THE ROYAL ENGINEERS JOURNAL

APRIL 1992 VOL 106 No 1

Guidelines for Authors

The Editor is always glad to consider articles for publication in the Journal. Guidelines for prospective authors are:

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

Length. Normally, chance of publication is in inverse proportion to length. More than 4500 words (five pages of text) tends to lose most of our readers. Blockbusters can sometimes be serialised.

Clearance. Opinions are an author's own. The wise man clears an article with his boss on any policy matters. Security clearance must be obtained locally.

Copy. Ideally the text should be double space typed and include the author's pen picture, photo and captions for artwork.

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

Contributions should reach the Editor by:

Early June for the August 1992 issue
Early October for the December 1992 issue
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Submissions before the deadline will be particularly welcome.

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Editorial

As Secretary of the Institution I frequently receive the news of the deaths of retired officers of the Corps. As I reflect on their names I am struck by the rich diversity of the talents of members of the Corps – talents often forgotten until we begin to prepare memoirs. It can be invidious to name names but since I had been closely involved with Lieutenant Colonel Bob Grocott and Major Ken Bryan, I was particularly saddened by their deaths. They were both larger than life characters, who loved the Corps and radiated an atmosphere of enthusiasm and confidence. As I considered the memoirs in this issue my views on the special qualities and often the eccentricity found in Sappers were reinforced. I noted the resourcefulness of George More, Sir Mark Henniker, Ken Wylie and Stephen Hollway in the withdrawal to and evacuation from Dunkirk and their bravery in later campaigns. I remarked that George More and Ken Wylie had later distinguished themselves in different Commandos in *Layforce*, and the lifespan and achievements of Major General Hutson are remarkable by any standards.

The articles in this issue concentrate to an extent on the war in the Far East – the Forgotten War. There is a thread running through them. Professor Allen, in his moving article on *The Fate of the 18th Division RE*, mentions small parties escaping from Singapore. We find Major Phelps in another article reminiscing on his experiences as a sapper escaping in one of those parties. Further North, Major Hudson describes vividly his experiences at the bridge at Sittang and gives his opinion on the events surrounding its demolition. In the days and weeks after that disaster there are descriptions of demolitions in withdrawal, from the then Captain Eric Yarrow and Major Ian Lyall Grant. They both independently mention the CRE. Major Lyall Grant comments: "the CRE was the incomparable Dick Ward". Sir Eric Yarrow remarks: "the CRE was the much respected and courageous Lieutenant Colonel Dickie Ward". What better memoir could a man have.

Finally the thread extends to today's Indian Engineers by way of the short article by Colonel Braganza. The article epitomises the remarkable relationship which has existed between Indian Engineers and the Sappers since the middle of the 18th Century through the war in Burma to the present day. Long may it continue.

The New *M3* Amphibian UK User Trials by 28 Amphibious Engineer Regiment

LIEUTENANT COLONEL T H E FOULKES BSc(ENG)

Lieutenant Colonel Tom Foulkes has been CO 28 Amphibious Engineer Regiment since late 1989. His previous appointment was as a Project Management instructor at the Royal Military College of Science, Shrivenham. An Army Scholar, he joined the Corps from Sandhurst in 1971 and served initially with 52 Field Squadron (Airfields) at Waterbeach where he was heavily involved in a wide variety of civil engineering construction projects. He then took a civil engineering degree at RMCS Shrivenham, which was followed by command of the Independent Field Troop, Allied Command Europe Mobile Force (Land) at Tidworth. After several winters in Norway, and much construction experience during the summer months, he moved to the Junior Leaders Regiment RE at Dover as Adjutant and later to 21 Engineer Regiment as Operations Officer. He attended Division I of the Staff Course at Camberley in 1981-82, and was then posted to Quartermaster General Secretariat 1 in the Ministry of Defence. More recently he commanded 1st Field Squadron at Nienburg and then ran the Mobility/Bridging desk at the Ministry of Defence, Land Systems Operational Requirements 5 from 1986 to 1988.

Tom Foulkes is a third generation Sapper Officer, his grandfather having been commissioned into the Corps in 1894 and his father in 1928. He is married with two daughters, and his principal interests are history, photography and gardening.

Introduction

Bridging is not negotiable; it is not a question of degree. An army has either got it, or it hasn't. And if it hasn't, then its operational and tactical mobility will suffer and disaster may well ensue. Ever since Legate Drusus launched his ill-fated Teutoburger campaign with a surprise pontoon bridge over the River Rhine at Vetera in 11 BC, the strategic significance of wide river crossing has been well understood. The British Army has always recognized its dependence on mobility for European campaigns and operations around the world, and it has therefore afforded a high priority to bridging over the years. During World War Two, guaranteeing the mobility of new armoured formations initiated the urgent development of the Bailey Bridge. And after the war, new requirements and new materials led first to the Medium Girder Bridge and more recently to the Christchurch Bridge for BR 90.

In Britain, however, the development of floating bridges for wide rivers has tended to take second place to the shorter, dry span equipments required for the 1 (BR) Corps area of North Germany. Nevertheless, although wet bridge development might have been slow, the lessons of the Second World War, particularly the Rhine and the Irrawaddy crossings, were not forgotten. In the 1950s and 60s, whilst the UK was flirting with Hovercraft, much important pioneering work on self-propelled pontoons was going on in France and Germany. Its first practical results were seen in the French *Gillois* amphibian of 1954 which the British and German armies bought in small quantities on a trial basis. This was closely followed in 1958 by a German prototype amphibian, known as *M1*, which was designed in steel. But in 1959 when the German manufacturer, Eisenwerker Kaiserslautern (EWK), redesigned the *M1* in aluminium, the results were dramatic. The new amphibian, designated simply *M2*, was an immediate success and was ordered in large quantities by both the British and the German Armies. The most important difference between *Gillois* and *M2* was the replacement of *Gillois's* inflatable rubber pontoons with rigid aluminium "side swimmers". By 1971 two UK amphibious engineer squadrons had been equipped with *M2* and organized into the newly-formed 28 Amphibious Engineer Regiment at Hameln. It is a credit to the

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The new M3 Amphibian UK user trials (p5)

A three rig *M3* ferry loading a tank transporter and Challenger tank at MLC 100(W). Taken during trials at Barme on the Weser, October 1991.

design and resilience of those original *M2*s that they have remained in constant service ever since and are now older than many of the operators. Since the obsolescence of Light Assault Floating and Heavy Assault Floating Bridges they now represent the British Army's sole means of crossing wide rivers.

Nevertheless, age has taken its inexorable toll on *M2*. From the early 80s it became clear that its life could not be extended indefinitely. In 1983 the Germans launched a new development project for a replacement amphibian, to be known as *M3*. In 1985 the UK joined the project as a collaborative partner and the ensuing General Staff Requirement (GSR), Number 3987, was endorsed by Central Committees in MOD UK. The key points of this GSR were that the new amphibian should be an evolutionary design, drawing on the experience gained with *M2* in order to develop a successor which would be more robust, easier to maintain, better at ferrying, crewed by fewer men, and capable of carrying tanks at Military Load Classification (MLC) 70 and wheels at MLC 100. EWK won the development contract and design work started rapidly. The first prototype was launched in 1986, and full-scale trials by the Germans were carried out all over Germany in 1988 and 1989. User trials for the British Army were subsequently conducted by 28 Amphibious Engineer Regiment on the Rivers Weser, Aller and Leine in 1990. The purpose of this article is to outline the principal findings of those UK trials and to highlight their implications for wide river crossing doctrine in the future.

The *M3* Amphibian

At first sight, the *M3* amphibian looks very similar to its predecessor the *M2*. Basically, it is a 4-wheeled amphibious vehicle with articulating, rigid side-swimmers which provide additional buoyancy once in the water. However, the *M3* vehicle is significantly bigger than *M2* (as dictated by Archimedes), has longer ramps *(Figure 1* over the page) and incorporates a number of important improvements, many of which are of considerable engineering interest.

Propulsion. Propulsion on the river is by water pump jets rather than propellers. Each rig has two jets (fore and aft) which can be rotated through 360 degrees. This means that the *M3* rig can drive itself in any direction including sideways, and it can even spin on its own axis. This ability to produce sideways thrust is at the heart of the *M3* system and is a significant advantage for ferrying.

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The new M3 Amphibian UK user trials (p6)

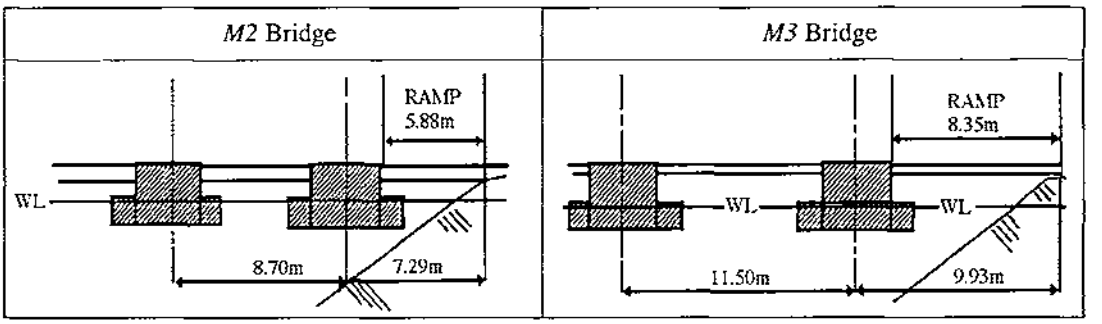


Figure 1. *M2* and *M3* Module Lengths.

Control. The rig can be controlled on the water from either the pilot stand at the stern or from within the driver's cab. Once in the water, the front of the *M3* rig remains the bow so that 'forwards' is the same direction on both land and water. This is not the case with *M2*.

Mobility. Central tyre inflation (3.5 bar to 1.0 bar) and 4-wheel steer give the *M3* rig excellent cross country mobility and superb approach and exiting characteristics *(Figure 2)*. *M3* also has a higher safe convoy speed on the road.

Ramp Press-Down. *M3* can anchor itself to the bank by hydraulically pressing down with its ramps, thus removing the need for time-consuming anchorage points and cables which are so necessary for *M2*. The hydraulic mechanism which produces this downward thrust is part of a system of spring-type accumulators on each *M3* rig which reduce the bending moments of the bridge and effectively make it 'softer' in the landing bay sections. It also produces a local increase in buoyancy and a reduction in the stress sustained by the structure.

Mechanization. Several key functions, such as the operation of the on-board crane, are mechanically and hydraulically operated to speed construction and reduce demands on the crew.

Reduced Maintenance. The whole *M3* system has been designed with low maintenance in mind. Hence there is only one engine (air cooled Deutz diesel; 8 cylinders; turbo-super charged; transverse mounted; rated at 265 kw) instead of the two separate engines in *M2*. Routine servicing requirements have been reduced. Hull skin thickness has been increased. Lubrication points have been reduced.

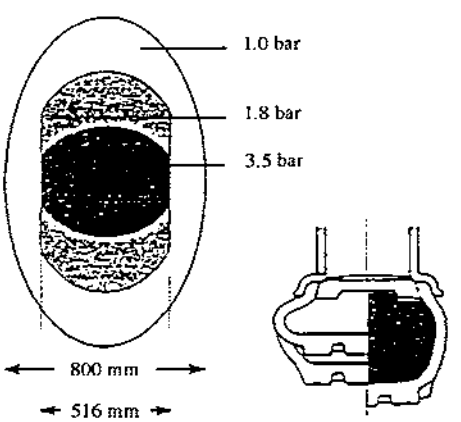
***M3* Variable Tyre Footprint**

Tyre Pressure Adjusting System for Optimizing Traction when Operating Cross Country.

Because the tyre pressures can be adjusted whilst driving, instant matching to ground conditions is possible.

In combination with the big volume tyres, this allows optimum traction or cross country performance to be maintained.

Wheel supporting area at



1 bar tyre pressure supporting area 8400cm²
Soft ground
Sinking depth 127mm
1.8 bar tyre pressure supporting area 4700cm² hard ground
3.5 bar tyre pressure supporting area 2500cm² hard ground

Figure 2

In summary, although the overall concept remains unchanged and the two vehicles look alike, the similarities between *M2* and *M3* are not only skin deep. *M3* is a totally new vehicle with a new design,

M3 Rigs on the Weser, August 1990. Note pilot stand on the stern.

much new technology, and a new, enhanced capability to match.

Results of the Trial

General. Bearing in mind the operational significance of the wide river crossing requirement and the urgent need to replace the ageing *M2* fleet, the single most important finding of this trial was its unequivocal conclusion that the *M3* amphibian is an outstanding piece of equipment. With more than 40 years experience behind them, perhaps it is not surprising that EWK should deliver such an effective design; but it was gratifying to see the evidence nonetheless! The UK trial proved that *M3* can provide an excellent bridge, an outstanding ferry, and an overall capability which will exceed most original expectations. In one significant aspect only — crew size — did *M3* fall short of its designers' aspirations.

Ferrying. One of the most interesting and important results of the trial was that *M3*'s water jet propulsion and rapid assembly make it a superb tactical ferry. The fact that no bank anchors are needed significantly increases both speed of loading and the volume of traffic carried. A variety of different configurations was tried during the trial but the most successful by far was the 4-rig close-coupled ferry. This ferry can be built by an amphibious section in about ten minutes by day (15 minutes by night) and carries two Challenger tanks, or four Warrior Armoured Infantry Vehicles, or as many small vehicles as deck space allows. A single 4-rig ferry could move all 57 tanks of an armoured regiment across a river such as the Weser in about an hour. Alternatively, a squadron consisting of six ferries could do the job in just ten minutes. So high is the potential volume of traffic carried by this type of ferry that on relatively narrow rivers it approaches bridge crossing rates. The smallest MLC 70 (T) ferry uses only two *M3* rigs and can carry a single Challenger tank.

Bridging. Throughout the trial, *M3* bridges proved quick and simple to build. Due to increased skin thickness on the hull and side swimmers, in-shore rigs can now be grounded and trafficked without damage, greatly simplifying bridge recce, design calculations and building procedures. The drill for bridge construction remains identical to *M2*, except

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that every bridge needs three additional ramp sections due to the three ramp configuration of the *M3* rig. These additional ramps cannot be carried on the rigs and must therefore be carried on a dedicated support vehicle. However, as *M3* is wider than *M2* and its longer ramps provide a greater span *(Figure 1)*, fewer *M3* rigs are needed to bridge a given gap. For example, for 100m of bridge 12 x *M2* rigs would be required, but when *M3* is used no more than eight rigs are needed to do the same job *(Figure 3)*.

No of rigs	*M2* Span (metres)	*M3* Span (metres)
1	14.58	19.85
2	23.28	31.35
4	34.80	54.35
6	52.20	77.35
8	69.60	100.35
10	87.00	123.35
12	104.40	154.35

Figure 3

Marine Rescue. The facts that *M3* has only one engine and a very small anchor caused a certain amount of consternation during the early stages of development and trials, especially amongst the British Army yachting fraternity! Anchors, however, are not a problem for the Germans who are able to rely on their ugly but immensely powerful M-Boat for emergency marine rescue during amphibious bridging operations. After extensive trials it was concluded that our own in-service Combat Support Boat, given some minor modifications, would be capable of rescuing a disabled *M3* rig and performing all required safety tasks. Nevertheless, it was eventually agreed that two small anchors would be better than one, and therefore an additional 25kg anchor was recommended for the UK production *M3* rigs.

Crew Size. Crew size was the only significant area in which *M3* failed to meet its design parameters. The original German concept envisaged a highly automated rig with a crew of only two men. But during their own trials the Germans rapidly came to the conclusion that two men were not enough. Subsequently, our own UK trial confirmed a three man crew as essential. This was due in part to automation failing to meet fully its design expectations, and also to the age-old reality of tactical and maintenance demands on manpower. Nevertheless, the reduction of crew size from four men per rig on *M2* to three men per *M3* is still a significant and worthwhile saving in the present manning climate.

Reliability. Reliability was another cardinal point of the *M3* design philosophy, and in most respects the prototype vehicles performed very well. The one feature, however, which did cause concern during trials was the electronic control system, most notably in its operation of the crane and water jets. Detailed lessons were drawn from the trial and various modifications (mostly simplifications) were recommended for the design of the production rigs.

Wheel Arch Inflation. In order to achieve the buoyancy required to support MLC 70 (T) and MLC 100 (W) loads it was originally calculated that water in the *M3* vehicle wheel arches would have to be displaced with air during operation. Consequently, a 'wheel arch inflation' system was provided on the prototypes to achieve this. The 'inflation' system was simple enough, but it constantly suffered from poor sealing and seldom operated satisfactorily. Fortunately, it soon became apparent that *M3*'s effective buoyancy would be sufficient without utilizing the wheel arches, and the 'inflation' system was consequently discarded. Full development of this device can now be set aside until the ever-rising weight of main battle tanks demands a further increase in buoyancy from the *M3* system at some future date. In practice, this means that *M3* should now possess some built-in 'stretch' potential for greater loads without a major re-design being necessary.

Spare Wheels. One slightly unexpected outcome of the trial was the need for dedicated support vehicles for the carriage and fitting of spare wheels. The problem is not quite so surprising when one appreciates that each *M3* wheel is almost 6ft in diameter and weighs half a tonne! Jacking vehicles in soft ground and replacing such large wheels are definitely specialist skills. This phenomenon may well recur with the new BR 90 bridge system when its vehicles enter service with similar sized wheels.

Implications for the Future

Bridging. The implications of the *M3* trial for future bridging operations are relatively minor.

Nevertheless, the bridging capability of *M3* will allow long floating bridges to be built and recovered in less time, with fewer men and with fewer rigs than ever before. In other respects, however, there need be few changes to unit procedures for amphibious bridge construction.

Ferrying. In the case of ferrying, however, the trial produced a very different story. The *M3* ferry's vast improvement over *M2*, and its consequent increased traffic capacity, should now provoke a far-reaching review and revision of tactical doctrine for wide river crossing operations at formation level. Furthermore, *M3* will be ideal for the Army's emerging new role in the Allied Command Europe Rapid Reaction Corps (ARRC) with all that that demands by way of increased flexibility, operational mobility and river crossing capability for any of the major rivers in the NATO area. To achieve the ARRC's required crossing targets with severely limited resources, ferrying will be the only realistic solution. Fortunately, the *M3*'s exceptionally high ferrying rate using the 4-rig ferry will fit the bill exactly. Furthermore, other advantages will include:

- **Dispersal.** Due to its greater road speed and agility, *M3* sub-units will be able to operate widely dispersed to support deployments across a far greater frontage. Amphibious sections, each consisting of four x *M3* rigs, will be able to operate semi-independently as 4-rig ferries providing effective crossings on rivers of any width. Such sections will also be capable of concentrating for short periods to provide long bridges or multiple ferry sites as required.
- **Speed.** Ferrying with *M3* is such a swift operation that it will make sense to employ it *in preference* to bridging wherever the tactical situation allows. For example: a single 4-rig *M3* ferry (ie one amphibious section) will be able to move all the tanks of an armoured regiment across a 120m river (eg: Weser, Upper Danube, Upper Elbe, Oder) in about one hour. Alternatively, a squadron of six sections could complete the same ferry task in about ten minutes.
- **Vulnerability.** The Gulf War vividly demonstrated the vulnerability of fixed targets (such as bridges) to attack by precision guided munitions. Even the speed in and out of action of *M3* amphibious bridging is unlikely to prevent its rapid detection and subsequent attack. The excellence of the *M3* ferry, however, now offers a high capacity alternative to fixed bridging by decentralizing major crossing operations and spreading them over a large number of small, dispersed ferry sites. Given sufficient ferries, it is quite possible that overall crossing rates would not be significantly reduced. The advantages of this technique are clear; it would reduce the number of vulnerable choke points at the same time as increasing tactical flexibility.

Conclusions

In conclusion, it is no exaggeration to say that the joint Anglo-German development of the new *M3* amphibian by EWK has proved a highly successful collaborative project. The prototype equipment's performance has exceeded expectations in almost every area, and *M3* is now set to become the centre piece for a revised wide river crossing doctrine for the ARRC with greater emphasis on ferrying. This equipment is vital to the British Army's operational and tactical mobility, and it should therefore be procured (with minor modifications) for all our amphibious bridging units.

The organization of future amphibious units is still under consideration by MOD and not yet firm at the time of writing. What appears certain, however, is that there will be one regular amphibious squadron in 28 Engineer Regiment at Hameln, but it is hoped that there will also be a new TA amphibious squadron somewhere in UK as well. Both these squadrons will need *M3* in order to train and operate together. Furthermore, if the British component of the ARRC is to consist of two divisions, then each division must have its own, integral wide river crossing capability in order to support its own operations wherever they may be. Given the great width of some European rivers (eg: in Yugoslavia the Danube is approximately 900m wide in places), it is certain that such formations will have to be prepared to cross rivers well beyond the limited span of their own integral bridging equipment. In such circumstances, high-speed ferrying will be the only solution. What the UK user trials have clearly demonstrated is that the *M3* amphibious bridge/ferry system is ideal for this role.

However, *M3* production is by no means certain yet. Procurement programmes are notoriously vulnerable to the ravages of the MOD Finance and Programmes Staff, and the *M3* project is no exception. However, the future is now looking bright and the operational imperatives for retaining the British Army's vital wide river crossing capability appear to be well understood by senior commanders throughout the Army.

M3 and *M2* on the river bank.

Consequently, we can afford to be cautiously optimistic. Final decisions at MOD level on funding and production are still awaited. But if all goes according to plan, we can reasonably hope to see *M3* entering service in Hameln during the mid-90s. The German Army is preparing to start production now and expects to receive its first batch of *M3*s slightly sooner than us. A follow-on order from the *Bundeswehr* may then be considered later in the decade if finance allows. Having developed such an excellent amphibious interoperability relationship with the *Bundeswehr* engineers over the past 20 years, it would be highly desirable for our own *M3* production programme to keep pace with the German programme in order to sustain this relationship, even through the proposed reequipment process. With interoperability emerging as the cornerstone of NATO future planning, this is one area in which we as Sappers should continue to show the way.

Nevertheless, the bottom line remains this: the British Army must have an effective wide river crossing capability. The UK user trials have proved the new *M3* amphibian to be an outstandingly flexible and effective system. It is available for procurement now. The sooner we get it the better.

Two tanks leaving a four rig *M3* ferry which had just crossed the Weser in 70 seconds.

Lt Col Foulkes
The new M3 Amphibian UK user trials (p11)

The Fate of the 18th Division Royal Engineers

PROFESSOR P H G ALLEN BSc(Eng) PhD AKC CEng MIMechE FIEE

Educated at Norwich School and, at the time of his enlistment as Driver IC in the 251 Field Park Company RE in June 1939, working for the Norwich Union Life Insurance Society, the author served with the 18 Division RE from its formation after the outbreak of war. Apart from short periods at Brompton (where he witnessed the Luftwaffe's first mass daylight raid) and No 4 MT Depot, he spent his entire service with it.

Following demobilisation in May 1946, grant assistance took him through an engineering degree course at King's College London and graduate apprenticeship with the British Thomson-Houston Company, Rugby. He worked there for a further eight years on high voltage transformer design and development, gaining a PhD for his work on transformer winding cooling, before joining the Department of Electrical Engineering, Imperial College, for 25 years of lecturing and further research. He now continues the latter (into the effect of electric fields on heat transfer) as a visiting professor at City University.

Introduction

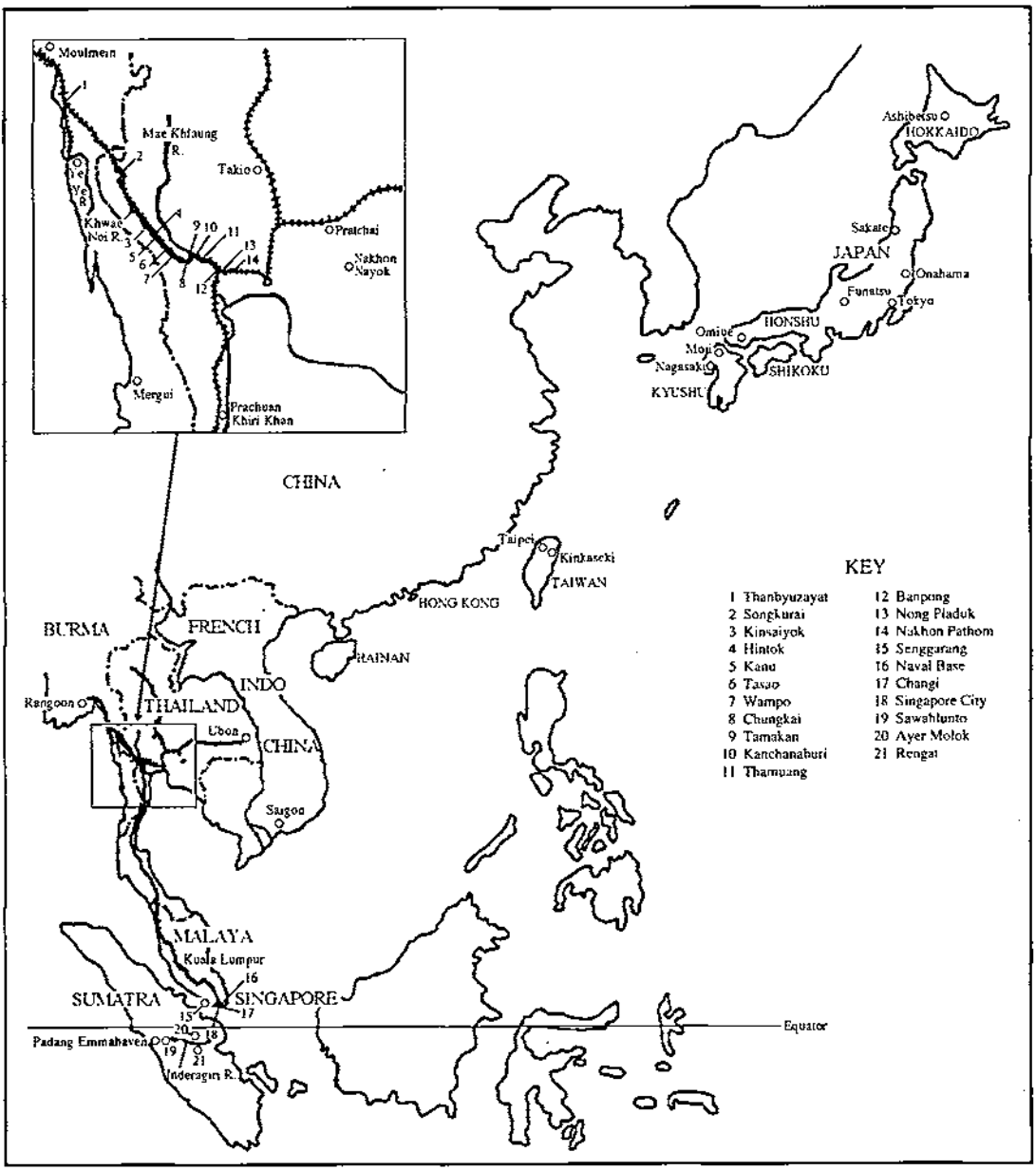
Little is said in the official history of the Corps (1) about the 18th Division RE. Its arrival in Singapore during the last weeks of the Malayan campaign is recorded, together with the fact that one of its field companies, the 287th, fought in Johore, while the remaining companies penetrated no further than the island of Singapore. The inauspicious arrival of the 251st Field Park Company, less all their equipment and transport, as shipwrecked survivors — one asphyxiated — on the SS *Empress of Asia*, sunk on 5 February 1942 by Japanese bombs within sight of their destination, receives no mention. Indeed, their arrival is predated as "during the remainder of January" with the remaining two field companies. In fact, one of these companies, the 288th, is identified incorrectly as "the 588th". It arrived safely, together with the 560th, on the US Navy troop carrier USS *West Point* (the peacetime liner SS *America*) in convoy with HQ 18 Division RE on USS *Wakefield* (SS *Manhattan*) on 29 January 1942.

