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Editorial

THE author of "Engineering Versatility and the Corporate Culture" has led as full and varied a life as anyone could wish, the seeds of which were sown in his early career as an officer in the Corps. His theme of versatility draws upon his wide experience and knowledge of education, and of engineering in particular, and he uses it to underline those virtues and characteristics of engineers which make them so effective in military or corporate affairs.

Few engineers were more effective than Lieutenant Colonel By, whose virtues and characteristics were much needed in accomplishing so prodigious an undertaking as the construction of the Rideau Canal in Canada in the 19th Century. Sadly, Colonel By went unrewarded at the time by an ungrateful British government, more concerned that he had overspent his budget than by what he had achieved. The profile of Colonel By "A Man, A Plan, A Canal", reprinted from an article published in the *Ottawa Citizen*, is a story of versatility and leadership which epitomises the outstanding quality of our Victorian engineers.

The spirit of adventure knows no age limits, as two of the articles in this issue : "On a Green Hill Far Away..." and "Upside Down Mountaineering" so amply demonstrate. The former, a stirring adventure in the best traditions of British eccentricity, is based on a most improbable scenario: the transportation of a grand piano to a church in the deepest jungles of South America. No marks for guessing who was behind it all! An article on the same topic from another expedition member will appear in the May issue of *The Sapper*. It is also well worth reading. The second article, from another septuagenarian, describes an adventurous challenge which even a fit and strong under-35 year old would have thought twice about. Some of us can think of quieter ways of spending our retirement, but then we are possibly much the duller for it.

The First World War British generals have usually always had a bad press. "Black Adder's War – Not What It Seems" takes a different look at this much maligned body of men and is much more forgiving in its verdict than the populist view. This more sympathetic approach is also argued in the recently published book "The Great World War Generals" by Robin Neillands, a review of which is published in the Book Review section.

The RE Museum (which incorporates the Corps Library) is central to the heritage of the Corps. It has an outstanding collection, the display of which has been developing with new galleries and improved interactive features ever since it first moved to its present site in 1986. The security of tenure of the Ravelin building, which houses the Museum, has now been assured, under a new lease agreement, for the next 50 years. This underpinned the strategic review of the Museum, which has recently been completed, and at the same time gave impetus to establishing a business plan for the Museum's continued development over the next five to ten years. An edited version of the paper "The Review of the RE Museum" is published here so that members of the Corps and Institution are aware of what is proposed and what steps are already being taken to stimulate further interest in the Museum. As with all such enterprises, the bottom line is money. We owe the Museum our support, not only to keep alive the memory and the deeds of our predecessors, but also to inform young men and women in the Corps and the public at large of the history and heritage of the Royal Engineers.

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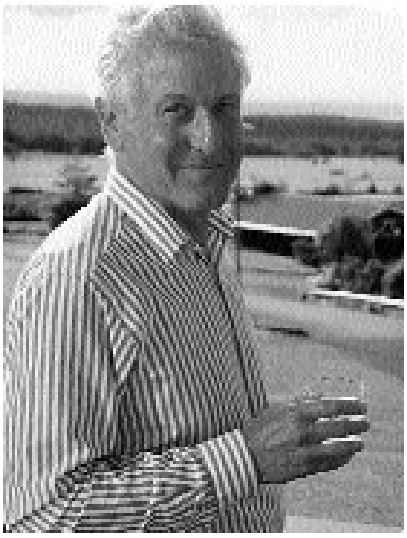
Contents

3500

Engineering Versatility and the Corporate Culture

PROFESSOR DAVID BRANCHER PHD FRSA



David Brancher enlisted as a sapper and joined the Engineering Cadet programme, which included Institution of Civil Engineers qualification and training with consultants, followed by Mons Officer Cadet School and Royal Engineer Cadet Squadron. After commissioning and various courses at The School of Military Engineering he was posted to Germany. He served as Garrison Engineer Minden and Lubbecke for two years, and then as Resident Engineer for the roads, water supply and married quarters at New Headquarters Rheindahlen. On leaving the Corps he designed motorway bridges, studied soil mechanics and taught structures, and then joined Bristol University to select students and teach architecture. Having carried out research and consultancy in the economic and political aspects of conservation, and gained a doctorate, he joined Her Majesty's Inspectorate, covering civil engineering and architecture. He was then director of a Nuffield Foundation project to develop the broader education of engineers, and chaired working parties on this subject at Unesco and the Council of Europe. He became a visiting professor with Unesco, with assignments which took him around Europe and to India, Venezuela and Egypt. He returned to university teaching as professorial director of studies, leaving in 1983 to join the Engineering Industry Training Board as its Education Adviser. His final move was to set up and direct the Partnership Trust, a charitable foundation whereby industrialists and others could stimulate the improvement of university teaching. He has written plays and had his poetry published. Now living in South Wales, his hobbies are early music and acting – specialising in farce for which, he says, his career has provided ample preparation.

THE Director of Human Resources of a large manufacturing group was asked what industrialists looked for in their graduate recruits. "It depends on the level you ask" he said. "If you consult one of our line managers you will be told that what is required is a graduate who can get on immediately with supervisory tasks, without asking too many questions and without needing too much induction. The implication is that a broad interest in other functions, and the wider issues, is of little value and largely unwelcome. That is all very well" he continued "but graduates like that are a big problem for me, later on. All too often they are virtually unpromotable, and difficult even to move sideways."

The observation was offered to me when I was directing a project to develop a broader education for engineering students. Some years later the Colonel of an infantry regiment made a similar point in discussing the selection of young officers from Sandhurst. The underlying issue represents an eternal problem in any field of recruitment, and not only in engineering or the military. It resonates also in questions about the culture of the employing body, in an age where change is rapid and potentially devastating. In many commercial and industrial situations survival depends on the organisation's ability to adapt.

More recently I gave a lecture to an audience of retired managers and professionals. It reviewed the challenges of rapid change for organisations of every kind, and for the individuals whose careers may have to switch direction several times in a working lifetime. At every level, versatility has become the key to survival. This opening set the background for a case study from the 19th century, also a time of tumultuous change. The audience was then offered a light hearted quiz, and asked to identify the link between the Royal Albert Hall, Rorke's Drift,

the Farnborough Air Show, the 49th Parallel, the development of the naval torpedo, the Channel Tunnel, the Fraser Valley gold rush and so on, and finally "probably the only 'equestrian' statue which features a camel".

But even Charles Gordon was no help. When each reference was explained, and the connection emerged, there was considerable surprise at the broad sweep of the corporate history and the remarkable versatility it displayed.

The purpose of the talk was not recruitment (although a few sons and nephews may be coming this way). It was to try to draw some conclusions from the history of the Corps which might inform our understanding of corporate versatility at the present time, and the ways in which it may be enhanced in any organisation.

The Roots of Versatility

THE first and most obvious point concerned the quality of education. The competitive entrance examination for the old Royal Military Academy – the Shop – taken at the age of fourteen, set the pace for what followed, in an establishment with tougher entry and exit standards than those at the Royal Military College (later Academy), Sandhurst. To 'get sappers' a Gentleman Cadet had to be in the upper part of the passing-out list, leaving others free to join the Royal Artillery (and after WWI, the Royal Signals). One might put a further gloss on the Shop education here and there – for example by claiming value for the time spent on sketching and languages. Be that as it may, the outcome was a young man well prepared for a variety of unpredictable duties in the far corners of the Empire.

For sappers, the Shop was followed by even more demanding education, as well as training. We will come back to the issue of engineering education and versatility below. But perhaps the practicalities of field sappering helped to develop more wide-ranging skills? A great deal of creative thinking involves making unobvious connections, rotating, inverting, reversing, and other intellectual tricks and manoeuvres. Many mental concepts have their physical correlates. Is it too much to suggest that local improvisation with spars, cordage, cables and anchorages, the lifting and moving of heavy and awkward objects in reduced circumstances and the launching and handling of boats, rafts and pontoons, has some formative benefit? There are many teachers of art, crafts and design, and others who believe in hand-brain connections, who would have no doubt.

The second factor offered for discussion was that of status and (dare it be mentioned) snobbery. Until Admiral Jack Fisher swept through the Royal Navy like a typhoon at the end of the 19th century, naval engineer officers had no proper career structure. They were not even allowed to eat with the 'real' officers. This lack of professional recognition may help to explain why the Admiralty turned to the Corps to develop the first marine torpedoes, helmet-and-dress diving, submarine mining and searchlight operation.

Of course, there was snobbery in the Army too, – massive snobbery. But here is the difference. The socially elevated and fashionable regiments might have to accept that the Royal Engineers were better educated and better paid (in Wellington's army in the Peninsular they received four times as much as infantry officers and twice the rate of artillery officers). They might not always have been aware of what the Corps was achieving in the wider world. The transformation of the rural economy in vast areas of India by Arthur Cotton, the regulation of the Nile by Colin Scott-Moncrieff, the part played by Moody and his sappers in the foundation of British Columbia, the achievements of Frederick Guggisberg in the development of West Africa and the reform of the English prison system by Edmund du Cane might all have passed them by.

Be that as it may, they could not overlook status which was *military* as well as economic and social. What registered was that the Corps had credibility in the core business of soldiering. It was to produce over fifty VCs and five field marshals, the commanders of several foreign armies, sixty colonial governors and three Viceroys of India. Its members could never be suppressed or patronised in the way that engineers seem to have been in the Royal Navy of the 19th century. They could never be put down by the top, because often they were the top. (In Germany in the 1950s I remember a cavalryman saying, when 'Splosh' Jones was appointed to command 7 Armoured Division, "Oh no, it's another damned plumber.")

All this leads to the second general conclusion: if an organisation is to accept innovation, it is essential that the innovators within it have status and credibility in the core business, and are not kept, with little influence, at the margins.

Then there is the question of conformity within an organisation. Kipling referred to sappers, in his poem, as 'Methodist, married or mad'. A few years ago, in the RE Museum, I was looking at some photographs with the Regimental Colonel of the time. There was one showing a group of young officers in a cantonment near the North West Frontier in the 1870s. Although apparently in uniform they were wearing an extraordinary range of garments and headgear. The Colonel observed "It's the same now. If two turn up in exactly the same gear one of them has to go back and change". Be that as it may, it is a reminder of something learnt more recently by business organisations which are dependent on innovation for their survival: creative people are sometimes highly individualistic, even mildly eccentric. Insistence on an unnecessary level of conformity, in matters of no central importance, is not a characteristic which one finds, now, in the corporate culture of highly innovative companies.

The final point to be made concerns leadership, and it need not be laboured in this journal. Someone inducted to an organisation where those in the senior levels have themselves tackled a wide range of duties and problems for which there was no established drill, is unlikely to protest that this or that task was not in the training. Where the corporate culture is one in which unusual situations are attacked with gusto, the culture – if it is treasured and looked after – will perpetuate itself through the generations.

Education for Versatility

When some non-vocational university studies are under criticism, they may be defended for their value in developing what their proponents tend to call 'The Generalist'. It is easy to be sceptical. When asked what might be inherently 'general' about the Hanseatic League or Anglo-Saxon poetry, the Punic Wars or the novels of Thomas Hardy, those involved are hard-pressed to state their case (even though others might make it for them).

Of course, the significance of vocational education can be questioned also. Would Jonathan Miller have been more successful in the theatre if he had studied drama instead of medicine? Would Rowan Atkinson have been funnier if he had chosen, say, psychology instead of a masters degree in electrical engineering?

As to the generalist, there are indeed people who have a special breadth of judgement and are, for one reason and another, able to turn their minds to a variety of problems, generate solutions and determine courses of action. But do they exist because of their education or despite it?

This raises an issue which is currently fashionable, and the concept of 'transferable skills'. The contention of this paper is that, whereas many skills are capable of transfer, the crucial factor is the skill of transferring. In other words it is the experience of *having* transferred a skill, not once but several times and into new circumstances, which carries the full value. Those who have been fortunate in having a wide-ranging career know that, however unfamiliar a new field may appear, there will always be perceptions, approaches and knowledge to call up and translate from earlier situations. It follows that education and training should at the least convey this message, and encourage students to look for the analogies; to reflect on them where they may be identified.

The Case for Engineering Education

Because the central issue in this paper concerns versatility let us set aside the question of whether engineering itself is well served by engineering education, and focus on the strengths that it may offer the generalist – the individual who is more ready than most to move into new fields and unfamiliar situations.

Unlike some types of degree course, which shall remain unidentified, engineering provides evidence of hard work and concentrated effort. It offers proof of applied numeracy. But what else? And what does it do for versatility?

An apocryphal tale picked up at the Massachusetts Institute of Technology gives one idea. It features a long room, in the centre of which is a pot of gold. At one end is a mathematician and at the other an engineer. The umpire sets the rules. Each will take it in turn to approach the prize with moves each of which must be half of the remaining distance. The mathematician protests that he will never get there and heads for the door. The engineer says "I'll get near enough".

The story was not intended to support the scientists who criticise engineers for a tendency to cavalier approximation. It is about problem definition: the goal is not to occupy the same spot as the gold, but to get to within arm's length. All kinds of specialty may lay claim to skills in cutting through complexity and finding the heart of

a problem, but engineers may have as good a case as any.

The common definition of civil engineering refers to 'applying the forces of nature to the use and convenience of Man'. A quite different description, dealing with skills rather than application, is concerned with modelling. *Model*, as an adjective, may mean smaller than reality, perfect or ideal. As a noun it can be iconic or symbolic, or a combination such as a conventional map. It may be purely mathematical, algorithmic, stochastic, descriptive, explanatory, predictive, dynamic or static, mental or tangible, complex or as simple and effective as the hydraulic analogy in explaining the principles of electricity. It may be used to display something, and it can be a toy (and all playing serves a serious purpose).

All of these characteristics of models have a value. The engineer's tendency to reach for or build a model of some kind is perhaps the most distinctive professional trait or all, and one which surprises the layman who thinks only of machinery and structures. One can remember colleagues trained in construction who led the way into the new specialty of traffic engineering, transportation and land-use planning armed with this model-building facility. One can remember others who taught production engineering and were frequently asked by medical researchers to study test results and derive dynamic models of physiological systems. The habit and skill of modelling must be a rich source of versatility in a fast-changing world.

Communication as Thinking

Recently the author was travelling by train and across the carriage, seated at a table, were two young men. Between them was a pad of squared paper and a calculator. Clearly, they were engaged in the solving of a problem. What interested this observer was that there was virtually no verbal conversation between them for long periods. And yet they were obviously in close communication, and conversing through sketches, diagrams, mathematical symbols and expressions, and brief calculations. Eventually they put down their pencils and exchanged a broad smile. They could only have been engineers.

Another anecdote is on the same theme. A PhD candidate was being examined on a thesis dealing with housing policy in the post-war years. Not surprisingly the discussion turned to the large-scale obliteration of residential streets to create space for tower blocks, and the effect this had on extended families, mutual support and informal welfare. The present author, as examiner, referred to these social networks and used the word *redundancy*. This would have been mischievous had he not known that the candidate was also an engineer.

Of course, language even between engineers can need interpretation. An American colleague in an education project was describing the management style of the head of his department. "Just the right amount of dither" he said. Seeing a baffled expression he explained that, in his line, *dither* meant deliberate perturbation. He gave the example of a marine gearbox and the incorporation of a vibrating device to assist gear-changing. The implication was that the judicious 'vibrating' of a department can keep it on its toes and ready for change.

When people suggest that engineers have poor communication skills, they reveal a limited understanding of what communication entails. And when they aim to do something about this perceived weakness, they reveal the limitations in their own grasp. They assume that the requirement is a little coaching. This might mean, say, demonstrating the overhead projector or flip-chart, and how to set out the paragraphs in a report.

Engineers may or may not need such coaching more than other kinds of graduate. But there is a far more important point buried in the discussion. There are great communication strengths in engineering which facilitate problem-identification and problem-solving. Such ways are beyond the reach of some other kinds of graduate. We must remember that the ability to communicate with sketches, symbols, diagrams, iconic models, graphs and charts, is above all an ability to communicate within oneself: to explore, to reflect and to understand.

What has been called *the mediating response* is illustrated by the remark "I'm not sure what I think until I say what I think." To an architect or engineer, the act of drawing, even of trying to draw, releases understanding and imagination in the same way. At other times the diagrammatic or graphical investigation of a situation or problem has a similar benefit. It can be a way of processing information and handling a wide range of circumstances, military or civil. The graphics

and symbols and diagrams, on sketchpad, flip-chart or VDU, are not mere tricks of presentation. They are *thinking* skills, with languages of their own, and they provide a grasp which is beyond mere words.

That said, the discipline of clear writing can be a revelation to oneself as well as to others. All too often, editing and boiling down a particularly wordy and obscure piece ends up showing one of three things. It may emerge that the difficulty in understanding the content is due to the author not having understood it either. It may show that the content is plainly untrue. Or it may turn out that the point is so trivial as to be hardly worth making. Learning to write clearly can change your life.

Prose has many glories, and some practical advantages. But, being essentially linear, it finds difficulty in handling phenomena, situations and proposals whose processes are simultaneous and interactive. It limits the perception and imagination of those who have no other approach. It forces a kind of reductionism on those who would pin this label on engineering and science.

It may be that the difficulties in communication between engineers and others are compounded, sometimes, by a lack of verbal facility in engineers. They arise more often, however, through the limited and narrow range of thinking skills with which non-engineers have to struggle to understand certain types of issue, situation or problem. It is because these arise in a multitude of circumstances far removed from engineering, that one may expect engineers to compare well in any contest of versatility.

But all is not rosy. There is sometimes a failing in engineers which is shared with other vocational graduates – the tendency to self-limitation. An architecture student came to the author a few weeks before his final examinations, to say that he was dropping out because he no longer wished to be an architect. It took some effort to persuade him that the degree in architecture did not prescribe or define his eventual career (he stayed, and took an exceptional First).

Many years earlier the author had a colleague who had left the army at the end of WW2 and consulted the careers adviser at his university.

"What is your degree?"

"Mechanical Sciences Tripos, sir."

"And what does your father do?"

"He's a Rural Dean."

"Well then, what about the Church?"

The tale may raise a giggle, but it is not about someone holding out the prospect of nepotism. It is that, having had a powerful education, one can follow a vocation, regardless of the subject.

We all know of young graduates who feel that all their effort would be wasted if they did not pursue the career which used, and only used, the subject matter they had grappled with for three years or more. No doubt this is a difficulty in attracting engineers to a Corps whose officers have to do many things, some of which appear, to the undergraduate or fresh graduate, as having little to do with an engineering degree.

Selection for Versatility

One does not have to be a cynic to accept that selection is a crude art and frequently goes wrong. There are many jobs for which the interview is likely to be unreliable and misleading, and where success in an interview is of marginal relevance. But there are others in which it is valid – those jobs where a good first appearance, modest articulateness, quick thinking under pressure and other qualities are everyday essentials. In these a good interview is valid.

Here we should leave aside the military virtues such as commitment, loyalty, decisiveness, determination, fortitude. These are matters for the RCB and Sandhurst, and general to all army officers. What might be the qualities special to the needs of the Corps? More precisely, how does one judge potential versatility? What can one do to separate the broad-gauge from the narrow, and find the versatile? Digging in the memory, and trying to avoid prejudice, this author can only offer three tentative suggestions.

It is wise to be wary of opinions and recommendations by academics. By the nature of their calling they pass judgements at the drop of a hat and are quick to do so. One has only to listen to the remarks at university examination boards to marvel at their courage and confidence. (More certainty can be attached to a verdict where it comes from someone with experience of the Corps and what it requires.)

The second thought deals with reflection. To transfer skills and judgement to a new situation one needs a readiness to look back on previous experiences and spot the lessons which are worth carrying forward. It is a warm and revealing part of an interview to test these powers of reflection by asking what broader lessons a candidate might have learnt from this or that

experience. It is not so much the lessons which are important, as the ability to reflect analytically and with honesty and humour.

And now the final suggestion in this compilation: a word of comfort for those with a tendency to apologise for a gut feeling. The fact is that we all make sense of this world, and attempt predictions, by using the bank of patterns which we hold in the subconscious. When we interview we assemble a variety of data – for example in stance and style of approach; appearance and facial expression; delivery of speech; the movement of the eyes; directness of gaze; smile and sense of humour; justifiable hesitation as well as quickness, and much else. Inevitably we compare the resulting patterns with those in the bank – the memories of individuals we have known, good and bad, successful and less so.

Of course there are the risks of unobservant prejudice; of choosing one's own preferred type; of being blind to unfamiliar ethnic characteristics. But provided the interviewer guards against these, and is in touch with young people and ethnic variation, pattern-recognition is not only a powerful tool. It is the tool which we cannot avoid using.

Those who have the advantage are those who have not merely played some part in selecting young people in the past, but have had the privilege of closely observing each individual's subsequent progress through the formative post-education years into a career. The familiarity with the development of many individuals over time enables the pattern-bank to be revised (and this is vital as we recruit more widely). It is this progressive revision which gives the interviewer's experience its validity.

Selecting for versatility, and nurturing it, is not easy. But it could hardly be more important in a Corps whose watchword might be *Aliquid* as well as *Ubique*: *Anything* as well as *Everywhere*.

"On A Green Hill Far Away ..." The Grand Piano Expedition 2000

CAPTAIN J MASTERS MBE

The author joined as a Chepstow boy in 1943 and from there went to one of the parachute squadrons in 6 Airborne Division. He was in the group that formed 9 Squadron when the division was disbanded.

In those far-off days I was very proud to be a member of the rugby team and a Corps player. Eventually, developing a sense of responsibility, I started up the career ladder; troop sergeant 33 Squadron, Squadron Sergeant Major 5 Field Squadron and Regimental Sergeant Major 22 Engineer Regiment. Commissioned, I served with the Junior Leaders Regiment before becoming Quartermaster 3 Field Squadron.

In the meantime, I became involved in the expedition world with Blashford-Snell, and eventually resigned to take up a job in Zaire in the medical supply service, a hugely challenging but wonderful job. The time spent in the Corps was perfect training for some really testing experiences.

