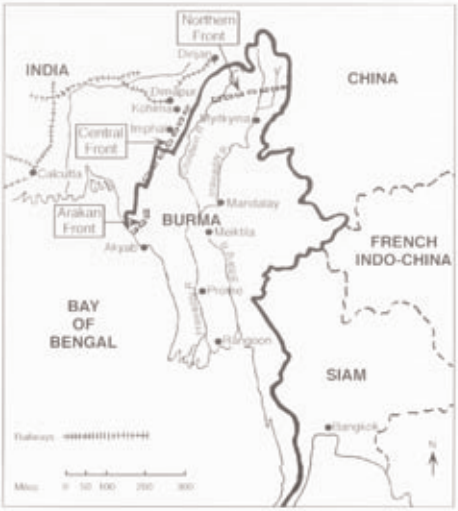
"A most distinctive aspect of our Burma war was the great use we made of air transport. It was one of our contributions towards a new kind of warfare and I think it fair to say that, to a large extent, we discovered by trial and error the methods of air supply that later passed into general use. We were the first to maintain large formations in action by air supply and to move standard divisions long distances about the fighting front by air."[5]

[4] R. Lewin, *Slim the Standardbearer*, Pan Books, London, 1978, p54.

Transports of 5th Indian Division bogged in mud on a Burma road during the monsoon. *(Imperial War Museum).*

The first opportunity to use air supply in Burma came in February 1943. Brigadier Orde Wingate had taken a long-range penetration force into enemy-held territory. Its task was to

[5] Field Marshal Viscount Slim, *Defeat Into Victory*, Macmillan, London, 1986, p544.



Burma fronts – March 1944.

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demolish a vital Japanese line – the rail link between Mandalay and Myitkyina. Wingate's Chindits suffered heavy casualties, but they succeeded in their objective. Throughout their three-month long operation they were supplied from the air, by the RAF. The successful operation was reported with much enthusiasm by the British press at a time when good news from Burma was a welcome change.

In August 1943 Wingate was recalled to England. Churchill was soon to depart for Quebec, to confer with Roosevelt and the Combined Chiefs of Staff. After a brief meeting with Wingate, Churchill decided to take him to the conference. Wingate was able to give his account of the campaign, stressing the importance of increased air support for any future Chindit operations.

Another participant in the Quebec conference was an even more effective campaigner for American air support in Burma, Admiral Lord Louis Mountbatten, who had been appointed Supreme Commander South-East Asia. Mountbatten opposed the view that fighting had to cease during the monsoon season. He advocated the delivery of supplies by air when the usual lines of communication were cut by rain. In 1942 transport planes had been in short supply, but by late 1943 the position had improved.

At the conference Mountbatten discussed Burma's problem with President Roosevelt and General Henry H Arnold. He won their support. General Arnold decided to create a new branch: the Combat Cargo Group. The group's function would be to support combat troops by flying men into the battle area, maintaining their supplies, and flying out the sick and wounded. It would be, in effect, an elite branch of Transport Command.

A Combat Cargo Group would consist of four squadrons, each having 25 aircraft. Before the end of the war four such Groups had been formed, each with 100 planes. Three of the Groups – 1st, 3rd and 4th – operated in Burma; 2nd served in the southwest Pacific area. The most suitable aircraft was the Douglas Dakota (C47). Each aircraft was operated by a crew of four – first pilot, copilot, radio operator and flight engineer. They received special training for a period of four months.[6] The Allies also decided to boost their other air transport units. The British increased the RAF and RCAF transport squadrons, and the Americans brought in troop-carrier units and air commando groups.

The Siege of Imphal

Events on the central Burma front took a new turn in 1944. For some time the British had been building up a large base on the plain surrounding Imphal. Imphal, the capital of the Indian state of Manipur, was the headquarters and supply base for Indian divisions on the central front. The plain covers some 600 square miles and lies 2500ft above sea level. It then contained two all-weather air strips, camps for a number of Army and RAF units, supply dumps, ordnance depots, engineer parks and several hospitals. All supplies to Imphal were brought 130 miles along a tortuous road from a railhead at Dimapur.

Both the Japanese and the British knew that the battle for Burma would be fought on the central front. Mutaguchi, the Japanese general, believed that by crossing the Indian border to capture the valuable supply base at Imphal he could not only consolidate his hold on Burma, but would be well placed to conquer the whole of India. Mutaguchi later recalled: "In my private speculation I saw myself riding through Delhi on a white horse."[7] Slim, on the other hand, reasoned that by attacking Imphal, Mutaguchi would be over extending his supply lines. If the Japanese failed to capture Imphal before the monsoon, their entire army of over 100,000 troops would be in dire straits. Then Slim would make his counter-attack. But Imphal had one grave disadvantage for its defenders. It had been planned as a supply base for a British offensive. The wide spacing of its camps and depots protected it from air attack, but made it difficult to defend against an enemy ground force.

As a preliminary to their planned assault on Imphal, the Japanese staged a divertive attack on the Arakan front – some 300 miles to the south – on 3 February 1944. In the ensuing battle encircled British troops urgently needed air supplies. Large numbers of transport planes with their fighter escorts were rushed to the area. All attempts by enemy fighters to interfere with this air supply failed and after the battle had raged for three weeks the Japanese were forced to retreat.

[6] J G Martin, *It Began At Imphal*, Sunflower University Press, Kansas, USA, 1988, p3.

[7] A Swinson, *Mountbatten*, Pan/Ballantine Books, London, 1973, p92.

This demonstration of Anglo-American air strength worried Major General Tazoe, commander of the Japanese Air Force in Burma. He appreciated the potential of the Allies' transport squadrons and the ability of their airfield engineers to build airstrips rapidly. Tazoe warned Mutaguchi "You don't realize the transport capacity of these planes. ... Look what's happened in Arakan. They were landing steel planking to make runways, and receiving and dispatching planes in twenty-four hours." But Mutaguchi was not concerned; he replied, "I've never lost a battle yet. The gods are with me, Tazoe. Leave it to me."[8]

Ammunition and rations being dropped to troops close to the Japanese lines. The fighter escort can be seen at top left. *(Imperial War Museum)*

On 3 March 1944 the Japanese began the next stage of their campaign with an attack on Tamu, which was defended by 20th Indian Division (Major General D Gracey). Five days later they attacked 17th Indian Division's base at Tiddim. Slim, who had anticipated both these events, ordered the two Indian divisions to withdraw to Imphal. 17th Division (Major General D T Cowan) had the more difficult task, the Japanese having been ordered to destroy it at any cost. During its slow retreat along a tortuous 180-mile mountain track this division encountered numerous road blocks and suffered many casualties, but it also inflicted heavy losses on the Japanese.

Although Slim had correctly assessed Mutaguchi's plan, he later admitted mistiming the withdrawal of 17th Division from Tiddim and underestimating the strength of the Japanese thrust at Kohima.[9] These miscalculations increased the demands on allied air supply forces.

At first the Japanese offensive proceeded according to their plan. In a burst of confidence Tokyo radio announced that Imphal had been taken on 30 March and Kohima on 4 April.[10] But General Claude Auchinleck was able to reassure the people of India. Speaking to the Assembly in Delhi he said: "Imphal is still in our hands and is strongly held. Penetrations by small parties of the enemy are always possible, but are not likely to be of major importance. Our commanders do not intend to let Imphal fall into enemy hands."[11]

The situation at Imphal was critical. Slim needed to have the garrison reinforced by 5th Indian Division; the only way to get it there in time was to fly it in. Acting entirely on his own initiative Mountbatten diverted American transport aircraft from their task of carrying supplies to China over the Hump (the air route over the Himalayan mountain range). 5th Division, commanded by Major General H R Briggs, was flown into Imphal and immediately went into action. Mountbatten's decisive action was approved in Washington. He provided further reinforcements for Slim's army by ordering 2nd British Division from Central India to Dimapur. Mutaguchi's original date for the capture of Imphal had passed, so he had to announce a new target date. He chose 29 April – the Emperor's birthday!

The British suffered a setback on 29 March 1944, when the Japanese cut Imphal's only supply road from Dimapur. After this all supplies had to be flown in, so the besieged troops were placed on a two-third food ration. All available RAF and USAAF[12] transport squadrons worked to their limits, but were not able to meet the

[8] L. Allen, *Burma, The Longest War*, J M Dent & Sons, London, 1984, p327.
[9] Slim, op. cit., p368.
[10] Owen, op. cit., p112.
[11] Owen, op. cit., p113.
[12] US Army Air Force (USAAF); in 1947 the Air Force separated from the Army to become the US Air Force (USAF).

demand. The authorities in Washington agreed that until mid-May Mountbatten could retain the aircraft from the Hump route.[13] It was also agreed that one British and five American squadrons of Dakotas would immediately be sent on loan from the Mediterranean. Meanwhile the attack on Imphal became even more ferocious, as the Japanese tried desperately to capture it before the monsoon started.

Despite the measures taken to increase air supplies deliveries were still insufficient and rations had to be cut to half normal level. Urgent action was essential, but 1st and 2nd Combat Cargo Groups were still being trained and were not ready for service. Once again General Arnold came to Mountbatten's aid. On 8 May 475 experienced airmen were sent to Morrison Field, West Palm Beach, Florida, and 100 new Dakotas were delivered to the same airfield. Two weeks later this force, 3rd Combat Cargo Group, left for India travelling via South America, Ascension Island, West Africa and the Arabian Peninsula. The journey took ten days.[14]

The crews received intensive instruction by RAF Dakota pilots, who were familiar with the hazards of flying over Imphal during the monsoon. By 11 June 1944, 10th Squadron of the Group was making combat missions to Imphal.[15] 9th, 10th and 12th Squadrons were to continue delivering supplies to Imphal until the end of the siege. 11th Squadron was posted to Dinjan, some 100 miles northeast, and delivered supplies to the British Chindits operating behind the Japanese lines.

Before it had been in India for a month 11th Squadron had suffered many casualties. One of the first planes lost was Dakota No 3385, which left on a supply mission on 28 June 1944; it was to drop medical supplies to the Chindits in the Mogaung section. In addition to the four American airmen there were also three British air-dispatchers (or "cargo-kickers") from the South Staffordshire Regiment and King's Liverpool Regiment. Their task was to push the cargo parachutes from the hold when the plane was over its target. This plane never returned and the crew were recorded as missing, presumed dead. It was not until 1991 that a Burmese patrol found the wreckage of the plane. The remains of the men were identified by their name discs.[16]

Mutaguchi had failed to capture Imphal by his Emperor's birthday although all three Japanese divisions fought with unremitting zeal. The Japanese 31st Division lost the battle for Kohima, yet it still succeeded in blocking the Dimapur-Imphal road until 22 June 1944. But the Japanese forces now lacked adequate supplies and reinforcements, and this led to disagreements between Mutaguchi and his divisional commanders. They were also suffering heavy casualties. By July 1944 the strength of their 31st Division had dropped from 20,000 to 7000 troops.

The Japanese 15th Division was in an even worse plight. Under the command of General Yamauchi it had attacked Imphal from the east, and by 6 April was within four miles of the headquarters of 4 Corps (Lieutenant General G Scoones). But there it had been stopped, and during the next three months this division of 20,000 men was reduced to 4000.

His 33rd Division of 25,000 men was the one in which Mutaguchi had the greatest confidence and to which he sent all available reinforcements. This division was sent to attack Imphal from the south. It was confronted by 17th Indian Division, which the Japanese had pushed out of Burma in 1942. But by now 17th Indian Division was jungle-trained and well equipped. Furthermore, road blocks were no longer a serious problem for the British force, since supplies to isolated troops were being delivered by air. The Indian Army had mastered the road block technique and used it to cut the Japanese supply route.

The Japanese Division not only failed to take Imphal but also lost 21,000 of its 25,000 men. In all, Mutaguchi lost 65,000 men. Slim estimated the British battle casualties to be over 15,000.[17] On 10 July 1944 Mutaguchi ordered a general retreat from Imphal. During this retreat they suffered further losses due to exposure, exhaustion and lack of medical attention. The British, on the other hand, were able to fly out 10,000 wounded and sick men for treatment. During the Imphal battle the squadrons also flew in 5th Division of 20,000 troops with their guns and equipment. The besieged garrison received by air its daily requirements of

[13] R Sunderland, *History of Second World War*, BPC Publishing Ltd, London, 1966-73, p1708.
[14] J G Martin, *It Began At Imphal*, p8.
[15] J G Martin, *It Began At Imphal*, p10.
[16] L E Fisher, Return to Burma, *CBIVA Sound-Off*, Milwaukee, Wisconsin, Spring 1995, p22.
[17] Slim, op. cit., p378.

220 tons of military equipment and 250 tons of food.[18] The original plan was that 3rd Combat Cargo Group would return to the USA for further training when it had completed its Imphal mission, but its outstanding success resulted in it being retained in the Burma theatre to support 14th Army.

During the siege, transport and fighter squadrons had the use of six airstrips. Two at Imphal and Palel were all-weather strips, but those at Tulihal, Kangla, Wangjing and Sapam were functional only in fair weather. Both Imphal and Palel had been subjected to intermittent shelling by Japanese artillery. One night early in May an enemy patrol succeeded in reaching the Palel airstrip; it destroyed eight planes on the ground.[19] Occasionally Japanese fighters would sneak in to strafe and bomb the strips. Airfield maintenance thus became a major task for the engineers, since the airfields also received a heavy pounding from the transport planes, which made as many as 300 landings in a day.[20]

The camp of 3rd Squadron, 1st Combat Cargo Group at Tulihal, near Imphal. The airstrip is seen running parallel to the top of the picture. *(W McCoy)*

Combat Cargo Groups

After breaking the siege of Imphal the British force began to build up its strength. Mountbatten and Slim planned to fight on through the monsoon to complete the defeat of the Japanese. Air supply had been vital to defence; now it was a critical factor in the advance.

To support 3rd Combat Cargo Group, 1st Combat Cargo Group of 100 planes arrived in Sylhet, India, in August 1944. Later it moved to Tulihal, near Imphal. It delivered supplies to British troops advancing across the Chindwin River, and flew casualties back to hospitals in India. In September 1st Combat Cargo Group's losses, both of men and planes, began to rise sharply and this continued for the next two months. On one day (8 November 1944) five Dakotas, three of them British, were shot down by Japanese Oscar fighters, which had recently appeared in Burma as replacements for the Zeros. Enemy fighter planes were not the only hazard; Japanese ground fire caused many of the casualties. Tropical storms and overloading of aircraft also claimed many victims. By the end of the campaign 1st Combat Cargo Group had lost 47 aircraft – 40 due to enemy action and 7 due to accidents and bad weather.[21]

The slow-moving, unarmed cargo planes were camouflaged – jungle green on the upper surface and grey underneath. They flew at a low altitude so that enemy fighters would have difficulty in spotting them. At first the planes flew singly, in order to maintain a regular supply to the troops. This was changed after the loss of the five Dakotas on 8 November. An air corridor was then established. It was patrolled by RAF Spitfires, and the cargo planes flew in formation. Even so, it was not possible to protect the transport planes at all times. When enemy planes seemed to be unusually active the combat cargo squadrons made their flights by night.

For a typical supply drop the usual aircrew of four were joined by two or three air-dispatchers or "cargo-kickers". These were volunteers from the ground forces. As the plane approached the target, flying at the lowest possible speed and altitude, the kickers would have the first batch

[18] N Franks, *The Air Battle of Imphal*, William Kimber, London, 1985, p202.
[19] Slim, op. cit., p334.
[20] Owen, op. cit., p116.
[21] J G Martin, *It Began At Imphal*, p34.

arranged close to the open door of the hold. The pilot switched on a warning light, then signalled with a bell when the time had come to push out the cargo. Immediately the bell stopped ringing the dropping also ceased. With experience the pilots and kickers were able to work together as a skilled team. The cargo, depending on its nature, was either allowed to free-fall or was dropped by parachute. Frequently five or six passes over the target were necessary to deliver the whole of the cargo.

The troops receiving the supplies were often advance units in close contact with the enemy. The low-flying, slow moving transport planes were ready targets for Japanese light anti-aircraft and small-arms fire. The British troops strove to neutralize enemy fire, so as the Dakota approached the drop zone bedlam broke loose on the ground. While the Japanese shot at the planes the British were shooting at the Japanese.

The first run over the target was usually the most dangerous because explosive material, such as ammunition and petrol, was usually dropped first to reduce the risk for later runs. Knowing this, the Japanese concentrated their fire on the open door of the hold. If they aimed accurately the result could be a devastating explosion.

Other enemy actions were designed to confuse Allied pilots since an inaccurate drop could deliver supplies into the hands of the Japanese. The drop zone was clearly marked, but sometimes the Japanese laid out their own imitation zone. To counter this the British troops identified their zone with an extra signal that was valid for that day only. About one-third of the Combat Cargo Groups' missions were supply drops from the air; for the other two-thirds the planes landed on airstrips to discharge their loads. The kickers were all volunteers recruited from American, British, Indian and West African units. Radio operators were especially welcome because, in an emergency, they could take the place of an injured radio operator in the regular crew. John G Martin, a combat cargo pilot, was awarded the Distinguished Flying Cross and the Air Medal. He commended the cargo kickers who served with him.

"Credit is more than due to the kickers who were part of our crew. These men would shove these heavy loads out of the airplane with brute force. They had no safety device to keep them from slipping or falling out of the airplane. They had no fear. They were constant targets of the enemy soldiers on the ground. Being in the rear of the airplane they often received ground fire that resulted in many casualties amongst these people."[22]

Parachutes were too cumbersome to be worn by kickers during the dropping operation, and some kickers did fall out of their planes. J R Roberts, a Chindit, tells of one such incident. A kicker slipped out of a Dakota "but miraculously he was able to save himself by clinging on to a bale as it came down on its parachute!"[23]

Several senior army officers flew in transport planes to obtain first-hand experience of the supply dropping technique, and some of them helped with the dispatching. The most senior officer involved was USAAF General F W Evans, who commanded the Combined Army Air Transport Organization; on one occasion he flew as a copilot and kicker with 3rd Combat Cargo Squadron. Another was Brigadier John Constant, then a brigade major with an Indian infantry brigade. He spent a week with the RAF to observe their response to calls for direct air support. He also flew in Dakotas and helped to push out supplies to 5th Indian Division.[24]

Crew members were issued with parachutes for their own use in the event of the plane being shot down. Each also had a Browning 45 Calibre automatic pistol and a survival kit, to help him make his way through the jungle, and probably through enemy lines, to an Allied base.

After the arrival of 4th Combat Cargo Group at Sylhet on 4 December 1944 there was a total of 300 Cargo Group planes supporting the army in Burma. Occasionally some of the planes had to be diverted to flying supplies over the Hump to Chiang Kai-Shek's forces in China. These diversions tended to slow the British advance but, even so, 14th Army was gaining momentum.

British Advance Through Burma

KALEWA was captured by 11th East African Division on 2 December. A week later the sappers completed what was then the world's longest Bailey bridge; it was 1154ft long and spanned the Chindwin River. Road blocks were used to disrupt

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[22] J G Martin, *Through Hell's Gate To Shanghai*, Lawhead Press, Athens, Ohio, USA, 1983, p63.

[23] J R Roberts, A Journey Through World War II, *Dekho*, Issue 123, p23.

[24] Brigadier John Constant, One More River; Some Personal Reminiscences About Burma, *RE Journal*, Vol 109, No 1 (April 1995), p57.

When the monsoon came early, Burmese villagers helped British troops to manhandle vehicles across a creek near Rangoon. *(Imperial War Museum)*

the Japanese retreat and, despite enemy counter attacks, the blocks were maintained.

The speed of the advance increased demands on transport squadrons. Slim planned to have airstrips at intervals of 50 miles along his advance route, which put great pressure on airfield engineers, both British and American. During the dry season it was possible to use fair-weather strips that could be built in a few days, but all-weather airfields took much longer. Fortunately many captured airfields required only extending and repairing before being put to good use. It soon became clear that the rate of advance would depend on how quickly captured strips could be made operational. Slim's solution was simple: "After the first day or two we put airfield engineers with the tanks at the head of the column, so as to start work on airstrips at the earliest possible moment."[25]

When British armoured units broke into the dry central plains the demand for petrol and ammunition increased. 2nd British Division captured Ye-U on 2 January 1945, and Monywa was taken by 20th Indian Division on 22 January. At the same time 19th Indian Division was advancing on Mandalay, implying that this was Slim's next objective. The deception was successful. While the Japanese concentrated on the defence of Mandalay, Slim moved 17th Indian Division 80 miles southward to strike at Meiktila, an important supply base for two Japanese armies. The defenders fought doggedly, but on 4 March Slim's men took Meiktila and repeated attempts by the Japanese to recapture it were unsuccessful. The British could now use the Meiktila airstrip to land units of 5th Indian Division, as well as vital supplies of ammunition, food and medicine. But the Japanese forces were still close by, and as the Dakotas took off or landed they came under heavy fire. Enemy fighter planes in the area were also a constant danger.

By the end of March Mandalay was also in British hands, after a battle in which both sides suffered heavy casualties. The task now facing 14th Army was to reach Rangoon, some 300 miles

[25] Slim, op. cit., p497.

The role of air transport p23

away, before the monsoon began. Because of the great demand on air supplies the troops were again placed on half-rations.

The 300-mile advance was made in 16 days, its speed sometimes catching the enemy unprepared. Toungoo, some 160 miles from Rangoon, was the army headquarters of the Japanese General Honda. Slim later recalled:

"On the 22nd April, with a final spurt, our armour crashed into Toungoo. Although we had heavily bombed the town the day before, the arrival of our ground forces was a complete surprise. The signals of a protesting Japanese military policeman on point duty were disregarded, and the first tank went over him. Panic reigned as our tanks roamed the streets, the enemy flying in all directions, intent only on escape."[26]

By the next day 5th Division was at Pyu, 30 miles to the south. Two days later they had reached Penwegon, 20 miles further south again. Slim writes: "Here, when our first armoured car crept up, the Japanese demolition party was already in position at the bridge – but asleep. They never woke!"[27] On 29 April Pegu was captured. Then on 1 May the monsoon began, a fortnight earlier than expected. 17th Division was halted about 40 miles from Rangoon. The British now began their combined operations attack on Rangoon. Once again the transport squadrons played a vital role. On 2 May 1st and 4th Combat Cargo Groups dropped Gurkha paratroopers at Elephant Point, south of Rangoon.[28] Much to Slim's surprise, the Japanese did not attempt to defend the capital. Instead, their commander, General Kimura, decided to evacuate all his troops to a position east of the Sittang River.

But the fighting was not yet over. 14th Army's rapid advance down the centre of Burma had isolated Japanese troops in the western sector. These men were now ordered to break through the British lines and rejoin the shattered Japanese army in the east. By this time, May 1945, the isolated Japanese troops were poorly equipped and close to starvation, but they had to confront 19th, 17th and 7th Indian Divisions. Documents recording their orders and location of the planned breakthrough were captured by the British, who were thus well prepared to meet them.

Air transport planes dropped leaflets warning the Japanese that their defeat was inevitable and advising them to surrender. The warning was ignored. The Japanese fought on, without being able either to advance or to escape, and suffered heavy casualties. By the end of July the battle was finished. Of the 16,919 Japanese casualties 9719 were killed; the British casualties numbered 419, of whom 97 were killed.[29] A fortnight after the cessation of fighting in Burma the atom bomb was dropped and the war was ended.

Conclusion

A unique feature of the successful Burma campaign was the Allies' reliance on aircraft for the transport of their troops and supplies. Mountbatten later said:

"It was not just a question of auxiliary air supply, because ninety-six per cent of our supplies to the 14th Army went by air. In the course of this campaign we lifted 615,000 tons of supplies to the armies, three-quarters of it by the US Air Force and one quarter by the Royal Air Force; 315,000 reinforcements were flown in, ... 110,000 casualties were flown out."[30]

This could not have been achieved without the skill and dedication of the engineers. Often working under heavy fire, they had built 200 airfields in six months.

Acknowledgments

The author wishes to thank Dr John G Martin (a pilot in 10th Combat Cargo Squadron) and William McCoy (a pilot in 3rd Combat Cargo Squadron) for their help with this article. Dr Martin is the author of two books on the squadrons.

[26] Slim, op. cit., p500.
[27] Slim, op. cit., p500-501.
[28] J G Martin, *It Began At Imphal*, p33 and p45.
[29] Allen, op. cit., p645.
[30] J Keegan & R Holmes, *Soldiers*, Guild Publishing, London 1985, p198.

The IJzendijke Memorial

MAJOR GENERAL J C WOOLLETT CBE MC MA CEng FICE

20 October 1944, 284 Assault Squadron were in support of 6 Canadian Armoured Division, who were tasked with clearing up operations to the south bank of the Schelde. The squadron was harboured close to Isabellaweg farm near IJzendijke preparing their AVREs and equipment for battle. A detachment of the Royal Canadian Army Service Corps arrived with a lorry carrying stabilized nitroglycerine which was to be used in a Conger: a mine-clearing device consisting of a hose that was fired across the minefield, blown full of nitroglycerine by compressed air, and then detonated. The lorry had to be dragged across a damaged culvert and was jolted violently enough to cause the explosive to blow up. The result was devastating; 39 men killed and over 50 wounded.