This article had its origins when the author was planning to join the 1973 party of ex-Far East Prisoners of War (POW) visiting Thailand, already noted in a previous *Journal* (2). For guidance when visiting the graves of fallen comrades, I had approached RE Manning and Record Office, Brighton. They could not provide company nominal rolls or casualty lists, but could merely confirm whether or not names supplied were casualties. During the visit, I learned to use Commonwealth War Graves Commission (CWGC) grave and memorial registers so, after my return, I went through those appropriate at the Commission's Headquarters, picking out the Divisional RE casualties and compiling unit casualty lists. On these, and on documents subsequently acquired, the statistics in this article are based.

The Fall of Singapore

Landing from USS *Mount Vernon* (the peacetime SS *Washington*) with 53 Infantry Brigade at the Singapore Naval Base on 13 January 1942, 287th Field Company fought in Johore and lost 21 other ranks (ORs) killed in action or died of wounds, seven taken POW and imprisoned in Pudu Jail, Kuala Lumpur, and at least one, Corporal R C Tall, missing (see next paragraph). During the subsequent fighting on the island, 287 incurred a further five fatalities while 251, 288 and 560 lost two, two and four, respectively. All companies suffered wounded casualties some of whom were evacuated from the island while others recovered in Roberts Hospital, set up in the Changi POW camp area at the eastern tip of Singapore Island. Company Sergeant Major (CSM) J F Sawyer (288)

Prof Allen
The fate of 18th Div RE (p12)



Map of area covered by article.

was awarded the Military Medal for his conduct while acting as second-in-command of his company while Lieutenants W E Furse and A N Pringle (560) were mentioned in dispatches "in recognition of gallant and distinguished services in Malaya in 1942".

Of the 30 officers and 979 ORs comprising the Division RE, RE Postal Section (REPS) and attached Royal Army Ordnance Corps and Army Catering Corps personnel, 22 officers and an estimated 878 ORs became POW at Singapore, most marching from Singapore City to India Lines, Changi, on 17 February. Eight ORs posted to No 7 Mixed Reinforcement Camp, presumably after recovering from wounds received in Johore, appear to have been successfully evacuated. The remainder had left in a variety of circumstances. First, the CRE, Lieutenant Colonel P St B Sydenham, Captains H

Y Buchanan (HQRE) and J M H Lewis (288) and Lieutenants R R L Harradine (287) and A D Marmont (251) together with 14 ORs were members of a party ordered away from the island on 13 February by the General Officer Commanding, 18th Division, Major General M B Beckwith-Smith. Three ORs of this party died, two on 13 February and one on 27 February. During their escape, up the Inderagiri River (on Sumatra's East coast) to Rengat and through Ayer Molek and Sawahlunto to Padang and Emmahaven and thence to Colombo, they were co-opted into helping with the Sumatra Escape Route ((3) — Sydenham is the 'Philip' mentioned on pages 66 and 115 of this reference). They were overtaken by others who left Singapore "unofficially" at around the time of the city's surrender on 15 February. These included Captain S A W Johnson-Marshall (560) and Lieutenant C E Jarrett-Kerr (HQRE) as well as 21 ORs, three of whom were made POW in Sumatra. In addition, Lieutenant F W Sibley (287) and 16 ORs had been seconded to the Royal Navy to operate small boats, such as abandoned RAF air/sea rescue launches. Seven of the ORs appear to have perished, three on 13 February and four on 26 February, the remainder reaching Padang and evaded capture. In Padang, they were joined by Corporal Tall, of No 1 Section, 287 (Lieutenant P A D Jones). The section blew the bridge at Senggarang on 26 January and, cut off by the Japanese, were ordered "every man for himself". In a *fracas* with the Japanese the following day, Tall was among the wounded. In spite of this, he managed a six day crawl to the coast where he found a sampan. Drifting in this, he was rescued by Chinese fishermen and, after further adventures, reached Padang (4).

Changi and Beyond

Immediately upon arrival at Changi, the Division RE, like the Corps generally, played a full part in providing essential sanitary etc facilities for the greatly overcrowded barrack area. Soon, however, the Japanese authorities demanded working parties for clearing, building and cargo handling duties in the city. So, on 13 March 1942, Major W A J Spear and Second Lieutenant B McD Buchanan (288) led a contingent of Sappers, predominately from their own company, among the other Changi POW who marched back to the city to occupy River Valley Road camp (between that road and the Singapore River on a site now occupied by Frazer and Neave's bottling plant). This camp, like the Havelock Road one on the river's opposite bank, had been built during the campaign to house civilian refugees from the mainland. From it, working parties were sent each day to all parts of the island and even across the causeway to Johore. There were no hospitalisation facilities and all cases of dysentery, avitaminosis, recurring fever etc were sent to Roberts Hospital, Changi, and thence, on recovery, back to India Lines. Despite this continuous attrition, there were enough 18th Division Sappers left in River Valley Road to provide one officer (Buchanan) and 72 ORs for the 31 October 1942 draft to Taiwan. There, 29 of them worked in the infamous Kinkaseki Copper Mine (5) and some were shipped to Japan early in 1945. Nevertheless, this draft managed to achieve 85 per cent survival.

Meanwhile, at Changi, on 18 June, Lieutenants J A Kerr and J L C Macaskill (288), with 98 from 288 and 11 REPS ORs, were among the first of many train loads to make the five day journey, tightly packed into metre-gauge steel box-cars, from Singapore to Banpong, near the Thailand end of the notorious railway line to Burma, while a few (Second Lieutenant J E Palmer (251) and 30 ORs) were among the 885 British who, with 115 Australians, made up the first draft from Changi to Japan on 16 August 1942.

The Thailand Tragedy

The June Thailand party, totalling 3000 British, paved the way for many more to that country; in all of these 18th Division RE was represented. Over half the total POW movement North was in October and early November 1942. On 9 October, 13 18th Division Sapper ORs (mainly from 560) were in the first of five parties of 650 transferred from River Valley Road to Banpong. The seven 287 Kuala Lumpur POW were among the 401 transferred there from Pudu Jail on 14 October and, also in October, Captain G R Cheown (Division HQ) went directly from Keppel Harbour, Singapore.

Various of the 13 parties of 650 from Changi included Major F A Noble and Captain J P A Clymer (251), Lieutenants A Hepworth (HQRE), A N Pringle (560), W A Border (REPS) and the Medical Officer (MO), Captain J R Roulston, together with 277 ORs. The major groups were 47, all 251, with Clymer on 30 October and 223, nearly 60 per cent of 560, on 3 November with Roulston, Hepworth and Pringle. After a few days in a truly ghastly, monsoon flooded, transit camp at Banpong, each party set out for Tasau, then HQ camp of IV Group, Thailand POW administration, 130km up the track of the Burma railway. At

Tamakan (55km) they marched past the early construction stages of the first, timber baulk, version of *The Bridge on the River Kwai* (which actually crosses the Mae Khlaung River).

The atrocious conditions under which the railway was ultimately built have been well documented (6). IV Group's area probably included the most difficult construction terrain on the line but during the period to the end of April 1943, 18th Division Sappers suffered only 11 casualties in Thailand. However, disaster was at hand, preceded by reinforcements. First, in March 1943, 'D' Force, 2780 British and 2220 Australian POW in nine train loads left Changi for Banpong. The last party, on the 23rd, included Major W A J Spear and 101 Division RE ORs. As they passed Tamakan, they saw the early stages of construction of the second, permanent, steel and concrete, bridge. 'D' Force's first task was to help complete the railway between Tasau and Wampo, 16km to the South, including the two stretches of wooden rock-face viaduct and associated embankments near Wampo itself. They then moved to camps between Tasau and Kinsaiyok (172km) where they joined the November arrivals on truly horrendous tasks such as building the "pack of cards" bridge at Hintok (155km) and "Hellfire Pass" cutting at Kanu (162km) which remained to be completed during the monsoon. However, their misery was soon surpassed by that of the next two contingents, 'F' and 'H' Forces.

All previous drafts had been transferred from Malayan to Thai Imperial Japanese Army (IJA) administration but 'F' and 'H' Forces were, in theory, supplied and administered from Singapore. In practice, they depended mainly on the charity of their impoverished fellow POW and 'F' Force had to march the whole way (between 250 and 300km) from Banpong to their allotted tasks near the Thailand-Burma border. Their arrival there coincided with the onset of the monsoon and the outbreak of a cholera epidemic which, together with overwork, starvation, vitamin deficiency diseases, tropical ulcers, malaria and murder by Japanese and Koreans, led to the deaths of over 44 per cent of the 7000 strong force.

Following heavy casualties in action, the 287 had contributed relatively few to previous parties. Now, with the Company Commander (now acting CRE) Major M T L Wilkinson and Lieutenants J B Bradley and P A D Jones, they comprised 122 of the 152 18th Division RE (also including Captain J E Excell (HQRE) and Lieutenants W E Furse and E F Stacy (560)) who left Changi during the latter part of April 1943 and incurred over 68 per cent casualties, including Excell and Furse. The horrors of the experience have been chronicled by Bradley (7) who, with Wilkinson and eight non-Sappers, escaped from Songkurai camp (287km). Incredibly, five of them — but not Wilkinson — survived the mountain crossing to reach the Ye River. Fortunately for Bradley, the local IJA, to whom a village headman betrayed them, could not believe that they were escaped POW who had travelled overland from the Khwae Noi valley and by the time they were returned to Songkurai tempers had cooled so that, eloquently defended by Captain C H D Wild, the camp interpreter, they were not summarily executed.

The 18th Division RE element of the 3270 strong 'H' Force included Captain C D Pickersgill (287), Lieutenant D M Ross-Esson (288) and Sapper R W F Searle (287). Ronald Searle has given us a well-illustrated account (8) of this ill-fated contingent which left Changi on 8 May 1943 and marched from Banpong to the Kanu area. Pickersgill was among its 22 (estimated) casualties. As can be seen from Figure 1 (at the end of this article), the Division RE suffered 162 casualties between May and December 1943. 158 of these were in Thailand while two others died shortly after their return to Singapore.

Disaster at Sea

On 25 October 1943, the line laying gang moving South from Thanbuyzayat (between Moulmein and Ye in Burma), met that moving North from Nong Pladuk (near Banpong in Thailand). The monsoon began to wane and in the resulting respite the sick were evacuated to Tasao, Chungkai, Tamakan, Kanchanaburi and Nakhon Pathom. Thence 'F' and 'H' Force survivors were returned to Singapore, initially to Sime Road camp whence they were transferred to Changi Jail in May 1944. The comrades they had left at Changi had also been working for the IJA. Work on the Changi airstrip had begun in September 1943 and India Lines had already been cleared to make way for it, the 18th Division Sappers moving to other parts of the Changi area, such as Selerang and Roberts Barracks and a "garden and wood" camp. In May 1944 they were reunited in the miserably overcrowded Changi Jail, displacing the civilian internees hitherto held there who themselves moved to Sime Road camp.

Early in 1944, the fitter members of IV Group were concentrated in a large camp at Thamuang, between Kanchanaburi and Banpong. The June

1942 party were mostly at Nong Pladuk. From the working camps, parties went out to perform various chores, either locally or in small up-river camps. The permanent way had to be maintained, bridges repaired, trees felled and chopped up for locomotive fuel, trains rerailed and all kinds of stores in transit handled. Within months, damage from Allied bombing and strafing had also to be repaired. However, in June 1944 parties were detailed in Thailand camps for shipment to Japan. Following an abortive attempt to embark part of it at Saigon (9), this force ended up at the River Valley Road, Singapore, camp. Work in Singapore occupied them until on 6 September many were crammed into the holds of two in a convoy of six merchant (unmarked as to their cargo!) and five naval vessels. The remainder, including 16 of the Division RE, sailed from Singapore on 2 February 1945 but travelled no further than Saigon. They worked in French Indo China for the remainder of the war.

During the night of 11/12 September 1944, the 6 September convoy was attacked 300 miles off Hainan and late on the next day USN submarine *Pampanito* torpedoed the 10,509 ton *Kachidoki Maru* (10) with many 18th Division Sappers and their MO aboard. Twenty six perished (251, 6; 287,5; 288, 4; 560,11); the remainder, including Captain Roulston, were rescued by Japanese from Hainan and, together with survivors of another sunken boat, the *Rakuyo Maru*, sailed from Hainan to Moji, in Kyushu, in a whaling mother ship. From Moji, they dispersed to working camps all over Japan; typically, Roulston's party spent the remainder of their captivity at Sakata, filling and moving trucks at a chemical factory, transferring coal from barges to rail, dismantling log rafts and loading the timber on to railway wagons (9).

The remainder of the September 1944 Japan party, including Regimental Sergeant Major R W Woodward, duly reached Japan and were similarly employed. The 1940/41 winter that 18th Division spent in Scotland was the coldest ever recorded. There, however, they were in better form to endure it than the Japanese winter of 1944/45, the coldest for 70 years. Out of ten deaths in Japan, eight were in the months of December, January and February.

The 26 were not the only victims of Allied action in September 1944. During the night of the 6/7, there were three among those killed in an otherwise successful raid on an ammunition train in sidings adjacent to the Nong Pladuk POW camp. Later, three others died when, on 8 December, a train evacuating sick from an up-river camp was under air attack.

Some Achievements

One result of the *Rakuyo Maru* sinking was the rescue by the American submariners of over 150 British and Australian POW from the sea (10). Their debriefing gave authentic intelligence of the disastrous course of events in Thailand. However, eight months earlier, on 28 January 1944, Anthony Eden made a statement to the House of Commons which he began by saying that a "large number of postcards and letters have recently been received in this country from prisoners in the Far East and that these almost uniformly suggest that the writers are being treated well and are in good health. There is no doubt from what we know about particular areas that some of these communications, at any rate, are in terms dictated by the Japanese authorities." At least one was not. It was, in several senses of the word, a fabrication, the creation of Lieutenant Arthur Hepworth of the 3 November 1942 Thailand party. This postcard was addressed to a Mr Moorsplit at the address of Mr Moor, a friend of Hepworth, and purported to come from Private A Moorsplit. In standard IJA phrases, it advised that this hypothetical soldier was interned in Thailand, in excellent health and working for pay. It requested "that yourself and Waters is taken care" and signed "Inky". Moor realised that there was something special about the card and he tried soaking it in "water" to see if it would "split"; it did! Hepworth had managed to split the card in its own plane, write a message on one half and reassemble it with rice water as adhesive. The message ran:

> RAIL BANKOK KANBURI 3 PAGODAS BURMA OCTOBER
> 40,000 POW USED, 4000 DEAD, 30,000 SICK, DEATH RATE GETTING HIGHER, MEDICAL SUPPLIES VERY SHORT, VITAMIN DEFICIENCY, CHOLERA, DYSENTERY
> 70,000 TAMIL AND CHINESE ON LINE PRO BRIT GOOD LUCK MORE HAPPY LANDINGS FROM INKY 10.4.43
> SEND TO WO

Eden's statement continued: "I regret to have to tell the House that information which has been reaching His Majesty's Government (HMG) no longer leaves room for any doubt that the true state of affairs is a very different one so far as the great majority of prisoners in Japanese hands is concerned." He went on to say that for some time past information had been reaching HMG regarding the conditions under which prisoners were detained and worked in some areas. He said that HMG felt

bound to satisfy themselves that the information was authentic before making it public. No doubt "Inky" provided a small but vital part of the authentic information.

Earlier, at Changi, between Christmas 1942 and the departure of 'F' Force, another victory was won. Captain Pickersgill decided that the recently completed camp cemetery should have a lych gate entrance and drew plans for one. He enlisted the help of Lance Sergeant R C Ringer (287) to design the Old English lettering and national emblems (leek, shamrock, rose, thistle) for its frieze and of Lance Corporals H E Broom and T H Whisker (287) and Sappers R O W Duke (287) and H Ralph (288) to carve them. All the materials had to be scrounged; the nails were made from barbed wire. After the war, the dead were re-interred by the CWGC at Kranji and the handsome lych gate was put into store until 1952 when it was re-erected outside St George's garrison church at Tanglin Barracks. As the British garrison in Singapore was run down, once again it went into store. There, fortunately, it was spotted by Brigadier Arthur Reading, Corps of Royal Electrical and Mechanical Engineers, who arranged for its shipment to the United Kingdom. It now stands beside the A14 at Bassingbourn Barracks, Cambridgeshire, as a memorial to the men on the 18th Division, in particular those who died in Changi.

Of those who evaded capture, at least two attained distinction. A book (11) has been devoted to the life and architectural work of Captain Johnson-Marshall while Captain Lewis attained the rank of Major General as ACOS (Intelligence), SHAPE. Among the captives, Ronald Searle's reputation as serious and comic artist needs no comment here. Less well known is that Sapper A W Palmer (288) helped to revive Brandon's gun flint industry by learning the craft of knapping (12). Two, Major E J Harper (560) and CSM G H Morris (287) were among those mentioned in dispatches for "services while POW". James Bradley was awarded the MBE for the part he played during and after his escape attempt (7).

The Latter Days

The last few months of the war found our protagonists spread far and wide over eastern Asia, from Hokkaido in the North to Sumatra in the South. Most were engaged in hard physical work and/or were in a very poor state of health. The 18th Division Sappers among the Japanese parties were dispersed in small groups (typically between two and six in number) throughout the camps serving Japanese industry with slave labour from the drift coal mines of Ashibetsu to the shipyards of Nagasaki, with camps such as Sakata, Onahama, Funatsu and Omine in between. Much larger concentrations were in Changi Jail (including 'F' and 'H' Force survivors), on the island of Taiwan and at Ubon, in northeast Thailand, where many of the June 1942 party were engaged in airfield construction. Not all those on Singapore island were at Changi; a few were held on the off-shore island of Blakan Mati (since renamed Sentosa) and at Kranji, providing services for the hospital there. Scattered groups in Thailand were at Thamuang, Nakhon Nayok (where officers, separated from ORs since February 1945, had been concentrated), Pratchai, Takli (whence Dakotas evacuated them using the airstrip they themselves had constructed) and building a road from Prachuap Khiri Khan to Mergui (a disastrous project through jungle, infested with a virulent, hitherto unencountered, fever).

The end of hostilities on 15 August 1945 did not, unfortunately, imply the complete cessation of casualties. Sapper N C Blogg (HQRE) is believed to have been killed, like several fellow newly liberated POW in Taiwan, by a food container dropped from a United States Air Force B29 (5). Sapper W Owens (288) died at sea, on 15 October from the after effects of work in the Kinkaseki mine and its sequel in the hills above Taipei (5).

Near its conclusion, the brief official history (1) account notes: "Many a gallant Sapper from the United Kingdom, Australia and India died in the prison camps, or after release, as the result of starvation, disease and ill treatment." This article has sought to provide some facts about some of these ill-fated soldiers.

Acknowledgements

The author is indebted to many ex-POW survivors of 18th Division RE who have tolerated his questioning over many years and to those of them who have read through the draft of this article. Others who have been particularly helpful include Mr R C Tall, Mr P Reed (Imperial War Museum) and Mrs P Wakefield (CWGC). A valuable work that has been used as a source of statistical data, but has not been cited as a reference, is: Nelson, D, *The Story of Changi Singapore*, 1973, West Perth, Changi Publication Co. (c/o John C Hanson and Co, 1185 Hay Street).

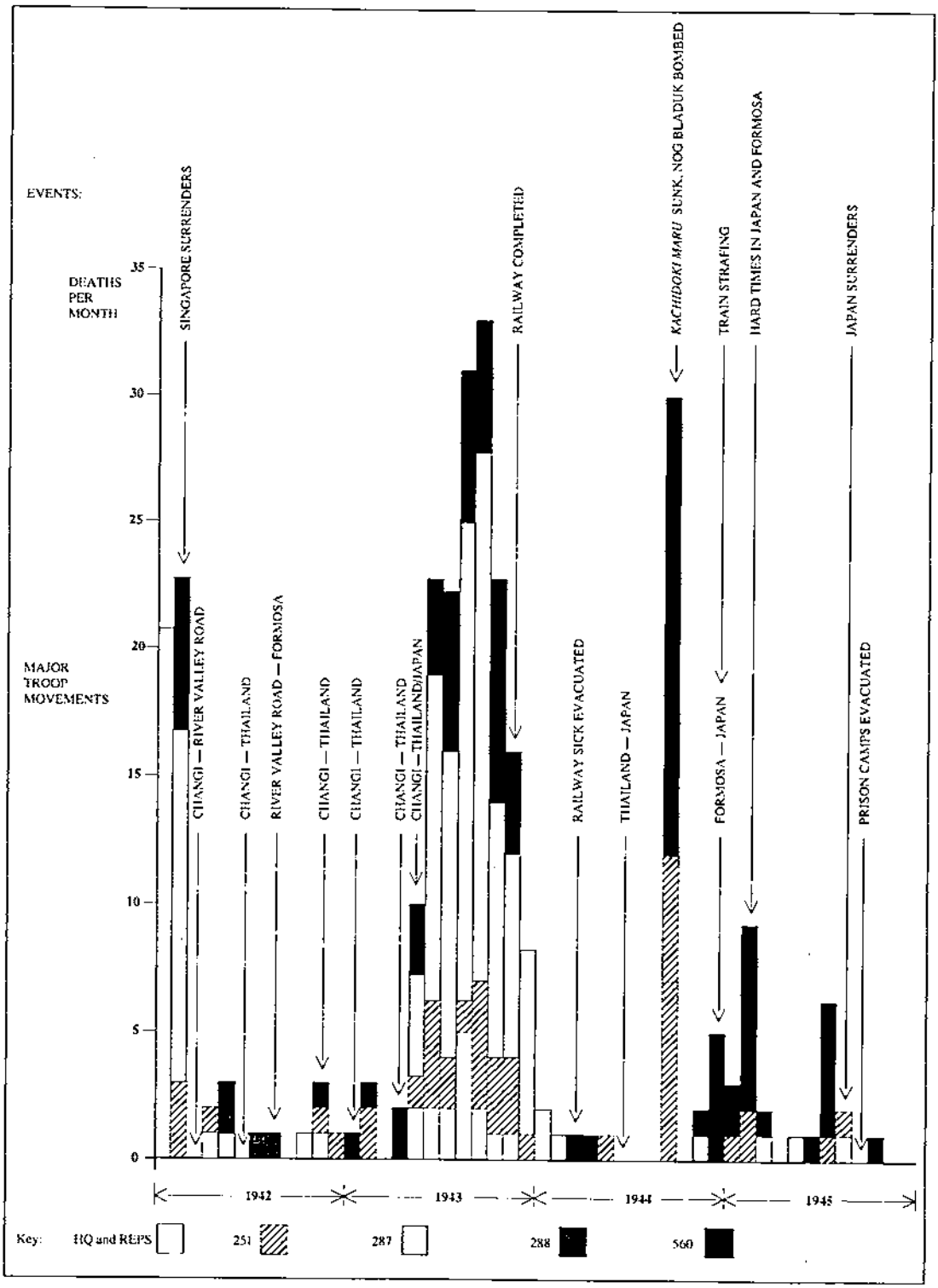


Figure 1 Monthly casualty rates 1942-45.

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1st Queen's Printer a Sharpshooter

GOLDWIN TERRY AND MADGE HAMILTON

This extract was first published in the Islander *(the* Sunday supplement to the Times Colonist*), British Columbia (BC), Canada, on Sunday, 7 August 1988, and is reprinted here with their kind permission.*

TWENTY two year old Corporal Richard Wolfenden was one of 122 Royal Engineers who sailed into Esquimalt Harbour 12 April 1859 on board the 557 tonne clipper *Thames City* at the end of a six month voyage from England. The Royal Engineers came in response to a request from Governor James Douglas, who feared Britain was about to lose British Columbia because it was rapidly filling up with prospectors and adventurers from the United States following the discovery of gold on the (River) Fraser.

Secretary of State for the Colonies, Sir Edward Bulwer-Lytton, wrote Douglas telling him why he chose the Royal Engineers rather than an ordinary regiment: "The superior discipline and intelligence of this force, which can afford ground of expecting that they will be far less likely than ordinary soldiers to yield to the temptation to desertion offered by the goldfields, and their capacity to provide for themselves in a country without habitation, appear to me to render them especially suited for this duty ...they will establish themselves in the popular goodwill of the emigrants by the civil benefits it will be the regular nature of their occupation to confer."