Later I went on to Operation Drake*, Operation* Raleigh *and a youth venture scheme, named Fairbridge, which helped steer some fairly difficult youngsters towards better things.*

I have been sort of retired for ten years but am still expeditioning. Currently we are investigating travel by reed boats in South America and I leave for Bolivia and Brazil in May this year. By now I ought to know better, but!!

The Wai Wai Tribe

UNTIL recently a small community of 190 Amerindians of the Wai Wai tribe have lived at Gunns Village in a remote part of Southern Guyana. They are hunter gatherers who have established a symbiotic relationship with the tropical forest around them. They are deeply religious, gentle, shy people endeavouring to be as self-sufficient as possible. Travel to the outside world is limited to long journeys by dugout canoe and a lift on the occasional aircraft that may land at the nearby airstrip.

The Guyana Defence Force maintains a radio station at the village so that illegal incursions, mainly by gold prospectors, can be reported.

Recently a number of foreign scientists have shown a growing interest in the plants of the area, especially in the Acari Mountains nearby. However Guyana's Environmental Protection Agency is extremely cautious when issuing permits for research groups. Likewise the Ministry of Amerindian Affairs carefully vets applications to visit this restricted tribal area.

The Request and its Ramifications

SINCE 1988 the Scientific Exploration Society (SES) has, at the request of the Guyana Government, been carrying out projects in Guyana. During a visit to the Wai Wai in March/April 2000, Elessa, the tribe's priest, asked Colonel John Blashford-Snell if a grand piano could be obtained for their church. Although the Wai Wai could not play a piano they are musical people and it was felt they could soon learn.

Whilst consideration was being given to this request the Essequibo river burst its banks flooding Gunns Village. Major General Joe Singh, former commander of the Guyana Defence Force and the SES representative in Guyana, takes a keen interest in the Wai Wai's affairs, and alerted the Society to the fact that the Wai Wai were in a desperate state. Immediately funds were sent to enable a powerful chainsaw to be purchased and used to clear a site for a new village on higher ground. While this was happening the Millennium Copthorne Group, whose chairman, Mr Kwek Leng Beng, is a classical music enthusiast, kindly

agreed to provide a grand piano and BWIA West Indies Airways offered to fly it to Georgetown, the capital of Guyana. The project attracted much media attention and enabled the SES to gain sponsorship for many other items needed urgently by the Wai Wai.

THE TEAM

WITH backing from the *Daily Mail* and BBC TV an expedition set out on 17 October 2000 with a splendid grand piano, medical supplies, engineer equipment and educational materials. The team was led by Colonel John Blashford-Snell, Chairman of SES, and included Professor Yolima Cipagauta, a Colombian economist and the Society's Latin American representative, handicraft specialist Anna Nicholas, the eminent ethno-biologist Dr Conrad Gorinsky, Sgt Paul Busek, Royal Engineers, Dr Simon Richards, a piano-playing general practitioner, a *Daily Mail* photographer Mark Large and myself. The TV team consisted of David Goodale, who had spent many months with the Yanomane Indians in Venezuela, Karen Kelly and Stephen Foster. In Guyana they were joined by Corporal Karl Kerr and Lance Corporal Gmawale Sisdhannie of the Guyana Defence Force Engineer Battalion.

Map showing area covered in article.

THE AIM

THE aim was to deliver the piano, medical supplies and educational materials to the new village and teach the Wai Wai to play the piano. At the same time an assessment was to be made of the most urgent needs in order to make the village reasonably habitable before the onset of the rains in November.

PROBLEMS AND RESOLUTIONS

THE team's first problem arose when, just ten days before the off, BWIA discovered that their aircraft which flew between Port of Spain, Trinidad, and Georgetown, was too small to carry the piano in its carefully prepared crate measuring some 5ft x 5ft x 2ft 6in and weighing 800lb. However BWIA could still get it from England to Trinidad.

There was feverish activity at the SES Dorset base to find a means of lifting the piano the final leg of its journey to Georgetown. In the end a Skyvan was organized from Guyana to fly to Port of Spain to collect it on the day BWIA dropped it off there.

Piano on sledge being hauled to the river.

Then, BWIA learned that the piano must be on the ground at Port of Spain for at least 24 hours to clear customs, even though it was in transit. Frantically the packers in the UK brought their work forward and the piano was rushed to Heathrow to meet an earlier outgoing BWIA flight. Alas this aircraft had technical problems in Barbados and did not reach England until 24 hours later. By this time the SES Expedition Manager, Melissa Dice, was beginning to wish she had never heard of the piano! Still, after a dozen trans-Atlantic phone calls bureaucracy was overcome and the precious cargo was collected.

John Blashford-Snell and Jim Masters awaiting the arrival of the dugout canoe.

By this time it had achieved celebrity status in Guyana and was safely landed without let or hindrance.

Arriving at midnight on 17 October the team was greeted by a smiling Yolima who had flown in from Miami two days earlier to purchase rations and camp stores. "The piano has landed", she announced with obvious glee. It was with a feeling of enormous relief that John Blashford-Snell sank into his bed in the aptly named Sir Walter Raleigh suite at one of Georgetown's most historic hotels, the colonial style timber-built Cara Lodge.

At dawn Paul Busek and I, sweating profusely, were at a local timber yard to start constructing a very robust hardwood sledge on which to mount the piano for its overland haul. "I hope there are plenty of Wai Wai to help pull this", exclaimed Paul as he bolted up the solid structure.

Delivery

At 0500hrs on 19 October the expedition assembled and the Skyvan opened her huge rear doors to reveal "the beast" securely strapped in and ready to be flown where no piano has ever been. Two Brittain Norman Islanders joined the fleet and, as a great orange sun rose out of the Atlantic, the planes roared off like a military task force heading south over the endless unbroken jungle.

Two and a half hours and 350 miles later the massive Essequibo waterway was just a sinuous muddy river, barely a hundred yards wide, snaking through the forest below. Throttling back, the aircraft dropped through low cloud and ahead lay our destination, Gunns Strip. The 600 yards of yellowing grass appeared deserted, but as we circled, figures appeared running from the forest. The Wai Wai were there.

The Skyvan thumped down and, with her propellers thundering in

reverse, came to halt beside the Amerindians.

Not wishing to close down his motors in this remote spot our pilot was eager to be off again. The Wai Wai needed no second bidding and in a trice had the stores off and, following Paul Busek's stentorian orders, they lifted off the massive crate.

"Rather you than me" said the pilot as he waved farewell. Within minutes the plane had gone and silence reigned.

"Where is the new village?" asked John and the chief pointed to a distant hill. John then asked me to recce the route. I set off with the walky-talky and was soon crossing narrow creeks and climbing over great fallen trees. It was just like being a troop recce sergeant again and my mind flashed back 50 years.

On our way up the river to the new village.

Meanwhile Paul had got a team of braves and expedition members manning the pulling ropes and the sledge began to inch its way forward. It creaked but did its job well whilst the cameras whirred and the TV crew sweated along with the rest of us. Some alarming "twangs" and "pongs" came from within the crate and we kept our fingers crossed. By now the Wai Wai understood the meaning of "hands on, lift up!"

A mile of open savannah which had been a swamp when the SES was last there was now, fortunately, bone dry but full of foot-deep fissures; this grassland ended at a wall of jungle trees. The sledge crossed the grassland with ease. We then followed a track running through the jungle, crossed a thirty-foot wide creek bridged with logs, and more Amerindians arrived to keep up the momentum. At the old Gunns village, now almost a ghost town, a base camp was made in the thatch-roofed guesthouse known as "Roach Hall" in view of its other occupants.

The Wai Wai's new village, or Masakemari (the place of mosquitoes), was four miles up river and only partly built. There were two routes: the overland way through dense forest which was littered with fallen trees and bisected by numerous streams before it reached the 200ft high hill upon which the Indians were building their new home. This would be a safe but very slow route. Alternatively, there was the Essequibo, only flowing at a knot but dangerously low. Rocks and shoals made navigation hazardous and a set of rapids lay across its width that, although no great challenge for a lightly laden canoe, could be disastrous to a boat heavily weighed down with a grand piano. If the river fell further it might not be possible to surmount this obstacle. Rafts and boats were discussed and then we found a huge dugout, thirty feet long and five feet wide with a 8-horse power outboard, so the riskier upriver route was chosen.

It was planned to take a minimum number of people in the dugout but as she pulled away from the bank half a dozen Wai Wai women and children jumped aboard. Well, it was their canoe!

The rapid came up as we rounded the first bend and the motorman skillfully aimed at the centre of the main tongue of water running down between the black rocks in the centre. With full revs the motor was just strong enough to overcome the force of water and after a nail-biting minute we lurched out at the top of the drop off and sailed into calmer conditions.

Landing the women and children, the great canoe went on up river to an inlet. The air was thick with insects. Narrow and choked with

The piano in action.
In the background are the swings built by Sgt Busek.

vines and logs the inlet seemed impassable but flashing axes and cutlasses cleared the way as gas bubbled up from the depths of the coffee coloured water. Several times it was necessary to manoeuvre back and forth to negotiate bends.

Around the final bend a mass of Indian canoes blocked the creek but thankfully there was no shortage of help and soon the piano was being carried with the aid of long poles up the steep hill. Grunts and groans punctuated the oven hot air as the summit came into sight. The Guyanan flag was flying above a half built school. For the last leg the faithful sledge was used again. Now women, children and braves were fighting for a place on the drag ropes to pull the crate into the shade of the school's thatched roof.

The Guyanan Defence Force corporals shouldered their AK47s and started unscrewing the box. Everyone peered at the gleaming polished wood and brass fittings reflecting the afternoon's sun. As the elegant instrument emerged the Wai Wai stood in awe.

Now was Simon Richards' moment. He carefully removed the padding around the keys and hammers. Placing his fingers gingerly on the ivory keyboard he tried a few notes. The piano sounded all right and Simon struck up "God Save the Queen". It was an emotional moment. Simon spent three hours tuning the instrument to perfection. While this was being completed, two of the young Wai Wai guitarists watched Simon testing all the notes then sat down at the keyboard. To everyone's astonishment they began to play a passable duet, improvising as they went along.

Other Aims of the Expedition

In the days that followed Sgt Busek and I and the two Guyanan Engineers worked on the school walls and designed a water pumping system for the village. Using a satellite phone John had been able to order pump and pipes for the new water system, additional medical supplies, and spares for the chain saw.

The medical supplies were handed to the clinic and several patients treated. Conrad discussed herbal cures with the Wai Wai and recommended natural sources of malaria prophylactics. Simon also used his tuning forks to test some of the children, born without ears. He wanted to see if anything could be done to help their hearing but sadly this seems unlikely.

Hunting for Food and Lost Indians

A party of older Indians had gone to visit friends in neighbouring Surinam and as the river's water level was falling it was felt they might have difficulty in making the 100-mile journey back in a small canoe. So John and a party went with two young hunters, Aaron and Eligah, to take the the indians food and to tow them home. The journey took them through completely uninhabited territory with breath-taking scenery and rocks exposed in the riverbed showing ancient petroglyphs depicting animals and strange symbols. One especially fine design showed a jaguar attacking an anaconda and as a jaguar is often seen at this point by the Wai Wai it may depict something that actually happened in antiquity. The mysterious signs were recorded for further research by the Walter Rothe Museum in Georgetown.

As the Wai Wai had been so busy building the new village there had been little time to hunt and food was short. Aaron and Eligah used their powerful long bows to shoot iguana. They also killed a huge tapir that must have weighed 500lb, and several wild turkeys and large rodents named labba. They even caught a small caiman (alligator) alive with their bare hands.

John and Mark fished using a rod and landed eight piranha and fine farana in thirty minutes!

During a hunt at 3am, Karen had fallen asleep at the bottom of the canoe. As an alligator was approached they trapped a school of fish that leapt in panic into the canoe. Karen awoke with a scream as their slippery bodies wriggled all over her. Covering her mouth John hissed "quiet! You will disturb the alligator." Karen looked over the side into the red eyes of the reptile a few feet away. "And I was just a TV producer from Holland Park until I came on this" she muttered.

Alas, at the point where the older Indians were expected to be there was no sign of them. Eligah, whose father was one of the group, was concerned but after waiting sixteen hours it was decided to leave food and return to Gunns. Happily the Indians later returned home unscathed. John and his crew got a great welcome on their return. The tapir fed the entire village.

The Indians are conservationists and only hunt what is needed for food. Thus there is no shortage of game or fish. They also grow yams, cassava, bananas and other fruit and vegetables in forest clearings.

Mission Accomplished

THANKS to the efforts of Anna and Simon, who is also a choirmaster, a concert was arranged on Friday 27 October. The Wai Wai children gathered outside their school and, on this lovely hill surrounded by rain forest, a hundred voices sang. It brought tears to several eyes. A feast of curried tapir, a cassava cereal named ferrine and smoked fish followed before the expedition made its way back to Roach Hall. Next day a football match was enjoyed by all, in spite of the temperature being 93°F.

On 29 October the Skyvan returned and brought with it the supplies. A small generator was also left for the village and many other items needed to re-establish the community in their new home. The grand piano had been the catalyst that had attracted all this support.

As John Blashford-Snell said in his final briefing the "mission had been accomplished" and as Elessa, the Chief Priest had said, "God moves in mysterious ways".

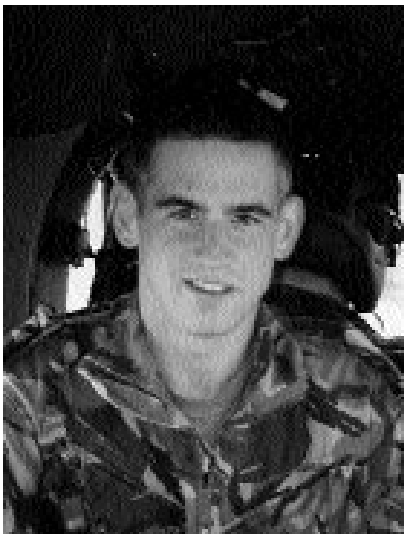
Editor's note:

The Scientific Exploration Society originated at RMA Sandhurst in 1969 to provide trekking for service expeditions. It maintains close ties with armed forces (especially sappers) worldwide and organizes challenging and worthwhile global projects. Further details may be obtained from: The Secretary, Scientific Exploration Society, Expedition Base, Motcombe, Shaftesbury, Dorset, SP7 9PB. Tel: 01747 853353. Fax: 01747 851351. Email: base@ses-explore.org. Website: www.ses-explore.org.

All photographs, except that of the author at the head of the article, were taken by Anna Nicholas.

The First Steps Towards the Demilitarization of Northern Ireland

LIEUTENANT J E FOSSEY BSc



Lieutenant Joe Fossey was educated at Collingwood School and Leicester University where he gained a bachelor of science degree in chemistry and german. Commissioned into the Corps of Royal Engineers in August 1998, he completed Royal Engineers Troop Commanders Course 122. Serving as a troop commander with 9 Parachute Squadron, he deployed on Operation Agricola *in June 1999, in support of 5 Airborne Brigade, and as part of the Roulement Engineer Squadron on Operation* Descant *from April to October 2000.*

As a result of the reforming of the Northern Ireland Assembly at Stormont in May 2000 and the progress made by all parties on the peace process, the Chief Constable of the Royal Ulster Constabulary, Sir Ronnie Flanagan, announced certain "normalization" steps. The first of these included the demolition of R16 hilltop site and the contracted removal of Cookstown base and Fort George in Londonderry. Although civilian contractors were tasked to close Cookstown and Fort George the nature and strategic position of R16 were considered too sensitive for them and Sappers were tasked with the job.

In April 2000, 9 Parachute Squadron deployed to Northern Ireland on Operation *Descant* as the Roulement Engineer Squadron. The squadron was configured to provide a search troop and two smaller troops that would be used for public order operations. 1 Troop was tasked with Operation *Reascend*, which involved both the demolition of R16 and the sustainability upgrade of the adjacent hilltop site, R14. Both of these sites are located on Cloghogue Mountain in South Armagh and overlook the Belfast to Dublin road and railway.

In this article I aim to highlight some of the lessons learnt whilst undertaking project management on a construction task in a restricted environment in terms of security and freedom of manoeuvre.

The Statement of Requirement

Due to the high profile and politically sensitive nature of dismantling one of the watchtowers in South Armagh whilst upgrading another, defining the exact nature of the Statement of Requirement (SOR) was of crucial importance. After some frantic planning the project (Operation *Reascend*) was split into three phases:

- **Phase 1:**
  Preparation of R16 patrol base for demolition.
- **Phase 2:**
  Upgrade the helicopter landing site (HLS) and install a new accommodation unit at R14.
- **Phase 3:**
  Demolition of R16 and associated landscaping.

The potential problems that would affect the successful implementation of Operation *Reascend* were as follows:

Movement of stores, personnel and equipment to site. Equipment was transported by road from Massereene Barracks, Antrim, to Bessbrook Mill, where it was off-loaded, rigged and the under-slung load fitted into the helicopter flying programme. Considering the weather, aircraft flying hours and the Armagh Roulement Battalion stores priorities, the planning involved when flying large quantities of engineer materiel to site proved a nightmare. As the work progressed, and unforeseen demands appeared, stores were moved by civilian vehicle to site. This required a robust approach from the junior RE troop commander who had to weigh up both the risks involved and the security implications and then justify his decisions to the Infantry Commanding Officer who owned the ground.

Security threat and level of protection whilst working in South Armagh. Any work carried out on site would potentially be close to the Forkhill Road to the North, and the Belfast to Dublin A1 road to the East, which meant that personal security and alternative security measures had to be put into place prior to work being carried out. (Not only were there health and safety issues, but whilst being employed on a demolition site there was, more importantly, a healthy understanding of the terrorist threat!)

The date for the handover of R16 to G4 Estates was initially set for 1 October 2000. However, variations to the original statement of requirement postponed that date until 8 October 2000.

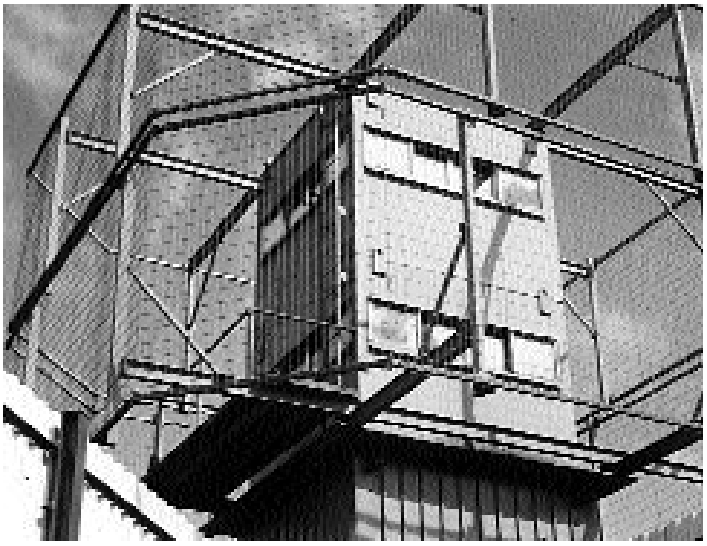
Scope of Work

Phase 1. With a media spotlight to contend with, Phase 1 of the task was potentially the most demanding. It involved removal of the R16 sangar rocket screens, much to the chagrin of the sangar occupants, and the installation of thick plastic sheeting on the existing mesh fence surrounding the base, thus securing the complex and preventing prying eyes from observing future work on site. Removing the rocket screens required a great deal of improvisation using cutting equipment on site. Underwater cutting equipment worked best in these conditions.

Phase 2. Phase 1 had been completed by 2 June 2000 but the demolition of R16 could not begin until R14 had been upgraded to house the additional troops required to cover what would be, in effect, the same area of operations. The intention was to enable R14 to become self-sufficient as it relied upon the R16 HLS for in-loading stores and rations. R14 was upgraded as follows:

- The construction of a 9m x 9m HLS (able to take Lynx, Puma and Wessex). The stores required for this job could only arrive on site as under-slung loads.
- The installation of three new security gates.
- The installation of an additional accommodation unit which had to be specially rigged by a team from the Joint Air Transport Establishment and flown in by Chinook.
- The construction of new walkways.
- The removal of reinforced concrete remnants of an old tower.

Phase 3. After 1RRF vacated R16 and withdrew to R14 on 16 July 2000, the main part of the project began in earnest. Before any demolition work could begin all the services had to be rerouted to allow R14 to become self-sufficient, both the water mains supply and high voltage electricity passed through R16's site. The troop was then able to attack the button-on-fencing (BOF) that surrounded R16, the generator building, sub-station and the mortar protection on the accommodation unit. Within two weeks most of the BOF had been removed and the 30-man accommodation unit (cube), which was made up of 29 separate metal structures encased in a protective layer of steel and reinforced concrete, had been exposed to allow the welders access to cut the joints using



Sangar and rocket screens.

Last structure to go – removing the R16 control and fighting sangars.

a variety of cutting equipment. Health and Safety implications when working in confined spaces and at height were an important consideration.

Work at R16 was on the critical path and due to the inclement weather was taking longer than expected. The low-loaders were having difficulty getting up the steep access road, which had very little in the way of drainage. Each accommodation unit cube weighed 29 tonnes and was removed from site by RLC driven civilian low-loaders. We faced difficulties with the availability of vehicles and drivers' enthusiasm for the task. It required a JNCO at the Long Kesh Administration Unit to monitor and encourage the turn-around times by cracking the whip when necessary.

After all buildings were removed at R16, the landscaping started. Some existing earth bunds had to be moved and used as fill whilst other areas required plant to achieve the site "aesthetics" that Defence Estates Northern Ireland required. A factor not taken into consideration was the composition of the bunds; when opened they were found to contain large-grade hardcore and associated electrical debris which caused problems with disposal through the existing civilian contract. To add a touch of normality to the site two farm-style gates and a wooden rail fence were built.