Martin Reagan, one of the survivors, who was a lance sergeant at the time, visited the site 50 years later with his family. They were warmly welcomed by the de Dobbelaere family who lived in the farm, and the idea of erecting a memorial developed. The local Dutch people supported this proposal, and formed a committee. Funds were also raised from former assault engineers, and the Corps. A design was agreed, and the date for unveiling fixed for 20 October 1997. A lot of old comrades and their families, both British and Canadian, wanted to attend. We were all accommodated in the City Hotel, which was excellent, as there were so many old memories to discuss.

On Sunday 19 October we laid a wreath on the war memorial at Eeklo. The coaches were unable to get close, so we all fell in and marched, with Ian Alexander, who runs the War Research Society, playing the bagpipes. This inspired older comrades to keep going! We then went to the Adegem Canadian Military Cemetery where wreaths were also laid, including some by relatives. The Burgemeester of Maldegem welcomed us, and there was a reception afterwards in the town hall.

Monday 20th was the 53rd anniversary of the disaster. The coaches followed the route taken by 284 Squadron, and a wreath was laid on the way at the Algonquin Regiment Memorial at Isabellasluis. Arriving at the new memorial, erected beside the road a short distance from Isabellaweg farm, we found about 200 Dutch people, including a group of children with flowers.

Two Dutch soldiers from the Stoottroepers stood beside the memorial, (pictured opposite) and among others present were the British and Canadian Military Attachés, as well as Lieutenant Colonel Barrie, who had served with 6 Canadian Armoured Division, representatives of the Royal Monmouthshire Royal Engineers (Militia), and the adjutant and three NCOs from 32 Engineer Regiment (previously 32 Armoured Engineer Regiment), as well as representatives from the Municipality of Oostburg.

After a speech of welcome by Mr Buysee, the chairman of the Dutch committee, and a message from Crown Prince Bernhard, speeches of thanks were made on behalf of the Corps, the Canadians and the survivors. The memorial was unveiled by two children, the granddaughter of Lance Sergeant Rees Barton, and the grandson of Johan Steenkiste, a witness of the tragedy. A service of dedication followed, after which wreaths were laid, and then flowers by the school children. Finally the national anthems of Great Britain, Canada, and the Netherlands were played and the flags hoisted. We then visited the farm where the de Dobbelaere family made us welcome, and relics of the disaster, and other records were shown to us.

It was a wonderful experience to meet so many old comrades and their families, and to feel that the spirit of those days has not disappeared. The Dutch were, as always, very kind and helpful, and it was nice to see so many children attending, not only locals, but also those who had come over with their parents and grandparents.

An enormous amount of work was done by Martin Reagan and his team, and by Geert Aalders and his team in the Netherlands. Altogether it was a most inspiring occasion, and a strong endorsement of "Once a Sapper, always a Sapper".

Maj Gen J C Woollett CBE MC
The IJzendijke Memorial p25

A Year Out, In

SECOND LIEUTENANT J A CONNOLLY

Second Lieutenant Joe Connolly was commissioned into the Royal Engineers on 13 November 1996 after completing a three and a half-week course at the Royal Military Academy Sandhurst; he was then posted to 35 Engineer Regiment in Hameln. Before attending Sandhurst he attended Haileybury School in Hertfordshire and in October 1997 began studies at Clare College, Cambridge, reading for a degree in Natural Science.

My friends thought that the pressure of A-levels had finally pushed me over the edge when I announced that I intended to spend a year in the army before going to university. Although many were not going straight to university they had more relaxing plans for their gap year.

After passing the Regular Commissions Board, I was asked to attend a short course at Sandhurst to teach me the basic essential military skills needed before joining my regiment.

No sooner had I been issued my green kit than I had my first encounter with what were two inseparable elements: drill and the CSM. "You Sir! Swing your arms higher!" suggested the CSM as we marched backwards and forwards across the sacred ground practising our halts and turns. In sheer fear my arms swung not just higher but, as the CSM put it, I looked like I was trying to take off.

So, in front of the entire company, I was given my own personal drill lesson: "Pull your arm back to here and swing it forward to here! Now swing your arms on your own!" said the six foot six inches of raging guardsman. As I attempted, poorly, to emulate the way he had swung my arm backwards and forwards, the CSM shouted the most insane question at me that I have ever heard, "Are you trying to hit me Sir?", he roared, "Do you think you could Sir?" I could have given no answer to this even if I had been able to speak. I was soon fallen back in and moved to the rear of the platoon where I hoped that I would not be noticed again. The rest of my short time at Sandhurst was to prove not just an experience, but rather a whole number of reasonably unpleasant experiences, but somehow I managed to leave with fond memories.

Chatham was next, where I began to realize that I had no idea of how the army worked, or what part I was supposed to play in it. I was told that 35 Engineer Regiment was the fittest regiment in Germany and custodian of many winter games trophies but when I arrived I knew little else about what they did. Already bewildered and intimidated by the size and importance of my new regiment, I reported to the adjutant, a man who I was told "could seriously mess up your day," and then to the CO, a man who "could seriously mess up your career." The adjutant informed me that the two things he had planned for me were a month long course in typing, closely followed by the All Arms Commando Beat Up. At the time I did not realize what a brilliant sense of humour he possessed and had to agree that he could seriously mess up my day. However, it became apparent during my conversation with the CO that he was quite happy to let me go on as many adventurous training courses as I wanted. Within hours I had put my name

Second Lieutenant J A Connolly
A year out, in p26

down for several, the first of which was to take me white-water kayaking in Wales.

After surviving the freezing waters of the Tywyn estuary in Wales, I had only been back in the regiment for a week when I was forced to fill a place on the basic winter training ski course held in Bavaria. The course is infamous throughout the army. Unfortunates have to spend two weeks downhill skiing in the mountains of southern Germany, free of charge, whilst being paid as if they were on duty. I was distraught, and what made things worse was the thought that some lucky person was on my typing course! I thoroughly enjoyed myself and wondered whether my friends would have considered that joining the army was such a bad idea if they could have seen me overlooking the mountains around the Fellhorn, ready to ski down at the army's expense.

On returning to Hameln I was instructed to join the rest of the regiment for the annual regimental exercise *Monty's Delight*, and, with bergan packed, I left barracks bound for Bergen Hohne Training Area to become a section sapper. Many of the best and worst parts of my year occurred on *Monty's Delight* as I gained some knowledge of what it was like to live in the back of a 432 with the rest of my section as part of 9 Troop. It did not take SSgt Garcia long to realize that I had no combat engineering experience at all and he set out to educate me as best he could.

I was with the troop recce section under the watchful eye of Cpl Williams. One cold, wet night we were tasked with breaching a 300m minefield. Having already lost four pieces of 14-gauge wire on the way to the minefield, and more importantly left our mine-detectors back in the Spartan, I had not endeared myself to either Cpl Williams or to SSgt Garcia.

Within minutes of entering the obstacle I heard a bleep on my mine-detector. The source of the noise seemed to be a rock and so I informed Cpl Williams of my discovery.

"Don't, whatever you do, move that rock!" instructed Cpl Williams, crawling back like a man possessed to stop me causing more trouble. "I know what this is," he whispered. "It's just a gas canister with a rock on top. All we have to do is dig it out and hold the handle down and then we can disarm it." Suddenly, an enormous cloud of bright orange smoke engulfed the now violently coughing and spluttering corporal.

Immediately after the exercise I was whisked away to Bad Lippspringe to attend a parachuting course. After two days of ground training I was ready to jump. "Look up. Go!" were the last words I heard as I fell from the aircraft 3000ft from the ground – only 20 seconds away if both parachutes failed to open. After the intense excitement of the first jump poor weather set in. We squeezed an occasional jump in but on the last day, as I woke up and started to move I felt my neck click and a pain shoot through it. And so, despite surviving eight jumps, I managed to disable myself getting out of bed!

Easter leave was spent touring Europe with a friend. He was taking a year out but had spent the previous six months processing insurance claims for the RAC. Two weeks later I returned, having visited Berlin, Dresden, Prague, Budapest, Amsterdam, Den Haag and Brussels.

Soon I was given my first real work: to organize and run a week and a half package for a visiting ACF detachment and an adventurous training exercise in the Harz mountains. I was glad to be given some work to do as life in barracks was beginning to get tedious despite the daily excitement of morning PT.

Next, I spent a very enjoyable week on the rivers of Scotland where I met up with another SSLC officer, Second Lieutenant MacKenzie, who had been working almost as hard as I had during his year with the Black Watch.

When I got back to the regiment it was time to go parachuting once more, since the CO agreed that I had not completed enough jumps. I managed to fit in 28 and my technique improved greatly. Over the last few days I was jumping from 10,000ft and performing aerobatic manoeuvres such as turns, back loops and tracking. However, the real fun was to be had on my first unstable exit. At 10,000ft you sit with your back to the door and curl up into a small ball before the jump master pushes you out. There are no words to describe the feeling of control and relief that you experience when the rapidly spinning world around you suddenly rights itself as you regain control whilst travelling toward the ground at terminal velocity.

Looking after ten 14 to 17 year-old cadets the following week proved to be almost as daunting. Fortunately I had a lot of help from Cpl Dobbs and Cpl Lyne. They had run many similar programmes and were always present to lend a helping hand to the cadets who lost passports, had untidy rooms, and one who misplaced the keys to the locker in which he had stashed his weapon. Despite our best efforts to drown, shoot, blow-up,

poison, run over and beast them into the ground they all agreed that they had a great time; while the corporals agreed that they had had enough. The very next week I took a 20-strong adventurous training exercise to the Harz mountains. Here, some of the sappers from my squadron (the excellent 44 HQ Sqn) were given the opportunity to go rock climbing or kayaking down or around the Oker Valley. The week ran smoothly and everyone enjoyed the time away.

August will be the highlight of my year, as I am going to Nepal on a trekking expedition with Cambridge University Officer Training Corps. I will be sad to leave the regiment and the friends that I have made in it but I am also looking forward to university. When I go I will take with me a year's worth of experience of the regular army. I would do it all again if I could and will always retain the memories, and the large stash of literature, from my year in the army.

To Laura Waugh, 31 May 1942

The following letter from Evelyn Waugh was published on page 522 of "The Oxford Book of Letters", edited by Frank and Anita Kermode. It is reprinted here by permission of the Peters Fraser & Dunlop Group Limited.

Waugh is now in the Royal Horse Guards, restored to the company of "Bob" (Colonel Robert Laycock).

Darling,

It was a great joy to get a letter from you. I thought you had been swallowed up in some Pixton plague.

Do you know Ellwoods address? I wrote to him care Harper – no answer.

Miss Cowles leaves tonight. Everyone except me will be sorry. I have had to arrange all her movements and it has been a great deal of trouble. She is a cheerful, unprincipled young woman. She wants to be made colonel in chief of the commando so I have suggested Princess Margaret Rose instead. Bob eats out of my hand at the moment.

So No 3 Cmdo were very anxious to be chums with Lord Glasgow so they offered to blow up an old tree stump for him and he was very grateful and he said don't spoil the plantation of young trees near it because that is the apple of my eye and they said no of course not we can blow a tree down so that it falls on a sixpence and Lord Glasgow said goodness you are clever and he asked them all to luncheon for the great explosion. So Col Durnford Slater DSO said to his subaltern, have you put enough explosive in the tree. Yes, sir, 75lbs. Is that enough? Yes sir I worked it out by mathematics it is exactly right. Well better put a bit more. Very good sir.

And when Col D Slater DSO had had his port he sent for the subaltern and said subaltern better put a bit more explosive in that tree. I don't want to disappoint Lord Glasgow. Very good sir.

Then they all went out to see the explosion and Col D S DSO said you will see that tree fall flat at just that angle where it will hurt no young tree and Lord Glasgow said goodness you are clever.

So soon the[y] lit the fuse and waited for the explosion and presently the tree, instead of falling quietly sideways, rose 50 feet into the air taking with it ½ acre of soil and the whole of the young plantation.

And the subaltern said Sir I made a mistake, it should have been 7½lbs not 75.

Lord Glasgow was so upset he walked in dead silence back to his castle and when they came to the turn of the drive in sight of his castle what should they find but that every pane of glass in the building was broken.

So Lord Glasgow gave a little cry and ran to hide his emotion in the lavatory and there when he pulled the plug the entire ceiling, loosened by the explosion, fell on his head.

This is quite true.

E

Ellwood] had been his butler.
Miss Cowles] Virginia Cowles, an American journalist.

Autumn in Puglia

DONALD F COOPER OBE FCIPS

Following this author's article published in the December 1997 issue of the Journal, *the following short piece covers a later period of the war, in Italy, in September 1947.*

It was a strange confrontation. Approaching us to starboard in line astern, virtually within hailing distance, was the Italian Grand Fleet. To soldiers at sea, or "pongos" as the navy disrespectfully referred to us, it was a fearful sight. Their ships looked enormous and I saw with some trepidation that they were raising their guns. From the bow of the cruiser *HMS Aurora*, I looked back along the units of the British fleet. The *Aurora* itself led the line, followed by the battleship *HMS Howe*, the minelayer *HMS Abdiel* and in the rear the "pepper-pot", *HMS Penelope*. I heard orders shouted – strange naval words – and saw the guns of the *Aurora* and *Howe* elevating and swinging in the direction of the Italian ships. Dark shapes were moving on the surface between the closing fleets: they were four enemy submarines. The Royal Navy was at action stations and its huge guns were trained on its old enemy.

An extremely unhappy army force offered up a silent prayer that the Italian surrender, believed to have been negotiated only two days earlier, would hold. I looked down at the sea and wondered how warm it might be if we had to swim in it. The previous evening it had looked friendly and inviting: now it had a fearful, green and hungry appearance. The submarines were closer now and even more menacing, but there was nothing that the military personnel on board could do. We were mere silent spectators of a play where everyone apart from us appeared to know their lines. On the bow railings many knuckles – mine included – were white.

As the first of the submarines, also in line astern, drew level a figure appeared on the conning tower, stood to attention for an eternal moment in time and saluted. I looked up and there on the bridge I saw the salute returned. The guns remained silent, the gunners alert as the enemy fleet passed, heading for Malta and surrender to the British Naval Commander-in-Chief Mediterranean, Admiral Cunningham. Sailors reappeared and there was a rum ration for everyone on board. Not since a sailor on *HMS Montrose*, then a few miles off the Dunkirk beaches, had given me a mug of tea with a piece of carrot and a layer of grease in it, had a drink been more welcome.

Less than 48 hours had passed since advanced HQRE 1 Airborne Division had moved to Bizerta, ready to embark for the port of Taranto, Italy, with the rest of the Division. Our permitted strength was two officers and three other ranks and the CRE, Mark Henniker, announced that he had decided to take with him Captain Willie Taylor, Bruce Brown, Joe Meek, and me. The inclusion of Brown provoked a degree of interest because he had been suffering from impetigo and looked a fearsome sight with four days of sandy-haired growth covered in bright purple ointment. "I think we ought to take Brown" said Henniker, "one look at him and any doubting Italian will run a bloody mile." His principal concern however was the likely inaccuracy of Italian maps: Brown, a draughtsman of considerable skill, would be needed to redraw them from intelligence reports.

There had been a scramble for places aboard ship; a period of barter and fast talking saw us installed at the "sharp end" of *HMS Aurora*. The navy were perfect hosts although one petty officer was heard to complain that the ship, which a few weeks previously had taken HM King George VI to Malta, was "being used like a bloody taxi."

Of the four ships which made up *Force "H"*, whose leader was the battleship *HMS Howe*, *HMS Aurora*, like *HMS Penelope*, was a cruiser of the Arethusa class. From the numerous holes which had been shot through *HMS Penelope's* superstructure, she was popularly known as the "pepper-pot." *HMS Abdiel* made up the foursome, one of the fastest ships in the Mediterranean; all in all a powerful force which sped eastward from the Tunisian coast.

To soldiers unfamiliar with maritime operations the four ships, in line astern cutting white spreads through the deep blue Mediterranean, looked magnificent. Behind them, the setting sun sparkled across the water and soon the ships were silhouetted, giving them a slightly sinister appearance.

1 Airborne Division was to secure the port of Taranto, which was considered necessary as a

major supply port for the 8th Army. No aircraft were available and so a frontal attack by a navy-backed army assault force was conceived.

It was the following day that the confrontation with the Italian navy took place and, decades later, sometime in the early 1970s, I was again in Taranto on steel negotiations. The usual question of "Is this your first visit?" provoked the telling of the 1943 story, and the considerable apprehension I had felt as the ships passed with the Italian guns trained on us. An Italsider engineering director asked me how I would have felt if I had been in the Italian fleet with the guns of the *Howe* facing in my direction? He had found that same incident too exciting for comfort. "We were not sure whether she would blow us out of the water with the first salvo or the second." We split a bottle of Chianti on it.

In the late evening of 10 September 1943, *Force "H"*, entered Taranto outer harbour and anchored off the Porte Mercantile. The CRE was away early in General Hopkinson's launch, but it was almost midnight by the time our unit scrambled down nets into a lighter. As the lighter moved away there was a loud explosion and, almost simultaneously, a second, even greater. *HMS Abdiel* had switched off its degaussing gear and a magnetic mine had exploded beneath it, following which the minelayer's ammunition and mines had also exploded. If there is an inferno called hell, then it must look something like that moment in time. Following the massive explosions, a dull red angry ball of flame overcame all sense of time, distance and space. In the menacing red glow which covered the harbour, the waters heaved as if they had been commanded to part. In a matter of three minutes, *HMS Abdiel* broke in two and sank, taking with her not only most of her crew but also over 250 men of 1 Airborne Division. The lighters tossed like corks on the heaving waters but none capsized. The moment passed and we clambered once more onto European soil.

There was a strong RE presence in the early landings, a situation which could not have been forecast some five days earlier. When orders for a move to Italy reached divisional HQ late on the evening of 5 September, the CRE was briefed in circumstances which were, initially, far from happy. Before the division had left for Africa, General Browning, who had been a great supporter of a divisional engineering role, had moved to Airborne Corps HQ and his place had been taken by Major General Hopkinson, previously Commander 1 Air Landing Brigade. While personal relations between the CRE and his new divisional commander remained at an amicable level, professional relations did not. General Hopkinson saw no point in having both engineers and artillery operating separately from brigades and was determined to change the organizational pattern. Anyone who has served with M C A Henniker will know that he would not readily agree to such an arrangement and he fought his corner for proper engineering command of his sappers.

At the outset of the first Taranto operation briefing session, Hopkinson's plan for Italy was based on integrated brigades, thus reducing the role of the CRE to that of a technical adviser. It was during this briefing session that a naval flag lieutenant arrived with a message from Admiral Cunningham. The admiral was concerned at the likely state of Taranto harbour, the risk of sabotage and particularly the state of a swing bridge. Would the general please ensure that a strong engineer force was included in the early landing troops. At this point, and much to the puzzlement of the flag officer, the meeting dissolved into laughter. Nothing further was heard of breaking up the divisional engineers and when the landing took place, the sappers were there in force.

On the morning of 11 September, HQRE 1 Airborne Division found accommodation within the defences being thrown up around the town. We were somewhat surprised (but not as surprised as they were!) when two German soldiers walked in to present their return-from-leave passes. Having travelled by train to Taranto overnight, they walked from the station and, so thinly was the division strung out, had not realized that a different army was in occupation.

Another convoy of shipping brought in the engineers' intelligence officer, several more men and later the CRE's driver appeared. We were once more the small but integrated unit which a HQRE aims to be.

With the enemy withdrawing northwards we moved out to Gioia del Colle where life became both more pleasant and more interesting. It was time for the grapes to be pressed. Having become quite fond of Italian wine up to this point, we certainly looked forward to seeing how wine was produced. The farmer and all of his family and workers were involved. Grapes were collected in horse-drawn carts and dumped in an open wooden tank. Early in the morning we saw energetic barefooted dancing on the grapes.

Wondering whether or not the dancers had washed their feet I gave them the benefit of the doubt; but not for long. I was convinced that one of the girls was not merely lifting her skirts for fresh air and proof positive followed when, without the slightest qualm, one of the farm hands undid his fly buttons and urinated straight into the vat. There was shouting and laughter and I watched, fascinated, to see to what lengths this activity might progress. Another of the girls jumped out of the vat and ran barefooted across to the outside lavatory. She returned, not even bothering to avoid the obvious evidence that cows had passed, and jumped straight into the vat to continue treading the grapes. That day I lost the taste for southern Italian wine!

After a week, another move took HQRE to the village of Andria, just south of the river Ofanto. Within a few days of the move, 9 Field Company and 2 Parachute Squadron, now in support of the newly arrived 78 Division, had forded the Ofanto river, by-passing the bridges which the German army had demolished. A ford was discovered at Cannae as OC 9 Field Company, a classical scholar, had predicted. It had been at Cannae in the year 216BC that Hannibal had inflicted a massive defeat on the Romans under command of Terentius Varro. If Hannibal's elephants had crossed the river, it might well be fordable by tanks, deduced OC 9 Field Company. The crossing enabled 78 Division to outflank and defeat the Germans and go forward, with 9 Field Company in support, to capture the all-important airfield at Foggia.

At about this time, a friendly band of marauders officially titled No 1 Long Range Demolition Squadron, a unit created and commanded by Colonel Vladimir "Popski" Peniakoff, arrived. This band of desperados, known as Popski's Private Army (PPA), would disappear for days on end behind German lines carrying out raids which were sometimes official and sometimes not. They would then return, settle down beside us in the hope of getting food and drink, and were not beyond stealing anything thought to be useful or just beneficial to them. We managed to keep our weapons and equipment out of their reach but were free with a supply of the grape juice which we had seen pressed a few days earlier in Gioia.

As if the PPA was not enough, what should arrive next but a company from the French Foreign Legion. Although much better disciplined – being mostly German – members would also help themselves to food and weapons. They too were given a supply of recently pressed grape juice.

Tasks finished, the Division handed over to 8th Army. Divisional HQ concentrated once more in the Gioia del Colle area to await orders.

In Gioia, we were only occasionally disturbed by enemy aircraft although on one occasion a fairly large bomb scored a "near miss". It was followed the next day by a visit from an American Air Force officer to apologize for the mistake in a navigator's map reading. We graciously accepted his apology and provided him generously with our usual gift, a supply of farm grape juice for his navigator.

As far as I recall, our generous gifts brought no complaints.

The Mulberry Harbours – My Final Assessment

BRIGADIER A E M WALTER CBE

The author's war service included missions to Norway and Finland and, as Deputy Assistant Director Transportation Middle East, he was involved in special missions to Turkey and China. After serving in Washington and South East Asia, in February 1944 he became Director Ports and Inland Waterways 21 Army Group, taking personal command of the Mulberry "B" Port Construction Force at Arromanches. His command included the Port and Inland Water Transport Operating Groups Royal Engineers, which first discharged stores, ammunition and vehicles over the beaches and later through captured ports and canals in France, Belgium and Germany. Also under his command were the Port Construction and Repair Groups Royal Engineers, responsible for all port and canal clearance and repair.

Seconded to the Control Commission in Germany, after the war, he worked on quadripartite committees in Berlin, later becoming the British member of the Central Rhine Commission. On retirement he went to the Ministry of Transport first, as an Inspecting Officer of Railways, and later worked on International Inland Transport in Geneva, Paris and Brussels.

Introduction

At the Quebec Conference in August 1943, it was accepted that maintenance over the beaches would be inadequate for the invasion and that a port would be essential. After experience of the Dieppe raid in August 1942 it was realized that a port could not be captured and rehabilitated in time, and that as we could not capture a port, we must build our own. Thus arose the unbelievable idea that we would design and build two harbours, each roughly the size of Dover harbour, tow the pieces through 100 miles of enemy-infested waters and plant them down on heavily defended beaches at the start of the greatest amphibious operation in history.

Two harbours were planned: Mulberry "A" to be planted by the Americans at *Omaha* Beach and Mulberry "B" to be planted by the British at Arromanches. Mulberry "A" was totally destroyed by a storm which started on 19 June 1944 (D+13) and lasted for four days. Mulberry "B" survived the storm and went on to become the main Allied port during the battle for Normandy, and onwards until Antwerp was opened on 28 November, a period of 164 days of non-stop round-the-clock operation.

Since the war volumes have been written and films made to tell the tale about this great operation. My own memories and reflections were given in an article "A Harbour Goes to France" published in the *RE Journal* in March 1986. The best description of the great storm was given in an article "A Worm's Eye View" by (Major) R J P Cowan published in the *RE Journal* in December 1986. In spite of inaccuracies, probably the best American account of the operation is given by Rear Admiral (then Captain) Edward Ellsberg US Navy, in his book "The Far Shore" published in 1960.

However, amidst all these writings of the two Allies, there are still three aspects of this great operation which need further examination:

- Why did the British harbour survive the same storm which totally destroyed the American harbour only a short distance away?
- The consequential effects of the loss of the American harbour.
- The need for the Mulberry harbours and the vital part played by the remaining harbour Mulberry "B".

Today there are very few left who took part in that great operation. Captain A D Clark, US Navy, commanded Force 128, the American naval force responsible for planting Mulberry "A". On the British side Captain C H Petrie RN was responsible for the naval side of planting Mulberry "B"; whilst I was responsible for the Army side as Director Ports and Inland Water Transport, 21 Army Group and Commander of the Port Construction Force, Mulberry "B".

Brig A E M Walter CBE
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Shortly after the storm both Captain Clark and Captain Petrie gave up their commands; Captain Petrie being replaced by Captain Hickling RN who worked with me to the end of the useful life of Mulberry "B".

Of those in command, only I remain, and I am now 90 years old – hence my heading, "My Final Assessment"!