The Royal Engineers, who served in British Columbia between 1858-1863, were not simply a

regular company of engineers but rather a specially-picked and highly competent group of officers and men. During their stay here they accomplished many things including surveys of town and country lands, the building of roads, building of a church and school, designing the first coat of arms for the colony and establishing the first lands and works department and the first government printing office. All this work required printed

Goldwin Terry & Madge Hamilton
1st Queen's Printer a Sharpshooter, (pg19)

reports. And Wolfenden was the engineer who was a trained printer.

Wolfenden was born on 20 March 1836 in Rathmell, Yorkshire; educated at Arckholme, Lancashire and Kirkby Lonsdale, Westmoreland. He went to work as an apprentice printer in Kirkby Lonsdale at the age of 14.

But Wolfenden wanted to become a land surveyor so he quit printing and went to work for a firm run by his eldest brother, George. When the firm failed he signed on with the Royal Engineers thinking that working with them would qualify him for ordnance survey work. But because he was also an excellent rifle shot he was sent to the Woolwich musketry school where he did so well that upon his graduation he was asked to become a shooting instructor at the school. He was 20 years old.

The restless young Wolfenden was soon bored with life at Woolwich so he jumped at the chance to come to British Columbia.

After arriving in Esquimalt the Royal Engineers transferred their stores to the paddle-wheel steamer *Eliza Anderson* which took them to New Westminster.

New Westminster in 1859 was wilderness country. The site chosen for the Royal Engineers camp was dotted with huge stumps. There was little space for the soldiers to pitch tents. Some had to sleep on the HBC brig *Recovery* anchored in the river. But the Royal Engineers set to work the next day building their barracks. Later they built a theatre. During the monotonous passage from England the men had formed a drama group. They also formed a cricket club and soccer teams. Wherever the English went in the far-flung outposts of the Empire they took their games with them.

The Royal Engineers obtained a printing press in 1860. It arrived in New Westminster from England after a voyage around Cape Horn. It's on display today in the Royal BC Museum. It was used to print blank forms, proclamations and other such necessities as were required by the colonial government. The first BC *Gazette* was printed on it on 3 January 1863.

When the Royal Engineers contract expired many of them decided to stay on in British Columbia — taking advantage of 60 hectare land grants offered as incentives.

Wolfenden chose to stay. But his land grant which he decided to plant with potatoes was washed out by flooding in the first year and in the autumn of 1863 he was appointed British Columbia's first superintendent of printing.

After the Royal Engineers left, a volunteer group, the New Westminster Rifle Corps, was formed. Wolfenden joined and resumed rifle shooting with renewed enthusiasm. He was prominent among the winners and the group's annual rifle meeting in the fall of 1865.

On 10 January 1865 the *Colonist* reported that a Miss Kate Cooley was among the passengers on the steamer *Oregon* arriving from San Francisco. She and Wolfenden first met at Hythe when he was undergoing his musketry training and had been long-time sweethearts. They were married in Christ Church Cathedral 11 January 1865.

Wolfenden and his wife and family moved to Victoria in 1868 and helped set up the government printing office in one of the unique wooden buildings known as the Bird Cages.

The Wolfendens lived nearby on Michigan Street. They later bought a house on Simcoe.

Wolfenden joined the Victorian Rifle Corps as an ensign (the same rank he held with the New Westminster Rifles) and rose to lieutenant in 1876, captain in 1878.

After the rifle corps disbanded, Wolfenden became captain and adjutant of the BC Garrison Artillery in 1883. He became a major in 1885. In 1886 he became the first militia officer in BC to rise to the rank of lieutenant colonel.

Wolfenden attained many honours as a rifle shot. He won the gold badge of the BC Rifle Association in their grand aggregate twice and the silver badge five times. He also won a Martini-Henry rifle presented by the Lord Major of London, and numerous other trophies. In 1874 he won a place on the Canadian Wimbledon Rifle Team.

Wolfenden took great pride in his work as Queen's Printer and in the achievements of those who worked with him. The accomplishments of the printing bureau were gaining high praise far and wide: at the 1904 St Louis World's Fair they won a bronze medal for pamphlet printing.

For his long service in the militia and for 40 years as a civil servant, Wolfenden was awarded the Volunteer Decoration in 1903 and made a Companion of the Imperial Service Order.

At a farewell dinner tendered to the officers of the Royal Engineers on the eve of their departure in 1863 Colonel Moody said, "We have simply striven our best to do our duty. That is what a soldier has always before him. It is his highest ambition to do his duty well.". Surely no more fitting tribute could be made to Colonel Richard Wolfenden ... "he did his duty well."

Escape From Singapore — a Sapper's Story of an Event in February 1942

MAJOR T J PHELPS MBE

THE following detail is written in pencil on a sheet taken from an AB64 Part I:

"13/2/42	W B *Daisy*
	Shu Kwang
14/2/42	Tg Pinang
16/2/42	Tembillehan,
	Malacca
17/2/42	Rengat
19/2/42	Telok
21/2/42	Sawahloento
22/2/42	Padang
26/2/42	*Tinombo*
13/3/42	Colombo"

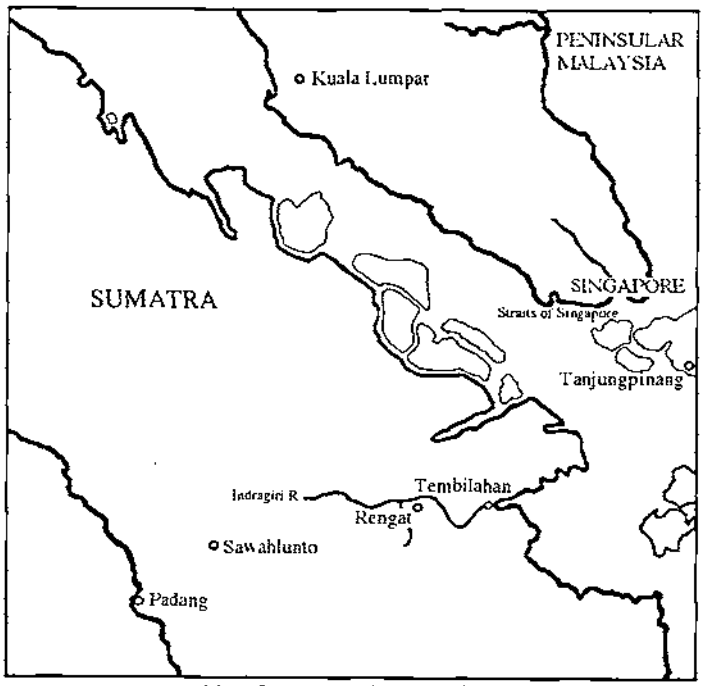
The above brief notes were made at the time to record the escape from Singapore of one small party of Sappers from the staff of the CRE Singapore. They have been carried around ever since and, in the absence of a fuller account, the writer is attempting to recall what actually took place.

To begin at the beginning, we go back to 13 February 1942. The CRE Singapore, Lieutenant Colonel W H Treays, was based at Alexandra, Singapore, and was responsible for works services for the whole of Singapore Island. On that morning the code signal *Cinder* was received by telephone from Fort Canning. This signal meant that all documents, other than essential Secret and Confidential, were to be destroyed by fire; it was received in silence by the staff because, although the Japanese were dominant in the air, it was their first intimation that progress of the war was going against us. The instruction was accepted with reservations, as it was felt that conditions could not be as serious as was implied and consequently destruction carried out at that stage was by no means complete.

In the early afternoon however, a further code signal was received — *Cinderall*. This meant the destruction of everything we possessed in the way of files, documents, records, etc and was completely carried out even to the extent of burning the calendars from the walls, technical books belonging to the Inspector of Royal Engineer Machinery (IREM), Captain H P Harrison, the Imprest Account and Wages Check Lists. This action made us realise that the position was indeed serious and it was a miserable collection of officers, clerks, and other staff that stood around waiting for further instructions. In the early evening, the Japanese did some occasional shelling from the area of Bukit Timah Hill and, with the exception of the Duty Clerk, everyone concentrated on the ground floor. The CRE had been away since the previous evening. At about 2200 hours, he contacted the DCRE Alexandra, Major F L Angell, and gave him a list of personnel who were to report to a rendezvous in the town area; they were to stand by to move at ten minutes' notice. Not knowing the nature of the move, very few people took more than a haversack containing requirements for a day or so and within an hour they were ordered into three or four cars, which proceeded to Clifford's Pier. The journey of about three miles was not without incident. We had to skirt a shell hole and there were continuous challenges by sentries. Field and Anti Aircraft mobile guns appeared to be lined head to tail over a considerable distance and we were optimistic enough to assume that this was the first move in a big push.

Eventually the CRE arrived and told us that the situation was serious. He said that a decision had been made to evacuate certain parties to strengthen the South West Pacific Command, formed in Java. We had been chosen as the RE party and would move as soon as instructions were given. Three members of our party were ordered to fall out to complete a complement for embarkation. The writer fell out as one of the three, but was recalled by the CRE to look for an officer who had not yet joined us. Another joined those who had fallen out and this was the last we saw of them; presumably they were on one of the vessels subsequently sunk by the Japanese. Our instructions came, and we proceeded in file to an area which was wired off. As we entered this area, the Chief Engineer shook hands with each of us and wished us the best of luck. We embarked on the Water Boat *Daisy*, sitting about on the deck, and pulled out into the roads. Whilst sitting on this craft someone asked the time; it was 2330 hours, and we had embarked on Friday the thirteenth! There was no comment at the time. After waiting for some time, we were transhipped to the SS *Shu Kwan*, but remained in

the roads as the vessel was unable to proceed to sea on account of minefields. The IREM nudged the writer and said, "Would you like a drink?" I replied that I would, and a water-bottle was passed across. Just as I was about to drink, the fumes of neat whisky hit me. "It's whisky," I muttered. "Of course," replied the IREM "what else would it be?" At first light on Saturday 14 February, we left Singapore. The vessel was manned by British sailors who had been picked up after the loss of the *Repulse* and *Prince of Wales*. The passengers were a completely mixed lot, Royal Engineers, Royal Signals, Australians and others.



Map of area covered by the article.

The CRE was the senior officer on board and ordered a nominal roll to be prepared of all passengers; as far as I remember there were approximately 160. We had not gone any great distance when waves of aircraft passed overhead, flying in a South Easterly direction. An RAF Officer on board tried to bluff everyone by stating in a loud voice, "They're Blenheims." This was discounted by an equally loud voice which said, "How the hell does he know, has he seen a Blenheim?"

At 1150 hours, a wave of bombers returned. Three of them peeled off, and it was quite obvious that we were to receive a visit. They came at us very low. Little effort was made to get under cover, partly because very little cover was available, and partly because the vessel was so crowded that it would have been difficult to move at all. Evasive action was taken by the *Shu Kwang*, but a near miss put the vessel out of action, whilst fragments of shrapnel sprayed the decks. I was on the receiving end of some of this shrapnel and I was bleeding badly. I subconsciously entered a cabin near me, which turned out to be the Captain's and I passed out from shock, recovering to find myself on the floor. It could not have been long since we were bombed as Royal Army Medical Corps personnel were rushing around doing what they could. It was fortunate that there was a number of doctors and orderlies on the passenger list or our casualties would have been much higher. I was wounded in six places. One wound was a gash in the stomach caused by the foresight guard of the rifle I was holding when the blast struck. My clothes were cut off and I was wrapped in one of the sheets taken from a nearby bed. From time to time, strips were torn from the bottom of this sheet for use as bandages on other wounded. I remember I was very concerned about this, but whether from modesty or the need for self protection I do not know. I cannot recall how many were killed in this attack, but amongst them was a very popular officer who had been with us for more than three years. The news of his death upset all of us. I received a visit from the CRE who was busily checking off casualties upon the lists I had previously prepared. His foresight in ordering their preparation was justified.

We remained, a sitting target, with our engines out of action, until about 1600 hours when we were attacked by three bombers but were missed again. The bombs were so close however that the vessel appeared to be picked up and dashed down again with terrific force, following which we were deluged by the sea which had been thrown up by the explosion. Everyone has seen pictures of ships bombed at sea, with vast columns of water thrown up. At the receiving end of one of these columns, it appears that the water is never going to stop coming down. Immediately the deluge ceased, passengers threw over the side anything that would float. This action may have saved us from a further attack as,

when the bombers came round again, they flew over and away.

Within minutes of this second bombing, the order was given to "abandon ship". The chaps in our party did not forget me and I was lowered over the side into a boat which had been launched. In the confusion, the lad who tied the rope about me forgot all that he had learned about a man harness hitch and applied a running bowline. Consequently, I arrived in the lifeboat partly strangled, and passed out for the second time. Someone must have eased the rope as I recovered after some time. My first reaction was that I had had a very bad dream in which I had been evacuated from Singapore, the ship in which I was travelling had been bombed, and I had been wounded. As the mists cleared, I realised that it was no dream, but had in fact occurred.

We rowed for about two and a half hours. The lifeboat was leaking and had to be bailed continuously. I took no active part in this and was not expected to. In my weak state, I had little interest in anything and the other occupants of the boat had come to the conclusion that I was dying, as I recollect someone making me more comfortable for that very purpose. We gradually approached two vessels which had obviously been called to the *Shu Kwan*. One of these, the *Tanjong Pinang*, not without misgiving, stopped to pick us up. She had intended to reach the *Shu Kwan* and to leave the other vessel to pick up those survivors who had taken to the water. This she communicated to the other vessel by means of a megaphone as soon as she had picked us up. We then returned to the *Shu Kwan* and took off all that remained in her. By this time, the *Tanjong Pingang* was overloaded. I have no idea as to the numbers that were aboard her, but know that people stowed below decks could only come up for a breath of fresh air ten at a time. I, with others who were wounded, was laid between decks and our dressings renewed. The vessel then proceeded to make as much speed as she could in a South Easterly direction. On 15 February, Japanese aircraft were spotted, but either they did not observe the vessel, or had more important targets. In either case, we were fortunate as, in our crowded condition any attack would almost certainly have meant very heavy casualties.

Early on 16 February, we entered the Indragiri River and, after proceeding upstream for some miles, were put ashore at a small village called Tembilahan. The wounded were accommodated in a makeshift hospital in what must have been the village school. The Sumatrans acted as stretcher bearers in carrying us from the ship, a distance of about half a mile, where we stayed until late in the afternoon when it was decided to move further up river. A small vessel called the *Malacca* was used for this purpose and proceeded at a very slow pace. When it became too dark to navigate safely, we anchored up for the night. Some of the people on board had divested themselves of their clothing when the *Shu Kwan* had been abandoned. The Royal Navy, who manned the vessel, shared what little kit they themselves possessed. One of these sailors I remember quite well. He had a prolific beard which was almost red. From him, and others, we had a first hand account of the sinking of the *Repulse* and *Prince of Wales*. They missed death on that occasion, but I am afraid that it caught up with them shortly afterwards. I believe they left the Indragiri River in an attempt to rescue survivors of yet another vessel. We never saw any of them again. At about mid-day on 17 February, we reached a village called Rengat. This was more important and more prosperous than the other at which we had called. Here I was again admitted to hospital, but on this occasion a proper one. The local residents rallied round and prepared a good meal for us. We had had very little food since leaving Singapore, so were much in need of it. The wives of the Dutch residents came along and helped in any way they could, including the washing of those of us who were bandaged up to the extent that we could not look after ourselves. At this stage I lost the bedsheet in which I had been wrapped on the *Shu Kwan*. The local children were in and around the hospital at all times and did all they could to assist us, although the language difficulty was a very real one. The good food we had at this hospital set me on my feet again. On 19 February I was able to get up and found that four of us, all bed patients on admission, had been put into the Maternity Ward. Screens had been placed across the centre of the ward and a few women, with their infants had been on the other side of the screen the whole time. In the evening of 19 February, it was decided that those who were fit to be moved should be sent on a further stage. Two ambulances eventually arrived and we were placed in them. I had been issued with such clothing as the local Dutch residents were able to spare. The combination of football type trousers, which would not meet around my waist, a white vest, and a white evening dress jacket with tails must have been ludicrous but I was only too glad of them. Someone provided me with a rough stick as I had a severe wound in the left leg. We travelled for hours, crossed several ferries and, incidentally, met

a large party of Sappers of the 35th Fortress Company. They had escaped from Pulau Brani in a tongkan and, as far as I remember there were 80 or 90 in the party, some of whom were EforES (Establishment for Engineer Services) personnel. They gave way to us at the ferry and our journey continued until we reached a rubber plantation. Here we were given a hot drink and sent on as the Senior Officer felt, quite correctly, that he could not accept us in our wounded condition.

We reached a village called Telok, and after some delay were accommodated in a school building for the night. As we were not expected, nothing could be provided in the way of bedding. We tried to sleep on tables, but the cold was too intense, so the night passed miserably, and we were only too glad to see daybreak. The whole of the next day was spent at Telok. On 21 February, we moved on again, arriving at the town or village of Sawahlunto after dark. Our instructions had been to report to the hospital there, but on enquiry, we learned that it was full and could not receive us. Here our small party divided. Some felt that it was the liability of the hospital to receive them, whilst the balance decided to join a large party of troops who were billeted in a warehouse near to the railway station. We were accepted and shown to an elevated portion of the warehouse, probably the place where the clerks worked and kept records. We had a meal of sorts and tried to sleep. This, however, was difficult for two reasons. First because of the cold and second because of the livestock. Mosquitoes concentrated on the upper surface, whilst fleas attended to such portions as could not be reached by the mosquitoes. At about 0330 hours on 22 February, I was awakened by an Australian who had travelled with me. "There's something up here" he muttered, "these people are getting ready to move out." We decided that we would try to attach ourselves to the main body and get away with them. A second Australian was with us, and agreed with this. The main body trekked off in the darkness, and we followed. One of the Australians bumped into something in the darkness. By feel it was identified as a fitter's tool kit. He was disgusted at it being abandoned and immediately dumped the small parcel of personal kit he was carrying in order to salvage the tool kit. We arrived at the station where we found the main party entraining on a few carriages attached to a goods train. At first, the officer in charge of the party objected to our travelling, but finally agreed on learning that one of the Australians was an officer. Although I had been in his company since the 16 February, I did not know this. The train was painfully slow, having to climb some very steep gradients. We did not arrive at Padang until the morning of 22 February. On arrival, we were told to report to the local hospital. This we did, but had agreed amongst ourselves that, to be admitted to hospital at this stage probably meant losing the chance of getting out of Sumatra. It was known that the Japs were advancing from Palembang and, not knowing anything of the country, we had no idea as to how close they were to Padang. We told the doctor who examined us that we were part of a unit that was to leave Padang shortly and had been instructed to rejoin our unit without delay. He seemed very doubtful about this, but eventually agreed. I had not shown him the wound in my stomach since I was afraid that this was a bit too much to get away with. Leaving the hospital we reported to the Dutch Club where Brigadier Paris had established a receiving centre for all military and civilian personnel from Singapore. The Australians went on to another centre and I did not see them again. I learnt, however, that the officer was lost in the evacuation of Sumatra, whilst the other, a corporal, lost his life in New Guinea.

On giving in my name at the Dutch Club, I was instructed to find room for myself. I wandered from one room to another on the ground floor and eventually bumped into one of the EforES personnel from Singapore. He had not been with the party with which I had left, but immediately on the fall of Singapore had joined with three others and escaped from the island. He stared at me for a while; then doubled up with laughter. I saw nothing to laugh at and must have conveyed that to him, as he pulled himself together. Months later he told me that he had never seen anything so funny in his life. On reflection, I must agree that dressed as I was in football trousers (too small for me) and a white dinner jacket with tails, with a nine day beard to round it off, I could hardly fit into the category of a well dressed soldier. He asked whether I had had any food. I had had none for about 30 hours, so he fixed me up with a scratch meal and then proceeded to help me strip off my clothes. I then had the first complete wash down since I left Singapore. I could not have managed this myself, but was attended to by him. When the accumulated dirt was washed off, it was found that I was completely bruised all down my left side. This, presumably, was due to blast. After the bath, he fixed me up with a better assortment of clothes. Later that day he, with another Sapper, visited the accommodation of some RAF

types and acquired kit for me, complete with cutlery and a valuable luxury — a camp bed. I had no compunction in using these items, but often wondered what the previous owners had felt on discovering their loss. I was assured by my comrades that they had been quite decent about it all and had not taken more than one item from any one kit.

We remained in Padang until 26 February. Each day at 1100 hours, we received a visit from a Jap recce plane. We embarked on the SS *Tinombo* on 26 February in the early afternoon. The vessel remained alongside the wharf for some hours, loading RAF bombs. We writhed at the delay, feeling that we should get to sea and as far away from the land as was possible before the next day brought the recce plane on to us. Possibly the delay saved us. Had we proceeded to sea, we could have been sunk by the same submarine that torpedoed the SS *Rosenbloom* with Brigadier Paris and his party on board. Two Sappers were lost with that vessel, Lieutenant Colonel G Palmer and Major Noel Corrie.

The next morning we were delighted to find that there was a large amount of low cloud. We sailed towards Java for the whole of the first day. Then, for no reason known to the majority of the passengers, we cut engines and lay becalmed for a complete day. We were told that there was a defect in the engine room, but I now presume that the *Rosenbloom* had been torpedoed ahead of us. During the night we resumed our journey, but in a South Westerly direction. The next day we were addressed by a Sapper Officer who had joined us at Padang, Major G C S Coode RE. He explained that there had been a mistake made, and that there was insufficient food on board the vessel. We should be on a very meagre diet until we reached port. To questions as to what port he gave evasive replies. When the sun set, our approximate direction was clear, but none of us could decide what land we were making for. Our food for the next seven days was a tin of boiled rice, twice a day. It was not possible to season it, but it kept us going until we reached Colombo, after several changes in direction. We had agreed amongst ourselves that we should be spotted by Catalina aircraft about two or three days out, and that we should be escorted to land. We saw no aircraft until we got into sight of Colombo when we were amazed to find that there was an air display. This must have been put on to boost the morale of the local inhabitants. We were not particularly impressed. After a great deal of delay, since Colombo Harbour was just about chock-a-block with shipping, we were brought into port and tied up alongside one of the Clan boats. In less time than it takes to tell, some food was thrown from one ship to the other, but not enough for the large numbers who were starving. The senior military officer on board our vessel was another Sapper, Lieutenant Colonel Steedman. He went ashore to see whether he could raise some food for us. On leaving he said, "I'm going ashore, and hope to be able to send some food without delay." He tried to do so, but nothing came to us until noon the next day. Then we were given some Dagwood sandwiches which consisted of a slab of bread, a slab of butter, a slab of corn beef and a final slab of bread. The whole was about the limit of the capacity between fingers and thumb. Whilst still gnawing at my sandwich, I was ordered to get into the Pilot Boat to be put ashore to enter hospital. I remember I was nervous of stepping from the *Tinombo* to the Pilot Boat. Lieutenant Colonel Steedman relieved me of my kit, all contained in a RAF haversack and assisted me over the side. I was still quite nervous and he said, "Don't worry about your kit, I won't drop it." My reply was, "I'm not worried about my kit, I'm more afraid of dropping my sandwich."

Disaster at the Sittang Bridge — Burma 1942

MAJOR E R B HUDSON TD

Roy Hudson joined the Royal Engineers Territorial Army in September 1938, just before Munich Day. A year later he was commissioned and ordered to the Isle of Wight on the outbreak of World War Two. In 1941 he volunteered for India so that he could join the Poona Club, but by December found himself on a government-sponsored tour of Burma that lasted three years. After the war he attended No 10 Supplementary Course. In 1949 Hudson was shipped to Hong Kong to confront Mao Tse-Tung's army but he was soon back on board a P&O liner to join No 21 Staff College Course at Camberley. The Directing Staff recommended transportation to Headquarters Far East Land Forces in Singapore. In 1952 he was appointed Chief Instructor Engineer Training Centre in Malaya. Between 1954-56 he endured a gruelling stint with E1 at the War Office. Hudson demanded a long sea voyage to recuperate so he was given a ticket to Bombay via the Cape on posting to Nepal. Since his retirement in 1959 Hudson has been lotus-eating in Thailand.

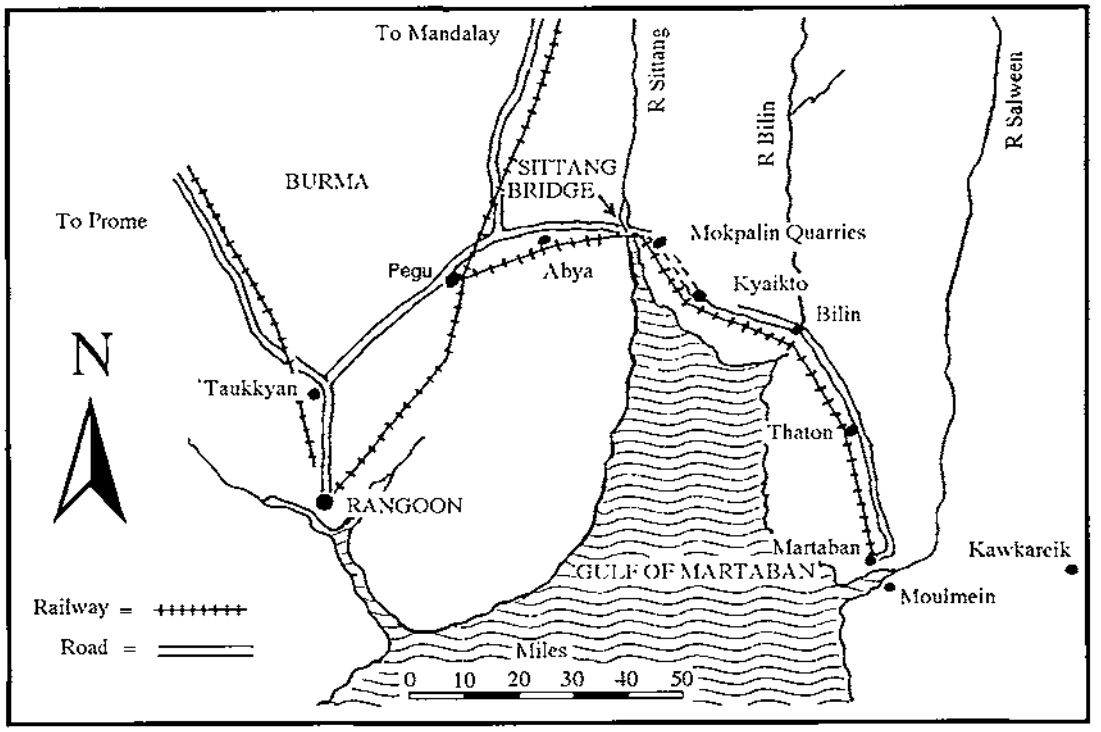
Part I — Personal narrative

Just after 0400 hours on 23 February 1942 I was asleep in my camp bed two miles from the large railway bridge that spanned the River Sittang in Burma. I was woken up by the colossal noise of a large explosion. I knew then that the Battle of the Sittang Bridge had ended in disaster.