Lessons Learned

Operation *Reascend* was a demanding task encompassing the use of both construction and demolition skills in a politically sensitive area which attracted media attention. The task was completed on time and the following lessons learned:

- The SOR is a critical document and must be agreed promptly to avoid potential mission creep. Any additions to an existing SOR must be agreed and added as a variation to the task with an appropriate time penalty to the original completion date. All parties must have access to the SOR, particularly the troop commander in charge of the project.
- Moving engineer stores within a restrictive flying programme meant that critical time was lost during the construction phase. The project manager must weigh up the risks involved and assess whether to compromise security in order to keep the project within the time allowed, and be able to convince senior all-arms commanders that this is necessary.
- The reporting chain must be set up and adhered to. All information regarding an operation must be channelled through the squadron operations officer who then disseminates information to the project/site commander. It is also important that those outside the chain of command know their point of contact.
- The project manager must have a thorough working knowledge of the Operations Database and the process by which contracts are agreed, funds allocated and contracted in order to plan and produce realistic timelines successfully. The project manager needs to plan and troubleshoot whilst the site commander is left to run the site.
- Given the nature of Operation *Reascend* and the short planning timeframe due to political considerations, maximum use must be made of concurrent activity.
- An understanding of the Province Engineer Operations Database and how a contract is set up was critical when estimating all lead times for stores and their resultant affect on the task. The database needs to be in place to control Regimental resources but using it requires patience and it cannot cope with unforeseen, short-notice demands for equipment (which were inevitable). A way to counter this problem was to use the excellent local purchasing order system.

Conclusion

Op *REASCEND* highlighted the changing nature of engineer support in Northern Ireland. With the current peace process in place, Sappers are less involved in providing and maintaining structures for the protection of infantry bases and more involved in their decommissioning.

Review of the Royal Engineers Museum

THE following is an abstract of a paper written by Major General K J Drewienkiewicz CB CMG, Chairman of the Museum Executive and Library Committee and Brigadier A E Whitley CBE ADC, Engineer in Chief (Army). It was written to focus the efforts of all involved in the Museum to ensure the Museum has a viable and sustainable future. The short afternote gives the broad outline of progress since the paper was written in the summer of 2000. Significant progress on many fronts is being made. It is your Museum; visit and support it.

INTRODUCTION

THE RE Museum was first established in Brompton Barracks, Chatham, Kent, in 1875. It moved to its present location in the Ravelin Building in 1986 and was opened by Her Majesty the Queen in 1987.

A plan for the Museum was produced in 1988 setting out the development over the next decade. In addition to developing the galleries on the ground floor, proposals were made to expand the Museum further and to construct a roof-top restaurant. The courtyard was covered and the displays completed within it, but development was then put on hold. The Museum is now one of the leading military museums in the UK, and has achieved both registration with the Museum and Galleries Commission and the highly coveted Designated status, placing it amongst the top 40 independent Museums in the country.

The Museum collection and the Corps Library are owned by the Trustees of the Institution of Royal Engineers. The acquisition, maintenance and display of the collections and some staffing costs are the responsibility of the Trustees. The Ravelin Building, which also houses RHQ RE, is wholly maintained by the MOD. A Customer-Supplier Agreement has been drawn up between the MOD and the Museum to determine future cost sharing and contractual agreements. Further, the Museum has secured a 50-year lease at a peppercorn rent from Defence Estates on the Museum's premises in the Ravelin Building.

In the light of both SDR (Strategic Defence Review) and ECAB's (Executive Committee of the Army Board) recent recommendations for museums, it is appropriate to take a strategic view of the way ahead for the RE Museum and Library.

OBJECTIVES OF MILITARY MUSEUMS

ECAB direction. The ECAB Regimental and Corps Museums Policy Paper[1] reaffirmed the Army Department's commitment to supporting regimental and corps museums. It gives the following objectives for military museums:

- To make the public aware of the regiments and corps, their roles and achievements thereby contributing to the projection of a positive image of the Army.
- To contribute to the esprit de corps of the regiments and corps of the Army.

The museums should also care for, display and make available to the public the regimental collections and archives in such a manner as to:

- Illustrate aspects of military life, the development of weapons and equipment and the service and sacrifice of the military community.
- Promote military efficiency and encourage interest in the Army by public exhibition of collections.
- Provide an educational resource for both adults and children with particular reference to the National Curriculum.
- Provide a focal point for members of regiments and corps, both serving and retired, and their heirs and successors.
- Underpin the identity and values of the Army's Regimental System through the existence of regimental and corps collections and archives.
- Provide the public with an enjoyable and educational experience at times that are convenient to the visitor.
- Promote military scholarship and research.

THE ROYAL ENGINEERS MUSEUM

THE objectives of the Royal Engineers Museum were set out in 1988[2] and have stood the test of

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[1] ECAB/P(98) 6 dated 25 Jun 98.
[2] Institution of Royal Engineers Museum Executive Committee 26 April 1988.

time. They are to provide for the education and inspiration of Royal Engineers, other members of the Armed Forces and the general public, in the profession of military engineering by:

- Preserving the heritage of the Corps of Royal Engineers in the form of documents, materials, artefacts and relics (particularly medals and insignia) in order to illuminate the spirit and achievements of the Royal Engineers worldwide.
- Displaying equipment, designs and models to demonstrate the concepts and fundamental principles of military engineering thus stimulating the development of new techniques.
- Promoting an appreciation of the role of Royal Engineers in the service of the country and in so doing raising revenue to sustain and enhance the Museum itself.

Mission

The mission of the Royal Engineers Museum and Library is to tell and bring to life the remarkable story of the Royal Engineers in the widest context of military and civil endeavour in peace and war.

Assumptions

The following assumptions have been made:

- The Museum will remain on the current site for at least 50 years.
- MOD funding, as defined by the Customer–Supplier agreement, will not increase.
- The RSME Public Private Partnership will include Chatham as a location for at least part of the Corps, but support for the Museum from the RSME will not increase.
- Visitor numbers will increase incrementally but a step change increase is unlikely.
- Funding from the Royal Engineers Central Charitable Trust Fund and Institution of Royal Engineers will still be needed.
- New sources of funding will be required.
- Extension to the Museum buildings will be required to house and display more of the collection.
- Corps private assets, such as Mess silver and paintings, and the Corps Band, should be used to enhance and promote the Museum.
- The Museum will continue to be supported by active FoREM (Friends of the Royal Engineers Museum.)

The Collection

The Museum exists to preserve, house and display the collection of artefacts owned by the Museum and the Institution of Royal Engineers. This collection includes the Corps Library housed in the RSME HQ building, and a wide range of equipments currently inadequately stored at Lodge Hill.

For commercial viability, and to retain Designated status, which itself generates considerable funding, the collection needs to be displayed in a manner that will attract visitors.

Deductions

- The size and scope of the collection of artefacts held by the Museum will be constrained by the practicalities of funding and limitations on storage and display space.
- The display of the collection needs continuous development, constant funding and regular review in order to retain Designated status.
- Modern display techniques and imaginative theming will be required.

The Ravelin Building Site

Limitations. The assumption that the Museum will remain on the Ravelin Building site, noting that any move to a different location would be prohibitively expensive, produces specific constraints:

- **Location**. The "out of centre" location of the Museum within Chatham limits the number of casual paying visitors. It is also close to the Historic Dockyard and Fort Amherst which, along with other Medway heritage sites, are in competition for casual visitors but offer opportunities for joint marketing.
- **Listed building**. The Ravelin Building is Grade II listed limiting any development of the facility. It is an Edwardian building with Victorian facilities.
- **Size**. The current Museum in the Ravelin building is too small to display as much of its collection as we would like. Lack of space prevents a move of the Corps Library into the building and hence the realizing of rationalization benefits.
- **Car parking**. The site has limited car parking facilities, which could be reduced further in expanding the Museum.

Improvements

- **Current**. Improvements in disabled access are in hand and better lighting and improved displays in the Victorian area are planned.
- **Future.** Visitor facilities, specifically the toilets, need upgrading urgently.
- **Expansion**. There is an aspiration to expand the Museum by building an additional display hall. This is uncosted at present and budgeting will need to include designs for exhibits, maintenance, ground rent and any additional staffing costs.

Deductions

- The Museum's location in Chatham imposes a limit on revenue generation from casual tourism. Significant additional visitors can only be attracted through specific, niche marketing of the Museum.
- The close proximity of the Medway's other historical tourist attractions and, particularly, the possibility of exploring them within the same day, needs to be exploited.
- The Corps Library could only be accommodated in the Ravelin Building by relocating present occupants.
- There is an urgent need to upgrade visitor facilities in the Ravelin Building.
- Any significant development of the Museum will require the building of a new exhibition hall, which must be pre-funded.

FINANCE

Running Costs. The MOD currently contributes significantly to the running of the Royal Engineers Museum. Additionally, the budget for 2000 anticipated an additional expenditure of £73K. This was met by:

- Corps funds – £45K.
- The Museum operation – £28K.

Assets. The Museum has cash and investments of £430K. Such holdings would not generate much more than £12K income per year.

Museum foundation. The Museum Foundation has generated over £1M since 1987 for projects and is by far the largest source of additional non-public funding for the Museum development.

Options for further income generation

- **General**. Additional income generation can only be secured by attracting more people, by getting them to spend more in the Museum and by achieving repeat visits.
- **Direct income from visitors**. The level of entrance fee, £3.50, is at the limit the market will currently bear for the Medway area.
- **Niche markets**. The busiest day in 1999 and 2000, which generated the greatest revenue, was the Victorian Book Fair. Visitors came from much further than the normal Museum catchment area and arrived predisposed to spend. The event will be repeated in 2001 and similar opportunities are being pursued.
- **Anniversaries**. In the same vein, anniversaries must be exploited. The only year in which visitor numbers exceeded 20K was 1994, the anniversary of D-Day. The next best, in 1997, was the anniversary of the end of National Service.
- **Corporate entertaining**. Corporate entertaining has a potential to generate far more income per head than normal visitors.
- **International dimension**. The Museum is not, currently, on any tourist trails. Exploiting North American and Commonwealth links and heritage is likely to pay dividends.
- **Grants**. Designated status attracts central Government grants. The acquisition of a 50-year lease makes the Museum eligible for lottery grants for specific projects.
- **The Corps**. The link between the Corps and the Museum is less visible and less focused than it could or should be. Individual units of the Corps do not yet feel that they own "their" piece of history in the Museum as much as they could. This situation is unsatisfactory, not least since part of the Museum's funding comes from the Day's Pay Scheme.
- **Investment income**. The Museum has benefited from a few generous legacies. These do not yet, however, amount to such a sum as to build a self-sustaining investment portfolio, generating substantial income.
- **FoREM.** The FoREM is a strong link to the wider Corps – serving and retired – and must be encouraged.

Deductions

- The size and scope of the Museum will be constrained by the funding available. The Museum must become less dependent on MOD funding.
- Catering must be developed. Consideration should be given to franchising the catering in return for a regular, guaranteed income at less risk.
- The range and quality of products in the shop has improved very considerably but needs to be reviewed and improved further.
- The potential for further niche events must be exploited to the utmost. FoREM can help here.
- More needs to be made of anniversaries. Some of these can be special (eg 60th anniversary of El Alamein), others can be annual (eg anniversary of the death of Gordon).
- A superior venue, such as the Medal Rooms, possibly enhanced by the presence of Corps Silver on specific occasions, needs to be made available for corporate entertainment.
- A venue, where a video or slide show can be shown every 30 minutes to set the collection in context, and to enable the visitor to make an informed choice as to which areas he or she wishes to focus on, is required.
- Grants should be researched and targeted, then pursued vigorously and routinely for prestige artefacts and further development.
- The potential for twinning of museums (eg between the USA and the UK or between WWII locations elsewhere in England (USA Air Force airfields) and the Museum) need to be investigated.

- Every major unit, and some minor units, of the Corps should feel a special link to some part of the Museum. With ingenuity and will every unit could be linked to its own piece of history.
- The endowment fund should be further developed to be self-sustaining and generate significant future income.
- New projects need to be fully funded prior to initiation of work through the efforts of the Museum Foundation Committee and from grants.

OPTIONS

THERE are three broad options for the Museum. These, in outline, are:

- Preserve and display the collection. This is the preservation of the *status quo*, and represents consolidation.
- Expand the Museum to become a self-supporting commercial concern. This would represent considerable financial risk and be dependent on a very large investment of borrowed capital.
- Improve the Museum steadily, within means. This requires improvement of facilities and displays with greater emphasis on niche marketing and anniversaries and funding consolidated to build up the endowment fund.

The third option has been selected as being the most attainable.

OUTLINE STRATEGY

OPTION three, above, represents a middle course between a high-risk fully commercial option and the withdrawal into an inward-looking facility that could wither on the vine. The conservative and measured strategy of generating income in advance of spend is in line with the aims of such a concept.

Mission. The mission of the Royal Engineer Museum and Library is to tell and bring to life the remarkable story of the Royal Engineers in the widest context of military and civil endeavour, in peace and war.

Objectives. Objectives have been derived from this paper and other studies. Each will require detailed planning and, more importantly, drive to execute them. The following objectives enable the achievement of the mission:

- **Ownership**. Strengthen the Corps' sense of ownership of its own history by:
  - Developing unit affiliations to specific displays in the Museum.
  - Making the Museum more relevant to our soldiers.
- **The collection**. Continue to preserve, catalogue and present the collection, whilst rationalizing holdings against strict criteria of relevance to the Corps heritage and in line with the Acquisition and Disposal Policy, the Museum mission and vision.
  - This should include disposal, to generate capital if possible, as well as acquisition.
  - The collection should include contemporary displays, which will form the basis for the future historical collection.
- **Ravelin site**. The site facilities need improving.
  - The toilets, shop and catering facilities need improving, in that order.
  - The current displays and galleries need investment and development in order to make them more attractive and accessible.
  - A facility is required to house a video presentation giving visitors an overview of the Corps and Museum.
  - The Museum should be extended subject to complete funding up front. The collocation of the library with the Museum is to be investigated.
- **Financial.** The Museum must move towards greater financial self reliance by:
  - Building up the Endowment Fund to cater for future running costs.
  - Generating additional capital for development through the Museum Foundation.
  - Actively pursuing all possible grants and legacies.
  - Generating greater income by:
    - Concentrating on niche markets and utilizing the full range of Corps assets from silver displays, to visits to the Officers' Mess.
    - Promoting key anniversaries, both annual Corps, Army and national one-off events. FoREM already do much and must be encouraged and supported.
    - Running theme events to celebrate key "engineering achievements".
    - Corporate hospitality.
    - Increasing shop turnover through links to Corps Enterprises and accepting credit cards.
    - Increasing the viability of catering, including considering letting a franchise.
  - Targeting manufacturing industry for sponsorship.
  - Continuing to maintain a budgetary forecast system to ensure the Museum lives within its means.
- **Information and marketing.** The public profile of the Museum is to be raised and visitor numbers increased by:
  - Undertaking an information campaign through the range of media, including a website, which promotes both the Museum and Library, and research facilities.
  - Fostering links with other national and international museums and institutions possibly through twinning arrangements.
  - Establishing the Museum as a key venue for foreign tourists.
  - Promoting links with battlefield tour companies and re-enactors.
  - Supporting and encouraging FoREM.
  - Building on links with the Medway Council.
  - Considering a change to the Museum name as per the 1989 plan.

which will require improvement to the information technology (IT) suite available to the Museum and Library.

Management

- Staff training should have increased emphasis on management and marketing. The aim must be to promote the Museum at every opportunity.
- The plan for Museum improvement and sound financing must be actively and consistently implemented.

AFTERNOTE

A number of actions have followed since the paper was written.

The Museum Executive and Library Committee has formed two sub-committees covering finance and marketing.

Both the Customer/Supplier Agreement and the 50-year lease at peppercorn rent have been signed.

Outline plans for an extension have been drawn up and provisionally costed at £1.5M. This will involve a bid on the Lottery. The Foundation has embarked upon raising the matching funding required with an event which was held at the Mansion House, London, in October 2000.

Designated status has released some £150,000 of Government money over three years to enhance the Museum displays. This is being used to fund studies leading to project definition, enhance the courtyard displays and visitor orientation in the foyer and to enhance the Victorian galleries. Work is in progress. The Foundation is providing the necessary partnership funding.

The Shop now accepts credit cards.

The EinC(A) has written to all officers and also to the Corps RSM inviting him to extend the appeal to warrant officers and sergeants messes of the Corps inviting annual contributions to the endowment fund. The new rules on tax relief upon charitable donations make such donations worth more to the Museum. The early response has been reassuring.

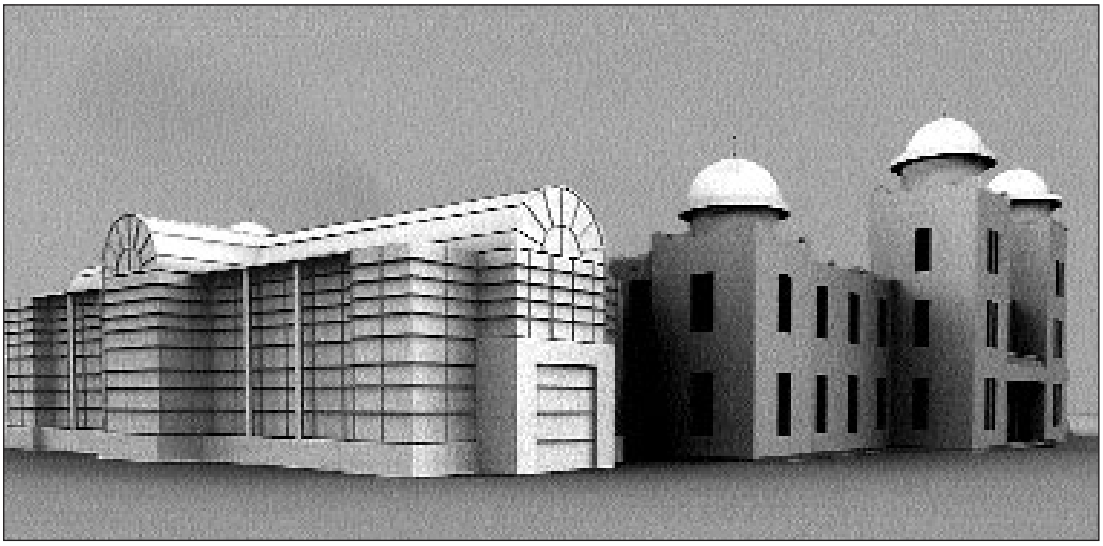
Visitor facilities, particularly the toilets, will be improved using the Museum's own resources.

The first interactive displays, covering military bridging and Military Survey, have been installed. Plans are in hand for a similar display to cover armoured engineering.

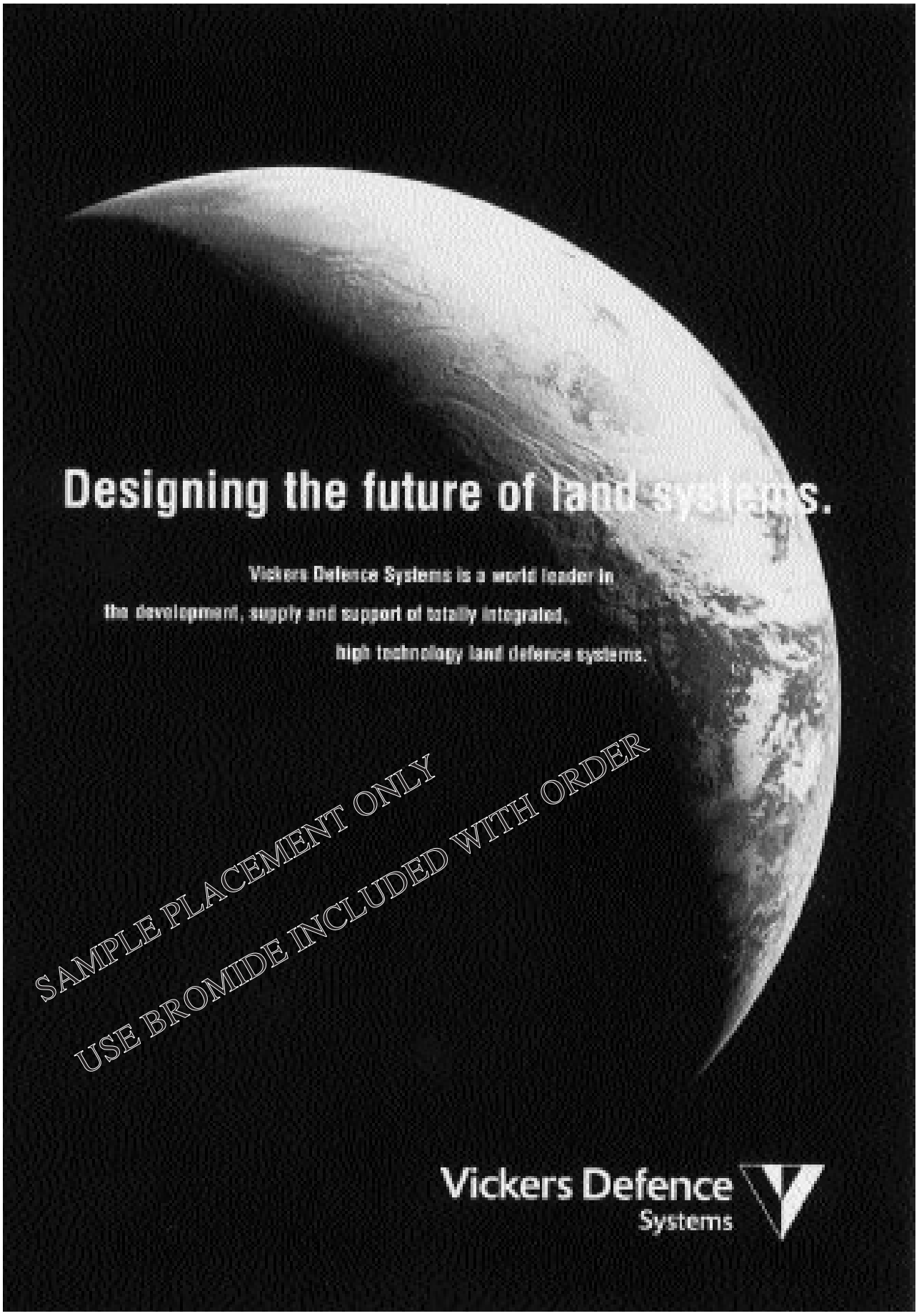
The Museum features on the Corps website at www.royalengineers.org.uk.