PART I

The Logistics of the Invasion

When planning the invasion in 1942, the planners came up against two insuperable problems:

First. They decided that they were not prepared to risk an invasion which depended on **all supplies** coming over the beaches. There were two reasons:

- There is a 23ft rise and fall of tide on the Normandy beaches. Consequently landing craft, Rhino ferries[1] and lighters could only be discharged for a few hours either side of high tide depending on the draft of the craft. This meant that the tonnage of supplies which could be pushed through the beaches would be very limited and quite inadequate to supply the needs of an invasion force of the great size to be landed.
- In the event of rough seas and storms, supplies would be reduced or cease and the battle ashore would suffer. In the event, this is actually what happened when the storm started on 19 June. Supplies over the British beaches did cease and craft were forced to come into Mulberry "B" for shelter. Nevertheless, despite the storm, over 7000 tons of vital ammunition and supplies came through Mulberry "B" during the storm.

Second. In consequence of the above, it was decided that a port would be vital to the success of the invasion. But the Germans were no fools – they also knew this! They said "If we hold the ports, we hold Europe," because they believed quite rightly that an invasion was impossible without the backup of a port. So they fortified the French ports very heavily in addition to the beaches and believed they were safe. Even if a port was captured, it would take many vital days, even weeks, to restore it to working order, as was later shown with the ultimate capture of Cherbourg on 27 June 1944.

Faced with these two insuperable problems – inadequacy and risk of supplies over the beaches, and the inability to capture and operate a port in the early days, there was only one solution – to build our own harbours and take them with us.

PART II

The Invasion

The two ports Mulberry "A" and "B" were therefore planned and constructed – a great feat of British engineering. In the event, only Mulberry "B" was successfully planted. Why? Both beaches were subjected to what turned out to be the strongest summer gale ever recorded on that coast since the gale which wrecked the Armada in 1588. Before examining the reasons why one harbour succeeded and the other failed, the composition of the harbours must be explained.

The breakwaters were composed partly of a line of sunken old merchant ships (code-name *Gooseberry*) and partly of large hollow concrete boxes or caissons (code-name *Phoenix*) of sizes varying from 60ft to 25ft in height, to suit the depth of water in which they were to be planted. The quays consisted of large floating spud pontoons each riding on four 90ft long retractable legs for sitting on the seabed thus giving berthing facilities over the full 24 hours each day. Long floating roadways (code-name *Whales*) each 3/4 mile long connected the floating quays to the shore. There were two classes of roadway – 25-ton for road vehicles and 40-ton for tanks. In the British harbour, the 25-ton roadways were known as the stores piers and the 40-ton roadway as the LST[2] Roadway. Outside the principal *Phoenix* breakwaters each harbour had a floating breakwater (code-name *Bombardon*) planted to increase the area of calmer water. The *Bombardon* turned out to be a disaster at both harbours!

PART III

Why did Mulberry "B" survive the storm?

Both harbours were subjected to damage caused by the *Bombardon* which early in the gale broke their moorings and did a lot of damage to the *Phoenix* caissons. When the storm came on D+13 we had already planted the *Gooseberry* breakwater; much of the *Phoenix* breakwater; four floating pier heads; one complete stores floating roadway and nearly finished a second; and almost completed the LST roadway. We were warned on 18 June of the expected storm starting on 19 June and we took the following precautions:

[1] Rhino ferries: these were designed by the Americans for the Pacific theatre. They consisted of steel box cubes bolted together to form a large floating platform. They were manoeuvred by two motor tugs making them effectively "powered platform lighters."

[2] LST – Landing Ship Tank.

- Every kite anchor available was collected – we had ensured we had our full complement – two anchors for every individual roadway pontoon – and with these we stiffened the floating roadways so as to moor them in as straight a line as possible to prevent them twisting horizontally while allowing them to rise and fall with the waves. The kite anchors had been specially designed for mooring the pontoons of the floating roadways by Major Allan Beckett, a British Consulting Engineer who was also responsible for the design of the floating roadways. Major Beckett was assigned to me before "D" Day as my technical adviser. He also assisted the Americans and his advice was invaluable.
- The platforms (quays) were jacked up to their limit to reduce potential stress on the legs due to wave pressure.
- **Most Vital.** Suitable Navy and Army vessels (some attached American) were organized to patrol the harbour and protect the floating roadways and quays from stray craft which might damage them. During the storm there were about 200 craft of all descriptions sheltering from the storm most of which were a potential menace to the roadways. The protective patrol had orders to tow away or sink any craft thought to pose a threat. So vital was this protection that on one occasion I had to draw my revolver to induce a crew to sink their craft! This patrol action was advised by Captain Petrie, my naval opposite number, and we owed him a great debt for his advice. During the storm great feats of bravery were displayed by both the British and American tug crews (334 US Harbour Craft Company having been assigned to us) in protecting the harbour.

Storm Damage. Thanks to these precautions Mulberry "B" survived with only minor damage. Pierhead pontoons opposite an open harbour entrance were damaged and more than one spud pontoon leg was broken; but the worst damage occurred on the LST roadway which took four days to repair after the storm had abated.

PART IV

Why did Mulberry "A" fail?

Since the war there has been a perceptible silence over the failure of Mulberry "A". It has been noted that there was an exceptional summer storm which damaged the harbour beyond repair but no more. No reasons have been given why this should have happened at Mulberry "A"; whilst Mulberry "B" survived.

The reasons why Mulberry "A" failed are given below:

Fact 1 – *Phoenix*. Some time before D-Day, the Americans decided to enlarge the size of their harbour.[3] It is not known why, but this decision was to prove fatal. The concrete caissons forming the breakwater were hollow and designed to be sunk on the seabed in depths of water to provide an acceptable freeboard. Furthermore, they were only designed to resist outside pressure. In enlarging the area of the harbour the Americans sank their caissons in deeper water thus reducing the freeboard. When the storm came, with reduced freeboard the caissons easily and rapidly filled with water. As they were not designed against internal water pressure they naturally collapsed. Some 30 caissons were damaged irretrievably in this way. In addition damage was caused by the *Bombardons* which had broken their mooring in the storm.

Captain Ellsberg, (mentioned earlier) in his book "The Far Shore" wrote: "the sea level rose to a full 10 feet above any normal maximum and started to wash clear over the tops of the *Phoenix* breakwaters".

The British *Phoenixes* sustained the same wave conditions because they were correctly placed. The failure of so many *Phoenix* cassions at Mulberry "A" was undoubtedly directly caused by the decision to enlarge the harbour and sink the cassions in deeper water. This in turn exposed the pier heads and floating roadways to the full force of the storm.

Fact 2 – Floating Roadways. The Americans did not take the precaution of stiffening their floating roadways before the storm. They had only two anchors on every one-in-six pontoons (whilst we had two anchors for every pontoon). The result was that they twisted in the storm and as Ellsberg wrote: "all traffic ashore over the floating roadways, undulating violently now on their heaving pontoons like writhing pythons, was suspended altogether".

Fact 3 – Control of Craft. I went over to *Omaha* two days after the storm and found that the destruction was total. Subsequent photographs have shown just how total. It was a mass of tangled steel with ships piled up on the floating roadways which, anchored at both the shore and seaward ends, had acted like a large fish net in the form of a great curve into which landing craft of all descriptions had crashed. *Phoenixes* were battered and pierheads twisted. Ellsberg gives a vivid description of the storm relating experiences similar to those described by Cowan at Arromanches. It is clear that the vital control of loose craft in the harbour broke down and was the major cause of the disaster even leading Ellsberg to write pessimistically "It looked to every person as if the Artificial Harbours were through – and so also was our invasion". All that was left of the harbour were the blockships.

Consequence of the storm. With the destruction total, it was decided to abandon Mulberry "A"

[3] Autobiography of Admiral of the Fleet Viscount Cunningham of Hyndhope.

and to transfer any equipment which could be salvaged to Mulberry "B". The Americans gave us great assistance but in spite of this, due to losses in transit at sea, there was insufficient equipment to complete Mulberry "B" as designed. The third stores pier at Mulberry "B" was therefore never completed as planned but was used as a barge pier.

PART V

The Effects of the Loss of the Omaha Harbour

The loss of this harbour was a great disaster because it meant that one half of the planned harbour backup to the invasion was lost. Ellsberg writes "the disaster is irretrievable. The invasion of Normandy must now collapse unless swiftly we capture the Port of Cherbourg." Others (chiefly of the US Navy) who never believed that a harbour was ever necessary, have reacted by denigrating the Mulberry concept and intimating that the loss of *Omaha* harbour did not really matter, as they were able to land more tonnage per day over the beach than they managed via the harbour.[4]

The Americans never achieved a complete harbour or even a fully operating roadway. What they did have lasted only 13 days, and its output before the storm was so small that it cannot be compared with what was achieved over their beach, protected only by the surviving blockships. Great efforts were made after the storm to improve the profile of the beach and access roads. However, in spite of these efforts and the use of numerous DUKWs[5], *Omaha* remained a harbourless tidal beach over which tanks, guns and vehicles could not be run ashore continuously throughout the 24-hour day. By comparison at Arromanches an LST could be discharged in 40 minutes on the LST pier at all states of the tide instead of taking hours on a tidal beach.

With the transfer of salvaged equipment from *Omaha* to Arromanches, the Americans came to see *Omaha* and Arromanches as a joint operation and, to assist this, the link road between the two was upgraded. Anchorages were allotted to American Liberty ships inside Mulberry "B" and there was a continuous flow of DUKWs to the truck transshipment point above Arromanches. More important, space was allotted to the Arromanches LST roadway for American tanks, guns and vehicles. It was this doubly busy harbour which may have caused Ellsberg to eulogize after the storm: "but until November, OMAHA as a harbour continued to overshadow by far the Port of Cherbourg on which we had expended our major effort in rehabilitation". As the harbour at *Omaha* had ceased at D+13, he can only have meant Arromanches which remained the main Allied port until Antwerp took over as a joint port in November. I trust that history will put this right.

PART VI

The need for Mulberry Harbours and the vital part played by Mulberry "B"

The Mulberry Harbours were a special innovation of Mr Churchill and it needed all his enthusiasm to sell the idea to the somewhat reluctant Americans – especially their navy. With their great experience of beach maintenance in the Pacific island-hopping battles, the need for a port as the backup for the invasion of Europe was not appreciated. They did not understand that the sheer size of the logistical effort needed in Normandy bore no relation to the much smaller operations such as Guadalcanal etc, and that a port was vital.

The need for a port was emphasized in a memo issued by the Combined Chiefs of Staff.[6] **"This project (the Mulberry Harbours) is so vital that it might be described as the crux of the whole operation. It must not fail".**

Without the safeguard of the Mulberry project, Operation *Overlord* would never have been undertaken. Artificial harbours were considered an "insurance" without which it would have been wrong to have undertaken the operation. Additionally, the idea of artificial harbours in an area devoid of ports, ensured the success of Operation *Overlord* and in introducing an element of surprise, also defeated the planned German strategy.[7]

In spite of earlier denigration of the Mulberry Harbour concept, after the storm and the loss of Mulberry "A", the Americans became very supportive of the value of a harbour. Ellsberg then writes "But here in Normandy with the

[4] Misleading statements made in the French film on the Mulberry Harbours "*Les Ports du Jour*".

[5] DUKWs – amphibious vehicles. (D – Year 1942; U – Utility; K – front wheel drive; W – two rear driving axles.)

[6] To the First Sea Lord of the Admiralty.

[7] Major General de Guingand, Chief of Staff 21 Army Group.

huge advantage the artificial harbour right at our backs was giving us ..."

The design and construction of the harbour pieces in so short a time and under severe wartime conditions must rank as one of the greatest feats in the annals of British engineering.

The Combined Chiefs of Staff asked for a port and they got it – in Mulberry "B".

At the end of August 1944 when the Battle of Normandy was over and G4 at Supreme HQ Allied Expeditionary Forces was assessing the logistical effort, they wrote the epitaph to the Mulberry project.

"Mulberry "B" actually did far more than the job for which it was intended and despite storms of intensity far beyond that for which it had been designed, it is the success story of a military and naval operation unsurpassed in the history of Warfare."

Can any more be said in vindication of the British Mulberry project and the part played by Mulberry "B"?

A Snippet of History 1924 to 1946

MAJOR P H JAMES BSc

The following piece describes the author's life in the raj and his early career in the army in India. It covers the period prior to that of his earlier article Transfer of Sovereignty *which was published in the December 1997 issue of the* Journal.

I WAS born in Maymyo, Burma in 1924. My father, following a hazardous and distinguished brief career in the Royal Engineers in Gallipoli and Mesopotamia during the First World War, transferred to the Indian Posts and Telegraphs Service in 1920. He married a young Irish VAD[1] whom he met by chance while on leave in Ceylon in 1919. Father was a Director of Telegraphs, engaged in the task of providing a new communications system in upper and lower Burma.

Childhood memories of Maymyo, a pleasant hill station near Mandalay, recall a large house with verandas and a spacious garden backing onto the jungle. We had to have a considerable range of servants, for custom and religion ordained that no one servant could perform the task of another. This acted as an effective trades union, helping to maintain full employment. Any family household with young children required at least nine staff: an ayah (child nurse), *mali* (gardener), *mehtar* (sweeper) *khansama* (cook), *masalchi* (assistant washer up), bhisti (water carrier), *khitmagar* (head bearer i/c household staff) dhobi (laundry), chowkidar (night watchman). You may add to this perhaps a personal bearer and another lady's ayah for your wife, plus a chaprassi (messenger), punkah-wallah (overhead fanning system), *derzi* (tailor), syces for the horses and a driver/mechanic for the car, some 16 in all.

The Maymyo Club with its swimming pool was often the centre of our leisure activities. Father was away on tour quite often, planning and overseeing the development of a telegraph and postal service throughout the country. We went home on leave to the UK by sea once in seven years to see our relatives. In early childhood I nearly died from dysentery, survived an earthquake in Mandalay or Rangoon, and had my scalp torn open by a wild cat attack at the edge of the jungle in our garden. The scars lasted for several years. But we were spoilt and generally protected by our very loyal and kind servants. Our parents had many friends in Maymyo and Mandalay who frequently visited our house. It was a happy young childhood until we required an education.

As was common in those days, with families serving the Empire all over the world, I was sent back to Britain, aged seven to be educated in boarding schools. My mother returned once a year to provide some home life in a rented house during the school summer holidays. I saw my father every two years during his long leaves in England.

After a very successful but not always very contented prep school career, with an exhibition in mathematics and certain sporting achievements to justify a considerable debt to my parents, I entered Oundle in 1938, a year before the outbreak of World War Two. At Oundle once again I met with some academic success, with Higher School Certificate passes at an early age, thanks to some gifted schoolmasters, and I found considerable fulfilment and reward in a wide range of physical activities. In the Officer Training Corps and the Home Guard, eventually reaching the rank of sergeant, I helped to guard bridges and communication centres in the expectation, initially, of an invasion in 1940 and 1941 following the British Expeditionary Force's withdrawal from France in 1940.

Aged just 17 in 1941 I was interviewed and accepted for a possible commission in the Royal Engineers through a RE Short Course and University Entrance Scheme. A few months later I took the "King's shilling", while still at school, and became No 1952925 Sapper James awaiting call-up.

My mother died quite suddenly in February 1942 as a result of pneumonia. In those days we lacked the antibiotics to cure such illnesses. She had suffered with periodic bouts of malaria following her earlier life in Burma and had never fully regained her previous good health, and was still relatively young, under 50. She was Irish by birth, determined and venturesome. Already in 1936 she had predicted that Europe was slowly developing towards a future war. She escorted her three children to Germany and Austria to show us how militant the countries had become, with every third

[1] Voluntary Aid Detachment. Individuals (usually women) were often just called VADs, or a VAD.

person in some sort of uniform. We were arrested in Munich but quickly released. Then followed a summer holiday in Finland, partly to discover the reactions of the Finns to the Russian rearmament. Aged 12, I kept a family scrap book on events leading up to a possible war with Germany. Her predictions were confirmed in September 1939. My mother's sudden death was a tremendous blow to my father serving so far away in India. My elder sister was already committed to the Wrens (WRNS) and I was about to move away for sapper training. I escorted my younger sister, aged 13, into the care of a close family friend in Sussex.

Our home had always been a caring and happy one, despite the frequent absences of father in India and annual nine-month absences of mother when rejoining father out there. But we had never seen either of them quarrelling with each other. Now the family had to be split up and try to survive the war as four separate individuals.

Instructions arrived in March 1942 to report to the RE Depot, Ripon for basic training. This was followed by Cambridge, where the first year of the mechanical sciences tripos for engineering undergraduates was condensed into a six-month intensive course. However there was still time to enjoy sport, representing our colleges at cricket and other summer activities while our military education continued in a special class in the university training corps.

On leaving Cambridge we attended two further intensive short courses: engineering skills at Dartford and infantry skills at Wrotham. Both camps were basic; initially we slept on the floor on straw palliasses. Washing facilities were outdoor with only cold water for shaving, sometimes in pouring rain. Instruction was given by well qualified, committed and vigorous instructors. Sometime during our training period we had to pass a War Office Selection Board and became officer cadets with white flashes on our headgear.

It was now early November 1942. Following Alamein and the North Africa landings it looked as if the war in the desert would be over before we could be commissioned. Volunteers were required by the Indian Army, to be commissioned at OCTUs in India and so three friends, Harman, Dennis and Ken, with various past family connections with the Indian Army, volunteered with me. We were transferred to the London District Transit Camp to await the next convoy, and left via Liverpool a few weeks later in a very overcrowded troopship. We were berthed in the lowest mess deck in the ship, possibly as an example to hinder complaints from unhappy private soldiers facing similar trials. It took us nearly 15 minutes to gain our lifeboat station whenever the alarm sounded. A retired colonel from the Indian Army did his best to teach us Urdu. The cadet draft excelled itself in the ship's boxing competition, Harman being the public schools light heavy weight champion and several of us having been well coached at school. For the rest of the voyage we discovered that we had now earned the respect of many in the ship's company. Liverpool in war had little enough food to spare to provision troopships adequately; I remember with distaste both tripe and bread baked with flour and weevils.

Winter 1942/43 was the most critical period in the Battle of the Atlantic. After some weeks sailing well out into the Atlantic, with occasional explosions from distant destroyers escorting the convoy, we turned eastward again and arrived at Freetown to disembark a small draft of reinforcements. We then sailed back into the Atlantic, rounded the cape of Africa and finally disembarked in Durban after a six-week voyage. The people of Durban made us very welcome and I shall always remember their kind and generous hospitality. After a week in the Durban transit camp we boarded a smaller decrepit ship, previously used as a means of transporting pilgrims from India to Mecca. Sanitation was primitive, the latrines designed for native use, and cockroaches swarmed on all mess decks; but at least the food from South African victualling was a considerable improvement.

After a journey lasting two and a half months we reached India intact, thanks to the Royal Navy and the South African navy plus our air forces. Others were not so fortunate in 1942/43. On arrival in Bombay we were separated into our various drafts. The infantry cadets were dispersed to their Officer Cadet Training Units (OCTUs) and the sappers went to Bangalore (Madras Sappers and Miners), Kirkee (Bombay Sappers and Miners) or Roorkee (Bengal Sappers and Miners). The four of us ended up at Kirkee, near Poona, to face a further six months of intensive training.

We were taught the techniques of bridging with British, American and improvized equipment, rafting, assault river crossings, followed by demolitions and mine warfare, road construction, water supply, field defences, as well as normal combat skills. A short course on driving and maintenance of vehicles was followed by an equitation course. Horses and mules were still essential forms of

transport in Burma and on the North West Frontier. Fortunately a few of us had already acquired equitation skills as our riding instructors were tough and demanding. Tackling a low jumping lane without stirrups needs balance and experience. Falls were regular features. A spell in a jungle warfare training area, using only natural resources for accommodation, rafting and bridging, was to prove useful later for those posted to Burma.

In general the OCTU was well run by keen, experienced instructors who asked much of us. We all considered that the first "pip" on our shoulders, on commissioning in September 1943, had been well earned. We had also to study Urdu and pass the required language examination which helped us to qualify for a small increase in pay. I was now an Emergency Commission officer in the Royal Engineers, serving in the Royal Bombay Sappers and Miners.

During a two-week leave after commissioning I went with Ken to join my father in southern India. He also obtained a few days leave and set up a temporary home for us in Ootycamund. Being a senior responsible civil officer, father was frequently on call. At dinner we were joined by a series of senior army officers from generals down to colonels. They were very understanding and hospitable to both of us very newly commissioned second lieutenants. I was asked to pour a pink gin for one of our guests. Having no previous knowledge of such requests I returned with a glass full of gin that well matched the red wine being drunk by our guests at table. The general drank the obnoxious mixture without hesitation. He understood my ignorance and the guests made no comments, including father. No wonder we eventually won the war in the Far East and the general earned the respect of our nation.

Father at that time was, I believe, Postmaster General in Madras. Among his many other commitments he had to plan and organize the communication links between GHQ Delhi and the proposed new joint services HQ for Mountbatten in Ceylon. I suspect he would have preferred me to have been commissioned into the Royal Signals. He had considerable influence with Delhi which I was to discover later in 1945. We enjoyed this leave as only irresponsible junior officers can as they await a posting to war. We explored Ootycamund, Wellington and Coonoor, and we lost small sums on the Ooty racecourse.

On returning to Kirkee, Ken had been posted to an active field company in Burma, as had Dennis. Ken earned two well deserved MCs there in the next two years while Dennis, the son of a distinguished general, died there a year later. Harman and I both volunteered together and passed the necessary medical and selection requirements for posting to 411 Parachute Field Squadron in 50 Parachute Brigade. I could not understand why he was posted there while I had to remain in Kirkee. We had both passed out well at OCTU. The Long Range Penetration Force, the Chindits, were seeking officers for their second expedition behind the Japanese forces in Burma. Once again no posting came through, despite daily appeals to the depot commander. Then a posting to 482 (Royal Bombay) Field Company in Peshawar, North West Frontier Province (NWFP) arrived. In previous times a posting to the NWFP, particularly to Waziristan, was often a reward for being too involved with a more senior officer's wife. There were no women permitted in Razmak or Wana. To the best of my knowledge I had not made a pass, unfortunately, at anyone else's wife and was still an innocent virgin; quite normal at our age in those days.

It took nearly three days to travel by train on the famous Frontier Mail from Poona to Peshawar. It was early winter and freezing cold, with frosts at night. The company transport consisted of mules with horses for officers. I had to learn new skills of how to look after the mule lines, load up for columns and all the usual tasks given newly joined second lieutenants in all field companies. I was appointed messing officer with no experience to guide me, and given the Maharatta section to command. Only the VCO spoke a little English and many of the the jawans only understood Maharatti, not Urdu which I had learned.

The major commanding the company was an experienced civil mining engineer in earlier days. He and I disagreed over what was suitable for our small officers mess, how horses should be exercised daily and some matters of good order and military discipline. I was threatened with being RTU'd back to depot. No doubt he was right, I was a very keen but ignorant young officer who should have known better. Then we had some interesting sapper commitments to undertake. My Maharatta troops gave me great support. I began to appreciate the knowledge and experience of the major. He was a good company commander who drove us hard in our duties and training, but not always an easy person to live with. Perhaps the same could apply to me!

1400 class 18 timber trestle bridge, Nowshera, North West Frontier Province 1944.

washed away in a sudden spate in the mountains. These were all interesting projects to compensate us for being so distant from the real war in Burma. Other training tasks involved building suspension bridges with steel wire ropes and bamboos, salvaging a fighter plane that had crash landed miles from its destination, moving to Akora for Bailey bridging, rafting and wet bridging, pile driving with improvized equipment, and even building outdated Hamilton bridges.

The CRE kept us busy with three-day exercises every month. We learnt to survive with very little sleep, moving at night and often building bridges in the dark or repairing tracks in the hillsides. The mules carried all our hand tools and explosives; we came to know them and value them. We also became familiar with Bailey bridging, small Box Girder and improvized timber trestle bridging. There were opportunities for demolitions on brick built arch bridges which we then rebuilt with concrete and steel spans.

The Kabul river flows through a magnificent gorge from Afghanistan, which opens out finally into a fertile plain north of Peshawar. At some period in Victorian times the army had started to construct a road and railway line up the southern face of the Kabul river gorge for a few miles towards the Afghan Frontier. The project had then lapsed. During the war the planners in high command apparently considered that if the Germans broke through the Caucasus into Persia and thence to Afghanistan, this partially completed route might prove a convenient alternative to the Khyber Pass. We were instructed to destroy the bridges so carefully constructed years ago. My Maharatta section was given this interesting task.

Mules laden with explosives, Warsop rock drills and demolition equipment set out with us all in high spirits. Apart from an occasional sniper round fired from the distant northern side of the gorge in semi darkness, by hopeful young Mohmand tribesmen, we completed the commitment and returned to the company in Peshawar. Another section was sent up the road to Chitral to build a bridge over a gap in the road which had been

While temporarily based at Nowshera the temperature in the hot weather was so extreme that steel bridges became too hot to handle. We trained and exercised at night and tried to sleep during the day, sometimes in tents where it proved difficult to relax and sleep in the heat. Our jawanas who were equally unaccustomed to this suffered too.