When I disembarked from the *Windsor Castle* in Bombay in early 1941 after a long voyage from Gourock, I joined the Royal Bombay Sappers and Miners at Poona. By November, 1941, I found myself in Nowshera as the senior subaltern of one of their affiliated units, the Malerkotla Field Company, which was in the process of mobilizing for service in Burma. Its Indian State Force officers had been replaced by Royal Engineer officers, except for Lieutenant Bashir Ahmed Khan, an experienced subaltern, commissioned into the Indian Engineers. The company commander was Major R C Orgill. The men — Hindus, Sikhs and Muslims — were all regular soldiers with recent operational experience on the North West Frontier. They were subjects of the Nawab of Malerkotla who had followed tradition and put the unit at the disposal of the Imperial Service. The 289-strong company was on a mixed scale of transport consisting of 19 antiquated army trucks, 18 mules, five officers' chargers and one pony for the Sub-Assistant Surgeon.

The Malerkotlas landed in Rangoon in December and spent Christmas in the cool climate of the 5000 foot hill station of Taunggyi, where we joined 1 Burma Division (Burdiv) RE under Lieutenant Colonel D C S Swan. My section was given tasks to carry out in the Shan State of Mong Nai in support of 13 Indian Brigade (Ind Bde) (Brigadier A C Curtis). One rather significant task (as it turned out later) given to me by Brigadier Curtis was to dismantle all preparations that had been completed for 19 demolitions along the hill roads in my area. Just as this task was finished I received an immediate signal to proceed to the railhead, West of Taunggyi, where we entrained with the rest of the unit for an unknown destination. This turned out to be Kyaikto, (pronounced Chaik-toe) a small town East of the River Sittang, where we came under command of 17 Indian Division (Indiv) (Major General J G Smyth VC MC). This formation, quite untrained for jungle warfare, was part of Burma Army (Lieutenant General T J Hutton, GOC-in-C) which came under General Sir Archibald Wavell, Supreme Commander, southwest Pacific. Smyth's troops (16 and 46 Ind Bdes plus 2 Burma Brigade (Bur Bde), later joined by 48 Ind Bde) were being hard-pressed by the Japanese after having being driven out of Moulmein and across the mouth of the mighty River Salween. We set up camp in a rubber plantation. Although I did not know it at the time, the Japanese army had entered Siam (now named Thailand) through Indo-China and had on 7 December forced the Siamese to grant rights of

Maj E R B Hudson TD
Disaster at the Sittang Bridge - Burma 1942 (p26)



Map of Rangoon — Moulmein area.

passage in exchange for respect of Siamese independence. It was the Japanese 55 Division that had crossed over the Mae Sot in Siam on 20 January 1942 to attack 17 Indiv at the Burmese town of Kawkareik, close to the border.

The CRE of 17 Indiv was Lieutenant Colonel A E Armitage. The Malerkotlas were ordered to prepare road and railway bridges for demolition South of Kyaikto. My section was given the immediate task of demolishing a railway bridge between Kyaikto and Bilin. Next I was given the task of preparing the main road and railway bridges in Kyaikto for demolition. The preliminary destruction of a small footbridge was authorised and I remember noting with surprise and delight that the dimensions of the abutments of the footbridge were exactly the same as the ones given in an example in RE Pamphlet No 7 — Demolitions. The successful destruction of this small bridge added to the confidence I had already placed in the author of that excellent pamphlet.

The withdrawal programme of 17 Indiv through the bottle-neck of Kyaikto continued all through the night of 20 February. I did not manage to get any sleep. A small party of Japanese made a noisy exploratory attack before dawn on Advance Division Headquarters (Adv Div HQ) — only 600 yards away — which lasted until first light. I was keeping in close touch with the identity of the withdrawing units. The last troops to cross the Kyaikto bridge did so at about 0800 hours, flopping down exhausted once they were over. Lieutenant Colonel H R Stevenson, 3/7th Gurkha Rifles, gave me the order to blow. It took me several minutes to persuade the rearguard to remove themselves to a reasonably safe distance, after which I pressed the plunger and caused a spectacular eruption of masonry, steel and concrete which greatly impressed the spectators in the front row as they prudently moved further away. The railway bridge was blown, both firing parties boarded my 15-cwt truck and we joined the tail of a long line of infantry, mechanical and animal transport heading for the Sittang Bridge 15 miles away. It was a nightmarish, exhausting and quite unforgettable drive.

There was no real road, just an earthen track that snaked its way along a 600 foot swathe which had been cleared of trees and undergrowth by cutting and burning, leaving some rather thin scrub jungle on either side. It was hot and very dry. The slow-moving column of vehicles, mules and marching men invited sporadic attacks by enemy bombers

and fighters that lasted some three hours. Later on some more planes found us and let loose. As one of them passed low overhead I saw its RAF roundels. I stood up and cheered but was soon biting the dust again as it banked and flew back, giving our troops and transport all it had. As can happen in the fog of war, a mess had been made in describing the bomb line. At the sound of a plane, everyone had his own idea of how far to run into the jungle and when it was safe to return to the road. It took time to get drivers and troops back into their vehicles. We spent much of that day alternately diving for cover and trying to progress forward a few hundred yards and it was not until almost dusk, after struggling for ten hours, that we met up with company headquarters at Mokpalin Quarries not far from the Sittang River.

We were all begrimed, hungry and done in. It was about 1900 hours and the night was moonless and pitch black. I sat in my "bath, canvas, officers for the use of" and cleaned off the dust and ashes before eating some chicken. As I did so, Orgill suddenly told us that the CRE had given him orders out of the blue to prepare the huge Sittang Bridge for hasty demolition, no mean task to accomplish at the drop of a hat. It was a single track railway bridge consisting of 11 spans of through-girder construction, each span 150 feet long. An artisan works company had fixed decking on top of the sleepers so that it was possible, with extreme care and strong nerves, to drive vehicles over the bridge. Orgill held an 'O' Group. The company would cross the river and start work immediately, with Headquarters moving to a new location about two miles West of the bridge. I was given the task of preparing for demolition a small railway bridge shown on the map between the quarries and the river. I detailed *Jemadar* (Junior Indian Officer) Khalil-ur-Rehman and six men, loaded what explosives we had into my truck, and took off to find our bridge.

I spent all that very dark night (with no sleep once again) looking for it. What appeared to be a small bridge on the map turned out to be a culvert under an enormous embankment. With no hope of demolishing it, I decided to use our gelignite to damage a stretch of permanent way. Not very clever of me, but the best I could think of in the stress of the moment. As dawn was breaking I left my party at work and drove off to report the position to Orgill. Hardly had I reached the road leading to the Sittang than I found myself at the tail of a stationary queue that stretched as far as I could see. I walked forward about a mile when the bridge came into full view below. A vehicle had driven off the decked track and blocked the bridge. I learnt that all traffic had been at a standstill for three hours but as I watched I saw vehicles on the bridge start to move again. I waited for my truck to catch up with me and took over the driving seat.

Just before I started to descend the steep slope that led down to the bridge approaches I heard what sounded like small arms fire. I had noticed groups of soldiers were brewing up tea just off the road and I assumed that the sound came from the bamboo they were using (it burns with sharp crackles) to heat up the dixies. Moments later I realised that the noise was unmistakably small arms fire. By then I had almost reached the bridge so I continued to drive over it, jumping out as soon as we had made the West bank and running back over the bridge with my personal weapon — a tommy-gun. I found another officer who had somehow acquired a Bren gun, and the two of us took up a defensive position, looking upstream. We saw some two dozen locals rush out from a village 500 yards away and start swimming the river. But none got very far before machine guns picked them off, one by one. Just then I spotted Orgill on the bridge and reported to him.

Although both Orgill and I were concerned about *Jemadar* Khalil-ur-Rehman and his party, the first priority was to continue with the preparation of the Sittang Bridge for demolition. It was apparent that the bridge had at one time been in a state of readiness for demolition but that all explosives and ancillary stores had subsequently been removed (an echo of the orders that I had received at Mong Nai) and cached on the near bank not far from the bridge. The main girders of three adjacent spans (Nos 3, 4 and 5 from the far bank) had wooden formwork fixed round them to accommodate explosive charges. There was no choice but to attack these three spans. Bashir Ahmed Khan — always known as BAK — was placed in charge of one span, Lieutenants Mills and Macklin (RE officers who had appeared from nowhere) helped out with another, whilst I took over the one in between.

Because of the acute shortage of demolition stores except for the unreliable Fuse Instantaneous Detonating (FID), the charges on my span were to be set off by electric detonators, those on the other spans by fuse detonators and FID. Carrying parties were man-handling stores from the cache. I was glad to note the confident way our Sappers climbed all over the girders as they went about their job of

fixing in place the gelignite and then the detonators, FID and safety fuse; no sign of fear from enemy fire, nor from falling 60 feet to certain death in the river below. We were almost out of range of aimed small arms fire and although bullets kept up a musical pinging noise against the steelwork only two Sappers were slightly wounded. When all was ready I unreeled the electric cable and found to my horror that it ran out some 100 yards from the near bank. I clambered down on to a large steel transom under the bridge and placed my exploder box on a wide flange. I tested for circuit continuity. To my intense relief the galvanometer needle flickered. I informed Orgill who reported to the bridgehead commander (Brigadier Noel Hugh-Jones, 48 Inf Bde) that the bridge was ready for demolition. The time was 1500 hours.

Shortly afterwards a very heavy barrage of artillery and mortar fire was put down on the bridgehead positions and Hugh-Jones had to order the withdrawal of his troops over the bridge. Some 500 exhausted troops of the 4/12th Frontier Force Regiment, 1/4th Gurkha Rifles, 1/3rd Gurkha Rifles and 3rd Burma Rifles passed me as I stood near my exploder box. The situation at this moment was that I was left staring into the distance with orders to blow if I saw a Japanese soldier put foot on the bridge. I was feeling somewhat too exposed for comfort and I have always felt thankful to the unknown officer of the Gurkha Rifles who set up a Vickers machine-gun pointing right down the bridge at the spot where I had established my firing point. Some sandbags arrived, a small emplacement took shape and we both felt happier.

And so we waited for something to happen. All communication to brigades had broken down long ago. I was expecting to see Japanese soldiers appear, but in twos and threes some of our own troops filtered over. I could see them making their way along the river bank and on to the bridge. With hopes raised that both 16 and 46 Bdes and other units could still make it to the bridge, Hugh-Jones ordered the bridgehead to be re-established and 500 still tired and hungry infantrymen formed a tight defensive semicircle round the end of the bridge once again.

It was now late afternoon and Orgill decided I needed to be relieved. I had been continually on the go and had not slept for over 60 hours. I had eaten nothing since the previous evening. I had a four-day growth of beard and had been out in the sun all day without my topi which had fallen in the river. I must have looked whacked.

Back at Headquarters, I bathed and shaved and ate a bit of the inevitable chicken that our two splendid Chitrali officers' mess cooks prepared for me. All this revived me to such an extent that at about 2100 hours I made my way back to the bridge in case there was a job for me to do. The night was pitch black and strangely quiet. I walked on to the bridge but hardly saw a soul. It all seemed so unreal. I returned to the near bank where I stumbled into a group of sleeping Sappers, but Orgill was awake and sitting down, cupping the glow of a cigarette in his hands. He told me everything was well in hand and ordered me to go back and get some sleep.

The battle of the Sittang bridge ended for me in the early hours of 23 February when I was awoken by the roar of the demolition. In my account of perhaps the most traumatic hours of my life I have not only been able to fall back on my memory (known to play tricks 50 years on) but also to refer to the *Malerkotla War Diary*, a typescript copy of which lies before me. This diary was written up at MS 109 on the Imphal-Dimapur Road in May 1942 whilst the events were fresh in our minds.

Part 2 — Additional Notes

The Sittang Bridge disaster gave rise to many confused, bitter and ill-informed accounts. The battle has been, and no doubt still is, studied at military staff colleges. Various questions seem to present themselves and these additional notes are an attempt to answer some of them.

Why were 17 Indiv's own Sappers not deployed on the bridge demolition? Smyth firmly believed — until shortly before his death — that thorough preparations for demolishing the Sittang bridge had been completed long before the attack on the bridge started. In a letter to *The Times* on 31 January 1981 referring to the obituary of Lieutenant General Sir Thomas Hutton he wrote that Hutton "had wisely prepared the bridge for demolition with his Army Sappers.". In a letter to me dated 10 March 1981 Smyth once again wrote, "The bridge was prepared for demolition by General Hutton's Sappers weeks before 17 Div withdrew to it.". This was no doubt so, and Brigadier C C Swift (Chief Engineer Burma Army) confirmed to me in a letter that "before the Japanese got to the Burma border all major bridges had been prepared ...". But someone, for some still unexplained reason, must have ordered that the charges be removed (compare the orders I had received in the Shan States) — and Smyth never knew this.

Armitage must have been considerably worried when he learnt that, with the brigades of 17 Indiv approaching the River Sittang and the enemy following up closely, there was not an ounce of explosive in position on the bridge. The CRE of an infantry division normally had at his disposal three field companies. By the time that Armitage realised that the Sittang Bridge was quite unprepared for demolition he had none of his own companies to deploy onto the bridge. 70 Bengal Field Company (Major, later Major General I H Lyall Grant, see article in RE *Journal* Vol 101 No 2, June 1987 and in this *Journal* pp 34) had not yet landed in Rangoon. Both his other companies had been ordered back across the river. 60 Madras Field Company (Major Rajkumar Kochhar), which was in action up to 16 February at Martaban, had crossed the Sittang Bridge by rail on 19 February and been sent to strengthen bridges for the tanks of 2 Armoured Brigade. 24 Bombay Field Company (Major J McC 'Plug' Smith), in action up to Thaton on 19 February, had been ordered to cross by motor transport on the night of 21/22 February and detailed to destroy the ferries and all the sampans and small river craft on the river banks. Headquarters and two sections of 1 Burma Field Company (Major R S B Ward) had been temporarily under command but what *men* remained after being in action between Kawkareik and Moulmein had joined the rest of the unit in Rangoon to help with oil-tank demolitions. Thus the only Sappers Armitage had available to tackle the vital task of preparing the second longest bridge in Burma for demolition less than 12 hours before it came under attack was the Malerkotla Field Company, on temporary loan from 1 Burdiv. It was a unit he knew nothing about — it had only come under command three weeks before — and it was already worn out after non-stop operations during the previous 72 hours.

It seems that Armitage, like Smyth, must have been under the mistaken impression that "Hutton's Sappers" had already done all that was necessary and that he would find the Sittang bridge in a high state of readiness for demolition. If Armitage had known the true situation he would almost certainly have insisted on retaining 60 Madras Field Company and would have deployed it as early as 19 February with responsibility for the bridge's demolition. It was ironic that the 30-cwt truck that blocked the bridge for three hours on the night of 21/22 February was the CRE's Officers Mess truck. Major 'Plug' Smith relates in a letter, that when his unit (24 Bombay Field Company) was held up as it was about to cross the bridge that night he went forward to investigate. He found that Armitage had taken personal control of the removal of the vehicle. Smith offered to let men from his company help but his offer was refused. Next day I saw Armitage (once) on the bridge when it was being prepared for demolition. I could hardly recognise him, although I had served under him the previous year for several months in the Depot Battalion of the Royal Bombay Sappers and Miners. He had gone through a very harassing period.

Who were the Malerkotlas? The unit can claim a direct lineal descent from the cavalry and infantry of the Ruler of Malerkotla, first reported in action in 1446. The unit fought under General Lake as Mounted and Dismounted Pioneers at Leswarree in 1803. After earning six further battle honours the unit was reorganized as Imperial Sappers and Miners in 1892, since when many further battle honours were added, including Tirah 1898, China 1900-01, Neuve Chappelle 1915, Ypres and Flanders 1915, Mesopotamia 1916-18, Afghanistan 1919, Waziristan 1939-41. In Burma the Malerkotlas took part in actions at Kyaikto, Sittang Bridge, Toungoo, Yenangyaung, Monywa, Chindwin, Maungdaw, Tunnels Area and Buthidoung. The late Nawab of Malerkotla was one of only two state rulers who were on the "gaddi" when Queen Victoria was proclaimed Empress of India in 1876 and who were still ruling when the Empire came to an end in 1947.

How was the bridge blown? Lieutenant Bashir Ahmed Khan took over as officer-in-charge firing point some time during the late evening of 22 February. Because of the very precarious and exposed position of the firing point, Orgill decided to make some adjustments to the method of firing. A small but deep fox-hole was hastily dug just downstream of the masonry abutment on the near bank and the exploder was taken off the bridge and moved back to the new firing point. The exploder was connected by what little cable was available to an improvised junction-box close to the bridge, made up of gelignite, detonators and odd bits of FID. A fresh double circuit of FID was run forward from the junction-box to connect up with all the 18 main charges on the girders (six per span).

From about midnight onwards BAK began to notice the tremendous anxiety, tension and mental strain reflected on the face of Orgill, who was restlessly moving up and down along the bridge to

find out the latest battle situation from Hugh-Jones and other officers, all of whom were carrying tommy-guns, none wearing badges of rank. BAK relates that Orgill told him, "They are all undecided, confused and double-minded (sic).". Orgill was most concerned that a Japanese raiding party might land on the West bank and capture the bridge intact.

Enemy pressure steadily increased during the night and the bridge itself was continuously being swept by fire. At 0200 hours Hugh-Jones asked Orgill if he could guarantee that the bridge would go up if the bridgehead was overwhelmed after daylight. He replied that he could give no such assurance but that he and his men would have a good try.

At about 0330 hours the Japanese put in a strong attack. Hugh-Jones managed to have a message phoned through to Advance Divisional Headquarters which had been established at the railway station of Abya, eight miles away. Brigadier D T 'Punch' Cowan (BGS 17 Indiv) took the call, woke Smyth and told him that Hugh-Jones could not be certain of holding on to the bridge for more than another hour and requested permission to blow. It took Smyth five minutes to make up his mind. If he blew, he faced the certain loss of two of his brigades on the East bank. If the bridge was captured intact, the way to Rangoon lay open and the armoured brigade and other reinforcements still being landed at Rangoon would be cut off. He gave permission for Hugh-Jones to demolish the bridge.

BAK was standing close behind Orgill and heard Hugh-Jones give the orders for demolition, which he did very gravely, reluctantly and with a heavy heart. He heard Orgill ask for a written order, which Hugh-Jones curtly refused to give. After the withdrawal of all the bridgehead troops and all others known to be on the bridge, Orgill told BAK that he was to blow the bridge exactly five minutes after he received a pre-arranged signal from the Gurkha Rifles officer with the crew of the Vickers gun. He was specifically ordered to light the safety fuse at the junction-box first, move smartly back to the firing-point and actuate the exploder. BAK carried out his orders with great precision. But pushing the plunger was almost the last thing he ever did. A powerful concussion wave created by the huge explosions caused the collapse of the sides of the deep fox-hole where BAK and his orderly Lance Naik Kanhie Ram were crouched. They were only freed by another sort of wave, this time of water, which came flooding up right over the bank and saved two gallant Sappers from possibly being buried alive.

Was the demolition successful? Two complete spans collapsed whilst a third was severely damaged but did not completely fall. Not a perfect demolition, but this was due to the hasty and last-minute improvisations that the Malerkotla Sappers had to make. There was the shortage of stores and there was the urgency, with the bridge under close attack, of bringing the demolition plan to a state of readiness as soon as possible. The damaged spans were never replaced and by May 1944 preliminary work for a new bridge was started but later abandoned. The bridge was dismantled after the war and in 1962 a new one of six spans each 350ft long was completed — with the help of one British engineer — on an entirely fresh alignment four and half miles upstream.

What was the Japanese reaction? After the bridge was blown the effect on the Japanese was immediate; they lost all further interest in its capture. Both their 33 and 55 Divs turned North to find another crossing place. A small engineer recce party from Headquarters 33 Division Engineer Regiment (33 Div Engr Regt), led by Lieutenant Hungo, was ordered to make a report on the damage to the bridge. By strange and bizarre chance, in September 1945 I met this officer in the small town of Nakhon Pathom in Thailand. I was then OC 77 Bengal Field Company in 7 Indiv and he was by then a captain, OC Bridging Company of 33 Div Engr Regt. An architect by profession, he was placed under my command for quite a few weeks and proved a most efficient officer, producing for me model engineer reports, plans and stores lists (as taught at the School of Military Engineering) and taking charge of a number of construction projects carried out by his Sappers and Infantry working parties.

What about the troops on the wrong side? The Japanese reaction in breaking off the battle after the bridge was blown enabled a great many of our troops (Smyth gave himself credit for 3000) to reach the river bank and to cross the river. Happily, *Jemadar* Khalil-ur-Rehman and all his party were amongst these. They had resumed their role as Sappers and helped others put together means of crossing the river obstacle — albeit in reverse. Some did so with the aid of lengths of bamboo, petrol tins, water-bottles tied together, some on home-made rafts, and some were even able to clamber over the broken girders of the bridge after some observant officer had noticed the possibility of doing so with the help of a rope strung between

the twisted pieces. But sadly many were drowned in attempting the difficult crossing and many others became prisoners of war. Of the two brigades that were cut off, 46 Ind Bde (Brigadier R G Ekin) was soon operational after being re-clothed, re-equipped and re-armed but 16 Ind Bde (Brigadier J K Jones), as such, never went into action again.

Many officers and men, especially those that had been cut off and left to their own devices to cross the river, were bitterly critical not only of Smyth but also of Hugh-Jones, who was in a state of collapse and was physically supported as he left the scene of the battle. When seen on a hospital ship on the Irrawadi his hair had turned white. Hugh-Jones was never able to forget the traumatic events and the tragic part he took in them. The memory of them affected him physically and mentally and in the early 1950s he walked out to sea — and never came back.

Was Smyth's decision to blow the bridge justified? Yes, in the situation that had arisen. It was a brave decision. The advance of the Japanese on Rangoon was delayed just long enough for reinforcements landing in Rangoon to get clear of the town before being trapped — which they almost were at the Taukkyan road block where the 1942 Burma Campaign could have ended with an ignominious surrender as in Singapore. The additional strength of 7th Hussars, 2nd Royal Tanks, 1st West Yorkshires, 1st Cameronians and 63 Ind Bde enabled a large part of our fighting troops, whose morale had been considerably undermined by the Sittang Bridge disaster, to survive and reach India — the longest retreat in British history.

After losing Moulmein, Smyth did not wish to remain long on the line of the shallow Bilin River but wanted to fall back without delay to the Sittang. But General Hutton, with Wavell breathing down his neck and Sir Reginald Dorman-Smith, Governor of Burma, aghast at the effect a withdrawal to the Sittang would have on the morale of the civil population of Rangoon, refused permission to withdraw from Bilin until it was too late for Smyth to get his Division back to the Sittang intact. It is clear with the benefit of hindsight that Smyth should have been allowed to pull back — or pulled back on his own initiative — at least a brigade to prepare for the crucial fight that he knew would develop at the bridge. But there is no denying that, once the battle had started and with more than two brigades still to cross the river, it was a serious error of judgement on Smyth's part to put himself eight miles away when his Division was fighting for its very existence at the Sittang bridge. He should have established a forward command post and kept in almost constant touch with Hugh-Jones. Instead, as it grew dark on 22 February he left Hugh-Jones in charge at the bridgehead and drove to his advance headquarters at Abya "for a meal and a few hours' sleep" as he records. He had been summoned by Hutton to meet him next morning back on the Rangoon-Pegu Road and this is the reason given by Smyth for not staying forward at a very critical time.

But another reason could have been his health. Smyth was in persistent pain from an anal fissure and needed frequent medical attention. When at advance headquarters he would have been given injections of arsenic and strychnine that had been prescribed to keep him going. There seems little doubt that Smyth's state of health, and the pain which he was enduring, made it difficult for him to move about freely. This may explain why he may not have felt able to monitor the situation at the bridge as closely as he could have wished to do — and almost certainly would have done had he been in good physical condition.

Whatever the reason, it is clear that Smyth should not have been allowed to command a division on active service whilst he was so seriously ill, the more so since the nature of his illness must have affected his ability to concentrate (and thus his judgement) as well as his ability to move about freely. His illness started in Quetta in July 1941 when he entered hospital for a serious operation with a long convalescence. In October he was offered and was delighted to accept the command, with promotion to Major General, of 18 Indiv which was just about to be formed up. Smyth discussed the matter with the senior medical officer at Quetta who decided to leave things be as he had not been called upon to make any medical reports. But Smyth should have asked for a medical board, especially when he was suddenly, in early December, given command of 17 Indiv, ready to go on active service almost immediately.

On 7 February, three weeks after 17 Indiv had seen some hard fighting and had retired to Martaban, Major General T O Thompson, the Deputy Director of Medical Services of Burma Army, saw Smyth and insisted, despite protests, that he should have an immediate medical board. The following day Smyth wrote to Hutton, told him about his illness — and, with the fighting hardly started, asked for at least a month off in

India. The board pronounced him fit but recommended two months rest at the first opportunity — a contradictory and absurd finding.

Smyth was ambitious and brave. Nevertheless, the continued stress and strain from the pain, plus the loss of sleep which accompanied it, made him a very sick man and unfit to command. He should have reported sick at Martaban and been evacuated as a normal casualty but he was proud of never having reported sick in the whole of his service. His insistence on staying on duty jeopardized those under his command and the entire outcome of the 1942 Burma campaign. It also brought his military career to an abrupt end. Immediately after the battle he was replaced by Brigadier 'Punch' Cowan and flown back to India where he spent eight months in hospital.