Plans are in hand to equip both the Museum and Library with modern IT suites.

The collocation of the Library with the Museum remains a long term ambition.



Architect's impression of the proposed extension of the Museum building.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Black Adder's War – Not What It Seems

LIEUTENANT COLONEL M W WHITCHURCH MBE

Introduction

THE article "An Assessment of Blame for British Casualties in World War One" by Lt Col Burleigh, published in the December 2000 edition of the *RE Journal* is welcome because it gives an opportunity to draw attention to a war that has had a bad (and unbalanced) press. The aim of this article is to consider some of the points made by Lieutenant Colonel Burleigh from a different perspective, as the war repays further study.

Like many readers I associated this war with the amusing and highly entertaining comedy "Black Adder Goes Forth". Older readers may recall the film "Oh! What a lovely war!" Both productions were successful and based on satire. The British have a curious attitude: they seem to favour disaster above success. Those up to date with current British military doctrine will know this war is cited as an example of how not to wage war.

My understanding of this war was brought into doubt when one senior officer (a professional editor and acknowledged historian whose work is at the forefront of British army doctrine) aroused my suspicion. He stated that my understanding (like most others) was wrong as the achievements of the British army in this war meant that 1918 was the finest year in its history[1]. Indeed its fighting power was such that Marshal Foch, the commanding general of the victorious Allies, said in 1918 "Never at any time has the British army achieved greater results in attack than in this unbroken offensive … The victory was indeed complete."

Why bother with Black Adder's war? Because it is the beginning of modern war as we know it: firepower in three dimensions, applied jointly with many practices that we use today, was started in this war, as was the first use of the tanks, aircraft, and depth fire artillery. Current doctrine emerges from this war. There were of course disasters: Gallipoli and Loos in 1915, and the battle of the Somme in 1916; but there were successes also: Cambrai (up to a point), the Third Battle of Gaza, Messines in 1917, Le Hamel in 1918, the Hundred Days of late 1918, and the offensive through the Balkans in 1918. We can learn from both the good and the bad.

Consider Britain's situation at the end of the war[2]:

- The most powerful Navy in the world by far and her most serious rival eliminated.
- Largest merchant marine in the world.
- Largest air force.
- An army of over 3.5 million men and acknowledged as the most effective contingent on the main front (Western Front in France).
- An industry much improved and diversified.
- Full employment.
- An empire enlarged by one million square miles of territory.

The British army itself emerged as one of the best in the world:

- It had taken the brunt of the most effective and efficient army in the world at that time and beaten it. In comparison, the Russian army had been defeated, the French army had mutinied and the Italian army had collapsed.
- In 1916, between April and November, it engaged 131 German divisions.
- In the German counter-offensive of 1918, the British army took on 99 of the 109 German divisions. By contrast, the British army engaged two German and six Italian divisions in 1942 at El Alamein and no more than 12 in Normandy in 1944. It was the Soviets who took on the brunt of the German army, some 143 divisions at the start of the invasion of Russia in 1941.

Who's To Blame?

THE German army was first class in quality and quantity. From the 1860s onwards the it was considered to be the model army to study and emulate. When the Japanese decided to improve their navy in 1900 they modelled it on the Royal

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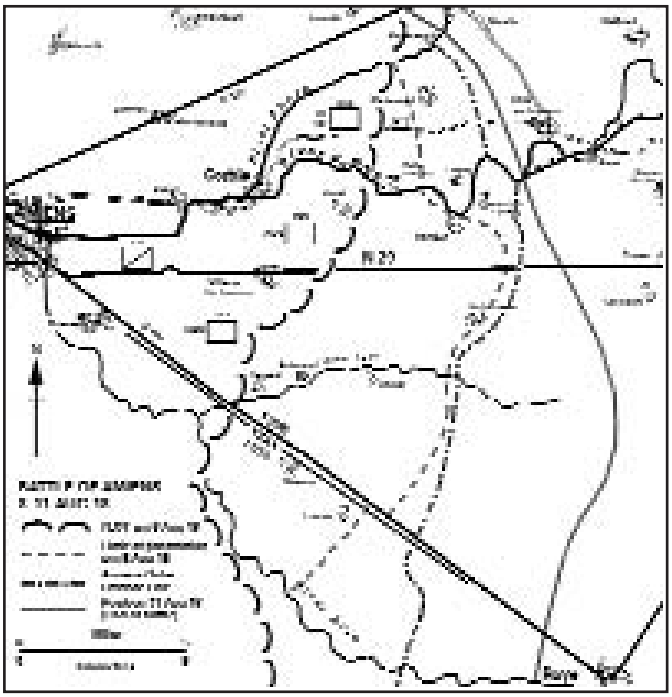
1 "The High Tide and the Turn – the Western Front Battles of 1918", published in British Army Review Issue 119, Aug 98. "The Century of Firepower" by Brigadier J B A Bailey. "The Once and Future Army" by Major R N Bryson, RA, in Dec 98 *British Army Review*.

2 "1914-18 Essays on Leadership and War" by John Terraine.



A model case study of modern war Amiens, August 1918.

Navy. And their army? Why the Germans of course. After all, what could the British offer after their poor showing in the Boer War?

If both sides are evenly matched in fighting power then we must be prepared for high casualties. Such casualties are seldom acceptable unless the cause is justified. The "Contemptible" little British army (as the German Kaiser called it) at the Battle of Mons in 1914 stopped a much bigger German army but one third of its men were killed and many more wounded and missing in action. In spite of this 761,000 men volunteered to join the British army in the first eight weeks of the war[3].

Where does the blame lie for the casualties? Most say the generals. John Terraine, an acknowledged expert on this war, has a simple answer: the enemy. He said: "I often think that many of those who concern themselves with casualties in the Great War, and squarely blame them on our generals, are rather like a detective investigating a murder, who suspects everyone except the man found standing over the bullet ridden corpse with a smoking revolver in his hand. I am a great believer in simplicity in war studies – and it is a simple fact that the overwhelming majority of British casualties in the Great War were caused by German weapons wielded by the German army, an institution very well able to do precisely that. So I blame the Germans."[4]

Assessment of the Problem 1915 to 1918

THE reality in 1914 was that the power of rapid fire from rifles and machine guns in a well organized defensive operation could defeat any offensive operation. The defence could not be overcome without a new approach. The solution took four years to perfect. The problem was to meet four critical tests:

- Breach obstacles.
- Destroy or neutralize as many enemy manning the defence as possible.
- Provide effective counter battery fire in order to protect assaulting troops.
- To effectively engage targets in depth in order to protect exploiting troops before artillery is able to move forward in support.

LOOK at any failure or success in World War One and since and apply these tests to understand the outcome. The reality was that in 1914-15 artillery and other fire support passed none of these tests effectively and some not at all. At the operational level the test was to break through and break out. If they failed this then it was more casualties with little to show except bitter experience. This was predominantly the case until the Hundred Days campaign of 1918. The Germans were able to defeat any offensive by increasing depth. Thus positions like the Hindenburg Line became deeper, denser and more flexible. The tactic was to allow the attacker to penetrate beyond the cover of his artillery and counter attack before he could reorganize. German doctrine stated that reserves for the counter attack had to be 9 km to

[3] From "The Oxford Illustrated History of the British Army" by David Chandler (p245).

[4] From "The Generals", an essay by John Terraine (see Note 2).

the rear and be able to engage the enemy within two hours of the start of an attack. Thus the critical factor for the assaulting force was artillery. The mobility of the guns and their ability to engage counter-attacking forces in depth was key to operational success. The problem was how to destroy or neutralize the enemy as well as to achieve surprise.

Necessity is the mother of invention and by 1917 the quality of ammunition, target acquisition, the accuracy of guns through calibration and the developments of RE survey allowed firepower to pass the critical tests. The first real improvement emerged at the Cambrai offensive. Predicted fire made its debut along with the biggest assault by tanks to date. Initially it was a brilliant success. The British passed the first three tests but not the fourth. Moreover, the unexpected success created a challenge of how to break out. The reality was that skills in combined arms operations were not up to breaking out and the German defence in depth – mutual support and effective counter attacks – resulted in ultimate failure for the British army. The bitter experience served it well and the successes of 1918 owe their beginnings to the lessons learnt in this offensive. Winston Churchill, speaking about the Cambrai offensive, sums up the state of the art at the time: "Accusing as I do without exception all the great allied offensives of 1915, 1916 and 1917 as needless and wrongly conceived operations of infinite cost, I am bound to reply to the question, what else could be done? And I answer it, pointing to the battle of Cambrai. This could have been done. This in many variants, this in larger and better forms ought to have been done."

Use of the Mark II tank, Cambrai.

MANAGEMENT FAILURE?

WAS the management of this large organization a failure by 1918 on the grounds that it had suffered two million casualties? Lieutenant Colonel Burleigh's paper asserts that it was. Field Marshal William Slim claimed that the duty of the general is to win. This management did win the war. Consider the facts above. In 1918 our army took the brunt of a massive German offensive, defeated it, and launched a general offensive that contributed to the Armistice. This was hardly a failure. Consider these facts[5]:

- It was not a British delegation that crossed the lines with a white flag in November 1918.
- No German army of occupation was stationed in Great Britain.
- No British Government was forced to sign a humiliating peace treaty.
- The management team achieved their aim: their army and country was on the winning side.

It remains a matter of debate if it could have been done in any other way. Field Marshal Wavell characterized war as waste, muddle and boredom. This war was no exception and readers will recognize the truth in Wavell's statement. But what were the failings of the "management team" as Lt Col Burleigh calls them? Consider each in turn:

Over by Xmas? It is true that many thought so but the man who mattered did not. Lord Kitchener (late RE) the Secretary of State for war was clear that this conflict was going to last for three years and got the country on the right footing to wage this length of war.

The human factor: was the Edwardian Army out of touch? The facts are perhaps not what they seem. The Boer War caused a wave of reform that was to bear fruit at the battle of Mons in 1914. These reforms, led by Richard Haldane, the secretary of state for war from 1906-1914, made the army "incomparably the best trained, organized, and best

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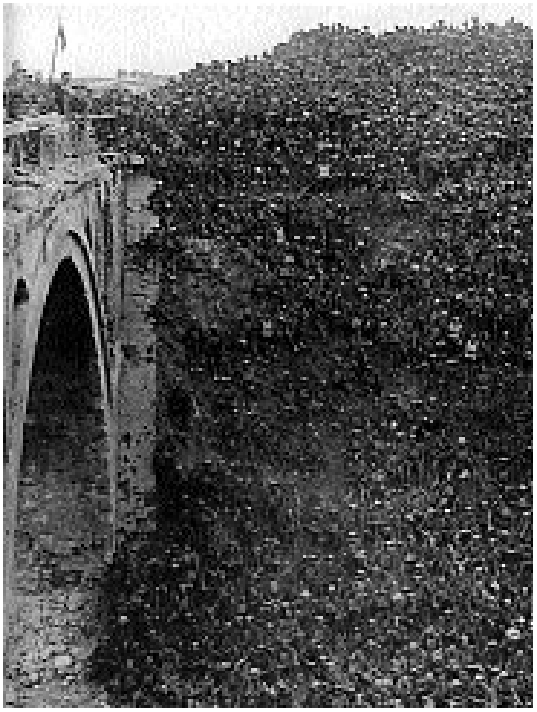
[5] From "The Generals". See note 4.



47 Division at their finest hour on the Hindenburg Line; another valuable case study.

equipped British army which ever went forth to war." Well, they would say that wouldn't they? The proof of the pudding was the conduct and achievement of this army at its first critical operation at Mons in 1914, which was a defeat. By the end of the first battle of Ypres in November 1914, the original British Expeditionary Force was no longer in being. The turnover of troops through casualties and arms plots and the like were such that by 1915 a new army, Kitchener's army, had been formed. History shows that despite preparation in peace armies are short of the mark in many respects in their next war. Moreover, until the tools and techniques are right they will not succeed. Alas this takes time, and in war lives, learning the hard way. The requirements for a future war are notoriously hard to predict. Even if we do know what is necessary there is seldom the will and therefore the resources to correct these shortfalls until it is almost too late. This pattern can be seen in nearly all wars where the opposition is of at least moderate fighting power. The Great War was no exception. Thus it is arguably asking too much to expect it all to go right from the beginning.

Sans doctrine? Or did they have a cunning plan? WAS the British army's doctrine up to scratch? In hindsight, no. To be fair there had been serious attempts to improve understanding of the theory and therefore the practice of war. G F R Henderson's "Science of War" (the same Henderson as in the Henderson Society at Staff College) is proof that there had been much thought, study and practise about preparation for future war. As usual this state was found to be wide of the mark when the acid test of 1914 arrived. It was ever thus. Even if they had got their doctrine right would there have been the will to devote the resources to developing the army to the standards of 1918? Moreover, the cult of the offensive was French in origin and borne from the studies of the Franco Prussian war. The call in peace was for mobility and only when the realities of war emerged was there the call for firepower. Most armies rarely understand firepower in peace. In the hard school of fighting the German army forced the British to evolve a training organization that by late 1917 was much improved.

Ready for war? We were not, as Lt Col Burleigh points out, but given the factors of human nature, political will and the nature of military science we probably never will be.

One of the best sustained fire machine guns. British troops in German lines at Cambrai, November 1917.

CONCLUSION

THE real tragedy of this war is we may have won it but the post-war politics meant we definitely lost it. The result was the Second World War. That cost many more lives than the First World War. Perhaps: "The only lesson we learn from history is that we never learn from history."

Upside Down Mountaineering

BRIGADIER A C S ROSS FIPLANTE FIMGT

Brigadier Alan Ross served as a subaltern in 9 Airborne Squadron in the United Kingdom, Cyprus and Egypt, and as plant troop commander in the Malayan Engineers 1952 to 1955. He was adjutant of the Royal Monmouthshire Royal Engineers (Militia) and liaison instructor with the French Army engineers. He was then Officer Commanding 23 Amphibious Engineer Squadron, Commanding Officer 21 Engineer Regiment, Colonel General Staff (Chief of Staff) 3rd Division and Commander 12 Engineer Brigade. He retired while just still in his forties and joined Wincanton Transport "so that he could continue to work with the chaps". He was promoted to London Head Office so retired again and since 1985 has lived in Andalucia.

ABOUT five years ago my wife and I drove through Arizona and spent a half day on the north rim of the Grand Canyon. The canyon is some 500km long, up to 25km wide at the top and about a mile (1600m) deep. I looked down into the chasm and thought: "I've gotta go!" In June 2000 my chance came as my wife and I planned a holiday driving and walking in the Rocky Mountains for a month.

Although my sport was cross-country running, the legs and lungs are not as they were fifty years ago so some limbering up was necessary. We are lucky to live 300m up in the Andalucian hills, and throughout the Spring I worked up from 7km strolls, to hiking 800 vertical metres and 6km up foresters' tracks and back. Later came a walk from home to the top of the sierra, 1000m vertical, and 11kms each way. The following month I repeated the programme but a bit quicker! Hot baths soothed the stiffness but otherwise there were no blisters, pulled hamstrings, nausea or other expected impediments. Trainers proved to be adequate footware.

My daughter, Sue, had run the London marathon the year before and gave useful tips by telephone from time to time. One tip was that one does not get fitter or stronger by violent exercise or extreme exertion. One gets stronger by reasonable exercise and resting. "Gain through pain equals lack of brain." Another tip was to eat every hour.

There are a few books about the Grand Canyon, mostly containing depressing advice, such as:

"Park Rangers have one simple message for all would be hikers: do not try to hike to the river and back in one day. It might not look far but its harder than running a marathon. Up to 15 hikers die each year in the attempt and several hundred more receive emergency medical treatment."

"Although some people claim to have done it, hiking the round trip from rim to river level and back in a single day is a monumental feat that takes from 16 to 18 hours. Most hikers allow at least two and preferably three days for the trip."

"Rim to River hiking in the Grand Canyon is likely to be the hardest hiking you will ever do."

"DO NOT Attempt to hike from the rim to the river and back in one day! Many of those foolhardy enough to try don't make it and require assistance. The less fortunate have been evacuated by helicopter in a body bag."

After reading these some may think it eccentric, stupid even, to attempt such a day's walk but I have some mitigating arguments:

- Proportionally, most cases of exhaustion occur among men under 25 years old; and I actually enjoy strenuous walks having done a fair number. Walking gives one time to think about the meaning of life, or how many State names in the USA begin with the

same two letters as any other state? Half, or more, or less? (answer at the end).
- To stay down overnight needed a permit – too late.
- To lodge in the lower canyon or to hire a mule required booking months ahead – no time.

It was to be a one-day walk, with the firm resolve to turn back if blisters, cramp or pain intervened.

At the end of May, Christine and I flew into Denver, hired a car and headed across Colorado, to Vail, Mesa Verde (a group of 600-year old Indian villages), through Monument Valley and into Arizona. At a desert night-stop at Kayenta there is a diner doubling as the club house and museum of the "Code Speakers". During WW2 the US Army enrolled Navajo Indians and allocated them to HQs and units in the Pacific theatre. To ensure radio security, orders and reports would be handed to a Navajo who would transmit in the Navajo language to a receiving colleague who translated it back into English for the action addressee. Simple, and it worked. (I gather that Millwall supporters have been considered for a similar role in NATO.)

We arrived at the south rim of the Grand Canyon mid-afternoon and found our way about the complex and to the start of the Bright Angel trail, one of those leading down the canyon. We talked to a few arriving hikers; they had all been down the canyon for two or three days, some for a week. My wife was worried at how tired they looked. I was even more worried.

The next day, 5 June, we roused ourselves at about 3.30am. Christine drove me to the south rim as, although she wanted to walk down for an hour or so, she had arranged to join a morning walk and talk with park rangers. At 4.30 the air temperature seemed freezing. Those who know the desert at night will appreciate the chill factor at 7000ft. A cotton shirt and swimming shorts felt pretty inadequate even when wearing a thin nylon anorak. But day temperatures of 30°C at the rim and up to 43°C at the river dissuaded one from dressing too warmly. Sitting in the car we ate a breakfast of ham sandwiches, granola bars and drank a litre of isotonic Gatorade while waiting for the glimmer of dawn light that was needed to avoid the vertical drops at the sides of the mule track. In 1998 alone five people fell to their deaths in the canyon. At 4.45 I gave Christine a perfunctory farewell (a passionate embrace would have seemed ominously final) and headed off through the mule corral to the head of Bright Angel trail. The trail leads down a series of zig-zags, flat bits, steep bits, steps and side hill cuts for some 13km and a 1360m (4460ft) drop to the Colorado River. Five million visitors a year come to the Grand Canyon. Most stay less than one hour but for day-walkers there are the "mile and a half" and "three mile" rest-houses. Indian Gardens rest-house is 8km down. Water is available at all three. It is piped from the north rim, elevation 2575m, crosses the river at 730m and up to the south rim complex. Hydraulic Sappers will be able to calculate the pressure at the crossing and estimate the friction head loss at Indian Gardens, elevation 1160m (this concludes the article's military engineering connection required by Ed).

Carefully picking my way in the gloom, goose pimply cold, I clattered down the track and as the sun came up at 5.15 the temperature rose quickly to make it feel as though one had entered a boiler room. Soon after dawn footsteps approached from above and a figure closed on me. A young German was bounding down and we shouted greetings. He took some ten minutes to pass and move out of talking range below, enough time to learn that he came from Osnabrück and knew Winkelhausen Kaserne (Roberts Barracks). "You go now to zee river, *ja?"*

"Vielleicht." I replied. It was early days.

At Indian Gardens I had my first five-minute rest. I drank a litre, refilled bottles, chatted with multinational youths, carefully cached two litres of drink for the return climb, and strode on down. After a swampy kilometre came the steep descent of the Devil's Corkscrew and then down through the Vishnu Schist, among the most geologically interesting layers. An easier last kilometre lead to the river and my friendly German, just returning. He greeted me as if I had scored a Premiership goal.

The shade temperature on a raft showed 41°C. It was HOT. After taking photos and refreshments and a complete soaking of clothes and brimmed hat, it was time to start back, at 8.15am.

The trail was now busier, not crowded but with hikers usually in sight. As they were carrying camping equipment and sleeping bags I could overtake most, to much ribaldry and camaraderie. The Devil's Corkscrew was a devil and by around 10am, back under the trees at Indian Gardens, I took a ten minute flat-out rest although, anxious in case I seized up, I lay stretching and flexing and sweating. Although dehydration is a very great danger in canyons or deserts it is also possible to over-hydrate by drinking plain water and eating

nothing. I carried a score of airways salt sachets and added two to each litre of water. Isotonic drinks seemed immediately refreshing. It is the loss of sodium and chloride ions which causes heat exhaustion more than simply water loss. Salt tablets are too concentrated and should be avoided (when tablets are taken the body draws water to the stomach to dilute the salt at a time when the body needs water in the circulatory system to keep the body's core temperature down to 37°C.)