During my six months based in Peshawar I was introduced to a particularly interesting Pathan. He was a munshi or teacher, who had taught Field Marshal Wavell and many other very distinguished senior officers when they were relatively junior officers stationed in Peshawar. He advised me to study for the Higher Standard Urdu Examination and to learn some Pushtu, the language of Pathans. I did both and soon passed the Higher Standard Urdu. He chose me, as only a Pathan can, and I felt honoured to be accepted as one of his students. He was Ahmed Jan, a very wise and interesting scholar, who warned me even then that if ever Britain left India there would be a blood-bath. He stated that Muslims in the North Western Frontier Province would kill every Sikh and Hindu in the province, regardless of friendship or former association. In the many hours we spent together he taught me much about northern India.

In our spare time I was able to borrow one of the company horses and ride out over the Peshawar Plain towards Fort Jamrud, at the entrance to the Khyber Pass, or northward towards the river Kabul. Knowing a little Pushtu, with the essential phrases of greeting, made me welcome in some areas which were not considered "safe" for lone Europeans.

The company was then ordered to equip itself with sufficient motor transport (MT) to enable it

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to operate efficiently in any distant location. We all hoped this was a prelude to a transfer to Burma. Three Norton or BSA motor cycles had to be collected from Rawalpindi. Although I had never ridden a motorcycle I was detailed with the British MT sergeant and another officer to collect the machines. In the Rawalpindi MT depot I received some instruction, lasting about three minutes, on how to tackle my commitment. It was bitterly cold with occasional showers of sleet and snow making the main trunk road rather hazardous. I was frozen stiff after the first few miles, driving cautiously in second gear. Then I gathered sufficient confidence to try changing into a higher gear. By the time we reached Attock bridge and crossed the river Indus into the North West Frontier area I was enjoying myself, despite being so frozen that I could hardly grip the handlebars and work the throttle. Passing through the Pabbi area, always a rather unsettled place, one or two shots were fired at us. This speeded us on our way to Peshawar where some hot rum was awaiting our return. The experience proved an unusual means of passing an army motorcycle test and subsequently gaining the necessary certification on my driving licence.

I was granted a week's leave. At that time my father was also on a working holiday in Srinagar, Kashmi with a number of senior Indian civil service and army officers from Delhi. Father was now stationed in Delhi, Deputy Director General of Telegraphs, responsible for communications throughout India and forward into Army HQ in Burma.

In Srinagar, with two pips now on my shoulder, I was still socially a young and totally inexperienced male, full of knowledge of military affairs but very dull company for the unattached ladies and grass widows enjoying the delights of Kashmir. Someone thought I might prove a suitable escort for one of Wavell's lovely young daughters. She was very safe and probably very disappointed in my lack of knowledge and interest in the affairs of young ladies. But I loved those tranquil days exploring the lakes and countryside around Srinagar. So much so that I took my wife back there many years later during our ten-week overland journey in 1958 from Singapore back to the UK, when we travelled mostly on foot, often sleeping under the stars beside the road or track wrapped only in a Pathan quilt, and we used any available local transport. Fortunately I still had command of some of the local languages, but that is another story.

The higher command now decreed that a sapper company would rename its three sections as platoons. Our platoons represented sub-units of some 60 men, unlike the smaller infantry platoons.

In early August 1944 the expected company movement orders came through; unfortunately Razmak, Waziristan, was our destination not Burma. The OC generously gave me the responsibility of leading the advance party to take over from the outgoing field company. Peshawar had been a relatively quiet location by frontier standards while Razmak was always a serious commitment with frequent minor and major clashes with a very determined, skilful and well armed population of war-loving Wazirs and some Mahsuds. We travelled through the Kohat Pass and on to Bannu without incident. In Bannu we waited for the next ROD, road opening day.

In order to supply Razmak, some two brigades of troops plus the Tochi Scouts had to piquet the heights and the mountain road which climbed up to nearly 7000ft in places. Razmak was essentially a large brigade fort, guarded by wire entanglements, stone walls and sangers with concrete guard posts and towers spread around the perimeter. In this encampment lived four or more full strength battalions, mountain batteries of artillery, some armoured cars, a sapper field company and supporting troops. No women were permitted to enter, whether wives, domestic staff or local Pathans. Columns were sent out from time to time to pacify or perhaps avenge some local outrage. These were serious affairs with the prospect of quite severe casualties if the column's actions or attention lapsed for a moment.

Our advance party took over another set of mules and horses, together with the usual garrison stores, equipment and accommodation blocks. On the second morning after my arrival one of the gates had been opened facing the light airstrip adjacent to the perimeter. Without thinking I rode out to exercise one of our horses and cantered around the airstrip, much to the astonishment of a detached piquet in a concrete tower protecting the small airfield. On my return, 20 minutes later, I was summoned to appear before the brigadier and given an almighty dressing down, explaining that I was very lucky not to have been shot by tribesmen often hidden from view in a nearby *nalla* (dry river bed). Had I been shot a full battalion operation would have been required to recover my body. I was never to go outside the perimeter wire except when a full brigade column moved out on

an operation. This was Waziristan, not Peshawar. I could only apologize for my ignorance and stupidity. In September the company was required to send a detached platoon to provide sapper support for the brigade at Wana, a similar station to Razmak but based in Mahsud territory. This was a wonderful appointment and posting for a junior sapper officer who then became the engineer adviser to the brigadier in Wana. Perhaps my company commander wished to see me gone, but I was given the Punjabi Mussulman (PM) platoon and command of the Wana detachment. The OC had been kind enough to give me the necessary recommendation to appear before a regular commission board sometime in the future so perhaps he was not that keen to get rid of me. The two brigadiers under whom I served subsequently in Wana were also generous in their recommendations. They could not have been more welcoming or kind to me, a junior subaltern, when I arrived.

Wana more than lived up to my expectations. The sapper lines were designed for a full company and the accommodation was of a high standard. The PMs were delighted and they proved very efficient and supportive. We shared an officers mess with the mountain gunners and a veterinary officer, all very good company. It was quite an honour in the gunners to serve in a mountain battery and how very swift and efficient they were when deploying into action, officers and jawans with their superb mules and guns.

A strange agreement had been established with the local Wana Mahsuds. Once a month we were permitted to ride out over the Wana Plain with the Wana hunt, following a drag line or hunting a suitable quarry if located. The Mahsuds agreed that provided we were unarmed but protected by local tribal levies, known as *Khassadars*, also mounted on their hill ponies, we would not be sniped or attacked. The *Khassadars* were paid a substantial retainer each month to protect and maintain parts of the highway up to our brigade encampment. The Wana hunt was always a great occasion with prolonged gallops over a stony plain interspersed with sudden dangerous *nalla* beds. The brigade mess hosted the meet. Only on one occasion did an unsporting group of Mahsuds open fire on us from a distance. Horses in full gallop are difficult targets and no one was hit. The *Khassadars* received a temporary cut in their pay. It did not happen again while I was there.

Our main sapper duties consisted of providing sufficient drinkable water for the several thousand men and an equal number of mules at each fortified camping site when the Wana column halted and dug in for the night. Mules under load must be watered daily. Our sappers marched with their mules behind the leading battalion, the advance guard, and were one of the first into camp, while the staff captain put out markers for each unit and the perimeter wall. We were kept busy unloading our mules, setting up canvas water tanks and pumping water through canvas hoses from the nearest source. This had to be performed at speed to be ready for the arrival of the thirsty main body of the column. We were seldom given a part of the perimeter to defend at night but instead became the brigade reserve against the possibility of a group of Pathans succeeding in breaking through the perimeter defences in the dark.

The mountain guns were often deployed near us. If the guns were called on to provide defensive fire at night, following prolonged sniping or attacks on outlying hill piquets, with the three-inch mortars sometimes acting as a chorus to the guns, the mule lines became very active throughout the camp. When a few mules broke loose and started galloping round inside the perimeter wall, in darkness, crashing through tents and cook houses, we all felt threatened and in some danger. Sniping into the camp at night caused little concern compared to a few desperate mules on the rampage in the dark.

In most areas the ground was so hard and stony that it was impossible to dig trenches. Units holding the perimeter had to build a perimeter wall immediately on arrival in camp. We slept on the ground often with only a groundsheet and one lightweight blanket to protect us from the sleet or rain. Wana was located above the 5000ft contour and columns tended to climb higher. It was cold in winter, particularly at night.

On the march, while the leading battalion dispatched piquets to all the commanding heights, a skilled operation with fatal results for any delay or error, I often accompanied the brigadier and a staff officer just behind the advance guard. What a privilege and experience for a young sapper subaltern. Occasionally we had commitments with improvized mines in culverts, demolition of caves used by the Mahsuds or the disposal of unexploded artillery shells or air force and mortar bombs. Nothing could be left for conversion into a possible weapon to be used against us. Pathans were inventive where munitions were concerned, but casualties were rare events with a brigade made up of experienced North West Frontier battalions backed by expert mountain

gunners. It was a valuable experience attending brigade "O" (orders) groups in company with these senior officers and offering sapper advice which was accepted on equal terms with their own recommendations.

In our leisure hours in Wana, when we were not out on column or standing to at dusk and dawn on training exercises, we lived a very pleasant social life with plenty of inter-unit sports and games. One day I discovered a section of steel drain pipe with almost the right internal diameter to fit a polo ball. We had a good supply of old polo balls. In place of the British type "thunder flash" we had "marriage bombs", a small powder charge bound around with coils of coarse string with a connecting slow fuse. These were used for training our mules, and our soldiers to accept loud and unexpected bangs in their immediate vicinity. It did not require much experiment to discover that the drain pipe used as a mortar, with a marriage bomb charge and a polo ball, could send the projectile on to the roof of another officers mess. Further experiment established that if the polo ball was wrapped in fine cloth, soaked in a combustible liquid, the range increased considerably and the polo ball descended like a flaming onion.

With two young mountain gunner subalterns we prepared for a rapid round of gun fire and an equally quick departure to avoid association with the event. It worked like a charm. Three flaming bombs descended out of the darkness onto a parade ground just in front of a rival regimental mess, well over a hundred yards away. The orderly officer fearing a new type of attack by the Mahsuds alerted brigade HQ. The brigade duty officer promptly ordered a general alert and the Wana brigade "stood to". The brigadier was not amused when part of the truth leaked out.

We also enjoyed the annual one-day amnesty when British officers and tribal Pathans met on the polo ground outside the perimeter wire to stage tent-pegging contests.

The Pathans on their relatively small shaggy ponies more than held their own. We also appreciated the surprisingly friendly discussions on the success or otherwise of the recent sniping of our columns or attacks on our hill piquets. Warfare is considered a game by most frontier Pathans: wounds are regarded as "yellow cards" and death as a "red card", as in our football matches.

Wana Brigade column to Zarre Camp, November 1944.

An order to report to the Regular Commissions Board in Rawalpindi arrived. A temporary replacement from 482 Field Company came to relieve me in Wana. I spent an interesting three days in Rawalpindi going through various interviews and tests before being informed that my application was acceptable and I would be gazetted in the early future, but I could not be granted any seniority as a regular officer until my 21st birthday. This apparently was to ensure that no Emergency Commissioned officer could become senior to any regular officer selected and partially trained previous to the outbreak of war in 1939.

Airborne forces in India were now about to expand from 50 Parachute Brigade into a full airborne division, for the recapture of Burma, Malaya and Singapore. A CRE had been appointed, Colonel Eric Kyte previously G1(air) to the Chindits, and he was located near Rawalpindi. A visit seemed worthwhile. Backed by the promised regular commission I was determined, once again, to seek a transfer to a parachute field squadron.

Eric Kyte was very helpful and encouraging: Would I accept a posting to REHQ as his intelligence officer? I explained that there seemed to be

A snippet of history p43.

some difficulty whenever I tried for a posting to airborne forces. I had passed all the physical and medical tests in 1943. However GHQ had now given top priority to the selection of officers for the new airborne division. Eric Kyte could arrange an immediate posting order. Three weeks later I was directed to report to Rawalpindi and join Eric Kyte's HQ, with 44 Indian Airborne Division.

Some years later, when promoted to command 33 Parachute Field Squadron, I was able to discover the reasons for my initial posting to the North West Frontier in 1943, as opposed to 50 Parachute Brigade which I had requested. My father was a personal friend of a former adjutant general. My mother had died in the UK the previous year. Father had many wartime friends following a quite distinguished record in World War One, with two MCs and three Mentions in Despatches. He had been fortunate to survive. I was his only son, who seemed determined to seek probably a brief but exciting life in a parachute brigade or with the Chindits. Father knew Burma well from years of assisting in its earlier development. The powers that be in GHQ were understanding. The North West Frontier seemed to offer a better chance of survival. My file had been marked accordingly. Thus fate weaves a strange web.

In March 1944 50 Parachute Brigade, with only training scales of ammunition, was deployed on a jungle warfare training and patrolling exercise in the India Burma border, south of Kohima. The brigade was suddenly attacked by advance units of two Japanese divisions, the 15th and 31st Divisions. The Japanese were bent on capturing the two key British bases of Imphal and Kohima by a quite unexpected flanking attack from the east through dense mountainous jungle. 50 Brigade was ordered to hold the small village of Sangshak "at all costs" to delay the sudden Japanese thrust. There were no supporting units, no defence stores and no wire. The brigade fought an isolated battle for six days to permit time for Kohima and Imphal to be reinforced. Nearly half the brigade were killed or wounded before Sangshak was eventually overrun. The survivors were ordered to withdraw to Imphal. This action undoubtedly saved both our advance bases from being equally swiftly overrun by the Japanese in an unexpected flank attack by these two divisions, before the bases had been prepared for defence and reinforced.

During 1945 the newly formed 44 Indian Airborne Division was trained and prepared for several airborne operations in central and southern Burma. In each case the Fourteenth Army under General Slim advanced so quickly that each operation was eventually cancelled. Only in the closing stages of the Burma campaign, the final advance to Rangoon, was a parachute battalion group from 50 Parachute Brigade required to drop on Elephant Point to destroy some reported heavy gun positions which covered the sea approaches to Rangoon.

The next series of planned operations for the recapture of Malaya and Singapore, and the proposed drop into Indo China to be followed by a joint airborne operation with two American airborne divisions onto the Japanese mainland, were aborted after the two atom bombs were dropped and the all Japanese forces surrendered. 44 Airborne Division, shortly to become 2nd Indian Airborne Division, was one of only three Indian divisions which never saw action as a complete division. Few today appreciate what a major contribution the 18 divisions and three Indian tank brigades of the Indian army made to winning the war in Eritrea, Abyssinia, the Western Desert, North Africa, Iraq, Syria, Persia, Italy, Burma, Malaya and Java. Over one million Indian officers and men were involved in these operations plus the supporting British elements and officers in each division. The Indian army expanded to a total force of two million soldiers during the war.

HQRE and 33 Parachute Field Squadron were part of King George V's Own Bengal Sappers and Miners so I was now transferred from the Bombay to the Bengal Sappers and Miners. In 1945, before the end of the war in the Far East, I was promoted to captain and given command of a troop in 33 Parachute Field Squadron. At that time each troop had some 60 soldiers with two officers, a captain and a subaltern. The squadron had nine officers in all. We were based in a jungle warfare training area in eastern India awaiting a drop into Burma which never materialized. A few months later the squadron was transferred to Quetta with 50 Parachute Brigade. The North West Frontier and Baluchistan had been relatively tranquil during the war years, but if there was to be any new conflict it was likely to be around the frontier area which included the main passes and supply routes between Afghanistan and India.

We continued to keep very fit and train for a variety of possible brigade operations requiring engineer support, but peace reigned and we had more spare time to enjoy ourselves after living in a jungle environment. I was promoted to squadron

second in command with increasing administrative duties to keep me well occupied.

Some months later in 1946 the officer commanding the squadron was posted home. He was a pre-war regular sapper. Then Eric Kyte, the very capable, efficient and perceptive CRE visited us in Quetta and after inspecting 33 Parachute Field Squadron in some detail he kindly offered me temporary command of the squadron. I had never expected to be given such a welcome assignment at the age of 21 years. After a month or two the appointment was confirmed and I was promoted to major. I remained in command of this fine parachute unit for the next eighteen months during which we experienced several demanding commitments, both in our engineering role and later as infantry in support of the Punjab Boundary Force in 1947. Two of our officers were killed, tragically, in Amritsar while trying to protect refugees following the partition of India on 15 August 1947, when the squadron fully repaid all the exacting training carried out over the previous four years. However, that again is another story.

Demonstration of airborne light mechanical equipment, Quetta 1945.

In 1945 it had been perhaps a little frustrating to see my name published in the official RE *List* of regular officers, but only in a special very small group of regular officers not yet old enough to qualify as listed second lieutenants. Yet I was shown as a temporary captain and a war substantive lieutenant. On later lists in 1946 and 1947 I finally qualified for inclusion in the second lieutenants, with the added information that I was now a war substantive captain and a temporary major. It took another eleven years of peacetime service and staff college to qualify by age as a substantive major and to be given command again of another independent field squadron. Many far more deserving and well decorated senior officers took even longer to regain the responsibilities and ranks they had achieved on active service, despite several DSOs and MCs to their credit. No wonder a proportion of very capable regular officers sought early retirement and went on to achieve distinction in civilian life.

If you accept the "King's shilling" do not expect any special consideration. You are there to serve your country, right or wrong. That is your life.

These reminiscences and memories are being recorded some 50 years later, in retirement in 1997. I was both fortunate and honoured to serve in India in the unique Indian army in the days of the "Raj". Junior officers were often able to gain experience and to exercise command in situations which usually only faced more senior ranks in the British army. Our splendid Indian soldiers considered it a great privilege to serve in the army: provided you always placed their needs and welfare first, before your own, their loyalty and support was absolute. They were all volunteers. It was possibly the largest volunteer army in history; not a man in it was conscripted. Families sent generation after generation of their sons, British, Hindu, Muslim and Sikh, to serve side by side in true comradeship: bound together by personal honour, trust and regimental pride, as elaborated so well by Charles Chenevix Trench in his book "The Indian Army".

Through intransigent politicians in India, combined with a lack of knowledge, understanding and will in our post-war government in Britain, this magnificent army was split, suddenly, in August 1947 into two separate forces. Within a few years these armies were at war against each other at the behest of their new political masters. As a direct result of the very hasty and largely unplanned transfer of sovereignty in 1947 nearly two million innocent civilians died. The good, hardworking villagers of India and Pakistan suffered terribly during the resulting holocaust. I hope future historians will seek the evidence of those who saw and experienced the real situation and not accept the laudatory stories of the politicians in Britain, Delhi and Karachi who enjoyed and celebrated the sudden new "freedom" during the swift and disorganized partition of India.

Perhaps it is still too soon or inconvenient to tell the full truth and another fifty years must first elapse; but we need to record the truth before the remaining survivors depart this life.

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Military Works Force(V)

LIEUTENANT COLONEL E J N BROOKES TD MA(CANTAB) EURING CENG FIMECHE

Lieutenant Colonel Edmund Brookes was commissioned into Cambridge University Officer Training Corps in 1973 transferring to 111 Engineer Regiment(V) in 1974. He has spent his whole military career in the units which now form Military Works Force(V). He commanded 525 Specialist Team RE (Works)(V) from 1990 to 1995 when he joined the Royal Engineers Specialist Advisory Team as a mechanical engineer. He is presently the Senior Mechanical Engineer at Headquarters Military Works Force(V).

A Chartered Mechanical Engineer by training he spent a number of years building and maintaining passenger rolling stock with British Rail Engineering Limited before moving to the container shipping industry. His present civilian job is as Director Marine Services with the Chamber of Shipping, the trade association for the British Merchant Marine (the fourth fighting arm). He periodically appears on television as his industry's technical representative.

INTRODUCTION

IN the August 1997 volume of the *Journal*, the Engineer in Chief stated "The Military Engineer(V) concept has been developed to optimize the transfer of skills between the TA and civilian employment". A previous volume of Army Doctrine and Training News (No 7 May 1997) also gives details of the training being trialled for the Military Engineer(V). Military Works Forces(V) (MWF(V)) has existed in its present form for only three years but for many years its units have actively practised the precepts outlined by the Engineer in Chief. It forms the substantial part of the Specialist Units RE TA, and provides a significant reserve element to its regular counterpart, MWF at Chilwell. Indeed MWF(V) possesses a number of skills which the Commander MWF would probably like but unfortunately does not possess in his units. Many in the Corps may not be fully aware of the scope and capabilities of the sub-units which constitute MWF(V) and the aim of this article is to show the units' potential to support the Regular Army. Uniquely MWF(V) has within its ranks, and at all levels, a tremendous technical/engineering capability, based on civilian employments, and it is this skills resource which is available to the military.

The role of some of the elements in MWF(V), particularly the specialist consultants in HQ MWF(V), has sometimes been confused with the consultancy advice available from the Engineer and Logistic Staff Corps (TA). There is no conflict between the two units and it is hoped that this article will clarify the position as the roles of the two units should be seen as complimentary.

HISTORY

As a result of the major TA reorganization in 1967, the RE TA serving under "sponsored" terms of service, comprised 111 Engineer Regiment (V), eight Specialist Teams RE (V) (STsRE(V)), (three Bulk Petroleum (BP), two Construction and one each of Public Utilities (PU), Power Station (PS) and Railways) and the Engineer Specialist Pool (ESP).

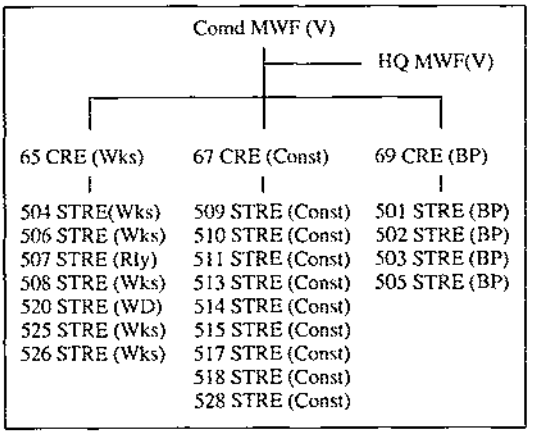
"Sponsored" terms of TA service, which are now called "Specialist" (and not to be confused with the sponsored terminology introduced for defence contracts in the recent Reserve Forces Act), apply when the unit is recruited from individuals who carry out their TA trade in civilian life, thereby reducing the need for technical training.

The specialist TA soldier is obliged to train for a minimum of 19 days per annum (15 days at an annual camp plus two weekends), less than the independent TA with which the reader may be more familiar and which has a higher training obligation, largely as a result of the need for more training in military engineering.

Lt Col E N J Brookes TD
Military Works Force (V) p46

111 Engineer Regiment comprised two field squadrons (120 and 130) and 198 Engineer Park Squadron (V). For a quarter of a century the regiment had a variety of roles including support to the northern and southern flanks of the North Atlantic Treaty Organization and to the British Army of the Rhine (BAOR). The Option *Whiskey TA* reorganization of 1995 saw the disbandment of the regiment and creation of nine new STsRE(Construction)(V) in its place, retaining the construction skill base but in a more flexible and relevant orbat.

Over the years a fourth BP team and a well drilling detachment were formed and the highly role-specific PU, PS and construction teams were changed to multi-role works teams, a fifth works team being formed in 1984. The ESP was renamed the Royal Engineers Specialist Advisory Team (RESAT) after Exercise *Lionheart* revealed that mobilization procedures could not cope with "pools"! Throughout this period the TA STsRE were generally roled to BAOR and RAF Germany but regularly exercised around the world on projects in Cyprus, Gibraltar and Hong Kong.



MWF(V) Formation

Present Formation

The reorganization in 1995 was driven by the increased demand for construction capability. In 1995 the 20 STsRE(V) were grouped as the new MWF(V) to identify more clearly with the Regular Army counterpart at Chilwell. 198 Field Park Squadron (V) remains part of the Specialist RE TA administered by CVHQ RE but not actually within MWF(V).

MWF(V) therefore marches on towards the millennium with an orbat of STsRE(V) comprising four BP, nine Construction, five Works, one Water Development and one Railway Construction grouped together within three Commanders RE(V) (CRE(V)) and including HQ MWF with 16 engineer specialist officers and geologists. The orbat is shown above right.

The peacetime establishment of MWF(V) is 457 (72 + 385) and it is currently fully recruited, one of the very few TA units to have consistently achieved this over many years. The annual turnover rate of soldiers is 12 per cent, far below the TA average, reflecting the high level of motivation and *esprit de corps* in the unit. MWF(V) recruits nationally from locations as far afield as the Shetland Isles to the Channel Islands; but individuals form up for training at the "home base" of Gibraltar Barracks although Chilwell and Waterbeach are also regular weekend training locations.

There are currently some 64 qualified engineers on the strength of MWF(V) many at Fellow level, with a strong team of Incorporated Engineers and tradesmen in support. It is not uncommon for a Sapper to be CEng!

Command and Control

MWF(V) is formally tasked by Engineer Branch Land which contrasts with MWF tasking through DEngr Sp (A). However the structure of MWF(V) with three peacetime CRE's, mirrors its counterpart with the administrative role of HQ MWF(V) being fulfilled by Central Volunteer HQ RE (CVHQ RE). Each CRE(V) has a very small HQ staff but the STsRE(V) are somewhat larger than their regular counterparts. CVHQ RE acts as a regular co-ordination centre receiving bids for work which, on approval/funding, is allocated to Commanders RE. It also carries out general unit administration, recruiting and other staff work. While 65 CRE(V) and 67 CRE(V) have the same role in peacetime as in war, 69 CRE(V) is a peacetime organization only. On mobilization the BP STsRE are split to airfield units and the CO 69 CRE(V) assumes his alter ego as Senior Petroleum/Fuels Engineer in HQ MWF(V).