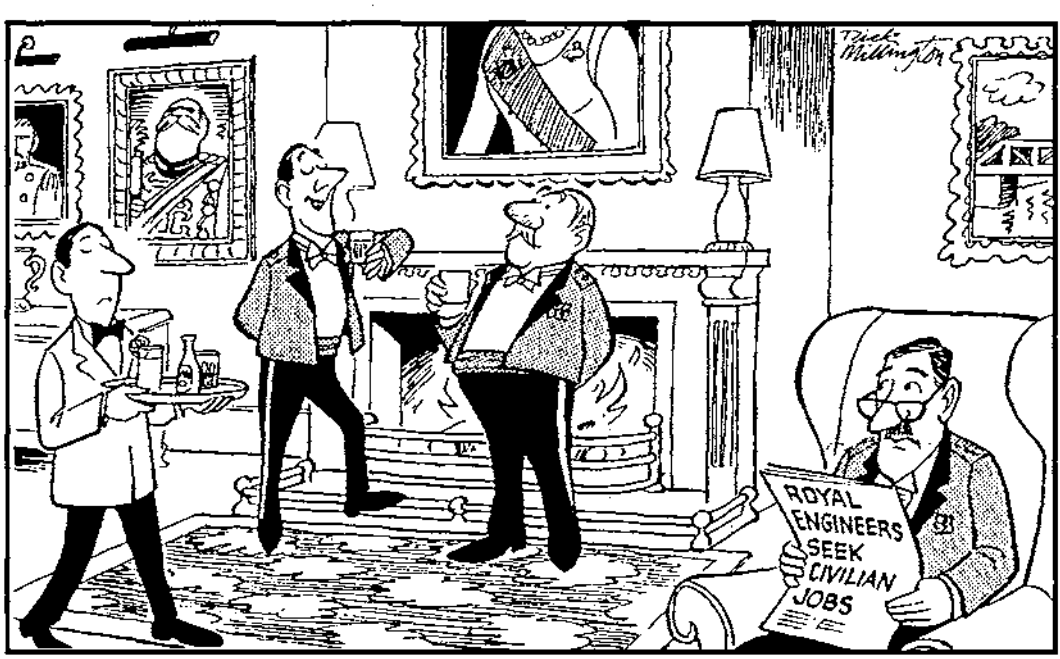
Part 3 — Conclusion

A number of conclusions can be drawn from this sad account of events which cost many soldiers their lives and at least two senior and well respected officers their commands and their reputations.

The first is obvious; there is no Divine Right of Commanders. Consequently, nobody — however senior — should be exempt from regular medical examinations to determine their fitness for their jobs before their appointments are confirmed. Soldiers sent into battle have the right to assume that their commander is up to his responsibilities, both physically and mentally. It is their lives that he is putting on the line, and not his own. Furthermore, though one is taught to avoid sneaking, in a case such as the one related here it would have been well if somebody other than Smyth had "had a word" with the president of the medical board.

Secondly: it is wrong, and grossly unfair to the men under one's command, to try to carry on regardless when one is physically or mentally unfit to do so. The exception to that is the man who carries on fighting even though wounded. He may get a medal for that, and deserve it. But he should then get back out of the line as soon as he can, more in the interest of his comrades than in his own.

Thirdly: a senior commander should respect the advice of the man on the spot, no matter what pressure he may be under to maintain an untenable position for political or whatever reasons. Contrary to Churchill's maxim, the conduct of a war is not too serious a matter to be left to soldiers. But it is always easy to be wise after the event. What would you have done in Smyth's boots, my dear Sir?



"ONE ASSUMES CIVILIAN CONTRACTORS HAVE STAFF CANTEENS SIMILAR TO THE OFFICERS MESS, WHAT ?"

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Sappers at the Battle of Kyaukse

MAJOR GENERAL I H LYALL GRANT MC MA MICE

Major General Lyall Grant retired from the Corps in 1970 after 35 years service, and was a Colonel Commandant from 1972 to 1977. At the time of the events described, he was Officer Commanding 70 Field Company, King George V's Own Bengal Sappers and Miners.

FIFTY years ago a small British force was nearing the end of a long and arduous retreat in Burma. A superior Japanese force had driven the Royal Navy out of the Bay of Bengal and the small Royal Air Force contingent out of Burma. Between the road systems of Burma and India there was a gap of some 250 miles of mountain and forest bisected by a large unbridged river. There was no external means of supplying the Army which was existing on such stocks as had been prudently moved North from Rangoon; in another week it would be put on half rations. The weather was very hot and the monsoon was due in less than a month. All tracks would then become impassable for vehicles.

By the end of April 1942 it was clear that the only possible aim was to withdraw the British force to India and the similar Chinese force to China before the rains started. The Japanese for their part aimed to trap the Allies with their backs to the Irrawaddy, across which there was only one bridge, and destroy them there. The 1st Burma Division, now only about 6000 strong, was retreating North astride the Irrawaddy, pursued by the Japanese 33rd Division. 17th Indian Division, rather less than 10,000 strong but supported by the light tanks of the 7th Armoured Brigade (on a visit from the Middle East), was retreating up the main road and rail axis. They were being followed by the Japanese 18th Division, freshly arrived from its triumph in Malaya and Singapore. Somewhere in between a Chinese brigade, nominally under British command, was also heading North while away to the East a Chinese force under General Stilwell's command was being roughly handled by two other Japanese divisions.

The British plan at this stage was to delay the Japanese advance sufficiently to get all units across the great Ava bridge over the Irrawaddy. On 25 and 26 April 7th Armoured Brigade and part of 63rd Indian Brigade were fighting a rearguard action at Wundwin. The next stop was to be the village of Kyaukse (pronounced Chowksee). This village was astride the only rail and all-weather road to the North and about 30 miles South of the Ava bridge. I was commanding 70 Field Company of the Bengal Sappers and Miners. Like all Indian field companies it was self-administering and would now be called an independent company. The CRE was the incomparable Dick Ward who, among many talents, had the rare gift of always turning up when he was needed and the even rarer one of not turning up when he wasn't. He now told me to blow three bridges South of Kyaukse and two North and to be under command of 48th Indian Brigade for the defence of Kyaukse itself. It was the first time that we had supported this particular brigade.

The two bridges to the South at Myittha were to be blown as soon as convenient and on the 26 April, after ordering the demolitions to go ahead, I drove back onto the main road where I met a small convoy headed by the CRE. Behind him was a Chinese general in a staff car and two truck-loads of Chinese soldiers. Directly the convoy stopped these warriors, all armed with Tommy guns, sprang out of their vehicles and took up positions all round us, facing

Maj Gen I H Lyall Grant MC
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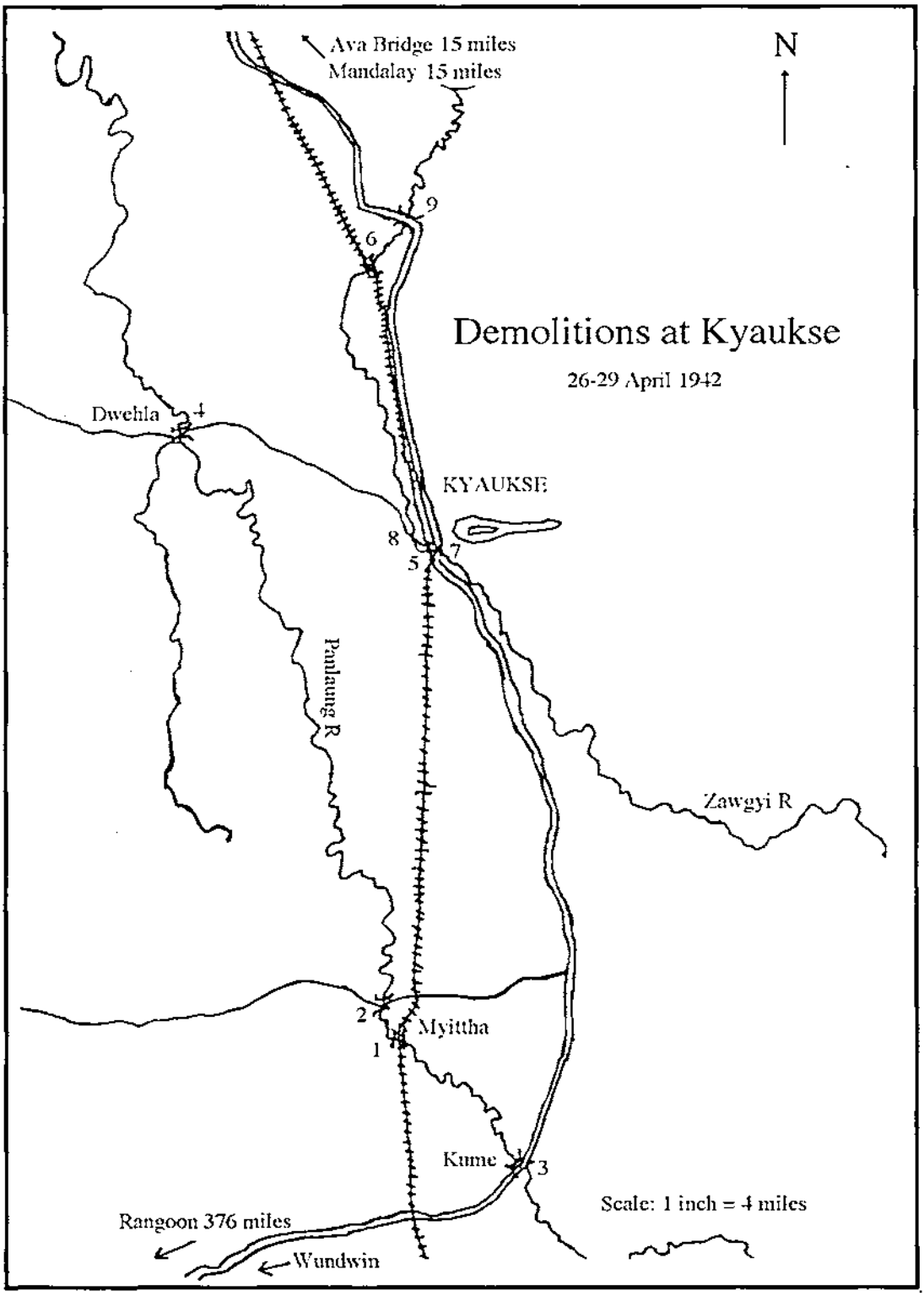
Ava Bridge 15 miles
Mandalay 15 miles
N
Demolitions at Kyaukse
26-29 April 1942
Dwehla
KYAUKSE
Panlaung R
Zawgyi R
Myittha
Kume
Rangoon 376 miles
Wundwin
Scale: 1 inch = 4 miles
1
2
3
4
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inwards. Clearly the Brits were just as much a potential danger as the Japanese. The CRE explained to me that there was a Chinese battalion coming up from the South by rail and we must delay our demolition until they had passed. The words were scarcely out of his mouth when from the direction of the bridge there was a loud BOOM the meaning of which was only too plain. An awkward silence followed broken by the ever-resourceful CRE assuring General Sun that we would make certain that his troops got over the river somehow. Fortunately the General, who was an able soldier, accepted this and retired with his bodyguard to Kyaukse.

I then went back to the bridge where I found a highly embarrassed Sikh *jemadar*. The bridge consisted of two massive plate girders, always a difficult target, and it had sagged but not been completely cut. He had used some old gun-cotton liberated from a warehouse in Rangoon and this may have been the trouble. This was a stroke of luck and he was astonished to find that I was delighted. The Chinese battalion came along the railway line on foot about an hour later and had no difficulty in crossing. The two bridges were then properly demolished.

The same afternoon 7th Armoured Brigade (consisting of two regiments, the 7th Hussars and the 2nd Royal Tanks) came under increasing pressure from the 18th Division and from the air. During the night Brigadier Anstice decided to withdraw. At 0400 hours on the 27 April the last two light tanks rumbled over the Kume bridge and Tom Valsler blew it behind them. Three bridges down and next stop Kyaukse.

At Kyaukse I found a party of Chinese Sappers in charge of the main road bridge. They had laid a huge charge on one span but then seemed to be planning to detonate it with safety fuse. I explained that I had come to take over this task but with traditional inscrutability they refused to budge. Fortunately the CRE turned up and whisked me off to the Chinese headquarters at the back of the village. He explained that we would meet there a British liaison officer, General Spears. "Not *the* General Spears?" "Yes." On the first floor of a little mud brick and stucco building we found a grey-haired and rather exhausted Englishman sitting on a wooden box and explained our problem to him. He said the Chinese were quite impossible to deal with but he would do his best. It can't have been *the* General Spears, (author of *Liaison*) but who it was I have never discovered. Anyway he succeeded and that night all the Chinese withdrew.

48 Brigade was an all-Gurkha brigade. They had already earned a high reputation in the Division but were now much under strength. It was with some trepidation that I went to their headquarters to meet for the first time the formidable Brigadier Cameron who had the reputation of being a hard taskmaster. He told me that he wanted us to blow four bridges, three in Kyaukse and a big one seven miles out to the West, at Dwehla. Accordingly I arranged for these four bridges to be prepared and also the two to the North that the CRE had ordered. Firing parties were left with each bridge and the rest of the company went into harbour some four miles North with the battery of the 1st Indian Field Regiment which was to support the Brigade.

The next day, the 28th, a squadron of the 7th Hussars, who together with a troop of anti-tank guns were also supporting 48 Brigade, made contact with enemy tanks a few miles South of Kyaukse and it was clear that the Japanese were closing in. At a Brigade 'O' Group that evening the Brigadier told us that we were to hold Kyaukse until 1800 hours the following day. The brigade was short of automatic weapons and there was no wire. The village was a dense mass of wooden houses, trees and bushes and was too big for all round defence so only three sides of the box would be held. A high ridge, dotted with white pagodas, ran East from the centre of the village and the western end of this, which overlooked brigade headquarters, was to be a strongpoint. The Brigadier particularly told me that the Dwehla bridge out to the West was not to be blown except on his personal order. I passed all this on and Tom Valsler with his firing party and two tanks as escort duly departed to the Dwehla bridge. Peter Higgins holed up by the main road bridge and I parked myself, plus driver and orderly, under the trees about 50 yards from brigade headquarters.

About 1900 hours heavy automatic fire started up on both sides of the main road. The Japanese attack had begun. As the usual Japanese tactic was to establish road blocks behind any position that they attacked frontally it looked as though we were in for a sticky time. However there was nothing for us to do and I lay down and went to sleep. About 2200 hours I was woken by an orderly who said the Brigadier wanted to see me at once. I duly trotted off and found a furious Brigadier who said: "The Dwehla bridge has been blown; why?". This wasn't a very good start to our relationship. I had no idea and could only say rather feebly that my subaltern at the bridge was absolutely reliable and there

would be some good reason. The Armoured Corps Liaison Officer now chipped in unhelpfully to say: "Well he's been put under arrest!". Before I could answer the Brigadier said: "They're on their way in now. Go and see what happened.".

So I went to the canal bridge which was on the western perimeter and before long the two tanks, followed by our two 15-cwt trucks, drove in. Tom was sitting on the leading tank looking, as well he might, thoroughly browned off. He told me that a column of trucks full of Chinese had come over the Dwehla bridge and announced that there was no-one behind them. The cavalry subaltern, who was bridge garrison commander, had then ordered the bridge to be blown. Tom had queried this but the subaltern repeated the order so the bridge was successfully blown. After inspecting the demolition Tom was astounded to be told that he was under arrest. I asked the cavalry subaltern if this was correct and he agreed that it was. "Then why did you put him under arrest?" "Because my regimental headquarters came up on the blower and told me to!" I whisked Tom to the Brigadier where he told his story with such evident sincerity that the arrest was cancelled on the spot. As it happened no harm was done as the convoy had indeed been the last but the incident didn't show the 7th Hussars, to whom we owed much during this campaign, at their best.

The rest of the night passed noisily but uneventfully as far as I was concerned. However Hugh Kelly, my second-in-command, and Alan Hiscock and his troop who were in reserve, had an uncomfortable time as they were harboured next door to the Gunners. The Japanese had brought up heavy field artillery which fired a 35-pound shell and far outranged our 25-pounders, and their counter battery fire was tiresomely accurate.

At first light, Captain Roy Gribble of the 1/7th Gurkhas led a highly successful company counter-attack. Many of the Japanese opposite him were exhausted and asleep and he reported about 70 killed. This cheered everyone up, especially as our casualties during the night, in spite of all the racket, had been very few.

We still had five bridges to demolish so it seemed wise to reduce them as much as possible. The Brigadier gave permission for the two railway bridges to be blown; the one at Kyaukse and the one eight miles to the North. Peter Higgins first blew the Kyaukse bridge at 0730 hours, dropping both spans into the river. A large piece of steel sailed across Kyaukse and landed in brigade headquarters. No-one was hurt and we were more fortunate than we knew. The rail bridge was less than 50 yards from the road bridge on which all the charges were laid. It was only later that we discovered that the commercial gelignite that we were using would detonate every time if hit by a bullet or a shell splinter. Although the detonators were not yet in the charges so a complete demolition was impossible, there could have been some awkward damage if some of the charges had been hit. Peter then went back and blew the railway bridge to the North. Six down and three to go.

During the day the shelling increased. About mid-day a Buddhist monk in saffron robes appeared, wandered through the deserted village and climbed up to one of the Pagodas on the hill. Being frightfully British no-one thought of molesting the holy man. However it was scarcely a coincidence that about an hour later several salvoes of shells fell accurately on brigade headquarters and they were forced to find a new position. The CRE also turned up to ensure that the night's rumpus had been smoothed over and his return to his jeep coincided with some heavy shelling of the central cross-roads. Fortunately some deep storm-water drains gave excellent protection. Before leaving he asked me to destroy the railway station. We duly did it but there wasn't much to destroy apart from the points and the water tank. Firing continued round the perimeter all day and very belatedly the Japanese started an encircling movement on either flank. They were too late and should have started it much earlier. General Mutaguchi, their divisional commander, of whom we were to hear much more in 1944, was perhaps over-confident.

The Brigadier now gave out his final orders for the withdrawal. It was an ingenious plan. Thinning out was to start at 1730 hours but two tanks were to remain on the far bank of the river. At exactly 1800 hours the main road bridge was to be blown whereupon the tanks were to demonstrate and come back over the canal bridge to the West. This would then be blown behind them on the orders of the brigade major.

As the afternoon wore on the automatic fire and the shelling intensified. Most of the wooden village houses caught fire. At the bridge the demolition had been laid out with a ring circuit of detonating fuse (Cordtex) with branches to each charge. Our old-fashioned exploders had proved unreliable and initiation was to be by safety fuse. An igniter was placed behind each pillar at the near end of the bridge. At exactly two minutes to six *Havildar* (Sgt) Aurangzeb (later to become a distinguished major

in the Pakistan Army) pulled one igniter and I pulled the other. We then took cover behind a large mango tree about 60 yards from the bridge. With about 30 seconds to go a truck, loaded with a platoon of Gurkhas, appeared bumping agonizingly slowly along the near river bank towards the bridge. With five seconds to go, it reached the bridge, paused while the driver changed gear and turned cautiously up the main road. They were lucky. The fuse burnt more slowly than expected and the truck had just passed us when with a tremendous roar the bridge blew up. Thanks to the Chinese we had used a vast overcharge and in the dusk the effect was most dramatic. As I believe is often the case the noise of battle stopped as though switched off and for the next minute the only sound was of debris crashing down. Then the tanks opened up again with their machine guns. We had a look at the wreckage. Sure enough both spans were down and in two pieces. Returning we met the Brigadier standing in the middle of the road his face shining in the light of a blazing house. "Splendid!" he said "Splendid!", and I think he really relished the drama of the occasion.

There still remained the canal bridge and here I had made a bad mistake. Because of the danger of cordtex being detonated by a bullet I had said that detonators were not to be put into the charges until the two tanks had come in. This was quite wrong because the bridge was constructed of reinforced concrete with many charges which were difficult to get at. At about 1812 hours the two tanks clattered over the bridge, one officer remarking *en passant* that it looked like the whole b——y Japanese army was behind him. "Ok, you can blow the bridge now" said the brigade major disappearing smartly up the road after the tanks. Tom Valsler told *Naik* (Cpl) Vakil Singh (later to become a full colonel in the Indian Army) to insert the detonators. It took ten anxious minutes before the bridge was ready and successfully destroyed. The firing party then had to drive back through the middle of the deserted Kyaukse. Fortunately the Japanese infantry, who could easily have crossed the river at the weirs and seized the central road-junction, had not followed up.

Later that evening the ninth bridge was destroyed by Peter Higgins and we passed through 63 Brigade and over the huge Ava bridge.

Thus ended this little battle, described by General Slim in his book as "a really brilliant example of rearguard work". We got a kind word from the Brigadier and 70 Field Company was to remain affiliated to 48 Brigade for the remainder of the war in Burma.

December 1991 *Journal* Awards

The Publications and Library Committee announces the following awards for articles of special merit published in the December 1991 *Journal*:

Defence in a Security Vacuum
by Sir Hugh Beach ... £75
British Forces Kuwait in the Aftermath of the Gulf War
by Colonel I D T McGill ... £50
Mercenaries or Political Pawns, An Encounter With Commerce
by Major J P Watkinson ... £50
A Very Different Sort of Operation, Operation *Haven*, Background to the Kurdish Problem
by Major R C Hendicott ... £50
Operation *Granby*, Preparation and Deployment for War
by Colonel J D Moore-Bick ... £50
Waterbeach at War — 39 Engineer Regiment's Part in the Gulf War
by Major G R W Mac Ginnis ... £25
The Cyprus Connection, August 1990 to August 1991
by Major R C Swanson ... £25

Further awards to articles of special merit published in 1991 are as follows:

Montgomerie Prize:
Mercenaries or Political Pawns, an Encounter With Commerce
by Major J P Watkinson ... **Set of Corps History or books of own choice to £50**

Arthur Ffolliott Garrett Prize:
Fi Kull Makan
by Lieut Colonel M G Le G Bridges ... **£75**

Best Article of the Year Award:
Defence in a Security Vacuum
by Sir Hugh Beach ... **£100**

No 1991 *Journal* articles or authors were eligible for **Best Junior Officer** or **72 Engineer Regiment (V)** awards.

A Walk With Heroes

Lord Kitchener of Khartoum 1850-1916

It is time we did something for Kitchener of Khartoum (K of K). Having our greatest Field Marshal banished to a remote corner of Horse Guards was bad enough. But condemning him to spend half his time in a packing case is altogether too much. No Field Marshal deserves that — least of all Kitchener, the only one ever to become Secretary of State for War. Siting his memorial on the back wall of Downing Street might have been a good idea in 1926, ten years after his death and the horror of the Somme, but things have changed since then. Today, the Prime Minister's security and grandstands for Trooping the Colour have rendered the area virtually inaccessible.

Nevertheless, Kitchener's modest statue stands just a few minutes walk from Ministry of Defence Main Building, as I discovered by chance a few years ago. In those days I was occasionally allowed out by my SO1 to visit King Charles Street. Once free I made the most of these opportunities to explore. Leaving Main Building by the old Air Ministry entrance, beneath the eagles still hovering over the South Door, I crossed the road opposite Downing Street, home of Prime Ministers since Sir Robert Walpole accepted the whole street from George II in 1731. Dodging the traffic, from here one can scan the whole historic sweep of Whitehall: from Big Ben's 316ft of Yorkshire limestone (Barry and Pugin, 1859), and the outsized bronze of Churchill by Robert-Jones (1973) at the southern end; to the lofty, fluted granite of Nelson's Column rising to 185ft in Trafalgar Square, and the splendid brass equestrian statue of Charles I by Hubert le Sueur which was erected on the site of the original Charing Cross as long ago as 1633. Walking down Whitehall one cannot help but feel the powerful presence of Sir Edwin Lutyens' Cenotaph, that slim white Portland stone monument to the "Glorious Dead" of two lost generations whose vertical lines converge 1000ft up in the sky. It has dominated Parliament Street since the victory parade of 1919.

It does not take long to walk to King Charles Street. It is, in fact, the next turning on the right and runs from Parliament Street to St James's Park like a hidden canyon between the towering heights of the Foreign Office (Gilbert Scott, 1873) and the Treasury (Barry, 1847). Although a cul de sac for vehicles, at its western end, close to the department I used to visit, it descends to the Park by a flight of fine steps named after Clive of India whose imposingly ornate statue by John Tweed was erected in this wonderfully commanding position in 1917. To my mind there could be no more appropriate place for his monument as without men like Robert Clive (1725-74) there might have been no British Empire and so no Foreign and Commonwealth Office at all. Admiring the scenes of Arcot, Plessey and Bengal adorning the richly decorated plinth, I am struck by the fickle nature of fate. Penniless in 1744, Clive is said to have attempted suicide twice. Each time his pistol failed to fire thus convincing him he was destined to live. How sad then that on 22 November 1774 he should eventually succeed in taking his own life at his London home, 45 Berkeley Square. At times history turns on a sixpence.

At the bottom of Clive Steps history skips forward two centuries at the public entrance to the Cabinet War Rooms, nerve centre of Churchill's War Cabinet from 1939 to 1945. From one of its 19 underground rooms Churchill made many of

those well-known broadcasts to the nation, and from the top of the square palazzo tower above he watched London burn during the Blitz. Leaving King Charles Street, I used to head back to MOD by turning right at the foot of this tower in order to pass the then-new statue of MOD's first Chief of the Defence Staff, Lord Louis Mountbatten, assassinated by the IRA in 1979. 'Mountbatten Green', as this lawn has come to be known, is on the corner of Horse Guards and just around the corner to the right, hidden by trees and the high brick wall of No 10 Downing Street, I stumbled one day across Lord Horatio Herbert Kitchener of Khartoum. 'K of K' as he was known.

Sadly, John Tweed's statue of Kitchener is far less impressive than that of Clive. Kitchener is wearing a Field Marshal's service dress with riding boots and is unarmed. His hands are crossed in front of him in a somewhat unassuming, almost apologetic pose. His head is slightly lowered and his brows knitted as he looks gravely northward towards his wartime home at No 2 Carlton Gardens. Although Tweed succeeded in capturing the mesmeric look in those penetrating eyes, he was less successful with the famous moustache. The statue stands on a low plinth of Portland stone without embellishment. Apart from Kitchener's name, it's only words are: "Erected By Parliament". One can only assume that Parliament was either too ungrateful or too parsimonious to say more about this great man.