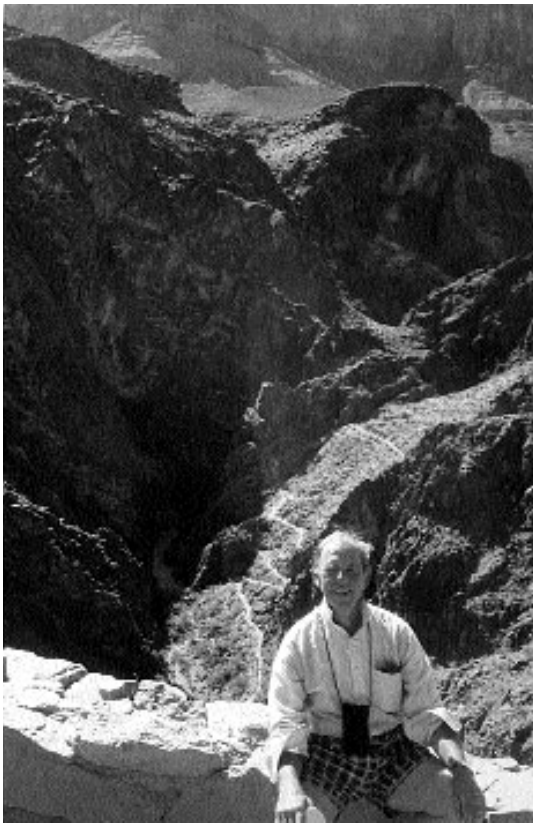
The training done in Spain, where it was also pretty warm, paid off in that it taught one the pace that could be maintained for a few hours of stiff uphill slog. It was slightly frustrating to be behind couples who would not move over. But most did, as did everyone for "thrusters" and to let strings of mules go by with their red-faced riders, bumping down. The mule trains leave the rim around 8am and get down to Indian Gardens before lunch. Theirs looked an uncomfortable trip, though very popular.

My final five kilometres, up "Jacobs Ladder" and 600 vertical metres to the rim were obviously going to be the hardest. And they were. An hourly ten minute rest flat out and feet uphill, and total dousing at the water points kept me in good heart, and I felt confident of steadily plodding to the top. Not everyone was as happy. One woman was unable to make her legs step up 20cm rock steps. She sat on the step, lifted each foot up onto the step beside her, then turned over onto hands and knees across the step, slowly stood up and staggered with help to the next step. She was with companions but 500m from a rest hut. It was like watching on TV those wretched collapses near the end of marathons.

The final kilometre of switchback zig-zags felt like walking up the down escalator and seemed to go on forever. Arriving among others at the rim at 1.30pm had bystanders gawping at the dishevelled and distressed hikers, much as we had done the previous day (previous day? previous eternity!).

It was exhilarating to be on level ground, just under nine hours after setting off. Walking to the car encouraged a little skip and a jig: I was still alive! I could easily have walked another level mile but did not want to think of staircases. A slightly surprised but relieved wife appeared from her geological studies and we went off for lots of cups of tea and, later, a steak dinner.

It had been a really satisfying day. A challenging pursuit!



Only two or three more hours to go.
The Bright Angel's zigzags can be seen behind me.

Despite drinking some ten litres I didn't have a pee all day. The next day, stiff in the calves I drove through Utah. A few days after the canyon's 43°C we were with friends above an ice-fringed Lake Louise in Alberta walking through a foot of snow.

The lessons I learned or confirmed were:

- Be sure of your aim but allow for a few setbacks.
- Rest makes you stronger than exertion does.
- In the heat, force yourself to drink, do not wait until you are thirsty.
- If you are Scottish do not pay for two days down the canyon if you can achieve your aim in one day for free.
- Finally, never do anything foolhardy or that might make your wife anxious.

(By the way, the answer is exactly half.)

[Ed note: Alan Ross was aged 71 when he undertook this challenge.]

Memories of Korea, 50 Years Ago

MAJOR GENERAL A E YOUNGER DSO OBE

Major General Tony Younger commanded a section of about 65 men, in 61 Company in 1941. After demolishing six substantial bridges he managed to arrange for his men to be evacuated from Dunkirk on a naval destroyer. He commanded 26 Assault Squadron for the "H-Hour" landings on D-Day. After two years on the staff in Rangoon, he raised the Engineer Training Centre at Kluang in Malaya, where he was the first commander of Gurkha sappers. After the Korean War he served in the United States of America and in Germany, later commanding 36 Engineer Regiment at Maidstone and Kenya in 1960-62. His final job was as the Army Instructor at the Royal College of Defence Studies.

On October 2nd 1950, 55 Independent Field Squadron embarked on the *Empire Windrush* to start the six week voyage to Korea. Last year, on the anniversary, the man who had been the youngest of the officers that day, Peter Chitty, in a simple ceremony threw a wreath into the Solent at the spot where we embarked. This was to commemorate the four officers who came out with us, and two of their replacements and the many excellent non-commissioned officers and sappers who were killed in Korea.

The other unit on board the troopship was the 1st Battalion the Gloucestershire Regiment, that was to hold out for three days when surrounded by massive Chinese forces. Most of those who were not killed in this very gallant action were to spend three dreadful years in prison in North Korea. Their CO, Fred Carne, was held in solitary confinement for this time and well deserved the VC that he was awarded.

The trip out was not entirely uneventful. A hot six-mile route march at Port Said, on which we were ordered to take arms and ammunition, ended at an artificial lake, from where a group of Egyptian ladies fled in horror at the sight of a thousand men stripped naked for a swim.

A break at Singapore enabled me to telephone to Kluang in Jahore, where Herbie Carrington-Smith had taken over command from me of the Engineer Training Centre. I asked him how the Gurkha sappers were getting on, as I had found them to be such fine men when they first came under my command there. I was delighted to hear him say that they were still very good at picking up the knowledge required by a sapper. Fifty two years have passed since they first were trained.

During our voyage, General McArthur's brilliant operation to outflank the North Korean Army, by an amphibious attack half-way up the Korean peninsula, was proving successful. The old cry that we would be home by Christmas was repeated!!

We landed at Pusan, where a welcoming military band certainly made everything seem peaceful. We little knew what lay ahead.

We had been told that the winter would be cold, but not how cold. Winds from the coldest place in the northern hemisphere, the mountains of eastern Siberia, quite frequently blow over Korea. These winds leave Siberia at about -100F and have only warmed up to -60F when they hit North Korea. Where we would be in South Korea temperatures of -30F were quite common.

To face this we had been told to bring greatcoats and one extra blanket per man, our only dress was the ordinary battle dress, with good old Army boots. We quickly found that we could slip under our blankets, fully dressed, and still spend

Foot-bridge over the River Han at Seoul before demolition.

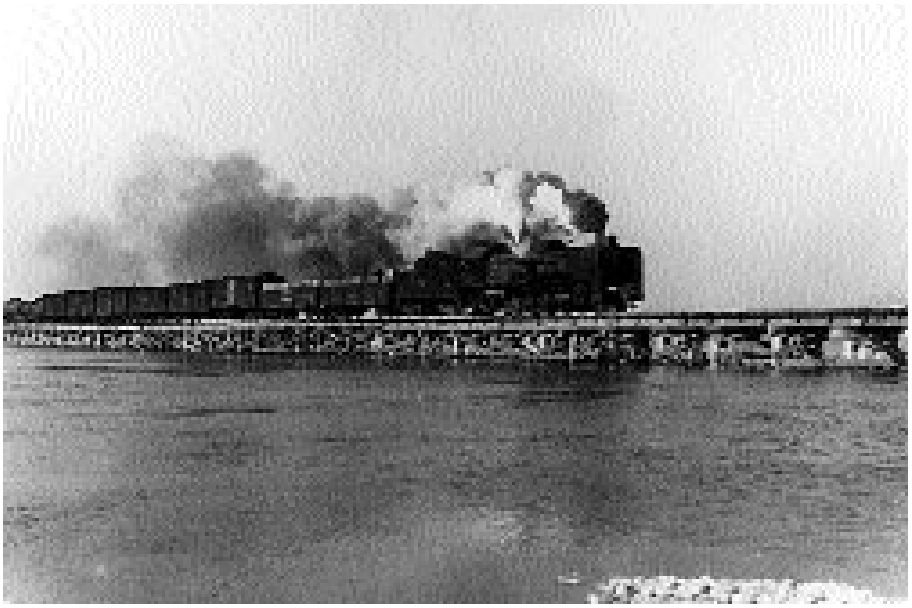
the night shivering with cold and unable to sleep. We issued two empty sandbags per man so that they could cover their boots in bed at night. Many a pair of boots were burned as their owner tried to thaw them out in the morning, having not worn them at night.

However, we had a stroke of luck. A marvellous cousin of mine sent me a case of whiskey. He had it delivered to a firm in Tokyo so we had to fetch it from there. I sent Desmond Holmes, one of my troop commanders over for it using US Air Force transport, as he had been our advance party officer and had been out longest and needed a break. I told him to explain to the airport staff that it was a box of bulldozer spare parts. However, when he got back he said he had to call it a box of map glue, as bulldozer spare parts would not go glug, glug when moved!

Anyway, our quartermaster discovered that an American driver would fill his truck with anything we wanted from the main dump of stores for just one bottle. So I gave him one, and that very evening he came in with a big bundle and said "I've got something for you, Sir". It was a proper arctic sleeping bag, one that I could zip up so that only my nose was outside, and I was beautifully warm inside, dressed in pyjamas. I also asked him how many he had got, and he said 300, one for each member of 55 Squadron. As we often had to sleep in the open this was invaluable. I still have mine.

As the senior British sapper in Korea, I came under the Chief Engineer of the US Army 1st Corps for engineer matters. He turned out to be not only an excellent practical military engineer, but also a most friendly and helpful character. Soon after we arrived he asked me if I could build a floating bridge over the Han River for him, just near the capital city Seoul. I agreed to do this, using of course American equipment. What with building approach roads on each bank, this took about three days, and on about the second day I realized that Col Itchener or one of his staff were always on site, watching. Of course, he was just trying us out. Luckily we completed the task in just under the time given in the official manual. From then on, he gave us anything we asked for.

A few days later we were up in the northern capital Pyongyang, because China had entered



The Shoo-fly decked railway bridge over the River Han at Seoul.

the war with a tremendous attack. The UN forces started to retreat and our brigade had to provide the rear-guard which inevitably involved last minute demolitions.

We were not sorry to see the last of Pyongyang, as it had been heavily bombed, and the ruins were almost deserted.

Back to the south, the brigade defended a valley just north of the capital, Seoul. The Han River, which was a good deal wider than the Thames at London, provided an obvious obstacle to the Chinese, but four bridges over it would have to be demolished and I was told to do three of these.

The first was a foot-bridge, which was made of wood and provided little trouble. The second was an enormous railway bridge built on vast concrete piers. This was a straightforward demolition, requiring a lot of explosive, but otherwise no great problem.

However, the third was a problem. It had been constructed by American engineers and consisted of 66 spans. Each span started with five, sometimes six wooden pillars driven into the river bed and topped with RSJs to carry a railway. The railway line had planking on each side so that trucks could be driven over it between trains. Col Itchener insisted that every vertical pillar must be cut below water level, to deny the enemy an easy rebuilding job. It was called a "shoo-fly" bridge by the Americans and, obviously, would require a great deal of difficult work from us, as it was being used continuously and the river brought down many lumps of ice.

My diary entry for 4th January 1951 sums it all up:-

> "Up at 5am. Bertie (Capt Beyton-Evans MC later to be killed in Korea) started on the foot bridge at 6am. John (Capt J Page, later a Major General) blew two bridges on the main supply route north of Seoul at 0710. Bertie then blew the main permanent railway bridge at 0800. The last of the A&S Highlanders crossed the "shoo-fly", which went up at 12.45. All a great success. Seoul completely deserted and in a pall of smoke. Finally back to Squadron HQ at Suwon at 1800 after a filthy dusty drive. Very cold."

Thus ended just one day of the war in Korea for us.

However, the Chinese succeeded in taking Seoul. They pushed the UN forces about 50 miles south of the capital. There our three battalions dug trenches and prepared to stop them. We laid anti-personnel mines by the thousand and prepared no less than 14 bridges for demolition. This was midwinter and bitterly cold, particularly for the wretched sappers who had to stand guard at night on each demolition.

We also spent a lot of effort in improving the very primitive road network to the south, in case there was another withdrawal. An additional hazard was parties of North Korean

The Shoo-fly bridge after demolition.

troops who had escaped into the hills when General McArthur's successful flank attack had cut them off. Early one morning Bertie Beyton-Evans's troop was attacked, but they were prepared and held them off, taking ten prisoners.

General Ridgeway took over supreme command and he was determined not to withdraw any further. The Chinese were far from home and, having only a few MIG fighters, were subjected to attacks by the UN air forces day after day. We moved steadily northwards, carrying out well planned attacks on hills held by the enemy. By 19th March we were back in Seoul; it was strange to drive once again into a completely deserted capital city. By the end of the first week of April we reached the Imjin River and on Sunday 8th I did my first recce to see if there were any reasonable crossing places. I found two, and our infantry used them to carry out hard hitting patrols north of the river. Later we constructed a foot-bridge and a vehicle bridge over the eastern crossing.

However, the Chinese decided to try and finish the war. Three Chinese infantry divisions attacked our brigade during the night of Sunday 22nd, using our two crossing places. Bertie's and John's troops were bivouacking near the river on some low ground. Very early in the morning, realizing that all was not well, they loaded their vehicles and sent them off to our HQ which was a couple of miles south. They just kept enough vehicles to carry the men back.

The colonel commanding the Northumberland Fusiliers came over to them and explained that one of his companies had been knocked off the hill that overlooked their camp site. He asked them to retake it, which they promptly did. Sadly he was to be killed later that day.

Next morning our brigadier told us to hand over the "sapper hill" to the Northumberland Fusiliers and to move the whole squadron back about five miles down a valley. There we took up a defensive position on another hill, overlooking and protecting Brigade HQ.

To cut a long story short, the Glosters were completely surrounded and after holding out for three days, by which time they were out of food and ammunition, the survivors had to surrender. A Belgian battalion had been attached to us and was the only unit north of the river. They received the first attack and were ordered to withdraw south of the river. It was a dark night and they succeeded in doing this, after which we destroyed our bridges. Our other two battalions held their positions for three days, being able to support each other. On the third day, when everyone was getting very tired, the commander of C Squadron 8th Hussars, arrived, cutting short a

spell of leave in Japan. This was Major Henry Huth, and he offered to move his squadron up the five mile valley to give cover for the two battalions to withdraw.

He asked me if we could provide him with infantry support to hold a prominent ridge half way up the valley as no other infantry was available. I had already warned John Page and Bertie Beyton-Evans to take their troops down to Seoul to prepare the same bridges for demolition that they had blown up in January, so only Desmond Holmes' troop was available. They climbed on the backs of the Hussars' tanks and effectively held the ridge for him for most of the day.

Henry moved his tanks up the valley soon after first light and then carried out a copybook withdrawal action, covering the movement of the two battalions. When he reached Desmond's position, which was being fiercely attacked, he told the sappers to jump onto his tanks for the return journey. Desmond's sergeant, Sgt Orton, earned a well deserved DCM for taking charge of one tank, when its commander was killed, and for fighting it back. He showed great determination and gallantry. On one occasion when helping a wounded man onto the back of his tank, he was told by a Chinese officer to surrender. He knocked the man out cold with his fists and continued to load wounded onto the back of his tank, to prevent them being killed or taken prisoner. Also Desmond was awarded a well merited MC. His troop suffered twenty two casualties, including Lt Brian Swinbanks, who was badly wounded and died next day.

However, the slaughter inflicted by our brigade (11,000 Chinese were killed) was so great that the enemy had to stop. We soon started to move steadily northwards again, back up the Imjin river. We removed the explosives from the Han bridges.

A major lesson from these very hectic days was that sappers must be trained to act as infantry, and trained well, since the only time they are likely to be called upon is when a situation is becoming really desperate.

50 Years On

THE editor of the *Journal* would be pleased to receive articles from anyone who took part in tasks and employments during 1951 and 1952. Accounts of later events are always welcome as they can be kept for publication in the appropriate issue.

A Man, A Plan, A Canal

PATRICK DARE

The following extract was published with permission from *The Ottawa Citizen*, in which it was published on 2 August 1999.

FORGIVE yourself if you didn't know that 2 August is Colonel By Day in Canada's capital of Ottawa. The British Government ignored the incredible accomplishments of Ottawa's founder as well. Colonel John By – having endured hellish circumstances to build the 200-kilometre Rideau Canal through the mosquito-infested Ottawa Valley bush within five years – was, by February 1833, back in England a dispirited man, reduced to writing letters stating his innocence against allegations of financial mismanagement in the building of the canal. Here was a man who expected to be knighted for his brilliant engineering and leadership. All he got was second-guessing from bureaucrats, as the letters of that era show.

For instance, he wrote to his friend Colonel Elias Walker Durnford:

> "I feel confident that General Pilkington will lose no time in laying your highly complimentary letter before the master-general. I therefore feel some hope of having the unmerited slur that has been thrown on me by the minute of the lords of His Majesty's Treasury removed, through your kind interference ... Sir Henry Hardinge, whom I called on the day before the levee, received me with great kindness, and ... he said he thought me extremely ill-used. I have not words to thank you for the high testimonial you have given me ... God bless you, my dear colonel, and may heaven reward you for all the good you do."

The Colonel did not have his name cleared in his lifetime. He wasted away at his estate in Sussex and died of a stroke. The late historian Robert Leggett suggested By died of a broken heart, though the lack of personal papers from By make it a tricky business to probe his inner self. The colonel's wife, Esther By, had a memorial plaque built that amounted to an anguished letter to the world in tribute to her neglected husband:

> "Sacred to the memory of Lieutenant Colonel John By, Royal Engineers, of Shernfold Park in this parish. Zealous and distinguished in his profession, tender and affectionate as a husband and a father, charitable and pious as a Christian, beloved by his family, and lamented by the poor, he resigned his soul to his Maker, in a full reliance on the merits of his blessed Redeemer, on 1st February, 1836, aged 53 years, after a long and painful illness, brought on by his indefatigable zeal and devotion in the service of his King and Country, in Upper Canada."

Colonel By actually came to Canada twice in his career. His first tour was at Quebec, starting in 1802, where he did the engineering work for the Cascades Canal on the St Lawrence River and towers for the defence of Quebec City. He returned to Europe and was posted to Portugal where he served with Lord Wellington's Peninsular Army, then supervised the construction of an armaments factory near London before retiring from the military on half pay. In 1826 he was recalled by the British government to build the Rideau Canal in Canada, viewed as a necessary transportation corridor for troops and supplies at a time of great tension between the Americans and the British.

As Mr Leggett points out in his book, "John By, Builder of the Rideau Canal, Founder of Ottawa", this was a man of big vision. Just six weeks after arriving in Canada, Col By wrote to General Gother Mann in London:

> "I have the honour to report that on examining the Military defences of Canada, it appears self-evident that, by forming a steam navigation from the River

St Lawrence to the various Lakes; would at once deprive the Americans of the means of attacking Canada; and would make Great Britain mistress of the trade of that vast population on the border of the Lakes, of which the Americans have lately so much boasted ... I therefore feel it my duty to observe, that all the Canals at present projected are on too confined a scale ... and for Military service they ought to be constructed of sufficient size to pass the steamboats best adapted for navigating the Lakes and rivers of America, which boats measure from 110 to 130 feet in length, and from 40 to 50 feet in width, drawing 8 feet of water when loaded."

William Pittman Lett, the first clerk of the City of Ottawa, wrote this description of the colonel in 1877:

"Colonel By was what a physiognomist would call 'a man of presence'. He was about five feet nine or ten inches tall, stoutly built, almost corpulent, and quite military looking. His hair was dark, complexion rather florid, and altogether he was rather jovial and good natured in looks. He was a man of great energy and determination ... and was always alive to the encouragement of any project calculated to advance and aggrandize the little town called after him."

Colonel By lived in a house on the site of today's Major's Hill Park with his second wife (his first had died in 1814) and two daughters. Apart from the canal, By oversaw construction of military barracks on today's Parliament Hill, the main streets of Ottawa, a school, a hospital, a marketplace and the first bridge across the Ottawa River to Hull, the Union Bridge. Reports of the era suggest that the house was the centre of activity, with people arriving at the door at all hours of day, even before the colonel had a chance to finish shaving. By 1842 there were 3000 souls in Bytown.

The canal, however, was a tough assignment. Thousands of men worked on it and hundreds of them died in the process. Some died from explosives accidents but the greatest enemy of all was malaria, which probably afflicted the colonel. One of By's clerks, John MacTaggart, described the "swamp fever" that afflicted so many men:

"The Fever and Ague of Canada ... generally come on with an attack of bilious fever, dreadful vomiting, pains in the back and the loins, general debility, loss of appetite ... After being in this state for eight or ten days the yellow jaundice is likely to ensue, and then fits of trembling ... For two or three hours before they arrive, we feel so cold that nothing warms us ... the skin gets dry, and then the shaking begins. Our very bones ache, teeth chatter, and the ribs are sore, continuing thus in great agony for about an hour and a half; we then commonly have a vomit, the trembling ends, and a profuse sweat ensues, which lasts for two hours longer."

There were mishaps, like a dam at Hog's Back that broke apart, almost killing canal workers including the colonel and adding to the expense when rebuilt. Conditions were so bad that drunkenness was common and labourers sometimes threatened to shoot officers directing the work. There were outbreaks of cholera. Sir Richard Bonnycastle, a loyalist who led the Kingston militia, wrote this in 1841:

"If ever any man deserved to be immortalized in this utilitarian age, it was Col John By ... the expenditure he made may appear enormous, yet ... the splendid canal he executed ... was executed in a very short time, in a country where forest and flood, silence and shadow, had before reigned undisturbed; in a country the seat of pestilential fever and ague, the paradise of watersnakes and reptiles, of mud and marshes – where the best, or indeed the only mode of progress, was in the frail birch-bark canoe of the Indian, and where even that dangerous vehicle was continually subject to be torn asunder in its march over the sullen waters by the submerged trees.
After passing the Rideau, Clear and Mud lakes, and sundry rapids, a most romantic spot, called Jones' Falls, is reached, where the Rideau rushes through a crooked and narrow ravine, with impending cliffs 90 feet high, the length of a mile, and the fall 60 feet ... Then comes the dreadful swamp called the Cranberry Marsh, 18 miles long and two broad, where some thousand stout labourers have met their death from regular yellow fever ... at all times the most pestilential odour exhaled from it. Col By was on one occasion passing through it when ... his canoe grounded and the voyagers jumped out to float it. In a moment they were up the middle in blue slime, from which the most cadaverous smell proceeded. They all died shortly after, except two, and the Colonel himself after dinner one day felt feverish, and so feeble that he was obliged to be carried to bed and thought that he too was 'going home'... At last he slowly began to recover, and in six weeks was actively employed again."