65 CRE(V)(Works) is currently rolled to Allied Command Europe Rapid Reaction Corps Support, while 67 CRE(V) (Construction) is tasked to support the RAF through 12 (Air Support) Engineer Brigade with whom HQ MWF(V) enjoys a close working relationship.

Naturally, there are close links between MWF and MWF(V) and regular liaison to ensure the reserve element is as fully utilized as possible.

Commander MWF(V) has a formidable job meeting the technical demands on his soldiers while ensuring they are fully trained militarily for any future operation. For this reason units train at a "military" camp every third year (see also below). Previously time was taken out of each annual camp; not an ideal arrangement, especially if the local client rightfully expects a full 14 days technical work from a visiting unit during an overseas 15-day annual camp/exercise.

Requests for tasking are received through the command chain and controlled through G3 Branch at CVHQ RE. Keeping track of the many projects large and small could be an administrative nightmare, but the management of MWF(V) keeps a tight control and monthly summaries are copied not only to the management of MWF(V) but also to HQ Land and MWF. The availability of suitable engineers and funding for the training time involved are keys to the feasibility of a project as the TA must work within a strict budget for man training days (MTDs).

On major technical exercises an STRE(V) is careful to ensure that the client is fully satisfied. This is achieved by regular meetings to monitor progress and to agree any changes to the requirement. As unit personnel have to return to their civilian jobs on the 16th day after the start of a camp, there is no question but that a project has to be completed and properly handed over. Units therefore routinely (and usually cheerfully) work long hours on camps to ensure that they leave a satisfied client who would welcome them back. The application of the current Construction (Design & Management) Regulations 1994 (CDM Regulations) to all work means particularly that the Health and Safety responsibility for particular tasks has to be understood. The relationship with the client has to be formalized and this encourages a client/ consultant/ contractor relationship.

During the last couple of years MWF(V) has been fully implementing the CDM Regulations. Where necessary officers/SNCOs have attended appropriate courses at Chatham although MWF(V) is very fortunate to have within its ranks some very well civilian-qualified safety staff, in addition to Health and Safety Executive Inspectors from various sectors of the Directorate.

Training

Annual camp training for the STsRE(V) of MWF(V) is organized on a three-year cycle. It is based on the very important premise that all soldiers essentially possess sufficient professional and technical engineering skills at their required level to be able to operate in their technical role largely without additional training. Consequently maximum use is made of collective training to carry out tasked projects and to improve military skills which inevitably get slightly rusty if practised only rarely. One year is normally spent undertaking project work followed by an in-role exercise in the second. Bids for STsRE to carry out project work usually exceed the resource available and they have to be prioritized. In the third year the STRE(V) joins with six or seven other teams for a "military camp" to hone the skills that cannot be practised as a single unit. HQ MWF(V) tries to ensure that each year sufficient units are available to train/exercise with our clients.

During the two compulsory training weekends, a unit completes other essential annual training. This includes the annual personal weapon test, basic fitness test, nuclear, biological and chemical, and first aid training, as well as special technical training targeted towards its annual exercise where particular and unusual skills may be required.

In addition to the formal pattern detailed above, units and individuals carry out other technical training, mostly real-time projects dependent on client demands. When projects arise which demand sub-unit or individual tasking, specialists are selected to see the project through to completion over an agreed timescale. As with any "business", not all projects come to fruition. After an initial recce some are found not to be suitable, for others funding may not be available. Whilst this sector of the work of MWF(V) is expanding, great care is taken to see that the resource is not over stretched and that only projects of good training value are accepted.

Capabilities

The most notable feature of MWF(V) is the tremendous scope, variety and capability of its personnel, whatever their rank. A database is maintained of all soldiers' skills, both military and civilian, but especially civilian. This is especially important since it is the availability of those skills to meet special tasks should the need arise which gives MWF(V) its unique and valuable role within the Corps. A number of soldiers are able to devote considerable time to tasks, others less so. So soldiers are carefully selected for tasks depending on their skills, availability and lastly their geographical base compared with the task site. An annex is appended to the end of

his article, which details the capabilities of the various types of unit within MWF(V).

Typical Tasks

Readers may be interested in the types of tasks which are undertaken. The Annual Report of MWF(V), distributed to major clients and also available from CVHQ RE, gives a flavour of the tasks undertaken by units during the preceding year, but recent projects have included:

- Design and costing for the Minley roads project including specialist geological advice for materials and foundations.
- Constructing a restoration of essential services and functions facility at Waterbeach.
- Urgent design of repairs to storm damaged tracks on Lundy Island.
- Rewiring the British Forces School in Naples including installing air conditioning and a stand-by generator.
- Installation of a new fire main, Coaling Island Gibraltar.
- Track construction and refurbishment on training areas.
- Specialist advice on water pollution in Cyprus.
- Underwater surveys in Gibraltar.
- Specialist lectures to RSME courses on flood defence, engineering geology, bridge engineering and railways.
- Geological surveys related to tunnel stability in Gibraltar.

Conclusion

An article such as this can only give a brief summary of the capability of the units within MWF(V). Members of the Corps who have worked with MWF(V) are best placed to judge the work that it does. Suffice it to say that the teams are invited back repeatedly to locations to carry out further projects and there is usually a surplus of projects compared with the resources available. It is often only the availability of sufficient suitably skilled engineers that prevents it from doing more. However MWF(V) is always looking for new challenges where its units and soldiers can be of assistance to the Ministry of Defence.

In the present environment of budgets and budget holders (a concept with which most of MWF(V) is very familiar when out of uniform), MWF(V) has to offer value for money. For annual exercises the wages element is borne by the training budget but if additional time is required then the staff costs have to be funded by the client. Nevertheless the use of MWF(V) resources represents extremely good value for money as our many clients will vouch.

Obstacle construction, Gutersloh.

The Commander MWF(V) and his staff are always available for discussion should it be felt an opportunity exists to use the STsRE(V). Initial contact should be made through the Commanding Officer, CVHQ RE at Minley.

Annex
Unit Formations and Capabilities

HQ MWF(V) (16 + 0)

Sixteen professionals at SO1, SO2 and SO3 level covering the main engineering disciplines. In addition it has mechanical handling, power transmission, petroleum, port and structural engineering capabilities. Most importantly the unit includes all the Corps engineering geologist expertise offering essential engineering geology advice tri-service as well as having a high level of environmental expertise. This section is always fully utilized in advising on geological issues and projects in the former Republic of Yugoslavia. Many are staff trained up to and including the Territorial Army Command and Staff Course. As many of the post holders occupy senior positions in their civilian occupations they have to strike a careful balance in the amount of time they can allocate to their military duties. Very often the first call from the G3 Branch is "Are you free to ...". The author has recently completed a consultancy visit to Cyprus under just such conditions but has no need of the air miles!

STRE(Bulk Petroleum) (3 + 19)

A technical and artisan unit drawn historically from the oil industry and major oil refineries with a full capability of supporting RAF Airfields. Its role is to provide a fuel handling capability, including emergency bulk fuel installation and emergency fuel handling equipment at RAF

Completed "restoration of essential services and functions" pit at Waterbeach.

bases or on deployed operations. The skills available include fabrication as well as assembly skills for fuel supply, under the routine safety conditions that apply. On some exercises detailed inspections/maintenance of equipment may be carried out as during refinery shutdowns. The teams also have the ability to construct, install, maintain and operate fixed facilities. They regularly train with 516 STRE(BP) of MWF.

STRE(Construction) (2 + 20)

A multi-disciplined team with artisan/construction capabilities. They are capable of their own design with an integral task and site management function. These units are staffed more heavily with artisans than a works team who have a greater design capability. Currently the teams are committed to RE Air Support on mobilization and they regularly train at Waterbeach.

STRE (Railways) (3 +20)

507 STRE(V) is now the army's only remaining collective source of railway expertise. Drawn historically from the civil engineering function of British Railways, the unit has a design, recce, supervisory and advisory function with full track-laying capability. It has deployed specialists to the former Republic of Yugoslavia and it is regularly called upon to train TA field squadrons carrying out practical track work. The small size of the team restricts its construction capability and the teams resources are better used advising other units who carry out the physical work. The team also provides assistance to courses at RSME. The source of personnel is now Railtrack plc and its contractors.

STRE (Water Development) (1 + 13)

520 STRE(V) works very closely and trains with its regular counterpart (521 STRE(WD)). It combines in war with 521 STRE(WD) adding its drilling team to the two drilling teams and one water development team of its regular counterpart. An important element in the work of 520 STRE is its work with the engineering geologists in HQ MWF(V).

STRE (Works) (4 + 18)

A multi-disciplined engineering, including building services, consultancy with recce, design, site supervision and contract management capability. This is supported by artisans drawn from the three main engineering disciplines. The organization and role of these teams is similar to their regular counterparts at Chilwell although the TA teams also carry some artisan resource.

Military Works Force (V) p50

Goldeneye's Escape

LIONEL MORRIS

The following article is a reprint from the "60 Years of Changi Sailing" 1936 to 1996 anniversary booklet, and is reproduced here with kind permission from Khong Seng Kee, General Manager, Changi Sailing Club.

THE author was a Sapper of the 30th Fortress Company, Royal Engineers. He was asked to recount his experiences at the hands of the Japanese Navy in March 1942, and said that although the events happened fifty years previously, they remained as vivid as if they had occurred but yesterday. At the time of writing, c1992, the author was the sole survivor of those mentioned in the escape.

I WAS a keen sailing man, as was Lieutenant R Martin RA, but Major G Campbell RA, was not. We met at Changi Garrison Yacht Club, Singapore, 48 hours after the capitulation, and decided to escape.

Our collective eye fell on *Goldeneye*, the sole surviving dinghy of 41 "Burling" pram dinghies, the rest having been destroyed. Designed for racing by a flight lieutenant of that name, these tough but efficient snub-nosed little craft were carvel-built of teak but possessed surprising speed and manoeuvrability. They were Bermuda rigged with a drop-keel, but were only 12½ft by 4½ft and, of course, none of them had ever been asked the question that *Goldeneye* was to answer so bravely.

Two days were spent collecting stores, during which time a Japanese party passed within yards (the enemy, themselves exhausted, were somewhat slow in rounding people up). Eventually, with the wind right and a cloud over the moon, we pushed off. The journey was not without event; the dinghy had to be lifted bodily over a harbour boom, we missed a floating mine by inches, were repeatedly buzzed by a Zero fighter and narrowly avoided attack by parang-toting natives on an island. On another island, friendly Chinese fishermen told us of a major battle much further south which had left the area strewn with dead sailors and debris and so much oil on the water that there were no waves. This of course had been the Battle of the Java Sea.

Two vicious "sumatras" (sudden mini-hurricanes) were survived and one night we sailed slap through the Jap Palembang invasion fleet to find ourselves, after fourteen days, off Merak Island in the Suna Strait. We had one tin of peas, one of parsnips and half a pint of water left. After dark, a new sound was heard, the throbbing of a ship's engines. At first we could see nothing and then a large warship appeared, a cruiser. She looked like one of ours.

We waved and yelled from parched throats but the three of us at full volume would not have woken babes in a nursery. Gillie seized a torch, its light flickering SOS, SOS. We thought that the lookout was asleep, but he wasn't. The cruiser reversed engines, a bell clanged, a whistle blew – surely it is the British or Australian Navy. She looked like one of the county class. Perhaps they have steak, eggs and chips aboard. We were very hungry. White-clad figures thronged the starboard rail. The *Goldeneye*, faithful to the last, obeyed her helm; one hundred and fifty yards to go, now only a hundred, fifty, thirty – and we trembled slightly, our nerves a jingle of excitement, hope, triumph and thanksgiving merged together in one never-to-be-forgotten two minutes. A voice hailed us: "Who are you? Where are you from?" It sounded strained but the tone was good and the language just right, English! Feeling rather sheepish, I stood up and yelled: "This is *Goldeneye*, fourteen days out of Singapore. We are English."

No more voices greeted us and we observed a line of figures dressed in peak cloth caps.

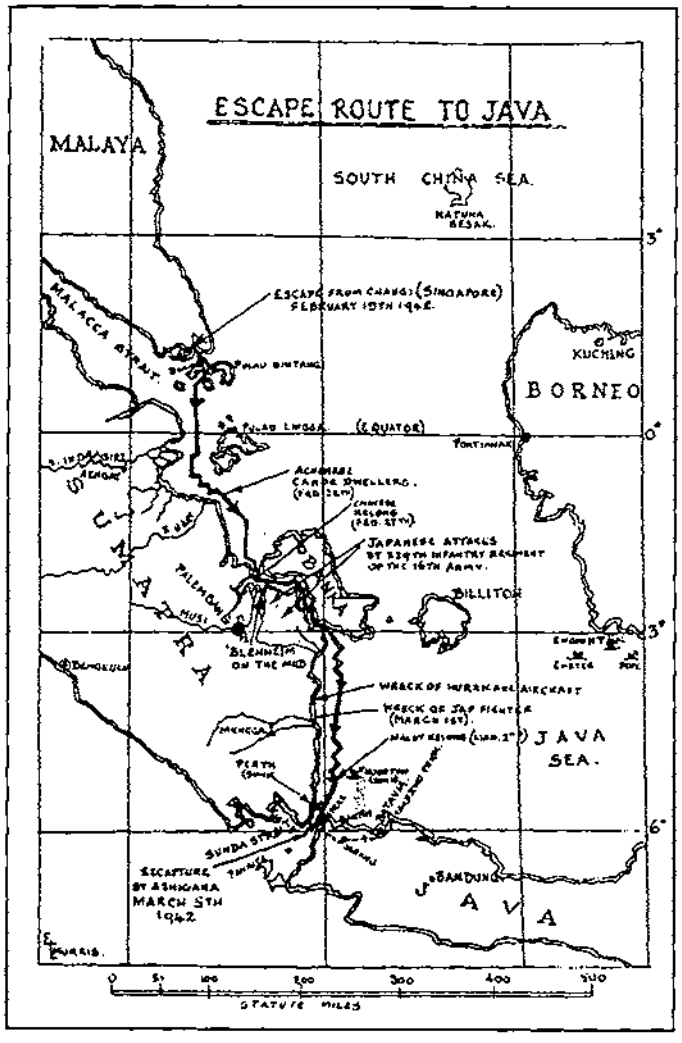
Suddenly Bob fairly yelled "They're bloody Japs!" and he was all too perfectly right. From the deck the equivalent of Bren guns were trained on us from a dozen points. "Do as the gentlemen direct" Gillie advised quietly, "We're in the bag again!"

Down the lower gangway hurried a Japanese officer who continued to address us firmly, though politely, in Oxford English. "Have you any guns? Revolvers?"

"No."

"I will make a search. If you are lying, you die!"

The search over, he turned to Bob. "You will continue south until you come to Tapir Island, the one with the lighthouse. Go ashore and await the arrival



Escape route to Java.
(Courtesy of E L Morris.)

of the Imperial Nippon Army. Do you understand? If you attempt to escape you will be shot!"

Once again the throbbing of the engines. For a while anyway we were at peace, the cruiser having departed northward, but from her superstructure a white light winked a message to somebody to the south. "What now?" enquired Gillie. "We'll be shot for sure if the Army takes a hand; perhaps we had better try to get through the Sunda Strait and run the gauntlet of the coast south of Java," said Bob.

Off we went on the first tack and within a quarter of an hour were past Tapir Island. We were congratulating ourselves on the speed of our progress when another cruiser suddenly emerged from the gloom, only fifty yards away to starboard. "In case we are separated or don't meet again," Bob observed, "Here's wishing you the best of luck."

For the second time in twenty minutes a voice boomed through a megaphone, still in English but not so agreeably polished. It challenged: "Stop or we'll shoot." This was truly the end of the road. We headed in towards the ship's side where there was a Jacob's ladder. I took a last long look at the dinghy, a fond farewell to a faithful friend, and mounted the ladder, being forcibly assisted as I neared the top of the ship's rail. As my feet touched the deck a rating slapped me lustily across the face and I fell back on my scupper. Truly, I was in Japanese hands, and staggered to my feet. By now Bob and Gillie had appeared over the rail and I expected them to be hit too, but my tormentor received a resounding clout across his face, presumably for having struck me without orders. We were cursed roundly. "Had we not received orders from the Commander of the other cruiser? Why had we disobeyed? We are no good, kinaro, etc etc."

I heard the name of the cruiser – *Asigara* – a flagship of Admiral Takahashi. They were very proud to be the late conqueror of *Exeter*. We had disobeyed the most important man for miles around. I was suitably appalled! Then I remembered where I had last heard the name, *Asigara*, as the chief representative of Emperor Hirohito's Navy at the Coronation Review at Spithead in 1937. My surprise was complete for I had also seen *Asigara* at anchor next in line to the Dutch cruiser *Java*, fated to be sunk in the recent battle.

After fourteen days of doubtful freedom, we were back again almost where we had started, or maybe not at the starting point, for we were richer for the experience. We had travelled on a wild sea journey of over 650 miles. By something akin to a miracle we had survived the onslaughts of terrible

storms, ordeals of hunger, thirst, sun, tropical rains and cold. We were amazed at our ill fortune, but had had our fling, made a mistake and failed, but perhaps, after all, not disgraced.

We three waifs from the sea stood drinking in the atmosphere of the clean and well-ventilated room. No one smoked for this was the nerve centre of the ship, the charting and battle HQ. We were impressed but not overawed, though I remember feeling a sense of unease. The Captain sat like a statue. A short muscular man, his face, with high cheek bones and slanting eyes, had noted our entrance though his head had scarcely moved. His skin was light tan, the mouth large with rather thin lips, the nose not as flat as most Japanese, but long and intrusive. He sported a typical "Nanchu" moustache which extended deep below the corners of his mouth like two black bootlaces. Suspended from the ceiling, a bright light swung gently and rhythmically above the charts in harmony with the motion of the ship.

The second in command, acting as interpreter, asked each of us our names and rank in turn. When my turn came I announced that I was a Sapper in the Royal Engineers. They didn't seem to know what that was. Bob said "Tell them you are a private soldier." That revision of identity was clearly difficult for our interrogators to accept. It was inconceivable to them that a private soldier should have shared the same small boat in company with two officers. With our unkempt beards we presented a wild sight, but Gill in particular still possessed an unmistakable air of distinction and authority.

The interpreter, we soon learned, was a Lieutenant Commander Tanaka, as different in appearance to his skipper as one could imagine, being taller, clean shaven, and lean as a greyhound. He possessed a very agile mind and had been to Oxford, which no doubt accounted for his excellent command of the English language.

When told we had sailed from Singapore in that small wooden dinghy, they became very interested, almost sympathetic and enquired "Are you hungry? Are you wounded?" After ten minutes the first interview was concluded. Tanaka said "Bow to the Captain and go with the sentries." This was the first occasion I had bowed to anybody – it was to become routine in future.

Our quarters turned out to be two long "shelves" immediately above a stack of naval shells. I was told to wait on deck and to my surprise a medical orderly arrived with what must have been the largest alabaster jar of Ponds Cold Cream ever made. He was most gentle and considerate, padding up and winding a dressing on to a blister on my thigh which I had got from the petrol cooker. On rejoining the others, I explained what had happened and Bob said that there must be something in the idea of the "traditions of the sea."

Our first meal arrived; three bowls of rice adorned with small fish, followed by a shared tin of oranges and washed down with a beaker of very sweet coffee. Early the following morning, we were summoned again for a more detailed interrogation. Singapore having fallen, the Japanese were in possession of everything there. Nothing we could say concerning material things could have had any bearing on the war. We did a good deal more listening than talking. Tanaka was very curious to know how we sailed from Singapore to Java, and insisted on our tracing the course with a pencil down through Riau Strait and southward. When we came to Bank Strait, the Captain was curious to know what we had seen there, and asked for precise dates. It transpired that we had sailed right through the tail-end of invasion barges conveying troops for the attacks on Sumatra – they seemed amused that nobody in the Imperial Japanese Army had had the wit to pick us up. The inference was that the Japanese Navy was not all that impressed with their Army counterparts. We were then told of *Perth* and *Houston;* this confirmed all the rumours and more that we had heard from the fleeing fisher folk.

After the questions the Captain summed up: "You have all been very brave but also very foolish. No men escape. Japanese Navy now masters of the sea. Japanese soldiers shoot all men who attempt escape. Japan win the war," etc etc.

So ended our tête-à-tête. We retired like human moles to the forecastle head, still none too sure of the future. At about 1 o'clock, to our surprise and delight, a small improvised table was erected on the deck. A meal of rice garnished with the eternal fish was served, this time on plates. Out of the ship's stores heavy silver knives and forks were laid out for our use. Obviously the cutlery was reserved for rare state occasions and was very green with silver oxide and had not seen a polish or a rag for many a long year. It was dropped in a bucket of hot water and seen to be wiped and cleaned, by which time a fair contingent of the ship's crew had assembled to see how knives and forks are used in the western world.

Many of the ratings were mere boys. There was much muttering, pointing and laughter, then quietly the crowd drifted away and we finished our repast in solitude.

We were given a very surprising option which amounted almost to old-world courtesy and chivalry. An interpreter delivered the message. "You give your word as English gentlemen. You will not attempt to interfere with the ship. You have permission to stay on deck. If you break your word you will be shot!" We gave our word. Walking the deck was a pleasurable exercise and anyhow where do you begin to blow up a cruiser? One almost felt that we were necessary to their ego. We were intended to appreciate how good they were. I contented myself with thoughts that the Japanese Navy had been largely taught and modelled on our own Royal Navy.

Rather more than thirty hours had passed since our capture. It was now Saturday 7 March 1942. Looking at the bridge there was a faint suggestion of the pagoda in her appearance. Both funnels were raked distinctively and abaft the smaller one was housed a seaplane. Overhead a solitary aircraft, rather like a Walrus, circled at 2000ft.

At about 4pm, the peace and tranquillity was rudely shattered by the ship's klaxons blaring and croaking in general alarm. The funnels began to belch forth clouds of black acrid smoke, the decks heaved and listed first to port, then to starboard. The cruiser was zigzagging. The decks suddenly became very crowded. All the deck guns were manned; ratings stood by their torpedo tubes. The aircraft was no longer at 2000ft, but screaming in, low over the water, dropping flares and marker cans which spouted coloured smoke on impact to mark a trail. The ship's helm was hard over in a quick "U" turn to port. The benign smiles of the ratings had disappeared. Within a minute the first depth charges climbed the air in ponderous arcs, in pairs, some to port, some aft and others to starboard. Explosions whipped great furrows in the sea and the very water seemed to fizz with motion. *Asigara* was now at full speed: clearly we were under submarine attack.

During the ensuing pandemonium we had largely been forgotten until, quite suddenly, we were confined to our quarters above the magazine. Bob remarked "If this little lot is hit, nobody will find the pieces." Twenty minutes passed. We could feel the swaying of the ship each time she altered course and the engines caused a chattering vibration. The flat thuds and bangs continued but as there was no obvious sign of jubilation from the crew, it was surmized that the action to sink the submarine had not altogether been a success.

Goldeneye in the Riau Straits (Feb 1942).
(Sketch by E. L. Morris.)

I felt satisfaction that somewhere under the waves some clever fellow had outwitted his hunter. Later, it was inferred by Tanaka, that an American submarine had been sunk.

Not long after, the ship slowed and Tanaka announced that we were to be taken ashore. A motor sampan took us to a rusty hulk which turned out to be a temporary prison ship. A young officer eyed us and hissed through his teeth "Englissoo? Americano?" to which we replied, "English." He spat contemptuously into the sea. This was a foretaste of our treatment, mostly at Lintang camp in Borneo, for the next 3½ years.

The *Asigara* and her sister *Haguro* were a luckless pair, both being sunk in the last two months of the war; the former succumbed to HMS/M *Tranchant* in the Banka Strait and *Hungaro* to the 26th Destroyer Flotilla in the Malacca Strait.

Goldeneye's escape p54

When We Were Galloping Gasfitters!

COLONEL F H FOSTER DSO OBE TD DL RIBA

Colonel Foster, whose memoir appeared in the December 1996 Journal, submitted this extract from his book called "Recollections of an Amateur Sapper" some time ago. It illustrates the difference between the TA of today and the TA prior to WW2, and is published with Colonel Foster's prior consent. A copy of the book is lodged in the Corps Library.

THE Sapper officer's life in the TA in the prewar years (1924/39) was very different from that of his modern opposite number. A few personal experiences may be of interest.

The TA was organized on a divisional basis, each division being recruited from areas in Great Britain. I was with 210 (Sussex) Field Company RE of the 44th (Home Counties) Division. Each division was organized on the same basis as its regular counterpart but all were territorials except for divisional and brigade commanders and their small staffs, and each battalion had a regular adjutant.

I suppose I have always had an interest in the army since my school days, right from the time as a small boy. I went to see Kitchener's Army arrive, mostly in "civvies" at Seaford railway station in 1914, right through to the Armistice in 1918. During this time my father was a DCRE responsible for erection and maintenance of hutments in many places.

I was commissioned in 1924 and posted to 210 Field Company at Seaford where No 1 Section was located. Nos 2 and 3 Sections were at Newhaven and Lewes respectively. I was then 20 years of age and was accepted as a second lieutenant as I was studying architecture. I found my contemporaries were students of civil engineering and other technical professions.