In reality, of course, Kitchener's achievements were outstanding and far too numerous to record in detail here. Like so many great generals, he was born in Ireland. He was commissioned into the Royal Engineers in 1871, and his most famous victory was the defeat of the Khalifa's dervishes at the Battle of Omdurman on 2 September 1898 in which he avenged the death of his hero and fellow Sapper, Major General Charles Gordon. He went on to become Commander in Chief in South Africa and later in India. In 1909 he received his Field Marshal's baton and was sent to Egypt as British 'Agent', ruler of the country. In July 1914, just as war was breaking out, he returned to England to receive an Earldom. A few days later on 3 August, amid unanimous national acclaim and enthusiasm, he was summoned by Prime Minister Asquith to take over the seals of the Secretary of State for War. With the country plunging ever deeper into crisis, there was no other Englishman alive who commanded so much public confidence nor anyone with a greater knowledge of the military resources of the Empire as a whole. He saw at once the awful magnitude of the nation's plight and the lamentable lack of peacetime preparations for war. He alone understood with absolute clarity the scale of the catastrophe which was about to engulf Europe. He informed the Cabinet immediately that Britain would have to expand her Army from six divisions to 70. Three days later, on 7 August, he began forging the instrument of victory with his famous appeal for the first 100,000 volunteers for what became known as 'Kitchener's Army'.

"Cometh the hour, cometh the man". In it's hour of need Kitchener became the man of blood and iron to whom the nation turned. His very name had become synonymous with victory and success. He had never courted popularity nor posed for posterity but by 1914 he had become, quite simply the country's premier war-lord. They had total faith in him. His genius was for strategy and improvisation and, as a well trained engineer, he knew how to plan for the worst case. He was a strong, silent, religious man with enormous charisma and such complete self-confidence that he totally lacked personal vanity. To the soldiers he commanded he was a 'lucky general' — the type they like best. To the rest of the country he was simply a hero. The famous recruiting poster ("Your Country Needs YOU") with it's stern eyes and luxuriant moustache was an exercise in sheer hero worship. But it's effectiveness at arousing national sentiments is an indication of the astonishing impact the mere image of Kitchener could have on the country at that critical time.

Looking back today, however, I am also struck by the precarious solitude of his position. Morally and intellectually aloof from other men, filled with puritanical Anglo-Catholic fervour, imperious, secretive and unmarried; by 1914 Kitchener had become a remote enigma. Despite a prodigious capacity for work and the profound admiration of his staff, he nevertheless had his faults. He was autocratic, his office methods were chaotic and his system of command was perilously centralized. He was not a good 'team player', he had a low opinion of the War Office, and he had absolutely no idea about the workings of his own ministry or of cabinet government.

Perhaps it is hardly surprising that such a man should become so disdainful of politicians and so soon in conflict with his Cabinet colleagues. As the war went from bad to worse attempts were made to oust him by those jealous of his power, but without success. By December 1915, however, he seemed to be losing the knack of winning and his wings

were clipped by the appointment of Sir William Robertson as Chief of the General Staff. By the time he perished at sea on 5 June 1916 when His Majesty's Ship *Hampshire* struck a mine en route for Russia, Kitchener's stock in government circles had sunk so low that Churchill believed he had died "at the right time in his life". Few reputations can have suffered such a dramatic reverse.

Nevertheless, the news of Kitchener's death came as a stunning blow to the nation at large. For many it was simply too awful to be believed. Wild rumours swept London: he was safe in a cave; he was a prisoner of the Germans; he was in an enchanted sleep; he had been abducted by the 'The Unseen Hand'. For many the rock on which their hopes were founded had been shattered. Kitchener's body was never found so there could be no state funeral, but a memorial service was held in St Paul's. There was pious talk at the time of raising a national memorial, but nothing came of it and gradually his memory receded. A white marble statue was eventually placed in St Paul's Cathedral 10 December 1925. The bronze statue on Horse Guards was not erected until 1926.

But perhaps his fall from grace was inevitable. Kitchener had, after all, recruited three million of Britain's finest men and then destroyed them in battle. After the war, when 'guilty commanders' were sought to blame for the 'lost generation' his name was not excluded. But from this distance such a harsh judgement seems less than fair. In 1914 Kitchener was almost alone in realizing that Germany would have to be defeated on land as well as at sea and that a massive expansion of the Army was desperately needed. He was therefore obliged to make war "not as we would but as we must". His knowledge and experience of the Empire, as well as his inspirational leadership at home, were of incalculable value in those first dark days of war. He alone advocated an army of 70 divisions, and in the end his assessment proved correct. During his two years as Secretary of State for War he took a resolutely long-term view of the campaign and exercised a powerful influence over it's strategy. He was, above all, a courageous and practical man; a builder of armies who strongly disapproved of French's wasteful tactics. In the final analysis, it seems to me that Kitchener, more than any other man, could claim to have been true architect of victory in the First World War. Had he survived the war perhaps, like Burgoyne 60 year earlier, his strategy would have been vindicated and his reputation restored.

So why should we have to suffer this meanly inadequate memorial, half-hidden and half forgotten on the back wall of Downing Street? Is it not time we acknowledged his achievements and honoured him with an appropriate monument in Whitehall outside the Ministry of Defence so that once again he can mesmerize the Cabinet Office with that penetrating gaze? Perhaps at the same time we should be commissioning a new plinth, like those of Clive and Gordon, to record his greatest glories: Omdurman, Fashoda, South Africa, India, Egypt and 'Kitchener's Army'. As for an epitaph, I would suggest: "Cometh the hour, cometh the man" although no doubt he will be best remembered for: "Your country needs YOU".

As I cross the crunching gravel of Horse Guards, past the magnificent Cadiz mortar of 1812 and fine equestrian statues of Lord Roberts and Viscount Wolseley, I contemplate the ironies of history. Returning to Main Building I resolve to seek a better future for our finest forgotten Field Marshal: K of K, last of the thin red line of heroes.

This is the second of the series written and photographed by Lt Col T H E Foulkes, featuring great 19th Century personalities.

Kitchener — hands crossed in front of him in an almost apologetic posture!

A walk with heroes (p41)

Delaying the Japanese Advance in Burma 1942

SIR ERIC YARROW MBE DL

Sir Eric enlisted as a sapper in 1940 and attained the rank of major before demobilisation in 1945. Most of his time in the army was spent in the area of India/Burma and, except for a short time with the 23rd Indian Division, his service in that area was with the 17th Indian Division. His last assignment in the army was to supervise the removal of German mines from the beaches between The Hague and The Hook of Holland.

Sir Eric was Managing Director of Yarrow & Company from 1958 to 1967 and Chairman from 1962 to 1985, a Director of the Clydesdale Bank from 1962 and Chairman from 1985 until the end of last year. He was also a Director of The Standard Life Assurance Company from 1958 to 1991. He was associated with a number of organisations connected with the shipbuilding and engineering industries and was on the Council of the Institution of Directors from 1983 to 1990. He has had a long connection with the Princess Louise Scottish Hospital (Erskine) for ex-servicemen and ex-service women. After six years as Chairman, he is now Honorary President. He held office as Deacon of the Incorporation of Hammermen in Glasgow in 1961 and as Prime Warden of the Worshipful Company of Shipwrights in 1970. He was Chairman of the Blythe Sappers in 1989 and is currently President of the Burma Star Association in Scotland.

The 17th Indian Division played a leading part in stemming the Japanese advance through Burma in 1942. There were three independent field companies in the Division — the much weakened 24th, the 60th and the 70th Indian Field Companies — and this article refers to an assignment carried out by the 60th Field Company of the Madras Sappers.

The Division received a severe mauling from the experienced 33rd Division of the 15th Japanese Army following the blowing up of the bridge over the Sittang River on the night of 22 February 1942 and the Burma army was considerably disorganised. However, within two weeks the Division fought with great determination and courage to hold up the Japanese 55th Division at Pegu and to overcome a strongly-held road block 23 miles North of Rangoon on the road to Prome, thus enabling the Burma army, relatively small in numbers but still intact, to continue the withdrawal North. The overall objective was to contain the Japanese in Burma until the monsoon broke and a new army could be built up in India. The maximum delay had to be inflicted on the Japanese, and Sappers played a very important role in carrying out this formidable task.

Practically all the fighting in the South of Burma took place East of the Irrawaddy but on 10 March when the headquarters of the Division was at Tharrawady, a town 80 miles North of Rangoon, the Divisional Commander, Major General Cowan, called a meeting at which Lieutenant Colonel "Dickie" Ward, the much respected and courageous CRE was present. (Sadly he was killed when his landing craft hit a mine during the recapture of Rangoon in 1945.) At the meeting, orders were given to destroy two railway bridges to the West of the Irrawaddy, one at Zayathla South of Henzada on the line to Bassein, the second at Myangin on the northern sector of the line. The destruction of these two bridges was essential to deny the enemy the use of the railway line for carrying troops and supplies northwards from Bassein, the second largest port in Burma. Both bridges were in remote parts of the country and it was not known whether the Japanese were occupying the areas concerned or not.

Ten men from No 2 Section under Second Lieutenant Trevor Park and ten men from No 3 Section under my command were selected for the job. A covering force consisting of a company of a Frontier Force Regiment was attached to the demolition party.

On 11 March the party set out for Letpadan railway station. An armoured train which was due

Sir Eric Yarrow MBE
Delaying the Japanese advance in Burma 1942 (p42)

to have taken the force 30 miles East to Tharrawaw had received a direct hit from an aerial bomb only a few hours beforehand and so another small train had to be obtained in its place. On arrival at Tharrawaw on the East bank of the Irrawaddy there was no sign of any launches to take the party across the river, at least half-a-mile wide at that point. Since the landing of a Japanese force of unknown strength at Bassein had been reported, a delay in crossing the river could have proved fatal. Three sampans were quickly obtained to enable a small reconnaissance party to cross the river.

On reaching the West bank a cautious approach to a small group of local inhabitants revealed that there seemed to be no Japanese around and it appeared that the District Commissioner was still in residence. A guide was obtained to take us to him — an unexpectedly long walk of some four miles. The District Commissioner U Baw U proved to be very helpful and said he would try to arrange a train and driver for the following day although no train had left Henzada for Bassein for a week. He said he considered the only way that the rest of the demolition party and covering force could cross the river was by a number of sampans for he thought all the launches had either gone upstream or had been sunk.

When returning to Tharrawaw at dusk two steam launches were observed coming down the river but it was too dark to see where they had anchored. They were eventually located some four miles downstream and it was discovered that the District Superintendent of Police with his staff was on board one of the launches. It was quickly arranged that one launch should go to Tharrawaw. After loading the explosives the demolition team together with the covering force and all their equipment successfully crossed to Henzada just before dawn.

There was a delay in obtaining a train in Henzada and getting it to the jetty and a still further delay when the engine driver ran away. As there were reports that the hostile Burmese National Army — the Thakins — were operating nearby it was essential that no further hold-ups occurred. With considerable difficulty another train driver was located and after some financial encouragement and gentle pushing he was persuaded to get into the engine cab and was kept there at the point of a revolver. Zayathla is 40 miles down the line to Bassein and while the journey only took an hour-and-a-half it felt very much longer with the expectation of enemy interference, and everyone was ready for immediate action. As it turned out

The reconnaissance party crossing the Irrawaddy between Tharrawaw and Henzada.

the only opposition encountered was a group of dacoits armed with spears and daggers. When they approached the train and learned of the nature of those on board they quickly disappeared.

With speed the essence of the job of demolition, the Sappers worked exceedingly hard to complete their task in just over an hour. The demolition was successful, two of the spans falling into the river.

During the day Second Lieutenant Park made a reconnaissance of the bridge at Myangin and at dawn the following day the Sappers and the covering force set off in some old buses up a track normally used for bullock carts to the bridge at Myangin about 20 miles from Henzada. The time factor was not quite so acute as on the previous day but there was no reliable information as to exactly where unfriendly forces were operating on the West of the Irrawaddy and a time was arranged by which the last train must cross the bridge. The bridge was a large one, which had recently been opened by the Governor of Burma. As the last train approached the bridge the final arrangements for the demolition were being made and the bridge was destroyed shortly afterwards, leaving a 300ft gap in the centre span.

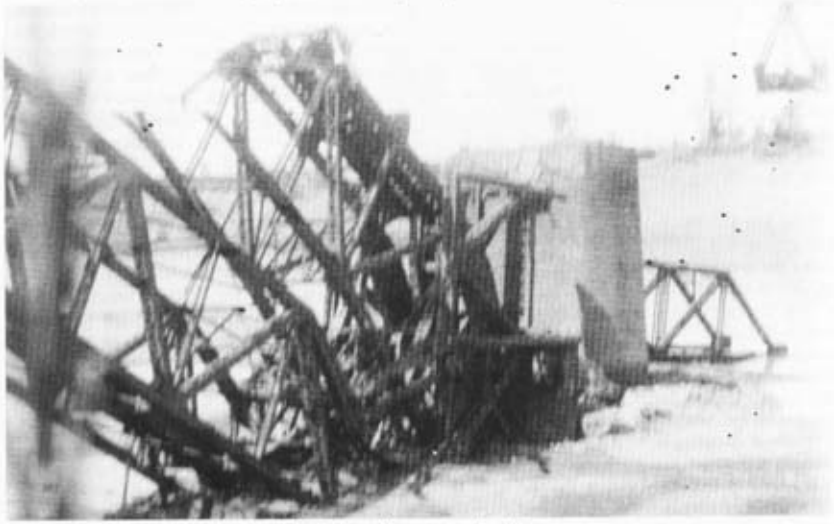
The demolition party and covering force crossed back over the river to Tharrawaw the same evening not knowing whether they would find friend or foe. It soon became apparent that the 17th Indian Division

Delaying the Japanese advance in Burma 1942 (p43)

The bridge at Zayathla after demolition.

had retreated further North, having blown the big railway bridge at Kamonzeik and thus cut the only link to Tharrawaddy. Also from information obtained from local Burmese, Japanese troops had been seen not far away. It was therefore decided that with such a small force it would be unwise to remain in Tharrawaw any longer and the only way to try and rejoin the Division was to travel upstream on the two launches.

250 Gurkhas now unexpectedly appeared. They had become detached from their unit during the confused fighting North of Rangoon and had made their way to the Tharrawaw jetty. An ordinary floating landing raft was hurriedly lashed between the two launches. All the troops were able to clamber aboard this floating contraption which, although overloaded, moved off safely the next morning towards the West bank of the river which in view of possible Japanese attacks was considered the safest route for travelling northwards. As it turned out there were no attacks by land and only one inaccurate air attack. It was a sad reflection of the time that any aircraft spotted would almost certainly be a Japanese one. There was a strong adverse current throughout the voyage and the speed achieved was only four knots. The launches



The bridge at Myangin after demolition.

Delaying the Japanese advance in Burma 1942 (p44)

had no beam lights and so it was necessary to anchor for two nights on the river. During the voyage re-fuelling in the form of a large number of wooden logs took place and while refuelling, much needed rations were obtained from a nearby village.

On the second evening of the journey, when about 30 miles South of Prome, a small naval launch with a manned Bren gun was seen coming downstream at speed. The captain with a loud hailer announced he was on his way to Henzada to pick up the demolition force and covering troops taking part in the demolition of the two bridges West of the Irrawaddy. However he was told he was three days late and should turn back without delay.

Gurkha Troops on the launch between Henzada and Prome.

On the afternoon of 16 March Prome was reached and the demolition force disembarked to a warm welcome from the CRE. It is understood that neither of the two bridges demolished was repaired during the war.

The two launches which had secured the safe return of the demolition party could well have been amongst the many ships of the Irrawaddy Flotilla fleet sunk by the Sappers at a later stage of the retreat. Some of these ships bore the nameplate "Built by Yarrow & Company on the Clyde". One factor became very clear in that it was very much quicker to sink the vessels than to build them! After the war, when I held a relatively junior position in Yarrow & Company, an order to replace some of the ships destroyed was received from the Irrawaddy Flotilla Company and with tongue in cheek I suggested that I be paid a commission for the ships sunk in Burma. I received the not unexpected reply — "Why on earth didn't you sink more?"!

One of the many river launches of the Irrawaddy Flotilla Company sunk during the retreat.

Delaying the Japanese advance in Burma 1942 (p45)

ADW — Not Just Another Mine

LIEUT COLONEL A F M DOUGLAS MA

The author was commissioned in 1967, and individually trained for six of the next 12 years including Cambridge and Division I of the Staff Course. He has spent four years in each of 21 and 36 Engineer Regiments, commanded 31 Armoured Engineer Squadron, and been on the staff in Ministry of Defence, Headquarters United Kingdom Land Forces and 1 (British) Corps. His penance for enjoying command of the Depot Regiment is Main Building, where he tries to analyse operational requirements as the only serving officer in The Directorate of Science (Land). This article is typical of what he gets up to when he cannot go sailing.

A FEW years ago, NATO (North Atlantic Treaty Organisation) had the idea of an Area Defence Weapon (ADW) as a form of mine that could kill targets at ranges of several hundred metres. It is an exciting thought, and the technology could be developed within ten years; the picture on the last page shows one concept. A lot has been claimed for ADWs. Instinct suggests that the greater the range, the more effective such a weapon would be. But what can really justify investment in a weapon that will be considerably more expensive than its simpler counterparts? Read on, for ADW is **not** just another mine. The reasons are not entirely obvious ...

Only one characteristic truly sets them apart, and that is their range which, combined with all-round sensors, will allow them to cover an area. I want to examine how range would allow ADW to have some important new properties, and how best they may be exploited. It is easier to explain by building up the picture progressively. In doing so, I will make some simplifications which are subjects in their own right, but the principles will emerge. Let us start by considering weapons with a range of 200m, giving a circular area of effectiveness of 400m diameter; not overambitious by all accounts.

Consider ADW used to disrupt a wide area of ground *(Figure 1)*. A number of them might be deployed across the countryside in an apparently random manner. Over a large area, they would be a significant problem, and could be laid out to give almost continuous coverage. Just four would almost fill a grid square. But the dilemma is that the greater the area, the less likely are they to be covered by observed fire. Enemy concentrations could neutralise them or pass through in column with relatively few casualties; the effect would be similar to serious nuisance mining. Useful though that may be, it is not a battle winner, and certainly not a unique role for ADW. Worse, it will restrict our own movement, and the consequence of casualties from our own weapons was seen in the Gulf. Adding remote control to prevent this is a complex and expensive matter, especially over long distances.

Such area denial remains a tactical option, but does not itself justify the new weapons when countermeasures are considered. Consider instead concentrated obstacles. A single row, with no gaps, forces the enemy to breach, divert or take casualties, in the same way as other minefields *(Figure 2)*. To keep the sums simple, assume a single shot kill probability (SSKP) of 0.5 which is uniform for each mine (and may be optimistic). In this case, a single tank will have the same probability of being killed as the SSKP if it enters this obstacle (0.5), but the detonation leaves a 400m gap, and following tanks will pass through unscathed. Worse, the normal defile effect of a breaching operation, giving covering fire a better chance, does not apply. And, significantly as we shall see later, the undetonated ADWs are wasted.

Lt Col A F Douglas MA
ADW - Not just another mine (p46)

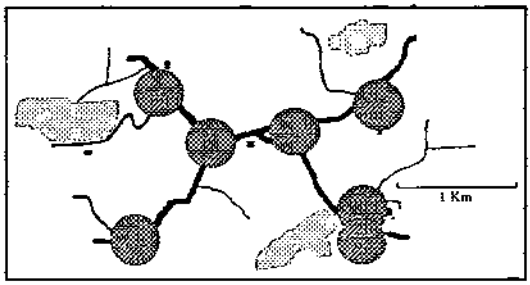


Figure 1

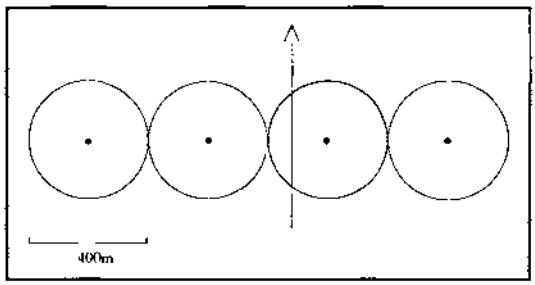


Figure 2

There are two ways to make this obstacle more effective. The ADW could be made multi-shot, with perhaps two to four warheads clustered around a single sensor (which may also save money). They could also overlap *(Figure 3)*. It will now take at least three shots before a column breaches the obstacle, and the gap formed will be narrower. But because of the overlap, two or three warheads may attack one target. This improves the probability of that target being killed, but at the risk of wasting weapons. Even so, an enemy concentration of, say, 25 tanks in file may consider the overall risks worth taking in an assault, as it could result in about four casualties, and probably less.

At this point, consider the nature of a minefield. Its fundamental property is that it causes casualties. If the number of casualties is acceptable, the enemy need not take countermeasures. If the number is unacceptable, he must breach, or avoid. It is the judgement of unacceptability that determines how dense our minefields must be. To give it limits, I suggest that ten per cent casualties may sometimes be acceptable, but 50 per cent will never be; a practical level of 25-40 per cent is the order we should aim to achieve in designing minefields which are covered by fire. Of course, the enemy formation is crucial, and this emphasises the need for covering fire to prevent him moving in single file (the simplest counter measure in this case).

So to improve our ADW obstacle, we must increase the number of ADW that an attacking force will encounter. It can be done by having several rows *(Figure 4)*, combined with multiple warheads. This also gives an important improvement in the probability of a kill, which is well known from other minefield studies. Taking a SSKP of P_s, the formula is $1-(1-P_s)^n$, where n is the number of rows. While a single row achieves a probability of a kill of 0.5, having three rows raises it to 0.875. This value is unaffected by the number of warheads in a cluster, until a complete cluster has been used up. But with the layout shown, a minimum of nine warheads must be fired before a gap appears, and with offset rows the route through is no longer straight.

You may have noticed that I have put four warheads in the front row, three in the second and two in the third. This is because the front row will be depleted first, and the calculation above demonstrates the importance of maintaining multiple rows. The layout ensures that the front row remains continuous for longer, but any target getting through it faces two more rows before it is out of danger. Nevertheless, the minefield will eventually be depleted to the point where it is not effective. The form of the relation between the number of kills and the number of mines is shown in Figure 5 over the page. It will tend towards an upper limit set by either the number of mines, or the number of targets, and the exact shape of the curve will depend on both mine effectiveness and layout.

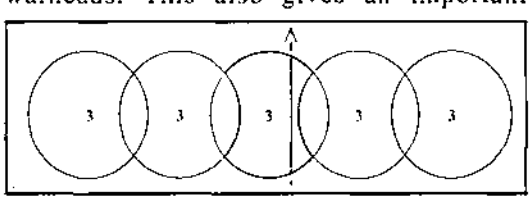


Figure 3

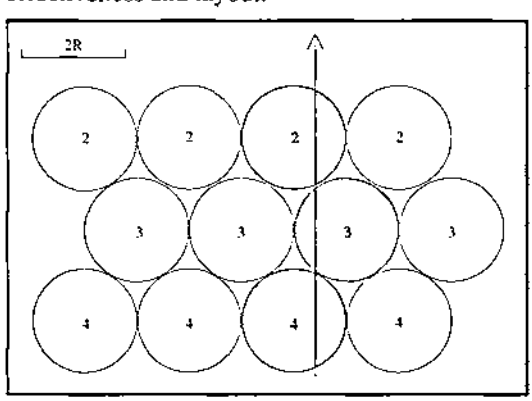


Figure 4. (R is range of war heads)

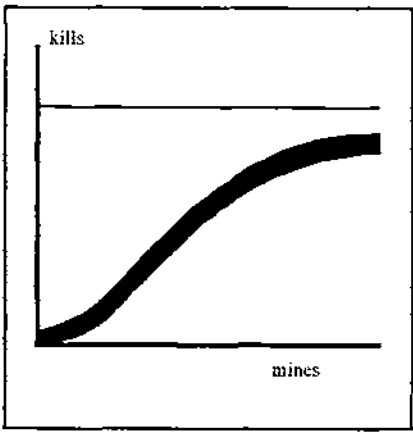


Figure 5

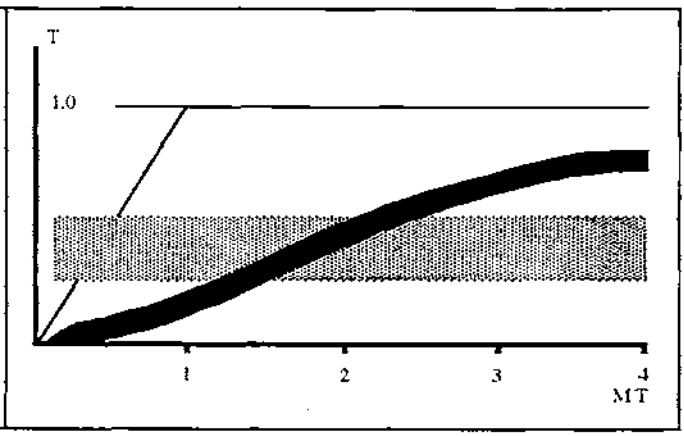


Figure 6

Figure 6 takes this a step further. It shows a non-dimensional relationship between the proportion of a target formation, T, that is killed, and the proportion of mines to targets (M/T). Clearly, it is not possible to kill more than the total number of targets, so the curve is asymptotic to the value 1.0. In the region where the number of mines is less than the number of targets ($0<M/T<1.0$), the number of warheads is the limiting factor, shown by the line at 45 degrees. In practice, the real performance of the minefield will be somewhere below these limiting values. I have drawn an envelope that may represent typical values, though it is based on some very rough calculations, and needs validating.

Superimposing the aspiration to achieve between 25-40 per cent casualties on Figure 6 (the shaded horizontal area) we can see that an ADW obstacle might need a mine/target ratio of between one and two and a half. Even with a less dense battlefield, forces will concentrate for assaults. The former Warsaw Pact anticipated some 25-40 tanks per kilometre of front, and this is probably the worst case for the future; that means 25-100 ADW warheads, suitably laid out.