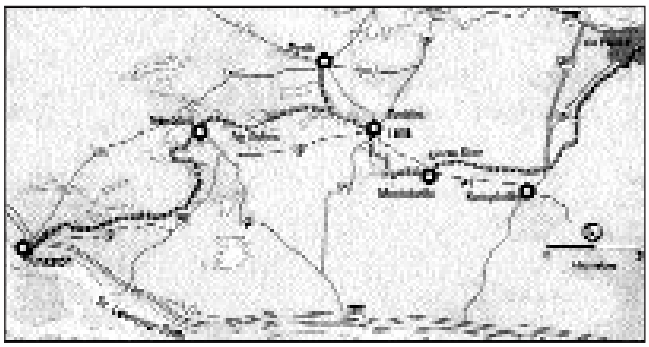
The circumstances were so difficult that Colonel By fretted about the welfare of his men and realized that the Crown had to offer the incentive of 100 acres of land to keep them for the duration of the project. He asked for more supplies, writing:

"I fear from the wretched condition of most of the Emigrants, applying to me for work, that it will be indispensably necessary to issue bedding to prevent sickness, and most respectfully suggest for the consideration of His Lordship, that the commissariat

should send 1,000 sets of bedding, or at least that number of good blankets up by the first steam boat ... at present the poor fellows lay with nothing but their rags to cover them, and as their numbers are increasing and the rainy season coming on, I dread the effects of sickness ..."

In a letter to Lord Somerset, By also suggested:

"... a reward of discharge and a grant to land to deserving men of the Sappers and Miners employed at the completion of the work; as a means of checking desertion."



Map of area covered in article.

He made the promise and the canal, including 24 dams and 47 locks, was basically built by hand.

It must have been a great moment in June of 1832, when the colonel wrote these words to Lord Dalhousie:

"On the 1st of May I left Bytown with Mrs By and my Children for Kingston to bring the new steam boat building there ... but she was not ready so we visited Sir John Colborne at York and went to the Falls of Niagara; on our return, not finding the new boat ready I embarked my family on Board the *Pumper* steam boat and passed through the whole of the Canal, and although many have endeavoured to persuade the public that the Rideau Canal would never be finished I have the gratification of stating that in last month, I have passed 35 cribs of Timber in one day."

Books on Colonel By, documents from the era and the opinions of historians generally support the conclusion that his reputation was tarnished and accomplishment ignored because of the politics of money. While he obtained authorizations along the way, the fact is that this canal started off with a cost estimate of 145,000 pounds. Once he arrived here, he must have alarmed his bosses back in London by tossing out "a cost of one or two million." While the costs didn't get that far out of hand, they crept up and eventually reached 800,000 pounds sterling.

Mark Andrews, in his comprehensive book on By published last year, "For King and Country", points out that in 1830 there was great pressure back home in England for tight control on public spending, especially on the colonies. Farm machinery and a depressed economy were taking a toll on the British working man. There was pressure from the middle class for government reforms, some feared a French-style revolution in England and rumours of assassination plots against Prime Minister Wellington, who scoffed at reform demands and whose government fell.

Col By fired one of his clerks, Henry Burgess, for boozing, and Burgess caused the colonel great grief, complaining to London that he and his men were defrauding the British government. In a letter dated April 1, 1832, Burgess hurled accusations and made a pitch for money but offered no facts:

"I cannot believe that the Master General and Honourable Board of Ordnance will allow me to be shamefully treated for acting as I have done in laying before the Board of Ordnance the shameful and fraudulent proceeding, which has been practiced on the Rideau Canal job. I have always lived amongst most reputable Gentlemen in England and Ireland and I must confess that so infamous a character as Lt Col By, I never met."

A court of inquiry into the allegations was held and the charges were dismissed but Burgess apparently got a hearing from British newspapers and at least one member of Parliament. Around the same time, the Treasury Board questioned whether proper parliamentary authorization had been given for the 1831 accounts. Though he was unaware of it, the British government was recalling By. A committee of the House of Commons investigated, and while they found the colonel guilty of no wrongdoing, they questioned the financial management structure established by the government. For reasons not quite clear, the colonel never testified before the committee. In a letter to his friend Col Durnford, from his retirement home, By said:

"The present Government throw the blame on me for not waiting for Parliamentary Grants, forgetting that

it was ordered by His Grace, the Master General, and Board that I was not to wait for Parliamentary Grants, but to proceed with all dispatch consistent with economy, accordingly, the contracts were formed by the Commissary-General at Montreal; by which the Engineering Department was bound to pay for the works as they proceeded, which precluded the possibility of stopping the works, and thus laying the Government open for heavy damages. I was never ordered to stop the works until I was so unjustly recalled; when, Thank God, they were all finished, and the Canal had been open to the Public for some months, or I should have been robbed of the honour of building the magnificent erection."

When the project was coming to a close, the colonel wrote to a P Robinson in Toronto:

"I have closed the works of the Rideau Canal, and hope you and your brother, the Chief Justice will not forget your promise of being present at the opening of the Canal when I shall expect all my friends to rally round me. I have just received the discharge of the 7th and 15th Companies, Royal Sappers and Miners, they are entitled to receive 100 acres each ... but I cannot find any of them have yet decided in which township they will apply to be placed. I am afraid they will be like spoiled children, difficult to please and give more trouble than they are worth."

The canal was officially opened on May 24, 1832, with Colonel By, friends and dignitaries leaving Kingston on a steamer named the *PUMPER* and sailing up to Ottawa. In his book, Mr Andrews says that the colonel wrote to the lieutenant governor in Quebec City on Aug 11, 1832, asking that he take a final inspection tour of the canal before Sept 1, when By was to leave:

"I trust His Lordship will ... inspect the works prior to that day, feeling confident that his lordship's opinion will have great weight with the government at home, and that all who, like his lordship, are judges of such work will do the justice to speak of the works as they deserve."

The Rideau Canal never became the huge commercial corridor that Colonel By had envisioned but no one challenges the fact that it was one of the engineering marvels of the 19th century. Sir Bonnycastle wrote the following about Colonel By:

"Col By's untimely death, after completing, in little more than five years, one of the most extraordinary existing specimens of human ingenuity and perseverance, was regretted by the country, and that it was caused in a great measure by anxiety of mind, there appears to be little doubt. The traveller sees his monument in the town which bears his name, and there the memory of John By can never be obliterated. There he is beyond the pale of envy, of jealousy, or of depreciation."

And, about the little town By founded, he wrote:

"Probably, there is scarcely any landscape in America more beautiful and interesting; and, by ascending another fine road from the Upper Town to the barracks, military hospital, parade ground, it may be somewhat enlarged, by obtaining a more extended view of the deep rolling dark Ottawa."

After By's death his wife, Esther, wrote letters to officials seeking recognition for her husband. But then all trace of his family disappeared: Mrs By died two years later, followed by her daughters, Harriet in 1842, and Mary Catherine in 1851.

Over the years people both in Britain and Canada began to recognize the achievement and this man's remarkable, difficult life. By's statue in Major's Hill Park, and accompanying plaques, are impressive. A few years ago the City of Ottawa made the civic holiday in August Colonel By Day. The Historical Society of Ottawa is working to raise the public awareness of By and his work in founding this city. At Major's Hill today, starting at 10.45 am, festivities including a brass band, traditional dancers, heritage craft demonstrations and cooking will help us remember the man.

Cornish Pasties and Other Explosive Devices

DUNCAN H HISCOCK

The author was born in 1929 and educated at Kings School, Rochester, Taunton School, Somerset and the Architectural Association School of Architecture, London, from 1946 to 1951.

National Service was undertaken with the Corps of Royal Engineers from 1951 to 1953, after which he was retired to the Army Emergency Reserve until 1938.

From 1938 until he retired as a senior partner in 1990, he practiced as an architect in London and Kent. H was a building society director and chairman, and property company director.

Married, with one son, two daughters, grandchildren (assorted), his interests are military history, cricket, golf and Rotary.

IN the early 1950s the School of Military Engineering Chatham (as it then was before the "Royal" was added), ran a successful drag hunt and point to point at Charing. Local farmers who allowed hunting over their land were entertained at mess guest nights as a "thank you" exercise. One particular farmer, who had served as a company commander in the Buffs, was a regular attender, and happened to mention to the colonel that he was currently engaged in clearing a meadow, but was having problems with two ancient oak trees.

"I think we may be able to help" said the colonel. "We will have a training exercise. I'll get the Officer Cadet Squadron out there next week, it will be excellent experience for them!"

This was where the writer entered the story. The following Monday I found myself, with a dozen other cadets sitting on boxes of gun cotton in the back of a three-ton lorry. Perhaps I should explain that gun cotton was a standard high explosive used by the army for demolition tasks, it came in 6in x 3in x 1.5in slabs packed 14 to a box. Moisture content was critical, and the test involved pushing a thumbnail into the slab – if it went in all was well, if not, run!

The lorry in front carried a similar number of embryo National Service subalterns, it flew a large red flag, and was loaded with detonators, primers, safety fuzes, and most importantly our haversack rations. The latter usually comprised a cornish pasty of indeterminate vintage and a rather sour apple.

In those days safety precautions were minimal and the convoy chugged happily through the Medway Towns and over Rochester Bridge with the adjacent general public blissfully unaware that they could have been blown sky high at any moment.

Also amongst our stores was something known as "camouflet equipment" normally used for cratering roads, and bridge approaches. It comprised a hollow steel tube 2.5 in in diameter and 6 ft 6 in long with a detachable pointed end. You hammered the tube into the ground, dropped down it some small explosive primers which were then set off to form an underground chamber some twelve to eighteen inches across to receive the main charge.

After an uneventful journey we arrived at the meadow to be greeted by a smiling farmer, who obviously thought he was getting something for nothing out of the army. We had served long enough to be able to establish priorities and went straight into "brew up" mode. Again the gun cotton slab proved its versatility and fitness

for purpose as, when lit, 1lb was exactly the right size to boil a large kettle of water.

Remembering our basic training we then carried out a careful recce – not difficult as we could hardly miss the two oaks. They had a height of about thirty feet, the upper branches already having been removed, and a girth of a similar dimension. They also appeared to have a substantial root system acquired over several hundred years.

"Field Service Pocket" books were consulted and calculations made; 6lb of explosive should do the trick. We used the camouflet to create an underground pocket as close to the centre of the tree as possible, slid down six 1lb-slabs of gun cotton, the last containing a primer and electric detonator.

At this point our QMSI arrived on the scene, a warrant officer with vast experience of real war, and two rows of campaign medals to prove it!

"How much have you got in there gentlemen?"

"Six pounds Q."

He examined the tree from various angles, sucked in his teeth, and after due consideration pronounced that nothing less than 10lb would have the necessary "shove" to do the job. We added the further four slabs and carefully tamped them down to join the others. We were about to close the hole when the senior instructor appeared. He was an example of the best type of Sapper officer, a charming Cambridge educated captain, whose ribbons included a Military Cross.

"They are big trees, and we don't want to leave any roots in the ground, better double up the charge."

We did as ordered. The chamber was sealed off and we ran out the electrical cables some 100 yards to our selected firing point, behind a hedge, where the dynamo exploder was positioned. The wires were connected, and we wound the handle to build up the current. Whistles were blown, red flags waved, and the order to fire given. We pressed the button (the long plunger type of exploder, beloved of Western film producers, had been superseded some years earlier).

There was a brief pause, when you always wonder what has gone wrong, this was followed by a satisfying "whoomph." We peered through the hedge – the two oak trees had completely disappeared leaving only smoke-filled craters. Glancing skyward we became aware of large pieces of tree passing overhead at some altitude – this had not been part of the plan!

Then things really began to happen. The heifers in the adjoining field had already cleared the fence and were rapidly disappearing into the distance.

They were soon followed by a number of seriously distressed pigs and assorted domestic fowl. We also became aware that something was occurring to the peg tile roofs of the farmhouse and barn, where largish sections of timber were falling like celestial shrapnel. The outbuildings of lighter construction, cartsheds, pig sties, and various lean-tos had assumed unlikely attitudes. We looked around at a landscape of impressive devastation.

The farmer had ceased to smile. The clearing up operation took several weekends and many cancelled leave passes.

For the next season the drag hunt concentrated on other parts of the county.

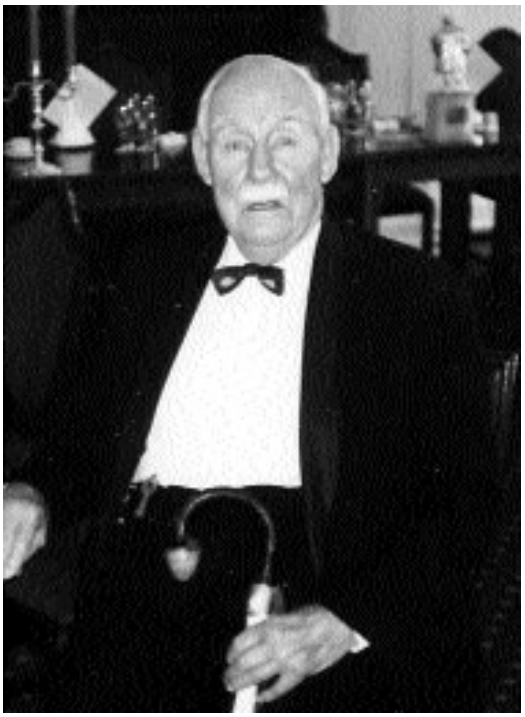
In due course the Sapper captain advanced to general rank and my fellow National Servicemen returned to civilian life where, as architects and civil engineers, we were more concerned with construction than demolition.

I wonder if present-day haversack rations still contain cornish pasties, and sappers boil their kettles on gun cotton.

Memoirs

LIEUTENANT COLONEL P J FISHER

Born 25 May 1909, died 25 July 2000, aged 91.



LIEUTENANT Colonel Patrick John Fisher, Pat or "PJ" to his many friends and acquaintances, was born in Hong Kong where his father was an architect. He was educated at Oakham School in Rutland. He joined the London Midland & Scottish Railway Company with whom he remained, primarily on the operating side, stand-fast the last war, throughout his working life. In 1929 he was also admitted to the Honourable Artillery Company in which he served actively, then as a veteran and finally as a member of the Company of Pikemen and Musketeers.

At the outbreak of the last war he was commissioned into the Transport Branch of the Royal Engineers and from 9 Railway Battalion was posted to 153 Railway Operating Company, British Expeditionary Force, in late March 1940 at Rennes. After moves forward first to Romescamps near Abancourt and then to Ath in Belgium, he was evacuated through Boulogne and was back in England by 22 May.

After a short course at the School of Coast Artillery at Shoeburyness in Essex, he joined No 3 Armoured Train Group Royal Armoured Corps as Transportation Officer, operating on the east coast of Scotland and in north-east England.

He served as Adjutant, No 2 Railway Operating Group at York for a year, before being posted in May 1941 to GHQ Military Forces West Africa, first as Staff Captain, then as Deputy Assistant Director, Transport and lastly as Commander Directorate of Railways Nigeria, West African Engineers.

On return to England in April 1943 he served for a short spell as Second-in-Command 4 Railway Operating Group at Longmoor, before being appointed as Assistant Director Railway Operations Italy, based in Naples. After just under a year, he then joined Eleventh Army Group in Delhi as Assistant Director Transport, before moving to a similar appointment in Headquarters Allied Land Forces South East Asia. On return once again to England in May 1945, he served briefly in Transport 3 in the War Office before release.

Ten years later he was appointed to the Army Emergency Reserve, serving for the majority of his time as Assistant Adjutant and Quarter Master General, No 1 Port Task Force.

Enthusiastic, colourful and convivial he was ever the soldier manqué and was elected to the Blythe Sappers in 1966 with whom he spent many an enjoyable Derby Day.

JF

BRIGADIER S E CHAMBERS CBE

Born 31 October 1912,
died 16 June 2000, aged 87.

BRIGADIER Sam Chambers was the first army apprentice to reach the rank of brigadier. He was justly proud of this achievement and of his pedigree of descent from a father and grandfathers on both sides, who had been warrant officers in the Corps.

His own career began at Chepstow in 1926. His family had been stationed at Allahabad in India and the young Sam Chambers had been brought back to England to be educated at St Boniface's College, Plymouth. After Chepstow, in the thirties, he was in Malta with 16 Fortress Squadron, then engaged in preparing the island's defences against possible attack from Italy or Germany. Courses at the SME followed and then similar work in the naval base at Invergordon on the Cromarty Firth.

In September 1939 he went to France with 129 Field Company as a part of the British Expeditionary Force. Initially they were involved in preparing defences along the Belgian frontier. With the opening of the German Blitzkrieg on 10 May 1940 they advanced into Belgium only to be caught up in the general retreat. They undertook demolitions along the coast, the final one being the lock gates at St Malo from where they were evacuated on 14 June – ten days after the last troops had been taken off from Dunkirk.

Sam Chambers had received his commission during this campaign. Soon after his return to England, he went to Staff College and, after a spell as an instructor at the School of Infantry, was appointed Brigade Major of 11 Army Group RE, planning the bridging operations for Montgomery's Twenty-first Army Group advance from Normandy across France to the German frontier and beyond. These included the Seine and Maas crossings, the Arnhem operation, the clearance of the Reichswald and the Rhine crossing itself. For this work he was appointed MBE and was mentioned in dispatches.

After the war he went to Palestine as a brigade major during the hectic period as the British Mandate came to an end, and was again mentioned in dispatches. Forty years later, in 1987, he was touched to be asked back by the Israeli army for the anniversary of these counter insurgency operations. Two years in Military Operations, in the War Office, were followed by a tour as an instructor at the Staff College. After command of 21 Engineer Regiment, (and CRE 7th Armoured Division – which he rightly saw as an accolade for someone of his military origins), he was appointed Chief Instructor Fieldworks at the SME. He was then posted to 17th Gurkha Division in Malaya as AA and QMG. For his work there he was appointed OBE. He returned to England in 1958 on promotion, to command 22 Engineer Group. Having thoroughly enjoyed this association with the TA he was then promoted and went to Kenya as Brigadier AQ.

Soon after his arrival, in July 1961, the crisis arose in the Gulf when President Kassim of Iraq laid claim to Kuwait and threatened invasion. 24 Infantry Brigade was flown from Kenya and took command of various other reinforcements that had been sent to the area. To Brigadier Sam Chambers fell the task of setting up and running the Joint Administrative

HQ in Kuwait to provide the logistic base for these emergency operations conducted in the hottest season of the year. The swift action pre-empted Iraqi action and the HQ was able to return within a few weeks. The episode earned Chambers his promotion to CBE.

His last appointment before retirement was as Officer Commanding Troops and Deputy Fortress Commander Gibraltar from 1964 to 1967. He then stayed on in Gibraltar, as military secretary to the Governor, before finally retiring in 1973, 47 years after joining Chepstow as an apprentice.

Married in 1939, he is survived by his wife Molly, who was always a great support to him, and a son and daughter. His eldest son predeceased him.

GLC HEMLG

MAJOR I M SMITH

Born 26 February 1913,
died 13 September 2000, aged 87.

MARION Smith will be remembered by many Sappers for her service as Staff Captain A (Retired Officer) in HQ 12 Engineer Brigade at Barton Stacey.

Born in the Louise Margaret Hospital in the year before the outbreak of the Great War, Marion was the daughter of a cavalryman serving in the 5th Dragoon Guards. She was brought up and lived her early life in Nottingham with two older brothers and a younger sister. With the advent of the Second World War she joined the Auxiliary Territorial Service (ATS) in 1942 and was commissioned later the same year. She served 26 years in the regular army and saw service in Italy, Austria, Suez and Egypt, Palestine and Jerusalem, and a number of staff appointments in the UK and BAOR during which she passed Staff College.

Marion was at Barton Stacey as a retired officer from 1965 to 1975. BAOW remembers from his time as Brigade Major that "…she was caste in the best mould of that truly remarkable generation of WRAC officers who served their country so staunchly." He also tells that her most treasured possession was a book, which was presented to her by the Brigade on her retirement as a RO, in which were recorded the names of all those Sappers who had served with her there.

CPC recalls that when he was in command of the Brigade it was five regiments strong plus 62 and 64 CRE collocated at Barton Stacey and this "…did not daunt Marion who maintained very close touch with all the Regiments and especially the Adjutants!…She was a stickler for accuracy especially with the minutiae of A Staff work. Woe betide the Adjutant who did not meet her standards! They all benefited from her wisdom and counsel and some went on to reach high rank in the Corps … Marion was an enthusiastic member of the Brigade HQ, entered fully into its social life and was a great friend of all its families. As Brigade Commander I was very grateful to have had her as a close supporter and friend."

After her regular service she retired to a charming thatched cottage in the village of Pitton near Salisbury where she entered into the life of the village and its activities in the same spirit which she had shown throughout her service. A very warm welcome always awaited those old Sapper friends who called and she maintained a very close circle of Christmas card contacts in the Corps. She will be remembered with great affection.

DOV CPC BAOW

KJD writes:

MARION Smith was a major influence on the lives of the commanding officers, regimental 2ICs and adjutants of the regiments of 12 Engineer Brigade throughout the 1970s. As Staff Captain (A) she ruled over the adjutants with a rod of iron. She regularly summoned her "young men" to Barton Stacey to drill them on the finer points of court-martial procedure and to impose a uniform standard of confidential report writing. To say that her standards were high was an understatement. Yet she was devoted to those same young men and watched over them with huge care and pride when things went right. On one occasion I recall that I sent a hopelessly muddled set of court-martial papers up to brigade and realised after they had been

despatched that the only way forward was to own up before they arrived at the other end. By rights the whole case should have been sent back and the case probably reconvened. Typically she sat down and painstakingly sorted the whole thing out, after giving me a lecture on the value of attention to detail. … Much more importantly, she ran a private system of paper selection of young captains to decide who should be directed towards Staff training or to PQE training. At the time the PQE stream was somewhat under subscribed and she was instrumental in steering many towards that career, thus ensuring that the PQE roster remained strong… Mention must also be made of her succession of dachshunds, each named "Sapper", which accompanied her everywhere, and which were as devoted to her as was her group of adjutants.