A field company comprised a major, captain, three subalterns and some 100 other ranks. In those days the transport was horse-drawn and each section had its own double tool carts. These were two box-like vehicles coupled together and packed with tools and technical instruments. In addition each section had a double limber which was two open-top "trucks" used to carry stores. The double tool carts required a four-horse team to draw them and the limbers a pair of horses.

The draft horses were hired from local contractors as required, as were the officers' "chargers" and the horses for quartermaster sergeant, transport sergeant and farrier corporal. The harness, saddlery and vehicles were housed at drill halls.

The fact that officers were mounted was an additional attraction to me and I spent many a happy day riding on the the South Downs.

The obligatory training each year was 15 days annual "camp", 30 periods of two-hour drills at TA centres, qualifying on the open range and a six-week course at the School of Military Engineering (SME) Chatham (the latter usually in the first three years). Regular army rates of pay were granted while at camp and on courses.

There was a grant of £40 available for uniform etc, and this I purchased at Moss Bros under the eye of the adjutant. The grant covered service dress with riding breeches, gaiters, boots and spurs, blue patrols, shirts etc and camp kit with bed, bath and valise.

At my first camp in 1924, I reported at Crowborough railway station where HQRE and the three other companies were arriving by train. The horses were in boxes and the tool carts and limbers were on open "flats". I was detailed to be a member of a "horse board": a major of the Royal Army Veterinary Corps, one of our company commanders and myself. Horses had to be trotted up and down to see that they were sound before they were accepted from the horse contractor.

Next came the rather difficult task of seeing which horses would work together. They were unused to military harness and working in pairs to form four-horse teams with drivers on their backs. But after much rearing and plunging and cries of "steady", the teams were made up and joined the field company in their march to camp at Crowborough Warren, where there were some World War One hutments. Training consisted of marching out some two miles to Ashdown Forest with our transport, and constructing field defences or doing a water supply scheme with the old 600-gallon canvas horse troughs and two-man portable lift and force pumps. During the first few days, the horses were somewhat unruly and sappers had the task of pulling the tool carts out of ditches but this made for good team work. We all wore service dress with

brass buttons; sappers with trousers and web equipment, drivers with riding pants and leather bandoliers. Boots were a personnel responsibility and so were shirts. (One pound a year boot allowance.)

Other ranks got an annual bounty of £4 provided camp was attended, they performed a certain number of drills and qualified on the open range.

I recollect that the Lord Lieutenant of Sussex came to inspect us. He told junior officers: "I am glad you have joined the TA as I'm sure we shall have another war in the near future." He was however, some 15 years out in his prediction!

I had not passed "Certificate A" and undertook to do so in the first 12 months of commissioned service. I was coached in drill by the adjutant at this first camp and then went to Headquarters Royal Artillery (HQRA) at Woolwich to sit for the written Part II (Tactics and Field Engineering).

In November I went to the old naval prison, Lewes, which had been converted to a TA centre. It was a very gloomy and inhospitable place. I took over No 3 Section and felt a very "new boy" but was soon put at ease by a delightful section sergeant who had joined the TA after many years of regular and war service. Each field company had two sergeant-major instructors, one mounted and the other dismounted.

I used to attend drills every Wednesday evening and rarely missed. I found that by regular attendance in uniform, I got most of my section along in uniform too.

In January 1925, I went to the SME at Chatham, for the first 14 days of my compulsory field works course. All lectures were held in a classroom of the lovely building of the electrical school (now our splendid RE Museum). Most of the course involved work constructing field defences and we would go to the dockyard daily and row across the River Medway in a cutter to Upnor. Recalling "For we're working very hard, Down on Upnor Hard, Hurrah for the CRE!" I remember that when I was doing my second 14 days, we were over at Upnor when the county class cruiser *HMS Kent* was launched from the dockyard and we had an excellent head-on unobstructed view.

I shall never forget my first guest night in the HQRE Mess. The splendid cream and gold decor, the large silver pieces, the orchestra, the liveried mess servants, the seven-course meal, and the ceremony of the rapid removal of the table linen before "The King". All quite wonderful to a young TA officer of a few months' service in his new mess kit!

I was fortunate indeed that during my second 14 days' course, HM King George V, our Colonel-in-Chief, honoured the Corps with a visit to the SME. There was a big parade on the square and we TA officers were formed up at one end.

I went to St James' Palace to a levee with two other officers. This was a great privilege. We were presented to His Majesty by our Chief Royal Engineer, General Sir Bindon Blood. We were lucky because a few years after, the ceremony of the levee was discontinued.

In my early days in the TA, the army was still almost entirely dependant on the horse, mechanization was only in its infancy. I attended a three-week course in equitation at Aldershot which was quite tough work. We were taught to ride and jump, and four-horse teamwork with limbers. Before going to the riding school, we were taught how to mount and dismount on wooden horses and how to fit saddlery and harness. We attended numerous veterinary lecturers. In learning how to jump we frequently fell off and the only comment the riding sergeant instructor would make was "Hurt yourself, Sir? Hurt yourself? Serves you bloody well right Sir!"

The last camp which we enjoyed with our horses was at Shoreham in 1933. Like it or not, the motor vehicle had come to stay and we had to get used to the smell of petrol and exhaust fumes instead of horse dung! We went through a transitional stage of trailing our tool carts etc behind lorries, which was most unsatisfactory.

Promotion to higher rank was achieved only after passing examinations held by a board of regular officers. Coaching was done by the adjutant who devised test papers and ran exercises. For promotion to captain I went to HQRA Woolwich and took the same exam as the regular officers (subject "a" tactics). TA officers were allowed a slightly lower percentage of marks to obtain a pass. I went to the barracks in London and took a written examination in field engineering (subject "f" a bridging project). Later on, for promotion to major, I went to Woolwich again and took subject "c".

Each year our field company held an annual prize-giving. In a small town like Seaford it was one of the town's highlights. It did much to encourage competition amongst all ranks and brought local people into the drill hall to attend what was an important social event.

210 Field Company was formed of local men and almost all knew one another well and their wives and families in many cases. It was like one big

family and I was indeed fortunate to take over command in 1935. Up to 1937 our average strength was a little over 100 but by then the situation in Europe was becoming increasingly grave and we were urged to increase our strength. We endeavoured to meet this challenge in many ways, for example we formed up a local recruiting committee of a few business men in the town to publicize our unit and organize local functions. Recruiting meetings, boxing matches, dances and recruiting marches headed by our regimental band, were undertaken. At one function, the mayor of Lewes, who was chairman of Chelsea Football Club, offered tickets at the forthcoming cup final to the first two men to come up to the platform to join up. But I suppose Hitler was our best recruiting sergeant, for the more tense the situation in Europe the more our strength increased!

I was called out to draw up a key party on 24 August to form an organization to receive men to embody them for war. By this time our strength was about 450. We were ready for them but they actually arrived on 1 September in response to news on the wireless before call up papers were received in their homes. We had enough men to form a duplicate field company. This we did and were ordered to designate it 264 Field Company RE. It was difficult to employ them with our limited number of rifles and G1098 equipment, however, they soon left and went to Gravesend to become part of 12 Division.

About a fortnight after embodiment, 210 Field Company went to the 44 Division concentration area in the West Country, where the "Phoney War" enabled them to get in some six months training before embarking for the British Expeditionary Force.

Journal Awards

The Budget, Investments, Membership, Scholarship, Memorial and Publications Committee announces the following awards for articles of special merit published in the December 1997 *Journal*.

THE CLOSE SUPPORT ENGINEER SQUADRON AND BATUS TRAINING
A SQUADRON COMMANDER'S PERSPECTIVE
by Major C R J Sloane BSc – **£100**

OLD CHESTNUTS TOSSED ACROSS THE POND
by Lieutenant Colonel C E Zimmermann – **£75**

FRANKENSTEIN'S MONSTER
by Mike Croll – **£75**

HI-TECH STOCKINGS – MEMBRANES IN DRINKING WATER PRODUCTION
by Major L T Quinn BEng MSc CEng MICE – **£75**

GEOGRAPHIC SUPPORT TO THE ARMED FORCES – MILITARY SURVEY'S 250-YEAR HISTORY
by Peter Parkinson, British Geographic Liaison Officer in Washington – **£50**

A BELGIAN SPRING
by Donald F Cooper OBE – **£50**

Lest We Forget ...

MAJOR JOHN CHILTON BA MCIT

MEMORIALS, unlike mushrooms, do not appear overnight. In 1922 a very special one was unveiled at Chatham and today seems as good a time as any to look at what went into the making of the Royal Engineers War Memorial, Brompton Barracks.

World War One, or "the Great European War" as it was initially called, was halted in November 1918 by an armistice and ended the following year by the Treaty of Versailles. In 1919, the "RE War Memorial Committee" was formed and the "RE War Memorial Fund" opened, to which past and present members of the Corps of Royal Engineers were invited to subscribe "for the erection of a Memorial, to commemorate their fallen comrades, including the late Field Marshal Earl Kitchener of Khartoum". He, it will be recalled, met his death when HMS *Hampshire* was lost in 1916 off the Orkneys, en route for Russia.

As soon as the site for the memorial had been decided, in the open space between the Crimean and South African Arches, the design was put out to open competition. It proved to be popular, with no less than 101 designs being submitted by architects from all parts of the British Isles.

After long and careful consideration, the assessor, Sir Reginald Bonfield RA LittD awarded the first prize of £200 to Messrs Hatton & Taylor FFROBA of Glasgow. Second and third prizes of £125 and £75 went to the also rans. Sir Reginald's judgement, however, was not without constructive criticism, and Messrs Hatton & Taylor were required to amend and modify their design accordingly, in consultation with their sculptor, Alexander Proudfoot ARSA.

The cost at this stage, May 1921, was estimated at £8767, which excluded certain work on the foundations, levelling, turfing, etc. This, it was hoped, would be carried out by voluntary labour.

By August the work of erection had been put out to contract and brought in 18 tenders. The lowest was accepted, that of Messrs G E Wallis & Sons Ltd, of Broadmead Works, Maidstone, amounting to £6895, with Mr Proudfoot's sculpture costing an additional £1250.

Work began on 21 November 1921. Wherever possible the contractor employed ex-Sappers, living locally, through the Secretary of the RE Old Comrades Association.

By January of the following year, the memorial had risen to a height of 20ft. Models of the four sculpted panels to form the base of the obelisk proper were approved by the War Memorial Committee, and Mr Proudfoot was now working on the full sized panels, each about 5ft 6in high, representing respectively "victory", "duty", "service" and "sacrifice".

A polished welded copper casket had meanwhile been made in the SME workshops, to be ceremoniously "imbedded" in a chamber in the east of the pediment by General Thuillier on 18 March. It contains a descriptive document, together with coinage of the realm, a RE cap badge, and "journals of the day" – one copy of *The Times* and one copy of the *Morning Post*.

When the main column was complete, save for final pointing and rubbing down, the Corps Committee concentrated its attention on the ceremony, scheduled to take place on 18 July but later slipped to the 19th. His Royal Highness, the Duke of Connaught and Strathern, who had accepted an invitation to perform the unveiling, had begun his military career by joining the Corps as a lieutenant, "serving at Chatham for a considerable time in that rank".

All this was well publicized in *The Sapper* of the day with, inter alia, a report on the resumption, after seven years, of the RA versus RE officers' billiard matches. Another, somewhat peremptory note gave notice that Territorial Army bounties were to be reduced: from £5 for trained men to a new maximum of £3; and for recruits to a sum not to exceed £2/10s.

With five days to go, the memorial was complete, and final preparations made.

First to arrive at Chatham station was a special train, at 10.52 am, for which reduced fares had been available at 10s 2d and 5s 4d for the first and third class carriages, to include travel by special buses (return) to Brompton.

Close behind came a second "special", arriving at 11.34. Accompanied by his equerry, Lieutenant Colonel Gordon, HRH was met by General the Lord Horne, General Officer Commander in Chief Eastern Command, and General Thuillier.

The Royal Marines Light Infantry mounted a guard of honour, with a detachment of the RE Band in attendance. The Chief Constable of Kent and the Mayors of Rochester, Chatham, and Gillingham were presented and the party drove to Brompton, where the Royal Standard was broken out on the flagstaff over the platform in front of the memorial.

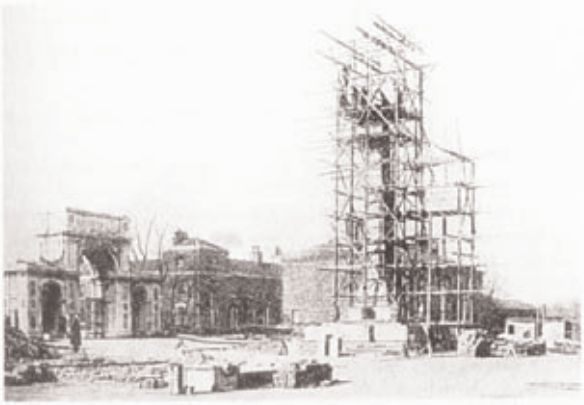
Some 5000 persons were present, including those on parade, who were:

- The Depot and training battalions;
- a detachment of serving regular and territorial Royal Engineers, with representatives from more than 50 different units in Great Britain and Ireland, the Indian Sappers and Miners and engineers of the dominion also being represented;
- a detachment of ex-regular Royal Engineers who had served in the Great War, from the RE Old Comrades Association, commanded by their Chairman, General Sir George Scott Moncrieff;
- a detachment of ex-Royal Engineers of the "new armies" and territorial forces, from the local branches of the British Legion;
- a detachment of Royal Engineers veterans, the oldest being Sapper Hannah, born 1834;
- two "large choirs of boys of the Royal Engineers";
- the Royal Engineers Band, under Lieutenant N Flux, Director of Music.

The dedicatory service commenced with an exhortation by the Lord Bishop of Rochester, to which HRH replied before unveiling the memorial. At the conclusion of the service, the parade marched past and the Duke was taken to the RE Mess for luncheon. Other luncheons for those who had purchased tickets in advance were provided in the gymnasium for "officers and their friends" at 5s per head, in the drill shed for "other ranks and their friends" at 2s per head.

HRH left the RE Mess at 2.15pm by car. Buses left Brompton at 4pm for the train back to London at 4.15.

Left behind was the memorial as we see it today, commemorating the RE dead of that First World War – all 18,000 of them.



Main column of the memorial completed except for final pointing and rubbing down.

Note: from *The Supplement to The Royal Engineers Journal*, August 1922

"As it may be of interest, the method by which the memorial was unveiled by His Royal Highness is given below. The RE memorial is one of the highest which has been completely draped and unveiled successfully by merely pressing a button.

The 11 large Union Jacks were sewn together and fastened to three hoops of spring steel, the two lower being hung from the top one by wires which were anchored to weights at the base.

On the button being pressed, a weight, resting on a trap door, and concealed at the base of the obelisk, was dropped into a padded box. This was performed by the shooting of a bolt, held back against a coiled spring, and released by a trigger, operated with an electro-magnet.

In falling a distance of some two feet, the weight pulled on three wires in very rapid succession. These wires passed up the memorial and were connected respectively to three small cotter-pins, which held the spring hoops around the obelisk. The pins were held in position by thin string, and, as soon as they were withdrawn, the hoops spread out, thus appearing to form a rent in the flags from the top to the bottom of the memorial. On the top hoop opening, the drapery, which weighed nearly 100 lb when wet, fell vertically with scarcely a sound.

During the fortnight of rough weather which took place between the fixing of the flags (which was done before the removal of the contractor's scaffolding) and the date of the ceremony, the drapery was held firmly by a cord passing over the top and wrapped many times round the memorial. This cord was unwound from ground-level just before the service commenced."

Lest we forget p59

A Sapper Sinks a Submarine Off Gibraltar in 1943

THE LATE MAJOR L J FOSS

The observations in this article were written by the author (see group photo opposite) when Officer Commanding 172 Tunnelling Company Royal Engineers on Gibraltar. A Canadian by birth, he had been a "gunner" in the First World War and was granted a Regular Army Emergency Commission in the Royal Engineers with effect from 9 November 1939. One night he swapped with the regular member of a Royal Air Force crew to go as front gunner in a Wellington of 179 Squadron Coastal Command, then based on the Rock. The squadron flew sorties at night looking for German submarines on the surface recharging their batteries, but had seen no action for some time – that night their luck changed.

THERE is no moon, but the stars are bright and if you look down you can see occasional white patches on the water. In the distance a few lighthouses glow at regular intervals. Except for the roar of the motors – which you don't notice – and infrequent remarks on the intercom – which you don't understand – everything is still and silent. The pilot is lying on his belly in the nose of the machine and the second pilot is at the controls. I am standing beside him, with one foot on the step leading from the wireless room and the other on the bracket sticking out from the pilot's platform. The luminous dials on the instrument board give off a faint light. We have been out about four hours and a half and I am wondering when they will unpack the coffee. The little Scotsman speaks over the intercom but I don't get it. The first pilot starts to crawl back and I squeeze myself up against the door behind me in order to let him slide in under the controls while the second pilot is worming himself out. The second goes into the nose and lies flat on his belly. The first pilot checks over the instrument board with the aid of the tiny beam from his flash lamp. I make a mental note to bring a torch on my next trip. Its been arranged that if we go into action I will man the front gun, but I hesitate to go in now because I don't want to appear too dramatic. Perhaps its just a routine changeover, but the second pilot is pulling at my leg so I crawl forward and take up my position behind the gun. I am crouching with one foot on either side of him, both hands are on the grips and my thumbs are on the control. I can't see a thing ahead, but a lighthouse is flashing way off to the right. We are gathering speed and I wonder what we are after. How will I know whether or not to shoot? I don't want to speak over the intercom as they may need it for more important things, so I lean down, pull the earphone away from the second pilot's left ear and shout as loud as I can "hit my leg when you want me to shoot!" I try this twice, but he keeps looking straight ahead, so I give up and get back on the gun. We seem to be gaining more speed, and I peer out trying to see beyond the black wall. What are we going to meet? A sail boat? A plane? Whatever it is, I am sure it will be friendly, but how am I going to know? I wonder if it is worthwhile trying to arrange another signal with the second pilot. Next time I will fix this up before we take off. What the hell! We are in a thick white fog and all I see is the rivets holding the glass stuff of the nose together. I suppose they have turned on the light! Damn it! I can't see a bloody thing! Yes I can! I can see a low grey wide house with a veranda running almost from end to end, and a very wide front door with a little platform and a railing to top. Someone is yelling in the intercom, I press my thumbs and a line of red golf balls sail down towards the front door. What a funny thing to be shooting at. Someone will get hell for this; probably me. We keep on the dive and the first few golf balls are now the size of cigarette ends. They take a long time to get there. Christ! Its a submarine! Probably British! I should have got this signal business worked out before. We are going faster than ever now, and I can see quite a few cigarette ends to the right of the tower. Now there are some to the left. They are all mixed up with mine. They seem to get bigger, and dull red tennis balls start to float past us. Jesus! They're shooting at us! Its a U-boat! Thank God! I press my thumbs as hard

as I can and try to follow the course of my golf balls. These tennis balls are going to come right into the nose. No! They go over. We are in sort of a funnel of slow moving red tennis balls. I never thought it would be like this. I wish mine were a different colour, I can't follow them. We're going to hit the conning tower! I hope we knock the God damn thing off! No! We're over it. The light has gone out. I look down to the left and can see stars. On the right there is a flashing in the sky. Another plane! No! Its a lighthouse! How did it get up there? The pilot is hollering in the intercom "We got the bastards! We got the bastards!" There seems to be a lot of fresh air around, and a slight smell of oil. The pilot calls out each man's name.

"Bill! Are you alright Bill?"

"Yes Sir."

"Wilson, Are you there Wilson?"

"Yes Sir, but the light has been shot out."

"Tommy are you OK?"

"Yes Sir."

"Scotty!" He calls Scotty three times, each time with more urgency in his voice. Then Scotty answers. We are alright.

The second pilot has crawled out from between my legs and is poking around under the pilot's platform. He has a little light and I look over his shoulders. There is a tangle of bright pipes with oil oozing out of some and squirting out of others.

There is a hole in the side of the ship that you could put your hand through. After a bit we start for our base.

Wild Elkington Lindsay Canvin
W H Wilson L J Foss Ramsby
(Courtesy of C B Wilson.)

POSTSCRIPT

LINDSAY Foss died of a cerebral haemorrhage on 23 November 1943, shortly after the event described. (His death "whilst a prisoner of war" reported in the January 1944 *Supplement to the RE Journal* on page 19, was an error corrected to "Died in Gibraltar" on page 25).

This note came into the possession of his colleague, and successor as OC 172, Major W H Wilson. On Wilson's death after the war, it was amongst documents which were passed to his son, now an engineer with Ove Arup. Colin Wilson read an article in *The Sunday Times* of 24 February 1997 on "The Crumbling Rock of Gibraltar" which quoted geological opinions from Colonel E P F Rose at Royal Holloway, University of London – and sent the note and other documents of potential interest to him. In turn, Ted Rose forwarded the note to the editor of the *Journal*, with this précis of background information, to provide a record of an unusual sapper action.

A Sapper sinks a submarine p61

MAJOR J BASTON MBE

Born 30 January 1931, died 15 August 1997, aged 66 years.

MAJOR Joe Baston was appointed MBE for well drilling during a secondment to the Water Development Department of the Kenyan Government between September 1969 and July 1970. He gave the Corps a remarkable 40 years of his life in regular service starting as an apprentice bench fitter and ending as the Workshop Officer at Long Marston in the rank of major.

John (Joe) Baston was born and brought up in Barnet, attended Hertford Grammar School for Boys and joined the Army Technical College, Chepstow, in 1946, where he subsequently completed his apprentice training as a bench fitter. On leaving Chepstow he spent two years as a training instructor at 1 Training Regiment, Malvern, leaving as a full corporal to go to Hong Kong where he served with 15 Field Park Squadron, DCRE (Roads), and 82 (Independent) Hong Kong Squadron. He returned to the UK in April 1953 to attend the Clerk of Works (Mechanical) Course.

In October 1956, and now in the rank of staff sergeant, he was posted to the Construction Engineer Branch, Nicosia, Cyprus, where he was field supervisor for the pool of earthmoving and construction plant. In January 1958 he moved to Dhekelia and eventually held the challenging post of Maintenance Engineer for the newly constructed British Military Hospital. After three years back in the UK at Long Marston and by now a WO2, Joe Baston was once again back in the Far East, this time Singapore, as the principal Planning Engineer for air conditioning, refrigeration and water supply. The tour included a five-month detachment to Borneo during the confrontation, where he was based in Kuching, responsible for the maintenance of the forward base locations of 1st Division in Sarawak.

He returned to the UK in April 1966 and, after a year with 52 Field Squadron, served with 521 STRE (Well Drilling), as second-in-command, between May 1967 and December 1970. He had moved on promotion to WO1. During his tour with 521 STRE he saw service around the globe in addition to well drilling throughout the UK. Of particular note were his secondment to the Kenyan Government's Water Development Department, and a deployment on Operation *Sheepskin III* to Anguilla, West Indies.

Joe Baston was commissioned in 1970 and, after a tour running the Plant Pool at 40 Army Support Regiment at Willich, he returned to 521 STRE as OC. A busy period followed in which he saw tours of service in places as disparate as Northern Ireland, the Channel Islands, BAOR and Botswana. In January 1976 he was attached to the Property Services Agency Area Office, Northern Ireland where he headed the design team concentrating on the numerous Part II Services and, more especially at this time, the major new builds of Army bases in the Province. February 1978 saw him back in Maidstone as E&M officer to 50 Fd Sqn (Construction) with its dedicated role in support of RAF Laarbruch, Germany. The main highlight of this posting, undoubtedly, was the construction tour to Nakuru, Kenya, where the squadron built an armoured regiment workshop and squadron offices for the Kenyan Armed Forces. After two enjoyable and successful years

Maj J Baston MBE p62

at Supreme Headquarters, Allied Powers, Europe, he took up the post of Officer-in-Charge the Engineer Base Workshop, Long Marston in 1983.

He retired in 1985 and was appointed Resources Officer (RO3) in 61 Field Support Squadron. During ten happy years, up until his final retirement in December 1995, he greatly enjoyed recording the history of the Old Barracks before its demolition, and also of Park House, the particularly fine officers' mess of 36 Engineer Regiment. It was to Park House that he gave ten unbroken years service as private property member where he conducted much research into the history of the paintings and silver.

Throughout his life, military history, especially that of the Royal Engineers, was his fondest diversion. He was an active member of several historical societies and a Friend of the Corps Museum. His other main interest was as a census taker for the War Graves Commission where he helped many people with their genealogy inquiries. In earlier years Joe Baston had enjoyed playing rugby and badminton but latterly his hobbies were philately and gardening.

Joe Baston was married in 1952 to Doris Pritchard who died in 1980. Four years later he married Edana Barrett (Eddie) and is survived by her, three of his children and five grandchildren.

COLONEL R B DOWNS

Born 19 August 1928, died 27 August 1997, aged 69.

Robert Bruce Downs was born in Middlesbrough, and after wartime schooling in South Africa, he graduated from London University as BSc (Civil Engineering). Commissioned into the Royal Engineers in August 1949, his 34-year military career had a strong technical bias which well suited his character and abilities. Even as a subaltern he was a railway construction instructor and worked on protective finishes for engineer stores.