So far, so good. Now compare this ADW obstacle with some of the well known characteristics of "point" mines. I call them "point" to stress their limited range, with the target having to pass over them, even with full width attack. Barmine is typical, with rows of mines laid in patterns, almost uniformly covering an area. Some 1000 mines are needed per kilometre of front, to achieve similar effectiveness. That is so many that, provided the enemy is not allowed to use single file, the stopping power is maintained against all practical targets. Inevitably, hundreds of mines are left undetonated, even when an attack has passed through the field. The only justification for this inefficiency is that point mines are cheap. But if resources are limited, or the target less numerous, the number of mines cannot be reduced (by having fewer rows and/or increasing mine spacing) without also reducing the chance of killing a single tank.

The key advantage of ADW is now revealed; obstacles can be efficiently designed to match the expected target. As few as 25-100 ADW could cover a kilometre of front, equivalent to 1000 barmines with a similar stopping power. That makes it sensible to invest in ADW even if they cost 10-40 times as much as barmine, regardless of any other advantages. On a less dense battlefield with longer approach marches, the benefit of fewer weapons, laid more quickly to achieve the same effect, is worth even more. But we must still pack enough mines into the obstacle to cause sufficient casualties, and that raises questions about optimum range for each warhead.

As we have seen, the trick is to match the ADW obstacle to the target, and that means matching the frontal densities of targets and warheads. It is best to avoid overlap. Suppose that the obstacle consists of n warheads in depth; for example, with clusters arranged in the three rows of n=4+3+2=9 *(Figure 4)*. Then the warhead density, D, is approximately n/2R, where R is the range of the warheads. Notice that density is inversely proportional to the range, so if ADW has too great a range, it could prevent us achieving obstacle densities needed to counter strong enemy formations. Put another way, the maximum range $R_{max}=n/2D$. The required ratio of mines to targets depends on the SSKP, but on the reasonable assumption that it is 2 *(Figure 6)*, and

the target density if 25 tanks per kilometre, D=50 warheads per km, and R_{max}=9/(2x50)=0.09 km, or 90m. If n is smaller, or D larger, the maximum range is even shorter. So perhaps our assumption of a 200m range was more than we actually need.

There are other influences that make a long range less than desirable. It is certain to mean increased cost, probably substantially so. Second, a 200m range means a three row obstacle of 1200m depth, unless weapons overlap (which may be more acceptable in the depth direction, as multiple kills are less likely). Such a depth may be more than we want sometimes. Third, a shorter range allows more flexibility in positioning rows within the obstacle perimeter, as well as covering it with fire. And fourth, a safety distance is needed for our own troop manoeuvres, which is reduced with shorter weapon range.

One further thought. Studies of ADW in clusters must involve time as a factor. Acquiring the target, firing the warhead and arming the next one will take a few seconds. An enemy tactic could be to group together, with the diameter of one ADW, line abreast, and go as fast as possible. The ADW would not be able to attack them all. This is precisely the opposite tactic to use against pattern mines, where single file is most effective. It confirms what we already suspect; ADW and pattern mines have a synergy that should be exploited by using them to complement one another.

In this article, I have tried to identify the main characteristics of ADW. My simple equations apply to point mines as well, but are not so important in that context. Range makes ADW the first efficient mine, an order of magnitude better than point mines. And because they could be used in clusters that effectively "reload" when a warhead is fired, the stopping power of an obstacle is not solely dependent on the number of warheads in it. This will allow commanders and their engineers to deploy obstacles that match the expected threat, and use resources to best effect. There are limits to my arguments, and I must do more work on the effects of overlap, target density and countermeasures. In pointing out the limitations on required range, I hope that I have started a critical debate. Some may say, "why do we need a range of more than 30-50m?" The answer to that is hidden in a further characteristic of ADW, which is versatility, (the subject of a later article). For now, I hope that I have shown that the potential of ADW is tremendous — it is not just another mine.

ADW - Not just another mine (p49)

The Sappers' Biggest Construction Job?

SAPPER C MEACHER

Charles Meacher was born at Dalmeny, West Lothian the second of three sons of Anglo/Scottish parentage.

He was educated at Bellevue School, Edinburgh and in 1935 joined the London and North Eastern Railway Company (LNER) as a locomotive man.

Although in a "reserved occupation" he volunteered for service with the Royal Engineers in 1940 and trained at Derby and Longmoor.

Consequently he served with the 931 Port Construction and Repair Company RE at Cairnryan, Eastbourne, Folkestone and New Haven transferring to railway operating at Longmoor in 1943. This led to service in North Africa and Italy where he worked with the 192 Railway Operating Company RE and the 189 Railway Operating Company RE.

THE year 1941 and particularly December 7th of that year will long be remembered for the Japanese raid on Pearl Harbour, heralding America's entry into the war as a formidable ally. Less newsworthy was the work being carried out by the Royal Engineers, constructing No 1 Military Port at Faslane and No 2 Military Port at Cairnryan near Stranraer. Plans for the construction had been drawn up before the war to be used in the event of Glasgow or Liverpool suffering crippling bomb damage.

The magnitude of the projects could be likened to the building of the Forth Bridge but the secrecy inherent in war and the remote locations of these ports left the Sappers unhindered in their work, in fact, so free of impediments that this sapper took time off to get married on 26 December 1941.

Having been well trained as a Stationary Engine Attendant on Melbourne Military Railway (MMR) I was now eligible for posting to a suitable unit. I was pleasantly surprised, therefore, when I learned my new abode was to be in Scotland at a place called Cairnryan, near Stranraer. I knew this to be the port serving the shortest sea route to Ireland, but that was all I knew about Stranraer and Galloway.

There were seven of us in the party that journeyed North, a lance corporal and six sappers. We were the nucleus of an entirely new company, the 931 Port Construction and Repair Company RE, and we were destined for the unknown in more ways than one.

Cairnryan was an unspoilt village in the early part of 1941 lying on the East shore of Loch Ryan some six and a half miles by road North of Stranraer.

The Loch is an appendage of the Firth of Clyde and separates the northern part of the Rhins peninsular from the mainland mass of Wigtownshire. Loch Ryan is about eight miles in length and has a maximum breadth of two and three-quarter miles. At its southern end, well

Sapper C Meacher
The Sappers' biggest construction job (p50)

sheltered from the wild winds of the North Channel, is the port of Stranraer.

The ship, crossing from Stranraer to Larne has to travel eight miles in a northerly direction before it can head southwest for the Irish port. The southern part of Loch Ryan has no great depth of water and the dredged channel entails several changes of direction and a limiting of speed.

The Loch narrows to a breadth of one mile at Cairnryan where the houses are strung out along the main A77 road. While navigating the deep channel the 'Paddy Boat', as it is popularly known, comes near to Cairnryan lighthouse and, near by the lighthouse there was, in 1941, a bowling green and a clubhouse.

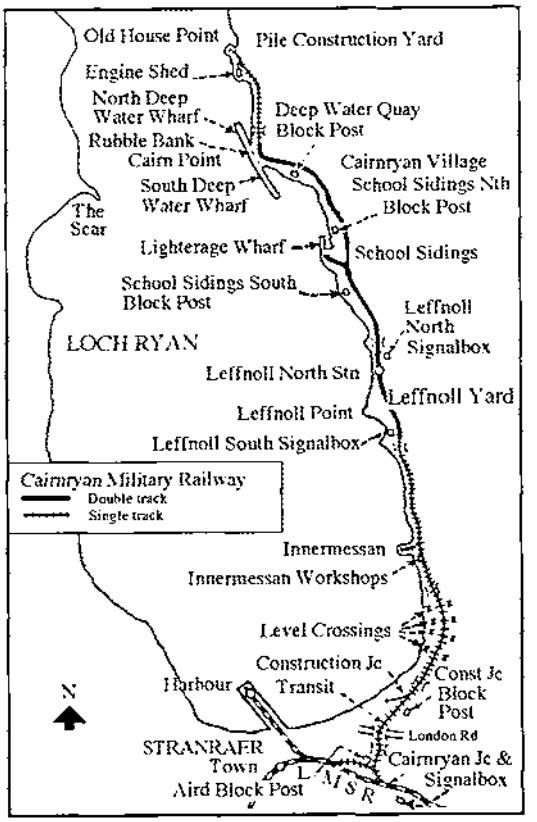
Our advance party pitched a tent on this bowling green and took over the club room for a company office.

When I stepped off the train at Stranraer I asked a porter how far it was to Edinburgh and he told me, about 130 miles. I had visions of a quick visit home before settling down in the back of beyond but I soon realised that it was easier to get from London to Edinburgh than from Cairnryan to Edinburgh. This reality became clearer as I sat looking out over Loch Ryan with the massive Galloway hills at my back; there seemed no escape.

During the early days of our sojourn on the banks of Loch Ryan we fended for ourselves and did our own cooking and washing. There were no parades or roll calls to bother about and our recreation was confined to long walks and some beachcombing. There was not a great deal of fraternising with the villagers who were unaware of the pending disruption to the peace of their rusticity. Their orderly life style and their oyster beds were soon to be torn asunder. One person, however, was due to reap a rich harvest, Mrs Aitken, who ran the post office cum general store — the only shop in the village.

The influx of men commenced as a trickle and developed into a torrent. A large camp of Nissen huts was built on the heights above the village with a magnificent view over Loch Ryan. New intakes arrived every day and they came from many regiments. All had one thing in common, they had skills to contribute to the building of a great new port.

The Cairnryan scheme was a formidable one, contemplating one and a half miles of wharfage, with a minimum depth at low tide of 33 feet. The plan was based on Cairn Point which projects some 400 yards into Loch Ryan. From Cairn Point massive wharfs parallel to the shore were to be built out to



Loch Ryan, Stranraer, and the Cairnryan Military Railway connecting with the LSMR.

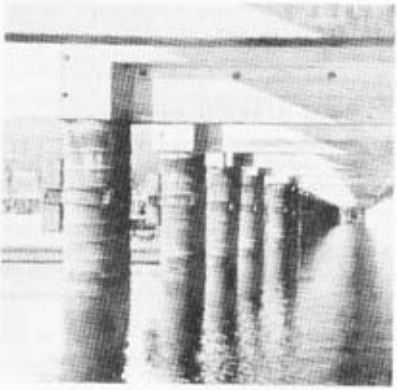
North and South for a distance of 300 yards and 700 yards respectively. One mile to the South, another little promontory provided a base for a lighterage wharf 500 yards in length.

The task involved a large amount of dredging. Equipment at the port was to be on a large scale with 31 wharf cranes, together with a 60 ton hammer head crane at the approach to the South deep water wharf.

As a 21 year old sapper I knew nothing of these statistics or the purpose of my being in such an isolated place. I soon realised, however, that soldiering was out and hard work was the order of the day, 24 hours a day!

We moved into the new camp above the village when it was tents and a mere two huts, but there were soon many more, and when they were given numbers I was in Hut 29. In the beginning there were no Naafi or recreation facilities. Stranraer was more than six miles away and boasted a single cinema and two canteens. In the other direction there was a journey of 30 miles to Girvan and the

A 'screwcrete' cylinder base ready for screwing into the bed of Loch Ryan.



Screw piles as used at Cairnryan.

limited entertainment that town had to offer. We were on our own and Mrs Aitken in her general store took full advantage of the situation. If a soldier asked for cigarettes they were available only if he also made another purchase.

Cairnryan had lost its tranquillity and the village soon became a dust basin as heavy lorries churned up roads in their movements to and from the work sites. It became a man's town, a huge labour camp, and could be identified with the kind of activity that surrounded the building of the Forth Bridge.

Various projects were worked on simultaneously but in the beginning there were no stationary boilers to attend. Consequently I was given other work to do, and I found myself chittering at the end of a pneumatic drill preparing ground for a pile construction yard. This was in an area at the northern extremity of the scheme and known as Old House Point. It was remote from the mainstream of the work and our small group laboured contentedly seeing nothing but the occasional vehicle on the road high above the Loch and possibly the passage of the 'Paddy Boat'.

The Deep Water Wharf at Cairn Point was the central piece and the main scene of activity. Two wharfs were to be built here and screw piles the means of support. These piles were made up of nine feet long cylinders with a diameter of about three feet. The ends of each section had inverted flanges with holes to house one and a quarter inch diameter turned bolts that secured them to each other.

The screw that went into the bed of the loch was not unlike a ship's propeller in appearance with a more pointed centre piece at the bottom. The design of the screw casting at the top was cylindrical and matched the sections that were to be added to it.

Before the screw went into position it was mated with sufficient cylinders to keep the pile above water. A huge floating derrick was then used to place the pile in position. Once in position the same crane hoisted an electric capstan and this was attached by bolts to the upper cylinder on the pile. Screwing operations then commenced and, depending on the strata under the water, progress was fast or otherwise. As the pile sank lower seeking a firm base, further sections were added and securing these sections was a hazardous business.

The cylinder sections were picked up by a crane either from the shore or, as the job progressed, from a barge. The rigger then positioned himself on the top of the cylinder section and held on to the crane lifting tackle which was the conventional hook with a piece of wire rope attached. This rope had looped ends which were placed round two bolts slotted into opposing holes on the inverted flanges. When taut the weight of the suspended load forced the bolts at an angle against their temporary housing and held firm. The cylinder with the rigger atop was then swung high through the air and into position on the screw pile.

Once in position the rigger was then lowered, along with a bag of nuts and bolts and a spanner, into the interior of the pile. The inside flanges were quite narrow and these were used as footrests by the rigger who braced his legs and hips against the

The Sappers biggest construction job (p52)

inside walls of the cylinder leaving his hands free to work. A man outside directed the crane and hand guided the cylinder section into position. As this manoeuvre was going on the rigger was ready to drop holding bolts into position and when these were in, the remaining bolts were placed in the circle of holes and secured with nuts.

This was very dangerous work and although one's body was tight against the inner walls of the cylinder, a wrong move meant a watery grave and no escape, because a fall would be into the water blocked bowels of the screw. The most frightening time was when the 'Paddy Boat' came close inshore and the pile under construction was hit by the swell. On these occasions the rigger would stop work and brace himself against the inner wall of the swaying pile and pray the thing would hold. This high risk earned only a soldier's pay with possibly a few shillings extra for a trade category.

The screw piles were positioned five abreast and each row was equable and equidistant, 16 feet centres laterally and 20 feet centres longitudinally. Once settled in position the hollow interior of each pile was filled to a depth of four feet six inches with concrete, making a very solid support for the top decking forming the wharf surface.

Work went on day and night in all kinds of weather and the only concession I remember getting was a tot of rum after a very cold night shift. We had a monotonous diet of bread, pilchards and slab cake washed down with plenty of tea brewed on the work site.

Near Old House Point we constructed a jetty, using the more familiar wooden piles. These were hammered into the bed from a mobile crane. A huge vertical boiler was installed to provide steam and I was given the job of stoking the boiler. I was, in fact, doing the job I had been trained to do.

At the start of the work the steam had but a short distance to travel from the boiler, through lagged piping, to the hammer and we were getting about 30 taps from every head of steam. I would bring the boiler to full pressure, then open the steam valve and the hammering would commence. The sound rebounded from the high embankment carrying the A77 road and echoed across Loch Ryan.

Progress was rapid to start with but as the jetty extended out into the loch the steam delivery pipe had to be lengthened. Consequently the steam hammer had no sooner started when it ran out of steam and spluttered to a stop, because so much of the high pressure had condensed in the long pipe. This problem was overcome by putting the boiler on rollers and moving it as the job progressed. The jetty was intended for the transport of beams and slabs to the wharf, but weather conditions were unsuitable for regular loading and material eventually went by rail.

On the opposite side of Cairn Point in the direction of Stranraer, wooden piles were used to construct a Lighterage Wharf and these too were hammered home with a steam hammer. Between the Lighterage Wharf and the South Deep Water Wharf at Cairn Point sheet piling was used to shore up the land mass and here again a steam hammer was in operation. Once the sheet piles were in position the stretch of water in the vicinity of the two wharfs became a deep anchorage for ocean going ships.

Pre-cast concrete decking was made on site and this job required the skill of steel benders, who shaped the steel frames that gave the decking its strength. These long frames were put together in a yard set aside for the purpose, and a great deal of the work was done in the summer of 1941. In the bright sunshine the steel benders worked stripped to the waist, and although they were Royal Engineers many of them still showed an allegiance to their former regiments, so that we had the unusual sight of sappers wearing Glengarrys and Balmorals or possibly a Tank Regiment black beret or guardsman's cap. Like people so often do they spoke about the good old days and the camaraderie of their previous Army life and no doubt if they are around today they will feel nostalgic, thinking of Cairnryan.

The 931 Port Construction and Repair Company soon developed an identity of its own with Major Earp in the lead and Captain Meirs as his second in command. The Major came from a civil engineering background and his skills were well suited to the work in hand. He could also take on the role of a soldier if need be and it was as a soldier he addressed himself to port construction work. Captain Meirs dealt mostly with administration. He was keen on discipline and set the pace by example, so much so, that he gave himself seven days CB when he was late on parade one morning!

A large Nissen hut served as a Company office and a similar construction was used as a cook-house and mess room. Senior NCOs had their own little street of huts near the Company office and Officers' Mess. The WOs I and II were really "Wimpey's Foremen" in uniform.

As the construction work gained momentum more men were drafted to the area and a large camp was established at Drummockloch and another one at Leffnoll.

Construction of an access railway to No 2 Military Port began almost simultaneously with that of the port. On the London Midland & Scottish (LMS) main line one mile East of Stranraer Harbour Junction a siding was installed on the North side of the line. A ground frame was controlled by section tablet. The first occupant was a train of five dormitory coaches and one canteen coach, with steam heating supplied by ex-Highland Railway 4-4-0 *Loch Moy* — LMS No 14382, minus internal machinery.

The single siding soon expanded into a large yard of ten parallel roads. On 11 October 1942 the ground frame was replaced by a signal-box named Cairnryan Junction. This was a block post with key token instruments but with no crossing loop on the main line. From the West end of the yard an 'engine escape road' descended at a grade of 1 in 40 to link up with the head shunt of Stranraer Harbour Junction.

From these exchange sidings the Cairnryan Military Railway (CMR) was operated by military personnel using engines either owned by or on loan to the War Department. Cairnryan Junction controlled the East end of the yard, the West end being controlled by Aird Block Post, a small erection operating three fixed signals. Here the CMR became a single line, curving sharply round to the North and descending steeply from some 1500 yards, half of which was at a gradient of 1 in 50.

Girder bridges spanned two roads, one leading to Aird Farm, the other being Stranraer's London Road. Just over a mile from Cairnryan Junction was a blockpost at Construction Junction, with fixed signals and a branch trailing in from the West side. At easier grades the line continued its descent to the shore of Loch Ryan, with four level crossings, the fourth being over the A77 road and being protected by pole barriers.

At Invermessan, three miles from the junction, there was a branch to a shipyard, but this was not a blockpost. For the remainder of its course the railway followed the coast, in places on reclaimed ground.

Four miles from the junction the promontory called Leffnoll Point gives a considerable margin to seaward and here was formed the main marshalling yard, with accommodation for 2000 wagons. In this yard trains were broken up into short sections for wharf working. Ground level signal boxes were provided at Leffnoll South and Leffnoll North, with extensive signalling. Leffnoll was also the main locomotive depot.

From Leffnoll South the line became double track. At five and a quarter miles was a smaller yard called School Sidings, again with South and North boxes and signalling. Another half mile brought the railway to a very big layout at Cairn Point, with a fan of sidings serving the berths on the North and South Deep Water Wharf. Double line ended at Deep Water Quay Block Post at the South end of the sidings. The CMR continued a further mile to its termination on the jetty at Pile Construction Yard. Here were sidings and a small engine shed. Block working ceased beyond Deep Water Quay.

With so many potential customers in the area it was inevitable that the railway should be used for passenger trains. On 24 April 1942, there arrived a set of close-coupled, six wheel non-corridor LMS coaches, built at Wolverton in 1911. A timetable was introduced and this provided for a train to Stranraer at 1315 and 1715 on a Saturday and 1851 on other days except Sunday. 'Rubble Bank' at Cairn Point was one terminus and 'Transit' North of the bridge over London Road was the station for Stranraer. In between there were stops at Leffnoll North and Invermessan. The return times from 'Transit' were 2136 and 2306 on a Saturday and 2249 other nights. First and third class accommodation was provided; return fare, third class, from Rubble Bank to Transit was twopence! (As its name implies, Transit was the site of a big transit camp.) Traffic soon outgrew the original coaching stock. On 21 June 1944, the 2300 from Transit was noted as being composed of five bogie coaches of Lancashire and Yorkshire Railway origin, plus three of the Wolverton six wheelers.

Port construction on the scale that was taking place at Cairnryan called for the use of divers for inspection work, and volunteers were invited to apply. James McKechnie, an ex-Greenock shipyard worker (carpenter) was a close friend of mine and he lost no time in applying for the job. He was accepted and eventually went to the Royal Navy Diving School at Chatham with some others. On his return he was a qualified diver and gave all his time to what work there was and caring for his diving suit. I learned so much from him I felt I could do the job myself. But going down in the murky waters of Loch Ryan was very different from merely thinking about it.

There was inspection work to be done at the South Deep Water Wharf one day and the diver in his heavy suit was down below with air bubbles marking his position. Men of the Pioneer Corps were on the pump which had two handles and was operated like

a mangle. Everything seemed to be going well until the German Luftwaffe paid us a rare visit and we were literally attacked 'out of the blue'. Leading the stampede for cover were the two men from the Pioneer Corps and the deserted pump handles could be seen swinging idly. The officer in charge at once realised the serious situation the diver was in and began screaming in rage at the two deserters. He was going to have them shot for running away in face of the enemy. Humbly, and obviously afraid, the men returned to their post and started the pump going again.

Meanwhile the diver was aware of an interruption to his air supply and began to regulate the valve on his helmet. Just then the life supporting air was restored and to a wider valve opening than was desirable. The result was the diver's suit filled with air and became too buoyant for the heavy lead boots to hold down. The diver turned turtle and rushed to the surface feet first striking the bottom of a moored barge. We fished him out quickly and removed his helmet and he just sat there gasping and too dazed to wonder what had happened.

On a construction job like that at Cairnryan accidents were inevitable and there were many involving equipment and/or personnel. Most were of a minor nature and were caused through inexperience or mismanagement of tools. Crane work was a common source of trouble and if the load was not properly secured it would fall to the ground, or into the water, and bystanders had to be careful not to get in the way. The 'banksman' who attached the load was responsible for ensuring the lifting tackle was properly secured but it was the crane man who dealt with the actual lift and he had to be careful and keep within the crane's lifting limits. He also had to watch the angle of the jib and guard against being pulled over by the load. In between times he had to stoke the boiler fire and keep up the steam pressure.

Benny Blackham was our best crane driver and had experience of the job before joining the Army. He kept everybody right and never made a wrong move. But, Benny could not always be there, and an Army trained crane driver would take over the job on occasions.

The relief driver was little more than a layman and every move he made called for deep concentration and deliberate actuation of the levers. He had lifted a nine foot section of screw pile from a stack on the jetty and this was intended to be lowered into a barge. For what seemed an eternity the load hovered over the side of the quay as the crane driver fumbled with the controls, then his right foot inadvertently slipped off the foot brake and the heavy cylinder plummeted to the floor of the barge and nearly to the bed of Loch Ryan, rapidly uncoiling the wire rope lifting tackle from its drum on the crane. Luckily the banksman waiting in the roomy barge to unhook the load moved quickly and suffered only slight shock.

There was sadness, too, at Cairnryan and we all felt a sense of grief when a mobile crane went into the drink taking the driver to his death. His mistake had been allowing the jib to over-reach with the result that the suspended load pulled the crane over the edge of the quay.

The men who operated the tugs and barges at Cairnryan came from the Thames area in family units, many of them related to each other. They seemed immune to Army discipline but as lightermen they knew their job thoroughly. These were the men who positioned the barges and moved the floating derricks to new positions. Their cockney humour was infectious and their team spirit left nothing to be desired. Left alone to do the job they knew best they were happy to get on with it.

The first vessel to make use of Cairnryan as a port was the *Revelly*, which brought a cargo of timber from Canada. This was discharged in the stream and rafted ashore. On 7 May 1943 the Canadian built *Fort McLaughlin*, of 7129 tons gross, berthed at Cairnryan and loaded a full cargo of military equipment sailing on 15 May. In the months which followed, 25 ships of somewhat similar tonnage were loaded and dispatched. A list, admittedly incomplete, shows 18 ships arriving from New York and discharging their entire cargoes at Cairnryan. Numerous coasting vessels visited the port and each morning a full cargo of milk arrived from Larne.

On all great engineering projects, just as in life itself, problems are a continual challenge. So it was that in September 1942 the Sappers at Cairnryan had to deal with a quite unexpected difficulty. While pile driving was going on at the South Deep Wharf, work was held up because of an obstruction which divers identified as the hull of a sunken vessel. Fate could surely not have chosen a more opportune time for the recovery of a ship's cargo which was lost nearly 60 years before, when the vessel went to the bottom of Loch Ryan.

It was the morning of Monday 19 February 1883 that the three masted barque *Falcon* with 500 tons of coal aboard for South America went on fire.

The completed task.

Everything possible was done to extinguish the flames but the vessel continued to burn until the evening, when she sank.

Years passed and in time the loss of the ship was forgotten; then came the Royal Engineers prodding at the grave of the *Falcon* which for 49 years had been gradually sinking into the sand and silt. Operations were begun to remove the coal, and soon the whole cargo was retrieved in good condition, much to the delight of the Minister of Fuel. What remained of the vessel was blown up, thus allowing construction work to proceed.

In later years the harbour was used extensively by the United States Forces for bringing in weapons and material from America. These were transported by road and rail to England in preparation for the invasion of Europe and, for a long time, the quiet roadways of Galloway echoed to the sound of strange tongues and strange noises as the convoys forged their way southwards.

Then came the end of the war. The dreaded emergency of a major port being put completely out of action had not taken place. Cairnryan had doubtless taken some of the weight, but it had never been worked to capacity. Now it was left — this fine port with its elaborate equipment, far distant from bombing activity in wartime, but equally distant from industrial activity in peace. There were, of course, bright ideas for its future use.