MAJOR D H PHILPOTT

Born 27 June 1938,
died 28 September 2000, aged 62.

DAVID Philpott was born in 1938 in Kuala Lumpur and it was to Malaya that he returned when after school at Stowe, Sandhurst and Chatham, he joined the Gurkha Engineers. He served twice with the Regiment, sandwiching a Shrivenham degree course between two tours in Malaya and Borneo. He was quickly accepted by the Gurkhas, who respected his quiet and authoritative style of leadership and willingness to join in their activities. Throughout his time in the Far East the Gurkha Sappers were heavily committed to engineering projects and it was soon apparent to his seniors that David was a highly intelligent and capable engineer, quick to analyse a problem and ever ready with a practical solution. These attributes were well demonstrated during attachments in Borneo when working on a rehabilitation camp on the Pandaruan and in planning a very successful gravel-surfaced airstrip at Meligan.

A Chatham Long Civils Course followed in 1966, with a two-year attachment to the American Army's Corps of Engineers based in Louisville, Kentucky. David was the first of many Sapper officers to enjoy this posting, committing himself wholeheartedly to the dam design and supervision tasks that he was given, and proving his professional expertise, to the satisfaction of the Institution of Civil Engineers, and to the American Society of Civil Engineers, of which he was a Fellow.

A posting as Training Adjutant to 72 Engineer Regiment (V) at Gateshead, was followed by appointment as Squadron Commander of 20 Field Squadron. Now a major, he took the squadron to Castle Dillon in Northern Ireland from October 1972 to February 1973, returning to Maidstone to plan and prepare for the demanding and highly successful Makanjila Road Project in Malawi between April and July 1974. Senior officers of the Corps gave him great credit for the planning and execution of the project, the comprehensive post-tour report remaining a model for others to follow.

His appetite for civil engineering whetted, David left the army in 1975, taking an MBA course at Cranfield to help fit him for civilian life. He worked for four years with Faircloughs, acting for a time as agent for the Runnymede bridge, where his innovative mind helped achieve increased productivity casting 960-tonne frames on the bank of the Thames ready for sliding into position on pile caps. This work was documented in one of several papers that he published, for which he received the Institution of Structural Engineers' Oscar Faber Award.

In 1980, he branched out on his own and formed Philpott and Mawer Associates, based in his home town, Bude. His consultancy covered design tables and designs for Thomas Storey steel panel bridges and projects in Devonport, Cardiff and Swindon, and further afield in Abu Dhabi, Saudi Arabia, Ghana and the Sudan.

Joining Robert Benaim and Associates in 1992 he served in Hong Kong as their China Representative, liaising with Slipform Engineering for the seventeen-kilometre superhighway between Ghanzhou, Shenzen and Zouhai. He then assisted in setting up the firm's Asia office, acting for five years as its managing director and becoming involved in a number of challenging projects associated with the new Hong Kong airport.

David Philpott was a true gentleman: kind, generous, honest and intelligent. He was a man of principle and a practising Christian. He was a keen ornithologist, an occasional cricketer and golfer, and in his youth a keen mountaineer, in 1959 taking part in a testing joint-service expedition to the Himalayas.

While in Hong Kong in 1993 David learned that he had prostate cancer. Medication kept the illness in check for several years, allowing him time to review priorities and spend more time with his wife, Lesley, travelling and at home in Bude, and at their converted barn in the Dordogne. David was above all a family man and the strength of the Philpott spirit was well demonstrated by the love and devotion shown by Lesley and the children, Andrew and Alison, as they rallied round and supported David and each other in the last testing months. David will be much missed by them and his many military and civilian friends around the world.

MJFS, PT

MAJOR J C A ROSEVEARE DSO

Born 16 February 1914, died 14 October 2000, aged 86.

TIM Roseveare's D-Day exploits as OC 3rd Parachute Squadron in support of 3 Parachute Brigade are stirringly told in his own article published in the April 1994 issue of *The RE Journal*. The tasks of his brigade included the destruction of five vital bridges in order to protect the Allies' eastern flank. The most important was east of Troarn on the main highway leading from Caen to Rouen. The intended sizeable infantry protection for his demolition parties never materialized because the battalions were dropped and dispersed on the wrong DZs, as were Roseveare and his squadron. Undaunted he gathered such men and explosives as could be mustered and set out under mortar and machine-gun fire on the seven-mile march to their objectives, and commandeering a RAMC jeep that had emerged from the darkness. He detached a group on foot under Captain Tim Juckes with most of the sappers to the bridge at Bures.

Medical stores were then unloaded from the trailer and replaced by explosive charges. Roseveare took the wheel of the jeep; also on board were Lieutenant David Breese, five NCOs, three sappers and half a ton of explosives. It was still gloomy and the jeep ran into a barbed wire roadblock just outside Troarn. An enemy sentry fired a single shot and then fled into the darkness. Whilst the vehicle was being extricated, a German soldier with a rifle approached riding a bicycle and foolishly started shouting. He was quickly silenced, but the sound of the shots had inevitably alerted the defence. Nevertheless Roseveare proceeded straight through the town at best possible speed which, because of the heavy load, was about 30 mph. As they rounded a sharp bend the Germans were waiting and a dramatic firefight ensued as the jeep sped on with all guns blazing through a hail of fire. As the sappers charged down the main street, a stream of tracer bullets passed immediately overhead from a machine-gun quickly set up by the enemy.

Perched precariously on top of the explosives in the trailer, Sapper Peachey with his Bren gun maintained a steady fire obliging the Germans to take cover. The steep gradient on the main street helped the speed of the jeep, but unfortunately Peachey was thrown off the swerving trailer, injured and subsequently captured. On reaching the bridge half a mile beyond the town, a hasty demolition was prepared and a six-metre gap quickly blown in the main span, cutting off German tanks and other reinforcements and isolating their garrison in Troarn during the crucial phase of the battle.

Roseveare and his men ditched the jeep in a nearby flooded field and swam through several watercourses before taking to the woods "Eventually" he recalled "we came across an elderly Frenchman milking a cow. When I told him he had been liberated, he was not impressed! Perhaps he could not understand my accent. Finally we arrived at 3 Brigade HQ at midday, a very bedraggled and exhausted party, having been shot at by the Germans, bombed by the RAF, shelled by the Navy and unappreciated by the French!" Roseveare was awarded an immediate DSO.

Tim, as he was always known, was the son of J C A Roseveare who had been a Royal Engineer

during WWI, served in Gallipoli, Egypt and France and was mentioned in despatches. Roseveare was educated at Hurstpierpoint College and King's College, London University. After graduating with a first in 1934, he joined M G & R W Weeks and undertook sewerage and water supply design work. Later, in the footsteps of his civil engineer father, he worked for river authorities on the design and construction of improvement schemes in the Fens and Somerset Levels, including the first reinforced concrete lock in this country.

In 1939 he was commissioned into the Royal Engineers and sent to France with the BEF. In May 1940, he made an adventurous escape to England including hiding in a haystack being prodded by German bayonets. He served in 253 Field Company before being posted as an instructor at 141 OCTU RE Aldershot. In late 1942 he joined 6th Airborne Divisional Engineers commanded by Lieutenant Colonel (later Brigadier) Frank Lowman and attended a staff course at Brasenose College, Oxford, in mid-1943.

After D-Day, 3rd Parachute Squadron RE fought on initially as infantry later undertaking normal field engineering tasks, including dealing with a multitude of mines, booby traps and other obstacles back in Troarn. Eventually the whole division was recalled to prepare for further airborne operations. Roseveare and his squadron later participated in the Battle of the Bulge in the bitter winter of 1944 and in the Rhine crossing on 24 March 1945. They then continued to support the division during the advance through Germany to the Baltic coast, where they met the Russians just before VE day on 9 May 1945.

After demobilization in 1946 Tim Roseveare joined the London consulting engineers Binnie, Deacon and Gourley, and worked on several major water supply schemes. From 1953 to 1956 he was Resident Engineer (Headworks) in Hong Kong on the Tai Lam Chung Scheme constructed to provide urgently needed water supplies for Kowloon and other parts of the New Territories on the mainland. He joined Freeman, Fox and Partners in 1957 to work on the design of hydroelectric projects in the mountains of North Wales, including the ingenious 360MW Ffestiniog pumped storage scheme for electricity generation, the largest of its kind in the world. He travelled extensively for the firm in a dozen countries world-wide. In 1970 he was made a partner of Freeman, Fox and Partners and participated in many more projects including the Hong Kong cross-harbour tunnel, the Bosphorus bridge in Turkey and the Kotri bridge in Pakistan before retiring in 1979. He was awarded a joint Telford Prize in 1955 and the James Watt Medal in 1965 by the Institution of Civil Engineers.

In retirement he lived near Bath and during the summer months would visit Lords where he was a member of the MCC. A staunch supporter of the Church, he served for many years as Churchwarden of St Nicholas Church, Kelston.

Tim Roseveare was an active member of the Airborne and Commando RE Officers Association and the Blythe Sappers, and retained his links with those with whom he served until the end. Whenever possible he made the annual pilgrimage to Normandy on 6 June where he was welcomed at Troarn as its liberator. His name and the 3rd Parachute Squadron RE plaque have a prominent place of honour behind the town's war memorial, the main street was renamed "Rue de Major J C A Roseveare" and a room in the town's community centre was named after him. He was made *Le Premier Citoyen d'Honneur de Troarn* in 1987. A requiem mass was held in his memory in the town on 27 October 2000.

Courage, imagination, loyalty, integrity and a sense of humour are essential qualities for an eminent civil engineer and wartime officer of the Royal Engineers and Tim Roseveare was blessed with an abundance of all of these. In the words of a close colleague: "There was never any shilly-shallying with him. He would stand up and be counted, whenever a stand had to be made, whatever the power, strength and distinction of the opposition. He was also wonderful company, charming and courteous, full of fun good humour, enterprise, sang froid and leadership."

His beloved wife, Sylvia, one son from his first marriage and two stepdaughters survive him.

JOT JSRS RRB ATJR

Extracts courtesy the *Daily Telegraph*.

MAJOR GENERAL C B POLLARD

Born 20 April 1927, died 18 October 2000, aged 73.

BARRY Pollard's success in his career in the Corps, culminating in his appointment as Colonel Commandant in 1982, was the outcome of superb professionalism and a steadfast and engaging personality.

He was born in Cheam, Surrey, and although his was not a military family his earliest ambition was to become a soldier. He was educated at Ardingly College, where he was an enthusiastic member of the Cadet Corps, went on to attend the last Army Short Course at Cambridge University and was commissioned into the Corps in April 1947 after completing his Sapper training. He thus achieved a long-cherished ambition held since the age of four.

He joined 22 Field Engineer Regiment in the Middle East after a year in the SME at Ripon, and from there went off to the war in Korea, first as a liaison officer in RHQ and then as a troop commander in 12 Field Squadron.

His return to the UK for his Junior Officers' Course led to two years as Adjutant to 125 (Staffs) Corps Engineer Regiment (TA), then back to the SME as Staff Captain A from which he joined the 1958 Staff Course at Camberley. After a staff appointment in Eastern Command he was considered too young to command a field squadron and was sent to Angers as the British Liaison Officer to the French Corps of Engineers. There he quickly developed an affinity for the French way of life, of which he was later to have a further taste. From there he went on to command 5 Field Squadron in Germany and, after the Latimer Course, was back again in France, this time to Fontainbleau for a year as MA to DCOS (Ops & Int) at HQ LANDCENT.

His next appointment, although a short one, was indicative of the work in which Barry Pollard was to be involved for much of the latter part of his career: restructuring of the Army. He spent that year on the Secretariat to the Committee on the Future Structure of the Army. This was followed by a year at Camberley as DS before being appointed CRE 3rd Division. During this time he was responsible for completion of the approach channel to the Beaucette Marina in Jersey – a task which a rash young officer had assured local officials could be completed in a couple of weekends! This was far from the case and it took all the CRE's technical and personal resources to complete the work and smooth the many ruffled feathers in both St Helier and Whitehall.

After two years in command he went to HQ 3rd Division as Colonel GS and, on promotion to brigadier, to Bielefeld as CCRE I (BR) Corps. After RCDS he returned to Germany as Chief Engineer BAOR for his last three years in the Army, finally retiring in Feb 1980.

Barry Pollard then redirected his talents to civilian life with all his customary vigour. The Trident Trust which aimed to assist young people in making the transition from school to the world of work and to introduce them to community responsibilities was a huge success under his directorship, as was the Solent Business Fund in helping to finance young entrepreneurs. As Chairman of Haig Homes it was his vision and drive which initiated and raised the funds for the much-needed modernization programme that revolutionised the housing conditions for the 800

ex-service families housed by the Trust. Locally he led the protest against the proposed alignment for the Salisbury bypass and found time to be treasurer of his local church.

His chief recreation was sailing, a sport which he greatly enjoyed and in which he encouraged others to participate. He was a skilled navigator and experienced skipper, which made him the ideal choice to be Commodore of the British Kiel Yacht Club during his time as Chief Engineer Rhine Army. He fully appreciated the training value of offshore sailing, particularly for young NCOs, and successfully fought off many attempts to reduce or end the funding of these activities. He was Vice-President of the Army Diving Association for many years and in that capacity in 1977 became Vice-Patron of the Joint Services Expedition to the Chagos Archipelago in support of a major scientific survey for which HRH The Prince of Wales was Patron. He had the distinction of being the most senior officer to take an active part in such an enterprise as skipper of the support ship (a 55ft ketch) and diving on the coral reef.

After he left the Army he took such opportunities for sailing as he could. When ill-health curtailed these he took up fly-fishing with enthusiasm and success.

Barry Pollard had a well-deserved reputation for straight dealing. He had no doubt about what was right and what was wrong. He knew what he wanted and had the knowledge, drive, determination and, when necessary, the tact to see it through. He normally had a light touch in his dealings but could be very tough and uncompromising when circumstances demanded. He had a great sense of humour and always a mischievous, merry twinkle in his eye. He was a wise counsellor and many people, young and not so young confided in him and benefited from his knowledge and wide experience.

Barry was a great family man and his wife Mary was a staunch support throughout their married life. She survives him with their three daughters and five grandchildren.

JHGS CPC JPG ACSR GBS RAB

ACSR remembers:

"I first knew Barry Pollard on our JO Course in 1952. I saw at once a competent, confident and very enthusiastic officer. He was great fun to be with, mature from his time in Korea, a leader in discussions and a leader in the JO pranks which continued throughout the course.

We next overlapped at the French Engineer School. My introductory weeks with the French included a series of eulogies on what a great guy "Le Major Barry" was. One incident frequently recalled concerned a high level demonstration at which the demonstration company failed to arrive due to flooding. Barry commandeered the YO Course, there as spectators, and any others who arrived early and had, in half an hour, stage managed the morning's display. The VIPs were unaware of any problem! The French couldn't get over his flair and ingenuity.

Later I had the good fortune to take over from Barry as Chief of Staff (Col GS) of 3rd Division. The staff procedures, deployment systems and headquarters organisation on my arrival were perfection itself and I wondered what there was for me to do. I soon learned that things changed pretty quickly with 26 major units under command and that the calm on my arrival had been due to Barry's clear mind, ubiquitous, bulging Filofax, and his firm but easy relationship at all levels with UK Land Forces, the RAF, overseas staffs and NATO. Barry Pollard handed me a happy and competent staff and, as weeks went by, a clear picture emerged of the great respect in which he was held throughout the Division. He had excelled as their Sapper and then as their principal staff officer.

Mary and Barry were an outstanding couple – perfect hosts and great friends.

He was an inspirational soldier who was also a friendly, generous and loving family man. A great many people will miss him enormously."

CPC' s reflections:

"Over the years since we first served together in 1949 I came to know Barry well. He was without doubt a very efficient and accomplished officer. He had a clear brain and a great facility for collating and mastering detail which he then simplified in the formulation of precise and effective plans. In his dealings with people, he inspired confidence and loyalty in colleagues, subordinates and superiors alike. He was relaxed, had a good sense of humour and was very sociable.

In his retirement, amongst his many interests, he developed a liking for sketching and painting in which he deployed his appetite for accuracy."

JPG writes:

"I first met Barry in Libya in 1949 serving in 22 Field Engineer Regiment. In 1952 we shared the same JO Course where Barry distinguished himself by losing his much loved sports car, which he had exchanged for an engagement ring, together with the young lady in question all before the course was out! Over the years, together with our families we have skied, sailed and holidayed on many occasions and we came to know one another very well – you don't spend weeks cooped up in a small yacht with someone without achieving that. We never had a cross word. He was always easy company, a loyal and supportive friend and valuable counsellor with whom I spent many happy hours discussing the problems of the day. We had a lot of fun together both at work and play and as a family we will all miss him a great deal."

CAPTAIN N V R OAK-RHIND

Addition to memoir published in December 2000 Journal

BRIGADIER A C S Ross writes: I would like to add a word to JHM's memoir of Nigel in the December *Journal*.

My wife and I met Nigel and Penny only after they arrived in Spain, though his reputation as an exceptional young officer was known to me.

He arrived alone as his wife had to complete a further year or so of her commission. Nigel plunged into the building and conversion of a small holiday complex they bought including a couple of chalets, a pool, tennis court and their bungalow in the Andalusian countryside. When we met him his Spanish had way overtaken ours and, more important, be spoke the local argot. He knew all the local people, tradesmen, restaurateurs, shepherds, other foreigners and so on, and with his infectious enthusiasm, good cheer, interest in people and ability in tackling any odd job, the Spanish loved him.

There were problems: money was tight so Nigel did much of his own conversions and improvements. Once, while alone, up a ladder drilling a hole through a wall, he got extra purchase by leaning his head against the Black and Decker. Unfortunately he hit a live cable and was flung backwards across the room. He broke a leg either then or in a similar hiccup but he had us in stitches over his retelling.

Nigel was always the optimist and was clever enough to sort out the multitude of construction, bureaucratic and broken bone problems.

Because the holiday letting business is seasonal, Nigel also went into real estate. He soon rose up the management ladder but told me he was hopeless at selling to anyone who spoke proper, so he had employed an "estuary lad" who was a whizz with the toffs.

Nigel was spectacular at selling to those from north of Watford (the snobism is mine not his).

His leishmaniasis tragedy was not readily diagnosed and even when he had returned to England for treatment he was rather a guinea pig, being tested for various cancers and tropical diseases as London hospitals tried to find cures. He took it all with immense fortitude. When we last visited him in Dorset some three years ago Nigel told me he had asked the London doctors to try out any treatment they wished on him, from which they might learn to the benefit of others.

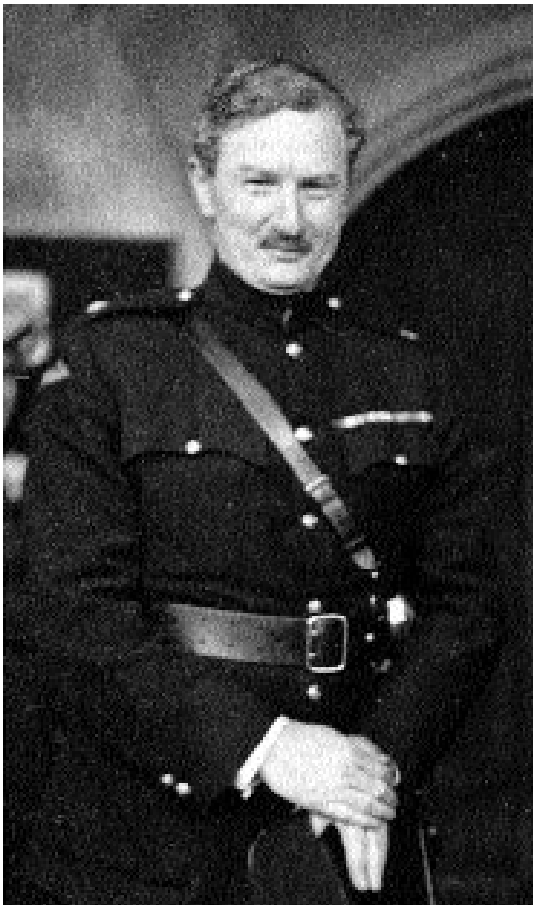
Although no longer the strong wiry worker he had been, his eyes still sparkled and he was enthusiastically involved in sticks and string engineering to make his immediate surroundings more comfortable, or at least more interesting.

Nigel was a brilliant bon viveur and family head who would have excelled in whatever field he entered; the armed forces, marketing, languages, design and construction are some in which I know he was outstanding. And he and Penny held famously good parties on long Spanish afternoons. What a loss he is.

ACSR

MAJOR A J HARDIMAN

Born 25 September 1916,
died 17 January 2000, aged 93.



JOHN Hardiman was born in Plymouth and attended Exeter School. He was a keen member of the OTC and after leaving school was commissioned in the Supplementary Reserve. He was called up in 1939 and served in France as a searchlight section commander until the evacuation in 1940.

Shortly after his return to England John was posted to East Africa where he took part in the Abyssinian campaign as Adjutant to CRE 12th African Division. He then made his way via Khartoum to Cairo. After serving briefly with the Cairo defences, at a time when there was a real possibility of invasion by Rommel, he was appointed Second-in-Command 572 Field Company.

He then volunteered for an SOE mission in Yugoslavia, which involved parachute training. As the mission was abandoned, he was appointed to command the newly-formed 4 Parachute Squadron in Palestine which then joined 1st Airborne Division in Algeria. His squadron landed in Taranto in 1943 and advanced as far as Bari before being returned to England in January 1944. He was then posted to the SME at Ripon as Chief Instructor, Engineer Assault School. It was a great sadness to him that his old squadron lost nearly all its men in the airborne assault at Arnhem.