While serving with 37 Army Engineer Regiment, he distinguished himself among troops rushed from Germany, in February 1953, to help in rescue operations following major failures of the Dutch sea-defences. For his work in providing emergency water supply, Downs was nominated by Queen Juliana as a *Chevalier* (Knight) of the Netherlands Order of Orange-Nassau.

Following the Long Civil Engineering Course, Captain Downs spent three years in the Far East supervising construction work in Nepal and Malaya. Then, after two years back in the UK at MEXE on bridging he returned to the Far East as "Resident Engineer" on Operation *Crown*, the project for the construction of the medium range transport strategic airfield at Loeng Nok Tha. The project was seriously delayed by changes in the design specification but, in the event, was completed in the ten months before the 1965 wet season thanks to a hectic six-day week working regime by British, Australian and New Zealand sappers – despite major problems with materials provision and quality, breakdowns of a whole range of aged plant and an acute shortage of water.

On his return from Thailand in 1965, Downs was, sensibly, appointed to command 52 Field Squadron (Airfields) at Waterbeach. Three years later he moved to Barton Stacey to command

Col R B Downs p63

523 Specialist Team RE (Construction), part of 62 CRE which provided technical support for RE projects worldwide; it was a source of great pleasure that in retirement, Downs was able to use a Caribbean cruise to take his wife to see one of his projects out there, Beef Island Airfield.

Two years then followed, from April 1970, as a Senior Instructor at the RSME teaching soil mechanics, road and airfield design, and working on the development of soil stabilization techniques for military use. He returned to RSME later as Chief Instructor Plant Roads and Airfields, following a three-year tour as Area Works Officer (Berlin).

The rest of the 1970s Downs spent in the Gulf region in defence relations appointments, following the British military withdrawal from the area. His first Gulf tour of fifteen months was with the Military Advisory Team (Gulf), at United Arab Emirates, Sharjah, providing visiting RE units and locals with project planning and technical assistance. His second tour, of one year, was as Senior Engineer Officer (colonel) in the British Military Mission to the Saudi Arabian National Guard, in which role he was involved in two major hospital projects.

Returning home in April 1978, Colonel Downs had his first and only tour at the MOD (HQ EinC, Engr 5) advising on Corps policy for professional and technical engineers, for construction projects worldwide and for earthmoving and construction plant, roles for which he was especially well qualified. He then moved to Belgium for his final military appointment, as Chief of a SHAPE project team responsible for a £180 million programme to construct and equip the new static war headquarters.

Retiring from the Army in 1983, aged 55, Downs joined Taylor Woodrow International as a senior planner. Work on tenders took him to Somalia and Liberia (where he was briefly arrested) and, transferred to a Joint Venture Team, he went to the Falkland Islands where his vast experience enabled him to make a much valued contribution to solving the complex logistical problems associated with major construction projects in remote places. Sadly, ill-health caused him to retire finally in 1987.

In addition to being an excellent civil engineer, Colonel Downs was extremely skilful at a workbench, especially at model-making. This gave him particular great delight in his final years. He participated locally, and gave talks to the St Albans Model Engineering Society, of which he was a keen member. He was an early member of FoREM, and its treasurer for four years. He provided impressive models for RE Museum displays and when he died was well advanced on a set of ships, harbour craft, cranes and bridge models for a new RE Transportation display at the RE Museum.

Bruce Downs married Pamela Morris in 1953; she survives him, together with sons Anthony and John, and grandchildren Claire and Matthew.

RE

LIEUTENANT COLONEL GRAHAM CHILTON

Born 2 May 1947, died 14 September 1997, aged 50.

GRAHAM Peter Chilton, Chunkie to all, was educated at the Duke of York's Royal Military School, Dover (of which he was very proud and which he supported and recommended to all throughout his life) and at RMCS, Shrivenham.

On commissioning in 1967, Chunkie joined the Sappers mainly because of his hockey and cricketing abilities rather than his engineering prowess. After Shrivenham he was posted to Maidstone and under POM Chitty's master plan soon became an integral part of 36 Regiment's successful hockey team which won the Army Cup in 1973 and 1974. From Maidstone Chunkie was sent to Belize for six months and then on to 28 Amphibious Engineer Regiment in Hameln. In 1978 he temporarily left the Army, returning to the fold the next year, just before his wedding, when he was posted to Engineer Branch at HQ UKLF. Whilst never a natural staff officer he got on with the work and made the most of the tour including negotiating his next posting as OC 8 Field Squadron, based at Perham Down, to ensure collocation with his wife!

Chunkie loved his time at 8 Squadron and became its loyal champion on every issue. He was repaid with huge affection and deep loyalty. During this time the Squadron completed tours to Northern Ireland and the Falkland Islands. In the Falkland Islands the squadron was involved in refurbishing the San Carlos Cemetery and in preparing the race course for its first meeting after the invasion. From Perham Down he moved to 11 Engineer Group at Minley as Chief of Staff to the Commander, an ideal appointment as the training of young soldiers appealed to him. He loved Minley Manor and the swimming pool in Gibraltar Barracks, and retained a deep affection for them for the rest of his life.

His next appointment as ERLO was possibly the most successful for him and for the Corps. Chunkie was an outstanding ERLO who was totally dedicated to his work and who was rigorous in selecting the best for the Sappers. He struck up a genuine and special rapport with each and every potential officer whose progress he carefully nurtured and whose name and details never escaped him.

In November 1988 Chunkie took up the appointment of CO of the Junior Leaders Regiment at Dover. His enthusiasm for youth was allowed free rein and he again established his characteristic rapport with the recruits and staff alike. Every member of the Regiment was important to him and he tried hard to ensure that each junior leader went to a regiment best suited to his attributes. The tour at Dover was overshadowed by the stillbirth of a son and later a daughter and the loss of three juniors in a helicopter accident. He remained in touch with the parents of two of the lads from that time on. Chunkie entered into all aspects of regimental life especially if it involved sport! He only played to win and was very proud to be part of the regimental team which won the Sapper Cricket Cup in 1990 and 1991. It nearly broke his heart to learn that the Regiment was to close in 1991 and in later years gave a wry smile whenever he heard that the Army had realized its mistake in closing the junior leaders units.

From Dover, Chunkie moved to Aldershot as CRLS South, his last appointment in the Army. He found time in this busy job to remain Chairman of Corps Cricket, taking a hands-on approach which resulted in two remarkably successful and harmonious seasons.

Lt Col Graham Chilton p65

Throughout his career Graham Chilton believed that soldiering could be fun as well as serious and from the start lived life to the full. Whether on the staff or in command he took pains to get out and understand peoples' problems for himself, encouraging ideas but adding his own touch of realism. Above all, his concern was for those under his command; their welfare and their career development were top priorities. Young soldiers seldom remember the name of their commanding officer but they all knew if they had been in Chunkie's regiment.

Chunkie volunteered for redundancy and left the Army in September 1993 becoming self-employed. Working from home, near Camberley, he ran a holiday business mainly centred in Portugal, and dipped and dived into various other ventures. He would swim at Gibraltar Barracks most days, play golf as and when he could and monitor his beloved horse racing and the Stock Exchange throughout the day. He was always an erratic golfer, with his volatile temperament, until the last few months of his life when illness made him slow down. He was delighted to have discovered the secret of playing well at last! Chunkie approached his battle against cancer in his typical way, fighting the disease every inch of its devastating progress. He knew he was very ill but continued with his work and interest in sport to the very end.

The respect and admiration in which Chunkie was held was clear from the magnificent farewell he received from his many friends at the Thanksgiving Service in the Royal Garrison Church, Aldershot.

We all learnt a lot from him, not just about how to enjoy life but how to make it fun for others as well. We shall miss that feeling of having been upbraided for not having done enough and for being bounders' to boot.

He is survived by his wife Bobbi and their daughter Becky, aged 10.

RJL RPAB PL MAF KG NC AJB

CAPTAIN M G BROWNING BEM

Born 31 March 1934, died October 1997, aged 63.

CAPTAIN Mike Browning joined the Royal Engineers as a national serviceman in 1955, having first trained as an accountant. He served in Cyprus, working on the delineation of the Sovereign Base areas and was detached to Iraq just in time to witness the coup d'état. In 1965 he was part of the Demarcation Mission appointed by the British government to adjudicate in a long standing dispute between Chile and Argentina over the line of the border in an area of the southern Andes. The Mission briefed the Court of Arbitration on the ground and then returned to England to prepare a 1:50,000 map of the disputed area; after the court had made its decisions, Browning returned to the Andes to set out the 21 border marker posts that were required. He was awarded the BEM for his contribution and a fuller account appears in Volume XI of the Corps' history. He was an instructor at the School of Military Survey and spent his final years' service at RAF Brampton with the Joint Air Recce Intelligence Centre. He made a second career in education, 15 years in all, using his accountancy skills, first as the bursar of Long Sands College, St Neots and secondly as the College Accountant at Newnham College, Cambridge. He married Thelma in 1956 and they had two daughters.

MJP

LIEUTENANT COLONEL P H BUDDEN

Born 20 August 1924, died 10 December 1997, aged 73.

PAUL Hanson Budden was born in Simla, where his Sapper father, Lieutenant Colonel F H Budden MC, was on loan to the Indian Railways. He was educated at Charterhouse before going up to King's College Cambridge for a year, and was commissioned in 1945. His first posting was to India early in 1946, to the Far East Plant Depot outside Calcutta. One of his main responsibilities there was to reduce the pilfering that was taking place, and he suffered the indignity of being falsely accused of the murder of an Indian worker, on a charge trumped up almost certainly in retaliation for the success he and his staff were having.

On his return to the United Kingdom Paul went to Newark followed by the SME – at that time still at Ripon – as an instructor. After his Supplementary Course the next five years were spent in Germany, first at Bad Oeynhausen and then at Hameln where he was 2IC 60 Field Squadron.

It was still customary in those days for all Sapper officers to do a tour in Works Services and in 1955 Paul was posted to Cyprus, initially to Limassol and thereafter as Garrison Engineer in Nicosia. He took part in the major building programme which was under way there as a result of the move of HQ MELF and many units to Cyprus from the Canal Zone, work which was bedevilled that year by the onset of EOKA violence.

After Staff College in 1957 Paul returned to Germany for two further tours, first as GSO2 RE in Corps Headquarters at Bielefeld and then as OC 30 Field Squadron in Osnabrück. Late 1962 saw him at the Armed Forces Staff College, Virginia, before returning to the United Kingdom to join the Combat Development Staff in the Ministry of Defence. He did not find the somewhat rarefied nature of this work very rewarding and always claimed that writing lengthy military papers was not his forte, and so was much happier when he returned to regimental duty in 1965 as 2IC 3 Division Engineers.

This was during the heyday of Strategic Reserve operations and exercises worldwide in which the regiment was heavily involved. It included the use of parts of Libya for training where Paul on one occasion participated in the selection and construction of a site for rapid airstrip construction as part of a major exercise.

On promotion in 1966 Paul took over as CO 12 RSME Regiment. Probably the most memorable event of his tour was the visit of Her Majesty The Queen and Prince Philip to the School on 28 March 1968 to mark the completion of an extensive modernization rebuild. The remainder of his service was spent in London as GSO1 GS(OR)4 and finally as Command Recruiting Officer at HQ South West District.

In 1974 he was appointed Bursar at King's College, Taunton, a post he held for 16 years and into which he brought great enthusiasm and a capacity for hard work. His meticulous attention to detail and insistence on thorough preparation and organization is amply illustrated by the way in which he masterminded the conversion of a recently purchased convent into two boys boarding houses, one art school and a pre-prep school all over one eight-week summer holiday period.

Paul was a man of great principles, fearless in doing and saying what he thought to be right, sometimes to the detriment of his own future. He also had a deep Christian faith. An active and forthright member of his own parish parochial church council, and of the local Deanery and Diocesan Synods, he was also Governor and Trustee of Salisbury and Wells Theological College. For many years he was on the Pony Club

Lt Col P H Budden p67

Council and their International Visits Committee and Chairman of the Tetrathlon Committee. He continued to maintain his Sapper connections with the Taunton branch of the RE Association and for his last few years was County Director for Saint John's Ambulance.

Sadly however during much of this time he was dogged by serious illnesses which he fought with characteristic single-minded determination and great courage, and the love and respect he had earned during his life across a wide section of society was amply demonstrated by the large number of friends and colleagues who were present at his funeral. He married Caroline Stack in 1950, and is survived by her and their two sons.

HC HWBM

LIEUTENANT COLONEL D J H THORPE

Born 27 January 1937, died 16 July 1997, aged 60.

"A MAN who devoted his life to the care of others and left his impression on the community" was one of the many tributes paid to David Thorpe at a celebration of his life at his local church, Our Lady of Lourdes Church, Haslemere, in July last year. David had died at St Georges Hospital, Tooting, five weeks after suffering a heart attack. These tributes were echoed at a further Service of Thanksgiving in November held at St Mary's Church in Battersea, the area where he had so recently worked.

David John Howett Thorpe was born in Nottingham and moved south with his parents, attending Worthing High School before entering Sandhurst. Commissioned into the Corps in 1956, he attended the YO course, the Diploma Course at Medway College of Technology and 43 JO Course. During these years David and Fay were married. Too young to qualify for marriage allowance or a quarter, the Thorpes spent their early years living in a succession of tiny houses. His fellow YOs will recall that one of them was next to, but at times seemingly on top of, the Rochester to Chatham railway line. As it was to be throughout their lives together, David and Fay's house was ever open, a warm and welcoming place, lively, full of friends and children.

Postings to BAOR, 1 Training Regiment at Cove and, again, BAOR followed before, in 1965, David opted for professional engineer training. He attended 13 Long Civil Engineering Course. With characteristic style he approached this course in an uncomplicated manner, shunning the esoteric in favour of the simplest and most practical solution. Whilst some of his contemporaries tackled complex but arguably inconsequential subjects for their end of course papers, his, prosaically on water mains and sewerage, was readily recognized as being the most useful and practical. He gained his AMICE (equivalent now to MICE) soon after completion of the course in 1967. His sound practice of engineering stood the Corps in good stead in his subsequent postings which took him, among other places, to the Virgin Islands and, as Asst CRE (FARELF) based in Singapore, the Gilbert and Ellice Islands.

Lt Col D J H Thorpe p68

Following a tour with DGFVE, he commanded 66 Plant Squadron at Longmoor from 1974 to 1976. A spell in the "PQE" GSO2 post at UKLF preceded promotion to lieutenant colonel in 1979. In this rank he completed two tours: as GSO1(Weapons) with MOD (Procurement Executive) and as Senior Military Officer Military Vehicles Engineering Establishment, Christchurch. He retired from the Corps in 1983.

The attributes for which he will be best remembered when serving the Corps, and that would serve him so well in his second career, were his honest and straightforward dealings with everyone, his strong Roman Catholic faith manifesting itself primarily through his service to others and a genuine interest in all people, whatever their background, and his natural leadership and organizing abilities. A cheerful, generous, outgoing person, he liked a party, enjoyed amateur dramatics and was an enthusiastic and accomplished jazz musician.

In 1983 he was selected for the post of Director, Battersea Churches Housing Trust, a charity concerned with housing the homeless. He was to prove just the man for the task. In the following 11 years the number of properties managed increased from just over 400 to 1500 with the organization's staff necessarily growing to 60 from the 14 when he joined. David achieved this expansion in a systematic and orderly fashion through a combination of new builds and mergers with other housing associations, notably Battersea Old Peoples Home in 1991 and Chelsea Housing Association in 1994, the latter resulting in the formation of The Battersea Churches and Chelsea Housing Trust (BCHT). Projects involving those with special needs, vulnerable young people in the local community, Asian women and other minority groups were all encompassed.

In 1994, David retired as Director, but remained with the Trust as Head of Fund-raising. He already had considerable experience in this activity and played a significant role soon after becoming Director, in launching The Friends of BCHT, a fund-raising charity. He also acted as Trust Secretary until only a few months before he died. While working in London, David had joined Battersea Park Rotary Club, serving for a time as President. It was his enthusiasm for the new clockwork radios which encouraged fellow Rotarians to set up a project which, with the help of people from Haslemere, managed to provide two dozen radios for communities in Africa.

David and Fay had settled in Haslemere in 1974. Despite undertaking what appeared to be a major rebuild of their own house, with concrete mixers and the like ever about, they somehow found time to take an active part in the local community. An indefatigable worker for the parish of Our Lady of Lourdes, of whose parish council he became a member in 1981. David instigated a parish census, started a newsletter delivery to every Catholic house in Haslemere which still continues, founded the youth club and led the steering committee for the building of a new church hall taking on the chairmanship of its management committee. He also gave generously of his time and energy, invariably in a leading capacity, to a number of local charitable organizations. Just three days before his heart attack, he had organized a large charity ball in Haslemere raising £2500 for the Haslemere Haven Trust and the BCHT. His local community and the people of Battersea have suffered a great loss by his untimely death.

David is survived by Fay, sons Gregory, Richard and Steven, daughter, Diana and four grandchildren.

JLB BRR MC-J PT

LIEUTENANT COLONEL WILLIAM SCOTT-MONCREIFF

Born 22 August 1922, died 29 August 1997, aged 75.

BILL Scott-Moncreiff came from a long line of soldiers and sailors – the "Czar's Punch Bowl" in the mess at Chatham was presented to one of his forebears, in appreciation of his advice in the 1880s over a huge irrigation project in Turkmenistan; and another was Director of Fortification and Works throughout the First World War.

He was a scholar at Glenalmond, and it is typical of his independent spirit that he achieved exemption from cricket, so that he could go bird-watching. He was commissioned into the Corps in 1941 and joined the Royal Bombay Sappers and Miners parachute squadron in time to take part in the bitter battle of Imphal. This and his later service left him with a deep admiration of Indian soldiers; a lasting satisfaction was a post-war recruiting tour through the Mahratta country.

Bill thought his 1948 supplementary course at Chatham noteworthy for two reasons: his selection for a degree course at Cambridge; and for the leakiest watering can made by anyone on the workshops course. (In those far-off days the Corps undertook Army works services world-wide, and officers had to do a project in each trade workshop.)

Following Cambridge and a spell in Intelligence at the War Office, he returned to regimental duty as a squadron commander in 35 Corps Engineer Regiment in Cyprus. During his tour, EOKA terrorist operations began in earnest, and he commanded his squadron with originality and panache. His largely national service soldiers were hard driven, but they respected his straightforward decisiveness, and appreciated his dry sense of humour.

Shortly after the regiment returned to Ripon, it was involved in the Suez operation and Bill was made responsible for its war role training. This was much more demanding than it sounds. For, at the same time as the national service soldiers were being demobilized, reservists were being called up. Many of these had left families and businesses behind. In these peculiar circumstances training had to be specially challenging and interesting. And personal problems needed firm but sympathetic handling. It is a tribute to Bill's imaginative and careful planning that morale remained high throughout the seemingly interminable wait for embarkation. He found it particularly galling when he was posted just before the regiment was deployed.

In 1962 he was a Grade 2 staff officer in Singapore when the Borneo operation began. He was chosen, at virtually no notice, as GSO1 of an ad hoc division sent to Borneo on operations. He carried out this demanding appointment with outstanding success. He later described it, with obvious relish and good humour, as the archetypical Staff College exercise – except that it was for real.

Despite this success, he decided to leave the Army and to join the Civil Service. He passed second into the Administrative Grade, and retired as the Under Secretary controlling the finance of the DHSS. A particular achievement was his defeat in a renowned court case of a multinational drug company, to the great benefit of the British taxpayer.

His friends rejoiced in his striking success in his second career. But it is mainly as a soldier that his sapper friends will remember him. For he was a good soldier: brave, decisive, able and straight. He was blunt and he did not suffer fools gladly. He sometimes made us smile

Lt Col William Scott-Moncreiff p70

wryly, but he was kind and a good friend; and our lives were enriched by his friendship. For those of us who knew him as a soldier, he passed the only test that matters: to the question, "would you go to war with him?" The answer was a resounding "Yes".

Bill married Rosemary in 1952, and our sympathy goes to her and to their two daughters.

JNH CHC

LIEUT COLONEL D H FLOWER OBE

Born 27 August 1939, died 9 July 1997, aged 57.

DAVID Flower joined intake 54B at the Army Apprentices School Harrogate in September 1954. Like many of his contemporaries, David took up sport in order to alleviate the spartan regime which prevailed at the time. He was a large man who swam, boxed, played rugby and soccer and any other sport available. His interest in swimming carried on in later years when he was manager and coach of a hugely successful 36 Engineer Regiment swimming and water polo team which won several Army championships in his time and produced many Army and Combined Services players.

An early clue to David's nature was in his boxing where, despite an obvious talent for winning, he was clearly loath to hurt or to humiliate his opponent unnecessarily. He endured much ribbing for this but he was not to be deflected from this caring and sensitive aspect of his character. Throughout his career he was a modest, rather taciturn man who was uncomfortable receiving praise. He was always a very gentle man but all those who knew him recognized that this masked a steely determination and principles that were not negotiable. The need for self-promotion was completely absent; the only motivator he needed was knowing that a job, to which he always committed himself one hundred per cent, was well done.

He entered the Corps in 1957 and after basic training and a cadre course gained promotion to training NCO. Thereafter, promotion came quickly through the ranks leading to his appointment as SSM of 10 Field Squadron (Harrier Support) and subsequently as RSM of 38 Engineer Regiment. After commissioning in 1979, he served with 3 Armoured Division Engineer Regiment, 50 Field Squadron (Construction), 23 Engineer Regiment, the Queen's Gurkha Engineers and, in his final posting in the Army, as QM of 36 Engineer Regiment. It was in this last appointment that David was given responsibility for the multi-million pound redevelopment of Invicta Park and the barracks' technical support facilities in conjunction with Kent County Council authority. For this and much else besides, he was appointed OBE on retirement from the Army in 1992.

In his retirement, David took up the appointment of RO2 G4 in HQ RSME, still treating his beloved soldiers with that same old mixture of respect and forceful insistence, and still leading with his shirt-sleeves-rolled-up, hands-on approach. His untimely death robbed the Corps of a unique character.

His wife Iris and his two sons survive him.

AWP IDTM CNG

Lt Col D H Flower OBE p71

COLONEL H GRATTAN CBE

Born 10 July 1903, died 9 October 1997, aged 94.

On 6 August 1952 Colonel Harry Grattan was appointed Chief Engineer (Special) for the construction of the new Headquarters BAOR at Rheindahlen. Two years later, in October 1954, the Headquarters moved in from Bad Oeynhausen. In the intervening time a virgin site had been converted to a complete township to which some 15,000 people moved without hitch from two "towns" of some 7000 and 8000 British and Allied servicemen and women plus civilian ancillaries. The 300-yard, three-storey main office block, with 2500 rooms, formed the main office accommodation and around it were located the 65 barrack blocks and over 1100 married quarters, complete with services including district heating and schools for 1200 children, NAAFIs and clubs. The resultant area, with its carefully preserved trees and plentiful gardens, bore the stamp of Grattan's sensitivity to the environment. The project had to be completed before Germany achieved sovereign status in order that the costs would remain a charge on German support costs as opposed to the British Defence budget, hence the need for speed.

This extraordinary achievement was the climax of the career, which had taken him round much of the world, of a man of many talents and wide interests. One of these talents was his ability to divine the presence of underground water. A full transcript of an address Grattan gave to the British Society of Dowsers in London on this subject in June 1956 was published in the *RE Journal*. In brief, in Rheindahlen, after much reconnaissance all over the area, both on horseback and on foot, Grattan became convinced that it would be worthwhile to have thorough borehole tests made. Boreholes proved his theory when a sandwich of water-bearing gravel was discovered, at a depth of about 100 feet in an area of 30 square miles. Local waterworks were then constructed and 40 years later they are still providing one million gallons each day. The saving to the British taxpayer must be counted in millions of pounds.

Harry Grattan was commissioned into the Corps in August 1923 and went to India where, attached to the Bengal Sappers and Miners in Roorkee, he gained invaluable experience on numerous projects largely in the North-West Frontier region. Here he was able to indulge two of his abiding interests, polo and hill walking and climbing. On one occasion he made the epic marathon from Simla to Shali Peak in 10½ hours, a distance of 38 miles and a climb of 6000 feet. In the three years leading to the outbreak of war, as AGE, GE and finally as the CRE, he was involved in the reconstruction of Quetta after the devastating earthquake. On one occasion, while climbing, he captured a magnificent mountain goat causing great consternation when he introduced it to a dinner party back at Quetta. One of Grattan's most useful engineering achievements before the war was his siting of a string of small airfields in Burma. He toured the area in 1929 and in 1930, planning the layout of coastal airstrips at Chittagong, Moulmein, Akyab and Rangoon. These airfields were used by Amy Johnson in her record flight to Australia.

On the outbreak of the Second World War Harry Grattan was posted to Roorkee, to the Bengal Sappers and Miners. In 1940 he took his unit into the deserts of Eritrea with *Gazelle*

Force, repairing bridges and building roads during the advance to Keren and the highlands. Tom Beaumont, a wartime sapper who served under Grattan at this time, wrote: "Harry was the complete master of every situation and of every man under his command, and yet he was colossally good fun. My respect for him is untranslatable into words". Later Grattan served in *Paiforce* and reconnoitred the desert territory between Iraq and Saudi Arabia. Having applied for service in Europe in 1940, Grattan was eventually given a UK posting in 1944, but even so he did not see any active service in Europe. Instead he served as CRE Kineton in charge of the construction of ammunition depots.

After the war the now Lieutenant Colonel Harry Grattan filled CRE appointments in Gibraltar, the UK (Hampshire) and in Minden before being selected for the Rheindahlen project. He remained there until 1955 when, after a brief posting to Lubbecke, he realized that nothing more that he might be offered would match Rheindahlen for job satisfaction and he took early retirement and settled near Beckenham, Kent. Almost immediately his abilities were employed by the Wellcome Foundation whose Chief Engineer he now became. Appropriately for him one of the Foundations many activities included keeping 600 horses in "pampered luxury".

Among Harry Grattan's many talents, very much central to his life, was painting, begun as a boy and continued into old age. He was largely self-taught and was first hung at the Royal Academy in 1945. Those who knew his work and were themselves connoisseurs would agree that he might well have become a Royal Academician had he chosen painting as a profession.

In January 1934 he married Vera Schofield and is survived by her, two sons, four grandchildren and four great-grandchildren.

JMHL APL LRD JIGC

Memoir in Brief

A brief memoir is published below on a distinguished man whose death was notified recently in the national press and who served in the Corps as a national service man.

Sir Peter Hunt, Chairman and Managing Director of Land Securities, was a national service Sapper who had qualified as a chartered surveyor before being commissioned into the Corps. After national service his career had been entirely in the property business, starting in an estate agency firm and moving to commercial development in the 1960s. He became Chief Surveyor to Land Securities in 1973 and Managing Director in 1978. He retained his affection for the Corps throughout his career and had given generous and effective support to the Royal Engineers Museum Foundation. Amongst his other interests was the Central London Housing Trust whose business is to provide sheltered housing for old people.

Sir Peter Hunt died on 8 December 1997 after heart surgery which he had deliberately postponed in order to be able to attend the National Service Reunion weekend last October.

Correspondence

IS A NATIONAL VOCATIONAL QUALIFICATION (NVQ) IN CONSTRUCTION PROJECT MANAGEMENT WHAT YOU NEED?

From: Major C N D Capel MIPD

Sir, – As the author of the above article in the December 1997 edition of the *Journal*, I was interested to read a letter from Captain A J Slee, in the same edition, advocating that the Institution of Royal Engineers capitalize on the "latent value in Sapper training which puts ex-Sappers above the rest in engineering management". The resonance between the two items is intriguing.

Captain Slee may be interested to know that, in line with Army policy, the Engineer in Chief (Army) directed over a year ago that arrangements be made to gain the fullest possible national recognition for the skills, knowledge and professionalism of all members of the Corps of Royal Engineers. In particular, Brigadier McGill wished this to be achieved by providing Sappers with opportunities to gain NVQs in construction, engineering and other appropriate occupational areas, in addition to the more traditional forms of vocational, academic and professional accreditation.

The army's rationale for introducing NVQs is that they will:

- enhance **recruiting** by ensuring that soldiers can keep up with their civilian peers, who have NVQ opportunities at college and in employment;
- improve **retention** by encouraging soldiers to re-engage to enable them to complete an award or gain another at a higher level;
- aid **resettlement** by ensuring that soldiers can compete with civilians in the employment market on equal or better terms.

NVQs also have certain inherent advantages for employers and training organizations. These include the fact that they:

- do not usually involve candidates in costly extra courses or classroom activities;
- are assessed in the workplace, minimizing disruption and lost productivity;
- often attract government funding, which other vocational qualifications seldom do.

In a parallel initiative, Royal Engineers personnel are being nominated to join the Industry Standards Council policy and working groups responsible for developing new NVQs and revising old ones (each NVQ has to be replaced or re-accredited every three to five years). This should ensure that, in future, NVQs of interest to Sappers will be developed with the active participation of the Royal Engineers.

Other developments include plans for a continuing professional development record for Sappers, possibly incorporating the EC EuroRecord compendium of standard engineering competence terminology, and the likelihood of a trial of an electronic NVQ portfolio development and assessment tool with an RE Troop Commanders' Course. We shall also be seeking to extend the range of professional body memberships open to Sappers.

I hope that the information given above will reassure Captain Slee and other readers that the formal recognition that he (and I) believe Sappers deserve for their competence and achievements in engineering management – and a whole host of other fields – is on its way. No doubt the Institution of Royal Engineers will have a part to play in this process. As it is, I am most grateful for the help and support that I have had from HQ Engineer in Chief (Army), from HQ Royal School of Military Engineering and its Construction and Combat Engineer Schools, from RHQ RE, from other parts of the Sapper domain – both regular and territorial, and from my colleague, Mrs S Woolford.

In closing, may I respectfully point out that the Corps in which I had the honour to serve was the Royal Army Educational Corps (until it became the Educational and Training Services Branch of the new(ish) Adjutant General's Corps). There never was a Royal Army Education Corps. Yours faithfully – C N D Capel.

ALEXANDER CORDELL

From: John M Corbett FRICS

Sir, – With reference to the "Memoir in Brief" on page 272 of the December 1997 *Journal*, I worked with Alex at Abergavenny, in the Area Works Office, Wales, of the WD Works Organisation and later in the Ministry of Public Building and Works in Wales between 1962 and 1969. "Alexander Cordell" was a nom de plume. His name was in fact Alexander C Graber and it

would have been under that name that he served in the Corps and later as a civilian quantity surveyor in RE Works Services in the office of Chief Engineer Wales District at Abergavenny. I have always understood, although I am not sure of this, that the initial "C" of his middle name stood for Cordell and that he had adopted his two christian names as his pen name.

Alex's best known novel is "Rape of the Fair Country" I think. Later ones are "The Hosts of Rebecca", "Song of the Earth", "The Sweet and Bitter Earth", "Land of my Fathers", etc and I understand he was engaged on a book about Owain Glyndwr and an autobiography at the time of his death. He was not Welsh but had fallen in love with Wales during his time at Abergavenny and spent his life from 1945 to his death, in the Principality, living successively at Abergavenny, Chepstow and Wrexham. He took the history of coal mining and iron working and the Industrial Revolution in the South Wales valleys as subjects for many of his novels. There are about 20 of them. – John M Corbett.

OLD CHESTNUTS TOSSED ACROSS THE POND

From: Major M A Napier MSc FICE FIMechE

Sir, – Lt Col Zimmermann's article *Old Chestnuts Tossed Across the Pond* makes interesting reading for me, and I hope for others as well, since 23 years ago in March 1975 the *Journal* published my article covering much of the same ground.

It is worth speculating on whether other authors will still be forecasting that this should be the way ahead in another 23 years time! Yours faithfully – M A Napier.

50th Anniversary Articles

The Editor of the *Journal* would be pleased to receive for consideration, articles from anyone who took part in projects during the aftermath of WW2, or have something interesting to relate of happenings during the year of 1948, with a view to their publication on or near to the 50th anniversary of the event. Accounts of later events are also welcome as they can be kept for publication in the appropriate issue,

Reviews

BRITAIN'S TRIUMPH AND DECLINE IN THE MIDDLE EAST
MILITARY CAMPAIGNS 1919 TO THE PRESENT DAY
WILLIAM JACKSON

Published by Brassey's, 33 John Street, London, WC1N 2AT – Price £30.00
ISBN 1 85753 123 X

THIS book is a sequel to General Bill Jackson's earlier work which considered operations in the Middle East from 1798 to 1918. It covers the period 1919 to the Gulf War.

The first chapter, "Mandates, not Empires", covering 1919 to 1939, deals with the problems arising from the demise of the Ottoman Empire and the United States wish for self-determination of ethnic groups rather than colonisation. Britain took on the Mandates of Palestine and Iraq and it is intriguing to see the part played by Winston Churchill, then at the Colonial Office, in bringing about the RAF command in Iraq so reducing the commitment for a land force. The success of the experiment led to the full independence of Iraq in 1932, Britain retaining just two air bases in the country. Throughout this period, Palestine remained a problem resulting from Arab resentment at the Jewish settlement. The situation was exacerbated by Hitler's anti-Jewish pogroms in Europe leading to an increasing flow of Jewish immigrants, the Italian invasion of Abyssinia and bursts of fascist propaganda. Attempts to partition Palestine were rejected by all parties but these problems were dwarfed as World War Two approached.

The second chapter (1940-41) is concerned with the defence of Egypt and the successful operations against Mussolini's forces in both the Western Desert and Abyssinia. The reader is taken through the remarkable series of battles in which one British, one Indian and one Australian division defeated some 15 Italian divisions and drove the Italians out of Cyrenaica and to the borders of Tripolitania. Further advance was frustrated by orders from Churchill to divert forces from the Western Desert to the ill-fated operations to support Greece against the German invasion. But for this, the author suggests that Tripolitania might have been quickly over-run by our forces and the tide of war in that theatre changed decisively. The successful operations to overcome some 250,000 Italian troops occupying Abyssinia, with Indian divisions leading the attack from the north while one South African and two African divisions attacked from the south are then covered.

The third chapter (1941-42) is concerned with the defeat of Hitler's attempt to secure the Suez Canal and Wavell and Auchinleck's difficulties in the Western Desert with the competing demands from Greece, Crete and, eventually Singapore.

Montgomery's subsequent successes were in no small part due to the reinforcement of American tanks which he received. With them, came American engineers to improve Red Sea ports for the arrival of lend-lease supplies. A United States Middle East Air Force had also arrived in the theatre and one of the more fascinating aspects of the fourth chapter is the effect of American policy in the area and its influence on current relationships between Israel and Egypt.

In the penultimate chapter, the reader is reminded that good relations between Britain and America were quickly re-established after the Suez operations, one reason being America's need to learn from Britain's experience of the area. Among the many events covered are the role of Aden after the departure from Suez, the rebellion in Central Oman, British intervention following Iraq's threat to Kuwait, the civil war in Yemen and its effect on Aden, the Radfan operations and the eventual withdrawal from Aden, the six-day Arab-Israeli war and later the Yom Kippur war, the effect on the Arab world of an 800 per cent increase in the price of oil leading to the funding of international terrorism and finally, the American efforts to secure an Egyptian-Israeli peace treaty.

In the final chapter, the Gulf War is presented in the context of the ascendancy of Muslim Fundamentalism, particularly in Iran, the long-drawn-out Iran-Iraq war and Western support for the traditional regime in Saudi Arabia. It is suggested that Saddam Hussein's one mistake was to stop on the southern border of Kuwait and not advance to secure the oilfields of Saudi Arabia. The details of the build up for the Gulf War remind readers of the considerable logistic effort provided, resulting in a land battle which lasted

only 100 hours. After the cease fire, for very good reasons, the coalition forces did not advance on Baghdad and Saddam survived. As the author says, this could prove to have been an expensive mistake!

For anyone with an interest in or who has served in the Middle East, this book is compelling reading, thanks to the most thorough research and scholarship of General Bill Jackson.

PCS

THE DERVISH WARS

ROBIN NEILLANDS

Published by John Murray, 50 Albemarle Street, London – Price £19.99 – ISBN 0-7195-5631-7

ROBIN Neillands' "The Dervish Wars" is compelling reading: his style is attractive and the story is fascinating. He describes Britain's takeover of Egypt and the subsequent campaigns fought by the Victorian army in the Sudan between 1880-1898. Sappers feature strongly, with Gordon and Kitchener centre stage. There are also fascinating glimpses of others, perhaps not so well known. Nevertheless, distinguished Royal Engineers such as Lieutenant General Sir Gerald Graham, a tough campaigner who had won the Victoria Cross leading an assault on the Redan at Sebastopol, Colonel Sir Charles Wilson, commander of Wolseley's famous Desert Column in the Sudan, and Lieutenant Percy Girouard, who was responsible for the construction of the Sudan Military Railway, are all given recognition. Neillands develops fascinating descriptions of the main characters involved. He weaves them skilfully into his accounts of the politico-strategic level and the graphic portrayals of the bloody pitched battles of Abu Klea, the Atbara and Omdurman against the legendary "Fuzzy-Wuzzy" Muslim warriors of the Mahdi. It is gripping reading from beginning to end.

The book begins with the story of how Britain, at that time the most powerful country in the world, became involved in the Sudan which was perhaps "the poorest and least attractive place on the planet". The author quickly introduces Gordon, together with a chapter on his opponent, the Mahdi. General Gordon's career in China is mentioned, followed by a description of his first period in the Sudan from 1874-76 when he worked tirelessly, with Christian zeal, to rid the country of slavery. Neillands' descriptions of Gordon's character, selfless bravery and somewhat eccentric ways make moving reading, particularly for any junior Sapper officer who has only a superficial knowledge of the facts and legend surrounding that extraordinary leader. It culminates in the tragic circumstances of Gordon's death at Khartoum.

The various campaigns during the period are covered well, climaxing with Kitchener's successful reconquest of the Sudan. Reading the chapter on his advance on Omdurman, I was reminded of some of the principles that Montgomery followed when commanding the Eighth Army in Egypt some 45 years later. "Kitchener would advance only when his supply lines had been secured and he refused to be rushed ..." By contrast to his description of General Gordon, Neillands is not so complimentary overall about Kitchener's professional ability. Nevertheless, Kitchener "like Gordon before him was the man of the hour". He was feted in London and was appointed the first Governor-General of the Anglo-Egyptian Sudan, as one of his many rewards.

This book can be recommended to a wide readership, but above all perhaps it should be compulsory reading for all officers on joining the Royal Engineers' Troop Commanders' Course. It is a classic tale full of ruthlessness and gallantry with the supreme example set by General Gordon as a central feature.

RJDR

PIONEER BATTALIONS OF THE GREAT WAR

K W MICHINSON

Published by Leo Cooper, Pen & Sword Books Ltd, 47 Church Street, Barnsley, S70 2AS – Price £21 – ISBN 0 85052 566 7

PIONEER battalions were used as divisional troops to add depth to the capability provided by the divisional field companies Royal Engineers. They were also trained as infantry and so had a double utility, but the decision to form such units was dogged by protest, argument and vested interest. No regular regiments provided battalions for conversion to pioneers, they all came from the Territorial Force and the New Army with the exception of the Guards Division, who did things their own way and formed their

pioneers from a reserve battalion of the Coldstream Guards. 5 London Regiment (the London Rifle Brigade), a prestigious territorial battalion, enlisted all kinds of assistance to ensure non-conversion. Some pioneer battalions formed as such, for example 16 RIR whose history I have recently reviewed, whilst others converted from fighting battalions; there was obviously some stigma attached to being a pioneer battalion and this attitude persisted well into the war even when fighting battalions had sustained huge casualties relative to the pioneers. But, by 1916, every division in the BEF, some 68 in total, had such battalions.

The life of the pioneer infantryman was one of unremitting heavy work and strain. Almost always lousy, many in indifferent health, men were usually exhausted when working in the line, and fear of being bumped by a German patrol whilst working in no-man's-land exacerbated this. Discipline was harsh, even for petty misdemeanours; drunkenness was common, and stoppages for altering uniform, losses of personal equipment and barrack damages were draconian. Pay was 1p a day more than the infanteer's shilling but 3p less than a sapper. Although battle casualties were not heavy in comparison with assaulting infantry the pioneers usually spent more time actually in the battle zone. Supporting their parent division, they helped consolidate and clear up after an attack and were often redeployed.

Most battalions cut their teeth on the Somme but by the time of that battle some of the conversions already had distinguished records. Up to 1 July 1916, pioneer battalions were mainly employed on wiring, opening up Russian saps and establishing dumps for engineer stores and ammunition. Once the battle started, many units were involved, often as normal infantry. Typical tasks for the pioneers were constructing drainage and log/sleeper roads to move the artillery forward, reinforcement of dugouts and clearing the battlefield of useful debris. Often they acted as stretcher bearers and buried the dead.

When the Germans launched their offensives in March and April 1918, many pioneer battalions who had protested against conversion got their chance to prove their worth and fought to a standstill alongside their conventional brethren. One example among many; 22 Durham Light Infantry sustained 414 casualties within four days of the offensive opening, were then redeployed to Chemin de Dames, and were then reduced to a company strength in the April attack, losing a total of 320 killed in the offensive. Surely very much fighting infantry?

There is no doubt that this is a *magnum opus* by the author. It is not a light read and I found it hard going in places. That said, it is full of well-researched detail, much of it from Pubic Record Office material, particularly unit War Diaries. It tells an unglamorous story in great detail and the largely unsung pioneer battalions deserve the record. I was particularly struck by the petty application of military regulations amidst the huge waste that was the First World War. Anyone reading the book and finding the tale of the two hammer handles will see exactly what I mean.

MDC

THE KASHMIR RESIDENCY

EVELYN DESIRÉE BATTYE

Published by BACSA (Secretary, Theon Wilkinson, 76½ Chartfield Avenue, London SW15 6HQ) – Price £9
ISBN 0 907799 59 0

THIS little gem of a book not only describes the glamorous lifestyle of a PA to the British Resident in Kashmir in 1939/40 with accounts of viceroys and maharajahs, garden parties and receptions, but it also covers every facet of that magical country – the mountains and valleys, lakes and waterways, the Mogul gardens, the poor but clever and artistic people, the colourful birds, butterflies and flowers. Travels to Sialkot, Lahore and Quetta bring in the fondly remembered prewar India of ayahs, munshis, romance and marriage to a distinguished Sapper officer.

The troubles in Kashmir today are the direct result of the greedy and short-sighted policy of the East India Company who sold a Muslim state to a Hindu maharajah for a crore of rupees. There are renewed hopes that a solution may soon be found to the bickerings between India and Pakistan so that the unrivalled beauties of Kashmir may once more be open to the rest of the world.

Till then this book, which would make a wonderful present to all those who remember Kashmir as it used to be and their children who have heard so much about it, will certainly whet our appetites.

WGAL

MAJOR & MRS HOLT'S BATTLEFIELD GUIDE YPRES SALIENT

TONIE AND VALMAI HOLT

Published by Leo Cooper, Pen & Sword Books Ltd, 47 Church Street, Barnsley, South Yorkshire, S70 2AS – Price £14.95 ISBN 0 85052 551 9

MANY will be familiar with the Holt's guide books and this is in the same style, very well presented with colour photographs and sketch maps, including a separate folding map. The book opens with an historical summary and the rest of the story of the battles in the Salient can be picked up from the description of the three suggested tours. These are very precise as to which route to follow, where to stand and so on and as the tours unfold anecdotes are given about the principal events. Quite rightly there is a good deal of emphasis on the memorials and cemeteries of war graves which abound in the area but this is offset by the vivid sketches of life in the trenches. A book such as this is essential to any casual visitor to what can be a very confusing area – and this is a skilful distillation of the wisdom and experience of acknowledged experts.

GWAN

BRITISH BATTALIONS IN FRANCE AND BELGIUM, 1914

RAY WESTLAKE

Pen & Sword Books (Leo Cooper), 47 Church Street, Barnsley, South Yorkshire, S70 2AS – Price £21.95 – ISBN 0-85052-577-2

THIS is a follow-up to "British Battalions on the Somme, 1916" and "British Regiments at Gallipoli"; accurately researched books of reference giving details battalion by battalion of the units which took part in the campaigns. The books do not attempt to produce a history although in this case there is a pictorial summary taken from Arthur Banks' "A Military Atlas of the First World War", recently reviewed in the *Journal*. The format is a series of month-by-month notes charting the movements and actions of each battalion. Each entry also contains vignettes of personalities and quotations which add colour to the stories. The book will be of particular value to researchers and those many members of the public wishing to trace the activities of a particular unit for reasons of some family connection, without having to search laboriously through other records and histories.

GWAN

KHAKI DAYS

LEN WALLIS

Privately produced by Len Wallis to commemorate the 250th anniversary of Military Survey. 95pp, softback, A5. £5 from: The Cottage, Heath Lane, Felmingham, North Walsham, NR28 0BJ Profits to RE Benevolence.

THIS is a personal story of the author's postwar career in RE Military Survey starting at the Duke of York's School. His career then took him from apprentice training in Harrogate to all corners of the World: Iraq, Christmas Island, Africa (both East and West), Cyprus, Borneo and even Hermitage. His experiences, recalled with amazing detail, are told with humour and tolerance for all the trials and tribulations of soldiering in the dwindling Empire and will find a ready response from anyone who has lived through those times. Those who have not will marvel at the opportunity and responsibility given to young soldiers in Military Survey as they tramped the globe in an activity now overtaken by technology. Thank goodness Len Wallis has taken the trouble to record his story and to do so in such readable style.

GWAN

THE MACMILLAN DICTIONARY OF THE FIRST WORLD WAR

STEPHEN POPE AND ELIZABETH-ANNE WHEAL

Price £14.99, ISBN 0 333 68909 7

THE MACMILLAN DICTIONARY OF THE SECOND WORLD WAR

ELIZABETH-ANNE WHEAL AND STEPHEN POPE

Price £14.99, ISBN 0 333 68910 0

Published by Macmillan Publishers Ltd, 25 Eccleston Place, London SW1W 9NF

These are softback editions of previously published works and are of excellent value, for they are very wide-ranging and informative. "The First World War", with over 1200 entries, covers not only summaries of the battles, brief biographies

of key personalities both military and civilian and broad descriptions of the main weapons and equipment, but also includes the principal strategic, political and social issues. The 1600 entries in "The Second World War" are given similar treatment. Even for such solid volumes there are omissions which some might criticise. For example, there are few biographical entries below four-star. Nevertheless the entries do manage to include a wealth of colourful titbits as well as the dry facts. A system of cross-referencing makes it easy for the weak minded browser to be led inexorably astray although, apart from the maps, there are no illustrations. There are outline chronologies at the end of each book; in the case of "The Second World War" these are presented in appendices by theatre and, where relevant, also include the main events in the decade leading up to 1939.

GWAN

Explanation of Abbreviations and Foreign Words Used in This Journal

2IC ..... 2nd in Command
ACF ..... Army Cadet Force
ADMINCON ..... administrative control
AGE ..... Assistant Garrison Engineer
AVRE ..... armoured vehicle RE
BAOR ..... British Army of the Rhine
BEF ..... British Expeditionary Force
CO ..... commanding officer
cm ..... centimetre
Cpl ..... corporal
CRE ..... Commander Royal Engineers
CSM ..... Company Sergeant Major
DCRE ..... Deputy Commander RE
DGFVE ..... Director-General Fighting Vehicles Establishment
DHSS ..... Department of Health and Social Security
Div ..... Division
E&M ..... electrical and mechanical
EinC ..... Engineer in Chief
Engr ..... Engineer
EO ..... equal opportunities
EOKA ..... Ethnike Organosis Kupriakou Agonos (loosely translated as: National Organization of Cypriot Struggle)
ERLO ..... Engineer Recruiting Liaison Officer
etc ..... et cetera
FARELF ..... Far Eastern Land Forces
Fd ..... field
FoREM ..... Friends of the Royal Engineers' Museum
ft ..... feet/foot
GE ..... Garrison Engineer
GHQ ..... General HQ
Gp ..... group
GSO ..... General Staff Officer
HQ ..... headquarters
HM ..... His/Her Majesty
hr ..... hour
HRH ..... His/Her Royal Highness
i/c ..... in charge
ie ..... *id est* = that is
IIP ..... investing in people
Indep ..... Independent
JNCO ..... junior non-commissioned officer
JO ..... Junior Officer/s
kph ..... kilometres per hour
km/s ..... kilometre/s
LCpl ..... lance corporal
Lt ..... lieutenant
Lt Col ..... lieutenant colonel
MACC ..... Military Aid to Civil Community
MAMC ..... Military Aid to the Military Community
MELF ..... Middle Eastern Land Forces
MEXE ..... Military Engineering Experimental Establishment
m/M ..... metre/million
mm ..... millimetre
MOD ..... Ministry of Defence
MRE ..... Meals Ready-to-Eat
MVEE ..... Military Vehicles Engineering Establishment
NAAFI ..... Navy, Army and Air Force Institute
NCO ..... non-commissioned officer
No ..... number
OC ..... officer commanding
OPCOM ..... operational command
OPCON ..... operational control
OR ..... Other Ranks
orbat ..... order of battle
PA ..... personal assistant
Pk ..... Park
plc ..... public limited company
PQE ..... professionally qualified engineer
PT ..... physical training
QM ..... quartermaster
RA ..... Royal Artillery
RAC ..... Royal Automobile Club
RAF ..... Royal Air Force
RCAF ..... Royal Canadian Air Force
RCASC ..... Royal Canadian Army Service Corps
RE ..... Royal Engineers
RHQ ..... Regimental HQ
RIR ..... Royal Irish Rangers
rly ..... railway
RN ..... Royal Navy
RSME ..... Royal School of Military Engineers
RTU ..... returned to unit
SDR ..... Strategic Defence Review
Sgt ..... sergeant
SHAPE ..... Supreme Headquarters, Allied Powers, Europe
SME ..... School of Military Engineering
SNCO ..... senior non-commissioned officer
SO1(V) ..... staff officer 1 (volunteer)
SOS ..... save our souls (a distress signal using morse code)
Sqn ..... squadron
SSgt ..... staff sergeant
SSM ..... squadron sergeant major
SVY ..... survey
t ..... tonne
TA ..... Territorial Army
TOPL ..... Training over Private Land
Tp ..... Troop
Trg ..... training
UK ..... United Kingdom
UKLF ..... United Kingdom Land Forces
UN ..... United Nations
US ..... United States
USAAF ..... United States Army Air Forces
(V) ..... (Volunteer)
VCO ..... Viceroy's Commissioned Officer
Wks ..... works
WOI/II ..... warrant officer class 1/II
WRNS ..... Women's Royal Naval Service
yds ..... yards
YO ..... young officer