After Staff College he was posted to India in 1945, arriving just after the war ended. Based in Rawalpindi he worked initially on a programme for weapon development in the North West Frontier which involved travelling all over an area which at that time was still hazardous, military vehicles being frequently ambushed by Pathan snipers.

In 1946 John was appointed Commandant of the Air Transport Development Centre (ATDC) at Chaklala, Rawalpindi. One of his most interesting experiences was organizing trials in Kashmir to find out the effect of dropping loads from parachutes at high altitudes. In addition to his official duties he and his wife managed to spend a holiday there, trekking up the Gilgit road to the Burzil Pass, a height of 12,000 feet. In 1947, when the ATDC was relocated to India, he had the heartbreaking experience of putting all his Hindu soldiers on the train in Rawalpindi only to hear later that, as he had feared, they had all been massacred before they reached the frontier.

In 1948 John returned to England and was posted to MEXE at Christchurch, where he served until 1950. He was then appointed OC 71 Field Squadron to take part in the first British atomic weapons trials in the Monte Bello Islands. They sailed out at a slow pace in the LST HMS *Narvik*, in which his squadron was to be accommodated during the trials. In order to while away the time John volunteered to help the Navy with the navigation. He duly received a certificate testifying to his ability "to sail small craft in daylight."

Back in England in 1953, after serving as Garrison Engineer, Didcot and commanding 81 HQ Assault Squadron at Perham Down and Erlestoke, he was appointed to the War Office as a Technical Staff Officer in MI 10, and remained there until he retired in 1960.

At the time of his retirement he was living in Westminster and in 1961 he was elected as a

Westminster City Councillor representing Pimlico; he served as a member of the Housing, Planning Civil Defence and Public Cleansing Committees. He joined the Greater London Council Architects' Department, working on the modernization of council properties.

In 1968 he and his wife went to work in Ghana, he as Executive Engineer to the University of Ghana, Accra, and she to teach there in the Department of Sociology and Anthropology. They spent three happy years in the country, returning to England in 1971.

John took a keen interest in conservation. While living in Knightsbridge he was Secretary of the Knightsbridge Association. After moving to Islington he joined the Highbury Fields Association and served as its Chairman for nearly ten years, before leaving London to live in Salisbury in 1989. There he became involved in forming the Salisbury Cathedral Close Preservation Society, in which he took an active part until his death. He was particularly concerned with traffic problems in a Close which is the largest in England, with many residents, three schools and many other institutions which attract large numbers of visitors and vehicles.

His wife Margaret and two sons survive him.

MGWH

Memoirs in Brief

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

Sir Denys Lasdun CH CBE, one of the most distinguished architects of his generation, died in January, aged 86. He was educated at Rugby and the Architecture Association School of Architecture. Having qualified in the 1930s and with a number of professional successes behind him at the beginning of the war, he joined the Corps and was involved in airfield construction, for which he was appointed MBE. Much of his architectural work, and particularly the Royal National Theatre on the South Bank, provoked controversy at the time for its bold geometric lines and bare concrete but has now achieved acceptance and the accolade of imitation.

Lord Greenhill of Harrow GCMG OBE, who died last November, was a former Permanent Under-Secretary for Foreign Affairs who had served in the Corps with distinction during the war. After graduating from Oxford he became an apprentice railwayman with the LNER. He was then commissioned into the Corps and served in the Mediterranean theatre, India and South-East Asia ending in the rank of colonel. He was mentioned in despatches twice and awarded the OBE. His experience in oil transportation led to his move to the Foreign Office. He had two tours in Washington (one during the Cuba missile crisis), and one in Paris. Thereafter he remained in London. In 1969 he was much involved with the deal for the release of the Krogers in exchange for a British lecturer held by the Russians on spying charges. Later he put much time into attempting an Anglo-Rhodesian settlement in the days of Ian Smith and Joshua Nkomo.

Victor Russell, who died earlier this year aged 82, was a leading Antarctic explorer in the post-war years. During the Second World War an expedition, Operation *Tabarin*, was set up to secure the Antarctic waters and former whaling stations from possible use by enemy warships. Russell, a Royal Engineers captain in Survey, was sent to join the expedition in 1944. Beset with difficulties, at one stage the only plentiful item was Navy run, several hundred gallons of which had been supplied due to a clerical error. Russell took over the leadership of the enterprise in January 1946 by which time it had developed into the Falkland Islands Dependencies Survey. In that capacity he made three major expeditions reconnoitring the northern peninsula, all in extreme conditions. Russell East Glacier was later named after him.

Correspondence

BANK STATION BRIDGE 1941

From: Major (retd) E Davies

Sir, – In the recent issue of the *Journal* mention is made by Major A G Marsden, of the Bank Station Bridge 1941 and I can confirm that it was a "large box girder" constructed by 691 General Construction Company under command of Major Clifford Jones. There were decorations for two sergeants and later the Company moved to Bicester where they carried out roads, drainage and Nissen Hutting for the Ordnance Depot. I joined the company in September 1941 from 142 OCTU. Yours faithfully, Eric Davies.

RE 1897 PATTERN MESS KIT SUBMISSION FROM THE INFANTRY

From: Major I D Macdonald, Lowlands and Captain (retd) M E J O'Neill, Irish Guards

Sir, – We have been following with interest the debate going on within the Corps of Royal Engineers with reference to the proposal to reintroduce the 1897 pattern mess kit. Please forgive this intrusion but if two officers who count themselves as friends of the Sapper family might be allowed to voice an opinion, we would be grateful. It is our view that you have nothing to lose with this venture and everything to gain. In other words (and if you will forgive us for saying it) you have a splendid history and a great tradition which you all too often overlook and undersell.

As a matter of interest the current pattern of mess kit which you and several other regiments and corps use, came out in 1939 as a cost saving measure. Intended as a utility pattern mess kit for use by all cap badges with only minor regimental differences, it was, if you like, the mess kit version of battle dress. As you will be all too aware it wasn't very long before many regiments departed from this pattern, some quite radically and some never changed at all!

So come on Sappers, no more hiding of lights under bushels and false modesty. Be proud of who you are and don't be afraid to be authentic and true to your past. Yours sincerely, Maj I D Macdonald and Capt M E J O'Neill

MESS KIT

From: Major A N Hadfield, STAFFORDS

Sir, – Though an infantry officer I am fortunate to be able to read the *RE Journal* as my wife served within the Corps. I have followed with interest the debate on your mess kit and, for what it is worth, I thought that the view of an outsider may be of some interest to your readership.

For reasons other than marriage I hold the Royal Engineers in high regard. In my experience they are a "can do", dirt under the fingernails organization, totally committed to their task. There can be no doubt that of all arms and services we rarely have enough of you around when we need you, for reasons outside of your control. I believe that your reputation is built on the backs of the men and women in your Corps and their positive attitude to their profession, that of military engineering. I do not personally believe that your reputation will be enhanced in any way by dressing yourselves in finery and frippery, thus eroding your Corps reputation for unfussy, businesslike professionalism. For those who believe that a smart mess kit is the answer to their courtship difficulties there are plenty of commissions available in other arms. For you to make an unnecessary change now would, in my opinion, only make us external to your organization wonder if we were losing our engineers,only to gain a bunch of popinjays, likely to shy from their core tasks.

To conclude, you currently enjoy a level of regard possibly unrivalled within the Army. You should be pleased with this and not seek to jeopardise it with ill-considered cosmetic policy decisions.

A personal opinion, A N HADFIELD, Maj, STAFFORDS.

DEFINITELY DRESSED TO KILL?

From: Lieutenant Colonel M W Whitchurch

Sir, – Floreat Launching Nose and his article on dress. Readers following the mess kit debate may want to know why I called the proposed kit "1897 Pattern". I did so because that was the date next to the regulations found in research.

That this splendid attire dates back to 1857 endorses my case, as it was around longer than I thought. Launching Nose's point made by the French officer is telling as several members of the opposite sex responded by saying that a successful advance would have to be more subtle than the French approach!

Thank you for allowing me to comment on the letter from Major A N Hadfield of the Staffordshire Regiment. The reality of human nature is against him. Consider the following analogy: Go to a car sales room. There are two identical cars in price and make. Both are of the same mechanical condition but one is looking sharp and smart but the other is, well, bland. The salesmen reading this will tell you which car will sell more. Moreover, which one would you buy? exactly! Equally, one friend who is a publisher retorted that the saying "not to judge a book by its cover" is simply not true. The logic behind cosmetics is similar. You must look good as well as be good and the current kit simply does not achieve this. Is Major Hadfield's view typical of other arms? Possibly not as the letter from the officers of the LOWLANDS and Irish Guards shows that not all agree with him. Your Obedient Sapper, Sticky.

MEMOIR – COL A W KIGGELL OBE

From: Lieutenant J Richardson

Sir, – I noticed the reference to the rebuilding of the Wadi El Kuff bridges by 22 Field Engineer Regiment. In 1952 I was with 22 at Waggon Hill Camp, in the Canal Zone, and flew from Fayid to Benghazi to be met by Olive Bloomer who had arranged transport onto Tobruk. There I was to prepare *Meander* to sail back to the Great Bitter Lake once the late Bertie Bloomer arrived.

During the journey from Benghazi to Tobruk I took some photos of Wadi El Kuf bridges, one of which is printed above. Although the photo *(above)* is small it does illustrate the size of No.1 bridge. *[See also Apr 92* Journal *p74.]* Yours sincerely – John Richardson.

BRIAN RAPPING'S "END OF EMPIRE"

From: Lieutenant (retd) G P Webb

Sir, – I commend all Sappers to read Brian Rapping's "End of Empire". In particular, the chapter on India is a very fair and balanced account of the ending of our imperial role in the sub continent. It sets straight the various partial renditions of exactly what transpired. "History" is sometimes, as we well know, highly subjective.

There is a sense of "in memoriam" to the relationship between former Sappers and their present Indian counterparts. Despite the ritual exchange of the annual congratulatory messages, it is wise to realise the change in the association following independence, rather than continuing to live in a mist of unreal nostalgia. Yours sincerely – Geoff Webb.

Reviews

WAR LETTERS TO THW FROM SOUTH AFRICA 1899-1902 EHW

EDITED BY CLEMENCY HOLT-WILSON

Privately published.
Available from the Royal Engineers Museum
£19.99 including postage and packing.

EHW – Eric Holt-Wilson – was born in Norwich in 1875. From school at Harrow he entered the RMA Woolwich and was commissioned into the Royal Engineers in 1895, joining his unit at the Curragh, Ireland. In the summer of 1899 he sailed for South Africa with 7th Field Company.

During his time in South Africa, from July 1899 until August 1902, he wrote three or four letters a month to his father THW – Thomas Holt-Wilson. They offer a fascinating insight into operations during the Boer War and also record meetings EHW had with distinguished men such as Kitchener, Methuen, Baden Powell and Roberts, with war correspondents such as Winston Churchill, and with Boer leaders.

JEN

THE SECOND WORLD WAR IN PHOTOGRAPHS

RICHARD HOLMES

Carlton Books Limited 2000,
20 Mortimer Street, London, W1N 7RD.
Price £25.
ISBN: 184 222 073 X.

THOSE of us who lived through the 1939-45 war were fed on a diet of black and white photographs as well as black and white film. The pictures in the newspapers and in magazines such as the *Illustrated London News* and *Picture Post* were mainly black and white. Today we see colour videos on our television screens and colour photographs in our newspapers. This book of Second World War photographs consists in the main of black and white with a very occasional colour ones interspersed.

Somehow, the black and white pictures have a much greater feeling of reality and poignancy about them – colour, in a way, gives an unreal impression, even a fictional quality. The compilers are honest that some of the photographs were posed and indeed it is quite clear when this has happened. But in the main they are genuine action shots and what a vivid portrayal of the war they give. The photographers include many amateurs but also professionals such as Cecil Beaton and Bill Brandt. At first glance there is a danger of labelling this book as for the coffee table. Not so! As well as excellent and informative captions to each of the photographs, Richard Holmes has written a first class text. He does not set out to write a definitive history of the war nor a deep analysis of each of the campaigns. But the text is pithy and knowledgeable.

"Every picture tells a story" we are told. These pictures, backed by such a helpful text, go to the making of a splendid book.

FRB

BACK AGAIN MR BEGBIE A CHRISTIAN MAN'S TESTIMONY OF THREE CAREERS IN ONE LIFE

REV LT COL R J G BEGBIE OBE

Published by Ross House Books,
Box 67, Vallecito, CA 95251, USA.
Available from Christian Digest, 14 Whitelea Court, Kilmacolm, PA13 4LA, Renfrewshire.
Price £8.50 plus £1.50 p&p.
ISBN 1 879998 17 3.

A FAMOUS school enjoined its pupils to serve God in the priesthood as man's highest calling; second to that came service in the armed services, and by implication anything else was serving oneself. In this fascinating autobiography Dick Begbie charts his pursuit of all three over six decades. From boyhood in a pre-war military family to becoming the youngest lieutenant colonel in the British Army; back again to a new start in a South African oil company from petrol pump attendant to operations manager, back yet again to curate and on to rector and chaplain in a South African commando at war.

He gives a hilarious account of the "Shop", that superlative hothouse for Sappers, Gunners and Signallers, at the Royal Military Academy,

Woolwich. After shortened engineering courses, 19-year old second lieutenants found themselves teaching much older officer recruits in the enormously expanding army. Temporary captain at the age of 20, Begbie's experiences included defuzing a 250lb bomb without previous training, blowing himself up in a training experiment and getting married!

No doubt in consequence of his singular qualities he became Adjutant to the CRE 15th Scottish Division and admitted to the top secret Bigot list planning the Normandy Invasion in all its fantastic detail. He gives a graphic account of the Normandy Battle, for which he was mentioned in despatches, the Rhineland Battles for which he was made an MBE, and the advance to the Baltic.

Promoted to major at the age of 25, he was sent to East Africa as DCRE Works for Somaliland Sub-Area responsible for all engineer services, military and civil, until the Public Works Department could be re-established, all at a distance of 1300 miles from his CRE. As a lovely example of military ends justifying the means, having been officially denied funds to buy bullocks for road maintenance, he took them on the payroll with suitable Arabic names, and used their pay to buy them with.

It is clear that Begbie's postings were in the direction of high rank as he progressed through the Staff College to two key Grade 2 Staff appointments, and a very successful tour as OC 38 Field Squadron in BAOR. The climax came with promotion to lieutenant colonel at the age of 35 to be Chief Instructor in the Pakistan SME and in charge of engineer training and organization at GHQ Rawalpindi. For these services he was made an OBE in the New Year Honours in 1959. It being impossible to educate his three sons on service pay he came to the agonizing decision to take early retirement and move to South Africa.

Throughout the account there runs a strand of growing Christian commitment, from disillusionment with what he perceived as "Churchianity" to conviction of spiritual need during the Normandy Battle, to conversion thanks to the ministry of the Officers Christian Union, and to outright and fearless witness for Christ in all his army appointments. This commitment led to a very fruitful ministry first as a layman and then as a minister in the Church of England in South Africa during which he was used to found no less than six new churches. One of many reactions to his broadcast services gives an idea of the impact of his ministry, "I just want to thank you for that beautiful preach we all listened to. It was too beautiful for words. I feel so blessed and enjoyed every minute. It will be an eye opener to many, especially the prayer we had to repeat at the end."

This is a splendid book, indeed a minor classic, an easy and enjoyable read full of interesting matter and humour. Dick Begbie's book is inspiring and the example he sets his readers is that of a man of courage, faith, energy and total commitment to Christ.

BDM

AIM FOR A SOFT LANDING
THE LIFE AND TIMES OF A WWII GLIDER PILOT

MAJOR T B D MCMILLEN MC,
ROY W JONES & EDITH M JONES

Published by L Brown,
76 Rolvenden Road,
Rochester, Kent. ME2 4PG.
Price £14.99 – all profits to the Glider Pilot Regiment Association.

ANYONE who enjoyed Tom McMillen's company in his days as RE Headquarter Mess Secretary, will delight in this book with its abundance of anecdotes told in his unique style with its gentle understated humour but laser-sharp accuracy of observation. Tom, however, lived through some dramatic and often horrific events about which one could only be curious during his lifetime. "War is not for the faint-hearted", he remarks at one point, "although national pride is a surprising antidote." Fortunately he was persuaded to relate some of these experiences towards the end of his life and they now appear in a framework of background information that ties the story together very well.

Thus we can read not only of his time as a glider pilot in the campaigns in Sicily, Southern France, the Rhine Crossing and Greece, but also of his post-war service in India (where he was witness to the ghastly aftermath of Partition), the Mediterranean theatre and Malaya.

This is essentially a personal story of a man of action who found it difficult to settle down to peacetime soldiering, but with sensitive feelings

towards the dramatic events he witnessed and his fellow human beings involved. Well worth reading for its portrayal of the exigencies and joys of service life in the forties and fifties and for the pleasure of recalling Tom's voice.

GWAN

THE GREAT WAR GENERALS

ROBIN NEILLANDS

Published by Robinson Publishing Ltd,
7 Kensington Church Court,
London, W8 4SP.
Price £12.99.
ISBN 1 84119 063 2.

LOOKING at the cover of this book with its picture of three solemn looking officers, perhaps it is not surprising that World War I Generals do not have a high reputation. This is reinforced by the bitter poetry of those like William Owen and particularly Siegried Sassoon with his "Good morning; good morning! the General said ... Now the soldiers he smiled at are most of 'em dead". Yet these Generals, who may have looked like Colonel Blimps, were determined men who had reached the top of their profession. They may have made mistakes but as Marshal Turenne said, in 1641, "Show me a General who has made no mistakes and you speak of a General who has seldom waged war". Historians have been quick to blame the slaughter on "the Generals", but is this fair?

Amongst the recent plethora of books on World War I, this one stands out. We have a book that takes a dispassionate look at the war, sets out the problems, both military and political, and analyses the successes and failures. It tells the story of the twenty-four Generals, mostly British but including four French and four German, who held high command on the Western Front, and settles many of the myths that have surrounded them. Though primarily about the Generals, it also provides an excellent potted history of the war.

The book is aimed squarely at the general public and sets out to examine primarily the popular allegation that the British field commanders were all incompetent and callous, living in chateaux well behind the lines and speeding millions of hapless soldiers up to the front, there to perish in fruitless attacks which were constantly repeated until the end of the war. Robin Neillands makes no attempt to whitewash the Generals and, indeed, leaves the reader to make up his own mind, but he does make the point that seventy-eight British Generals lost their lives and another hundred and forty-six were wounded.

Anyone talking about World War I sooner or later mentions Haig. He is the chief scapegoat and though he undoubtedly had his faults, he was a steady, resolute man who planned carefully and had a tremendous affection for his fellow soldiers, as they did for him. He faced some almost insuperable problems, the greatest being poor communications which affected all levels of command. But, despite all his problems, he did win in the end! The sad thing is that all the Generals were subsequently vilified and the politicians joined in the general chorus of condemnation, despite their own failure to do anything to bring about an earlier end to the war.

The final chapter is headed "A Verdict on the Generals" and begins by reminding the reader that the small British Expeditionary Force was sent to France in 1914 ill-equipped for a major war; and that the generals had three years of agony and frustration before they were able to play a proper part in the struggle. The author summarises what caused the war to develop in the way it did. When the Generals are seen in the context of their times, when the whole situation is understood, their actions become easier to understand and their problems attract a little long-overdue sympathy. All this is well brought out in this fascinating and thought-provoking book and it does much to set the record straight. It is well worth reading.

GLC

Explanation of Abbreviations and Foreign Words Used in This Journal

1RRF .....1 Royal Regiment of Fusiliers
AA&QMG .....Assistant Adjutant & Quartermaster General
AFNORTH .....Allied Forces Northern Europe
AQ.....Assistant Quartermaster
BAOR.....British Army of the Rhine
BBC.....British Broadcasting Corporation
Bde .....brigade
BEF.....British Expeditionary Force
BR.....British
Coy.....company
CRE .....Commander RE
DCOS.....Deputy Chief of Staff
DS.....directing staff
DZ.....drop zone
EinC (A).....Engineer in Chief (Army)
Fd .....field
GS .....general staff
HQ.....headquarter/s
HRH .....His/Her Royal Highness
Inf.....infantry
Ja.....yes
LANDCENT .....Land Forces Central Europe
LofC.....lines of communication
MA .....military assistant
MEXE.....Military Engineering Experimental Establishment
MI .....Military Intelligence
MOD .....Ministry of Defence
mph.....miles per hour
NATO.....North Atlantic Treaty Organisation
NCO .....non-commissioned officer
OC.....officer commanding
OCTU .....Officer Cadet Training Unit
Ops & Int.....Operations and Intelligence
OTC .....Officer Training Centre
PQE.....professionally qualified engineer
RAF .....Royal Air Force
RAMC.....Royal Army Medical Corps
RCDS .....Royal College of Defence Studies
RE .....Royal Engineers
RLC .....Royal Logistic Corps
RMA.....Royal Military Academy
RO .....retired officer
RSJ .....rolled steel joist
RSM.....regimental sergeant major
RSME .....Royal School of Military Engineering
RWF.....Royal Welsh Fusiliers
SME.....School of Military Engineering
TA.....Territorial Army
TEWT.....Tactical Exercise Without Troops
TV .....television
UK .....United Kingdom
UN.....United Nations
Unesco.....UN Educational, Scientific and Cultural Organisation
US .....United States
VE.....Victory in Europe
Vielleicht .....perhaps
VIP .....very important person
WRAC.....Women's Royal Army Corps
WW2.....World War Two
www.....worldwide web

Please note: the above abbreviations are those which appear within articles published in this edition of the Journal *only, and are printed for the benefit of our many foreign and non-military readers.*
Appointment abbreviations (which appear on the first page) can generally be found in the back of The Royal Engineers List.