A most obvious idea was to switch the terminal of the cross-channel service from Stranraer to Cairnryan. There was instant protest from the town of Stranraer, and the project was dropped. In August 1945 came the first train of gas shells, which were loaded onto large cargo vessels, these being taken out to the Atlantic and scuttled, a destroyer taking off the crew after the sea cocks had been opened. Four such ships were dispatched in 1945, one in 1946, one in 1947 and one in 1955.

In the course of time the supply of old ships gave out and the useless ammunition was taken out to sea on landing craft and dumped overboard. For a time the harbour installations were used by the Ministry of Supply as a centre for ship-breaking. A firm from Clydeside carried out the work and among the battle ships that were reduced to scrap were the *Ramillies* and the *Valiant*.

The depot ship *Sandhurst* lay at the harbour during the earlier post-war period when a fleet of U-boats, which had been surrendered by the Germans, was anchored in the loch. Ammunition dumping went on intermittently for years after the war, with the Navy, Army and RAF all sharing in the activities. By the spring of 1959 the work of the Services came to an end and about 300 civilians who had been employed at the port were gradually dismissed. The closing of the war-time harbour raised the number of workless to a high figure and Stranraer was classed as a development area. Efforts were made in many directions and by many people to have the harbour taken over by a private firm and this was eventually done. In the early part of 1960 a start was made with the changeover, but little had been achieved by the end of 1962 and disappointment was being felt at the long delay.

So far as the CMR was concerned, the signalling equipment was dismantled in 1956. The War Department left Cairnryan in April 1959, and the last of the WD rolling stock was taken away. No fewer than 32 engines are known to have worked on the CMR. Most numerous were the LNER 0-6-0 tanks, with 'J50' Nos 1058, 3157, 3160, and 3219; 'J67' No 7169; and 'J69' Nos 7058, 7081,

The Sappers biggest construction job (p56)

7088, 7168, 7197, 7344 and 7362. There were seven GWR 'Dean Goods', Nos 2399, 2430, 2433, 2470, 2517, 2536 and 2545. A brief visit was paid by SR 0-8-0 tank No 951. 'Austerity' classes were represented by 2-8-0s 7223 and 7241; 2-10-0s by 3798-9; and 0-6-0 tanks by 71531, 75018, 75048 and 75049. There were two USA types; 2-8-0 No 2640 and 0-6-0 tank No 1943. An 0-6-0 tank, *Walter Scott*, (Maning Wardle 1237/1892) and a diesel 0-4-0 (Barclay 356/1941) complete the catalogue.

The demobilisation of the railway was completed and on 30 December 1962 Cairnryan Junction Box closed, though a connection to the CMR remained some years thereafter. The ruins of railway and port became a sad sight. At the end of 1969 only four cranes, probably rusted and useless, were left, and four lonely men kept watch over the silent wharfs and grass-grown tracks of an enterprise of war for which a time of peace had no use.

The dead backwater seemed ideally suited as a graveyard and in recent years a ship-breaking firm has made it just that. Here it was in the early seventies that the aircraft carrier HMS *Hermes* was reduced to scrap and in 1979 HMS *Eagle* awaited the same fate at Cairnryan. This aircraft carrier was reluctant to be tied up at Cairn Point Deep Water Wharf and defiantly ran aground. When the massive hulk eventually settled into its last resting place it disrupted television viewing in the village every time it rose with the tide. HMS *Ark Royal* also died at Cairnryan in 1981/2.

Major Herbert Musgrave DSO — The Mad Major?

WING COMMANDER P J DYE BSc(ENG) CENG ACGI MRAeS

Wing Commander Peter Dye joined the Royal Air Force Engineer Branch in 1972. He has subsequently worked on Victor, Canberra, Vulcan and Tornado aircraft and was Officer Commanding Engineering and Supply Wing at Royal Air Force Coltishall during Operation Granby, *responsible for the logistic support of the Jaguar detachment at Thumrait and Muharraq. He has recently taken up post as Senior Staff Officer to Commander in Chief, Royal Air Force Support Command.*

WHEN I first joined Number IX Squadron, at Royal Air Force (RAF) Honington in 1986, amongst their varied collection of memorabilia, souvenirs (some of dubious origin) and records dating back to the Squadron's formation in December 1914, was a framed photograph captioned " ... Major Herbert Musgrave DSO — First Commanding Officer ...". This normally hung in the corridor adjacent to the Commanding Officer's office and some months later, after the Squadron moved to Germany, I was not surprised to see it re-emerge on the wall of our new crew room. By then, however, I harboured considerable doubts as to whether the photograph really did show Major Musgrave. Perhaps more significantly, I had discovered that, whatever the real man may have looked like, many of his contemporaries regarded him as eccentric if not mad, asserting that he had died in particularly pointless circumstances (a view espoused by none other than Lord Dowding's biographer (1)). Others, including Claude Sykes (later the Royal Air Force's first Chief of Air Staff), viewed him as a selfless, energetic pioneer to whom a considerable debt of gratitude was owed (2). Thus, a mystery was born; the image and the man. Was the photograph displayed proudly by No IX Squadron actually Herbert Musgrave and why had he evoked such contradictory views?

Herbert Musgrave was born on 11 May 1876, the younger son of Sir Anthony Musgrave GCMG and Jeanie Lucinda Field (3). He was educated at Harrow and entered the Army on 26 March 1896, joining the Royal Engineers as a Second Lieutenant from the Royal Military Academy on 1 March 1898. He was promoted Lieutenant just 12 months later, serving throughout the South African War and taking part in the advance on Kimberley, including the actions at Belmont, Enslin, Modder River and Magersfontein, as well as operations in the Orange Free State (Paadeberg), Transvaal and Orange River Colony. He was also present at the operations in the Transvaal, Orange River Colony and Cape Colony in 1900-01. Twice Mentioned in Despatches (8 February 1901 and 10 September 1901), he was awarded the Queen's Medal with five clasps and the King's Medal with two clasps. He was subsequently employed with the South African Constabulary from 3 June 1901 to 20 September 1904. Promoted Captain on 1 March 1905, he attended Staff College, before serving as Deputy Assistant Adjutant and Quarter Master General in Malta from August 1908 to August 1912.

Herbert Musgrave appeared to have possessed an alert and enquiring mind, being a regular contributor to a number of Military Journals on such diverse topics as *Various Aspects of Preparation for War*

Wing Commander P J Dye
Major Herbert Musgrave DSO - The Mad Major (p58)

Photograph credited as being of Major H Musgrave; believed to show an unknown Captain of the Durham Light Infantry (Territorial). (Number IX Squadron).

The only known photograph of Major Musgrave whilst serving with the Royal Flying Corps, taken at the Netheravon Concentration Camp. (Flight 10 July 1914).

(4), *The Importance of Adequate Staffs* (5) and *The Army System of Correspondence* (6). It is not surprising, therefore, to find that his imagination was fired by the potential contribution that the aeroplane could make to modern warfare. The Official History records that he was so impressed by the sight of Bleriot's arrival by air at Dover, he went straight to the War Office to draw attention to the military significance of this portent and its threat to the nation's insular security. From this time on, his mind was set on aeronautics. Indeed, he applied for military aviation service even before the Royal Flying Corps (RFC) was formed, and in May 1912, repeated his application. "... A Staff Officer" he noted in his diary, "should know the capabilities of aviation. He should be able to observe from an aeroplane and to travel by aeroplane with despatches ..." (7).

Having learnt to fly during a period of leave in October 1912, he was gazetted a Squadron Commander in the RFC in March 1913 and posted to Farnborough. As officer in charge of experiments he provided the Military Wing with invaluable help at a very critical juncture, particularly in the fields of wireless telegraphy and aerial bombardment (8). He was one of the first to recognize the importance of bombsights —including designing a sight himself — as well as being personally involved in the first experiments to fit and fire a machine gun from an aeroplane that took place at Farnborough in 1913. Furthermore, he was determined that the development of military aviation should proceed as rapidly as possible, urging that Squadrons be formed even while machines were lacking, so that the organisation and discipline should be perfected in advance. The flying training of the Corps, he insisted, should always have a clear military purpose in view (9).

Herbert Musgrave worked hard to prepare the RFC for the conflict ahead. This task was regarded as sufficiently important to justify, in April 1914, placing a Headquarters Flight at his disposal to undertake technical work of all kinds. Considerable progress was made, including the first successful demonstrations of wireless telegraphy from aircraft.

Working as the Deputy Assistant to the Director of Military Aeronautics, he was responsible for much of the administration of the Military Wing,

Major Herbert Musgrave DSO
The Mad Major (p59)

including the organisation of the Aircraft Concentration Camp held at Netheravon from 2 June to 4 July 1914, when the whole of the RFC assembled for a programme of training, lectures and practical experimentation in new developments (such as night flying) (10). During the camp he also acted as secretary to a number of committees set up to consider, amongst other things, mobilisation and the standardisation of equipment (11).

On the outbreak of war Major Musgrave travelled to France with the Staff of the Headquarters RFC. He continued to be employed on experiments including dropping the first bomb from an RFC aircraft on 14 September 1914, albeit with mixed results (12). When the Headquarters Wireless Telegraphy Unit (HQ WTU) was created to meet the rapidly growing demand for wireless equipped aircraft, he was the obvious choice to command the new unit and when, some two months later, the HQ WTU became No 9 (Wireless) Squadron (13), he became its first Commanding Officer (CO). It was from No 9 Squadron, based at St Omer, that the whole of the Flying Corps wireless telegraphy organisation evolved.

Despite his pivotal role in developing the RFC's operational capabilities, Herbert Musgrave appears to have earned a mixed reputation. Whilst the Official History refers to him as a good soldier who deserves more than a passing mention in any military history of the air, the memoirs of both Lord Brabazon of Tara and Air Chief Marshal Hugh Dowding (who served under Musgrave in 1914/15) are less generous. Brabazon tells of his efforts to erect, at St Omer, an aircraft tent captured from the Germans. He goes on to say: "... Delighted with our handy work, I informed the CO Major Musgrave, that the Mercandino tent had been erected. I must admit that I expected many congratulations and much appreciation. He said nothing, except that he would like to see it. We therefore reported to the aerodrome and I showed him the tent — which I had erected in a rather nice hollow which protected it from the wind and at the same time allowed machines easy access to it. He looked at it for some time and then said, 'Move it about 12 feet to the left!'. This was really too much for me. I said, 'Move it? Don't be silly! Its taken me and most of the British Army to put the thing up — what's the point of moving it?' He replied very pompously, 'You will obey your superior officer.'. By this time, due to the ingratitude of the man and the fatuousness of the order, my temper was scarcely under control and I replied 'Superior Officer? — Senior, if you please, Sir.'" (14).

Dowding's biographer relates that Major Musgrave struck him as unstable and eccentric to a degree that might well drive his subordinate to the verge of frenzy. Apparently conceiving that the RFC had too easy a time as compared with the Infantry, he made it his business to redress the balance by imposing futile and unnecessary hardships, such as parades before dawn. Dowding also tells of how, by early 1915, their machines having been in the open for five months (Mercandino tent or not), the fabric on the wings had become so slack and soggy that they could hardly get off the ground let alone climb to the required height. Repeated requests for new wings were uncompromisingly turned down. However, when Major Musgrave went on leave, Dowding had all the aircraft fitted with new wings. When he learnt what his deputy had done, the Squadron Commander was reported to have been so angry that he went as far as ordering that the old wings be restored to them. RFC HQ supposedly heard of this and replaced Musgrave, Dowding being appointed in his stead (15). Unfortunately, for the story, the evidence available suggests that Major Musgrave left No 9 Squadron at his own request in order to return to 'regular' duties with the Army. Indeed, in 1919 when Brigadier Dowding was asked for his recollections of No 9 Squadron, he made no comment about Musgrave's character, stating that he was uncertain as to even the name of the CO at that time (16). On the other hand, Claude Sykes, writing in 1942, stated that few in the RAF realized the debt they owned to Musgrave and the early pioneers. His work had been invaluable (17).

Perhaps a more objective view of Herbert Musgrave's qualities is the account provided by Captain B E Smythies, Royal Engineers (18), who served in No 9 Squadron from January-March 1915 in the capacity of Wireless Officer. Whilst expressing great admiration for Major Musgrave, Captain Smythies goes on to describe his idiosyncrasies; ideas such as carrying observers lying on the wings or "digging-in" a Maurice Farman lying in a field as a means of protection. He further comments that Major Musgrave's theory that men at GHQ should, as far as possible, share the hardships of those in the trenches, seemed to be idealism carried to extremes.

Although there is good reason, therefore, to believe that Herbert Musgrave's imagination was a little too fertile, there is plenty of evidence to indicate

that he was a man of sound judgement with considerable energy and enthusiasm (history records that 'digging-in' aircraft, by providing revetments, was not as far-fetched as it may have seemed at the time). His assessment of his subordinates appears particularly perceptive, for example, he rapidly identified the potential of one of his junior officers, Lieutenant W H Freeman (later Air Marshal Sir Wilfred Freeman) and advised that he be promoted over the heads of his seniors (19).

Having laid the groundwork for the supply of wireless aircraft to Squadrons in the field, Herbert Musgrave left the RFC in March 1915, to take up duties with the staff of the Army (20). He was severely wounded in August 1916. Almost two years later, on the night of 2 June 1918, having persuaded a battalion commander to let him accompany a patrol he was killed by a rifle grenade inside German lines.

Not unexpectedly, Dowding's biographer states (21) that Musgrave was killed in attempting to demonstrate the soundness of his theory that the dangers of the creeping barrage were much exaggerated! Whatever truth there may be to the criticism expressed by Brabazon and Dowding about Musgrave's character, the problem would appear to have been exaggerated in the telling. Indeed, his obituary in the *RE Journal* (22) contains the following tribute "... one of his Generals writes: 'He was the best Staff Officer I ever had.' Another officer says: 'It is only by such officers that the German Staff can be beaten ...'".

Perhaps the final word on Major Herbert Musgrave should be left to the Official History which concludes its description of his work in the following manner, "... He desired no personal achievement, and would have thought no other honour so great as to die for his country. Such men, though the records of their lives are buried under a mass of tedious detail, are the engineers of victory ..." (23).

And the mystery of the photographs? The picture displayed by No IX Squadron clearly shows an officer of the Durham Light Infantry (DLI) (Territorials), moreover, there is little facial resemblance to the photograph of Musgrave taken at Woolwich in 1898 (even allowing for the lapse of 10-15 years). Finally, there are no records of an officer from the DLI ever having served on No 9 Squadron. Thus the mystery remains; just as we will never really know the whole truth about Herbert Musgrave. What we can be certain of, however, is that he was a brave, highly capable, energetic and far-sighted officer who made a valuable contribution to the development of the RFC at a critical moment in its history. He certainly deserves to be remembered as one of the pioneers of air power.

BIBLIOGRAPHY

(1) Collier, *Leader of the Few*, page 96.
(2) Sykes, *From Many Angles*, page 112(23), op cit, page 233.
(3) His elder brother, Arthur David born in 1874, also served in the Army (ending the war as CRA 52nd Division), retiring as a Brigadier General, he died in 1931.
(4) *The Army Review*, Vol 5 Jul-Oct 1913, pages 41-50.
(5) *The Army Review*, Vol 1 Jul-Oct 1911, pages 348-365.
(6) The *RE Journal* 1905, Vol 11, pages 47-51.
(7) Raleigh and Jones, *War in the Air*, Vol 1, page 231.
(8) Woodman, *The Origins of Aerial Bombardment*, *Aeroplane Monthly*, August 1990, pages 467-469.
(9) Raleigh and Jones, *op cit*, page 232.
(10) *Flight*, 26 June 1914, pages 670-701.
(11) Sykes, *op cit*, page 116.
(12) Baring, Flying Corps Headquarters 1914-18, page 124, records that the bomb exploded neither when nor where it was supposed too.
(13) No 9 Squadron was formed on 8 December 1914. The use of Roman numerals in the Squadron title was only adopted in the 1920s.
(14) Brabazon, *The Brabazon Story*, pages 87-90.
(15) Collier, *op cit*, pages 94-96.
(16) AIR1/688/15/148/1.
(17) Sykes, *op cit*, page 112. Major Musgrave's pioneering work was recognised with the award of the DSO on 18 February 1915.
(18) Air Publication 956, *RAF Staff College Essays*, pages 74-90.
(19) AIR1/1241/204/6/51, letter dated 13 January 1915. Sir Wilfred Freeman was largely responsible for the development and entry into service of the De Havilland Mosquito.
(20) He was appointed DAQMG on 4 March 1915 and GSO2 on 8 May 1916.
(21) Collier, *op cit*, page 96.
(22) *RE Journal* 1918, Vol XXVIII, page 12.
(23) *Raleigh*, op cit, page 233.

In at the Deep End

LIEUTENANT C D FERGUS

Lieutenant Colin Fergus began his career in 1984 spending two years at the Army Apprentices College, Chepstow, before being posted to 42 Survey Engineer Group as a photographic surveyor. Commissioned in late 1989, and after attending 100 Young Officer Course, he was posted to 32 Field Squadron as a Troop Commander.

I CAN still remember quite clearly, a sunny afternoon spent sitting in the Construction Wing at Chatham in June 1990. It was the start of my YO (Young Officer) course and we were listening to a lecture from a Troop Commander relating his experiences of a small construction task in France. He concluded his lecture with these words of advice:

"Pay attention during the construction phase ... you never know how quickly you may get a construction task on joining your first unit."

At that point little did I know that a large project had just commenced some 8000 miles away in the Falkland Islands, the building of Mount Pleasant Complex Swimming Pool (MPCSP) and it was just under a year later that my officer commanding delighted me with the news that during our forthcoming tour of the Falkland Islands I was to be Project Officer for the fourth and final phase of the MPCSP. With the fatal words of that lecture ringing in my ears I frantically scrabbled through my packing boxes in search of construction notes; had I thrown them out with my Plant, Roads & Airfield notes?

The story of the pool project has been well documented in the April 1991 *Journal*, *The Challenge of the Mount Pleasant Complex Swimming Pool*, by Lieutenant Colonel C E Zimmermann. 51 Field Squadron dug the hole, 9 Parachute Squadron filled it in again, 8 Field Squadron erected the walls and roof and 32 Field Squadron hung the plaques!

Project Troop started work on phase four on 27 May 1991 and after an initial settling in period, got down to the rigorous work schedule imposed upon them. We worked a ten hour working day, six days a week with only Sunday free to recuperate. It was anticipated that the longer working hours at the start of the phase would give us sufficient breathing space towards the end.

A number of outstanding phase-three tasks was carried over, which magnified our scheduled programme of work and meant that it would be a push to complete everything in time for the opening at the end of August. The worst weather recorded at Mount Pleasant didn't help matters much. Driving snow, high winds and temperatures dropping to -8°C severely hampered the initial construction of the corridor linking the gymnasium to the pool building. A series of tents heated by huge blowers provided minimal relief from the elements and allowed work to progress.

Inside the pool hall, work on fitting the sanitary ware, wall tiling, electrical and mechanical work went unhindered and the transformation of an empty shell into a usable facility began.

The big test came in the last week of June with the filling of the pool itself. At first, the water was so murky that it was impossible to see the pool bottom. However, the filtration and purification systems were put into action and the water slowly but surely became crystal clear. Brought up to its standard temperature of 78°F, it became 'swimmable'.

The commissioning of the Heating and Ventilation systems which followed brought up the air temperature within the building. At times the soldiers

Lt C D Fergus
In at the deep end (p62)

were working stripped to the waist as temperatures reached an unbearable 120°F. They still had to change into cold weather gear in order to trudge through the snow to collect stores from the containers outside. The site surrounding the building was a quagmire so the soldiers were constantly jumping in and out of wellington boots and trainers whenever they crossed the pool threshold.

Gradually the interior of the building took shape. Walls were painted, carpets laid, doors hung and windows fitted. Furniture arrived in mid July and was soon assembled and put in place.

The construction of an access road to the plant room suffered the same fate as that of the early days of the link corridor. It seemed that whenever there was an exterior task to complete the snow fell! Of 31 days in July there was snow on the ground constantly for 26 days!

By 9 August, after 11 weeks of work, the pool was all but finished and final titivating and cleaning could begin. The sorting out and cleaning of tools and equipment were big bugbears as most of them had been in constant use for nearly 14 months and were by now in a fairly shabby condition.

The pool was opened on 28 August 1991 by the Governor of the Falkland Islands and was followed by a fun gala which the Field Squadron duly won. It was most appropriate that Commander Engineer United Kingdom Land Forces, the pool's designer and three of the four squadron officers commanding were in attendance. The Project Troop lost little time and took great delight ensuring that the Sapper dignitaries (less the Brigadier of course!) took an unscheduled and fully clothed dip in front of the assembled mass of spectators. It was a fitting conclusion to a most successful project.

Phase four had been an uphill struggle from day one, a battle against rigid deadlines, the agonising wait for stores in transit from UK, the fitting in of operational commitments and duties and of course, the knowledge that by 28 August, everything had to be in tiptop condition. It was deeply satisfying to spend the last three weeks of the tour making use of the pool and enjoying the fruits of our labours.

Perhaps one day, I shall be invited back to Chatham to lecture to a group of YOs about my experiences of undertaking a small construction task in the Falklands. My words of advice will be similar to those issued to me:

"You never know how quickly you will be... in at the deep end!"

The completed pool.

In at the deep end (p63)

A Unique Sapper Remembrance

COLONEL J V P BRAGANZA IA BE FIE FIED CEng MIEE

"This blessed plot, this earth, this realm, this England,
This nurse, this teeming womb of royal kings,
FEAR'd by their breed, and famous by their birth,
Renowned for their deeds as far from home...
For Christian service and true chivalry..."

THERE are many such blessed plots scattered over the cardinal points of the subcontinent of India. One such is the small two and a half acre British cemetery at the District town of Satara, 110 km South of Pune (Poona). Enclosed by a conventional black stone wall, it attempts to preserve the remains of some thirty persons who died in the course of their administering this outpost of a once mighty Empire.

In the course of a hike through the Sahayadri hills some time in 1964, a party of Bombay Sappers bivouacking at Satara, decided to explore the cemetery. They were astounded to stumble across the grave of one of their Colonels Commandant, Lieutenant General William West Goodfellow CB, who died there on 18 September 1901 at the age of 68 years. The stones of the grave had been displaced, and the cross at the head broken by stray animals that had entered the enclosure to graze. The inscription on the three rectangular marble blocks which had formed the pedestal for the cross, was intact. Unfortunately the records of the Bombay Engineer Group and Centre at Kirkee could disclose little about the General. A reference was therefore made to the Secretary of the Institution of Royal Engineers, Chatham, who was able to provide at least the mentions of the Goodfellow family in the volumes of Colonel Sandes on *The Military Engineer in India*. From these a sketch of their lives was pieced together.

Lieutenant General William West Goodfellow was commissioned in 1850 as an ensign and posted to the Bombay Sappers and Miners. He went through the normal duties and experiences of a regimental engineer, except for the expedition to Abyssinia in 1867 under Lieutenant General Sir Robert Napier, himself a distinguished engineer officer. After making the initial reconnaissance of the port of Massawa and its hinterland, Captain W W Goodfellow, as he then was, was joined by the 3rd and 4th Field Companies of the Bombay Sappers, and allotted the arduous task of opening up the land communications to the well nigh impregnable fortress of Magdala. The success of these efforts has been preserved in Alan Moorehead's classic *The White Nile*.

On return to India, Captain Goodfellow was seconded to the Public Works Department of the Bombay Government, first at Belgaum and later at Satara. Many of the roads, bridges and government buildings still standing in these Districts were planned and executed by him. Remarkable is the fact that both his father Lieutenant General William B Goodfellow, and his grandfather Lieutenant General C Goodfellow, not only served with the Bombay Sappers and Miners but also all three attained the rank of general and were appointed Colonels Commandant of their regiment. Even more notable, another member of this outstanding family, Lieutenant General C A Goodfellow VC, was awarded his decoration for outstanding gallantry during the capture of the coastal fortress of Beyt in Kathiawar in 1859. Like the others, he also became a Colonel Commandant of the Bombay Sappers. Perhaps no other family that served the Indian Army can show a better record of service. The local vernacular newspaper which carried an account of the short ceremony described below, pointed out the main lesson to be learnt from the family of Goodfellows: establishing a tradition of two or more generations serving a regiment; and expressed the hope that in this manner the fighting qualities of the Maratha peasantry would be upheld.

At a short but moving ceremony on Christmas Eve, 1991, the officiating Commandant of the Bombay Engineer Group and Centre, Colonel T G Shanker, laid a new tombstone on the old grave of General W W Goodfellow, after the local Anglican pastor had blessed it, in the presence of a select group of Bombay Sappers. Floral tributes having been placed, two buglers sounded the Last Post, followed by the Rouse. As a final touch to enhance the dignity and beauty of the site, two gul mohur (Flame of the Forest) trees were planted on each side of the grave head. An ex-*Sudedar* of the Bombay Sappers, living close by, has volunteered to keep an eye on the grave so that it remains intact.

The plinth of the tomb is of black Cuddappah stone with an inclined marble slab on which the original inscription appears in black letters above a cross.

Below the cross is the dedication recording that it was presented by the Bombay Sappers. Except for the slab and its inscription, the entire work of installing the tomb was done by *Sudedar* Pal Singh and a working party from the Chief Instructor of Workshops. To at least one of those present, a well nigh 30 year dream had been fulfilled!

And the original pedestal stones? Colonel Shanker agreed that they be taken and placed in the Group Museum at Kirkee. Along with "Goodfellow Road", which now leads past the Bombay Sappers Headquarters, they would remain a singular memento to an outstanding family that the Regimental History can preserve.

The stones that stand,
The roads that rise,
The beasts that stalk,
The trees that fork,
The men that talk,
The shining sand,
The gates that lead to Paradise.

Bombay Sapper officers at the grave: L to R — Lieutenant Colonel R D Nikm (Retd), Colonel T G Shanker, Colonel J V P Braganza (Retd), Lieutenant Colonel J V Rao, Group Adjutant, *Subedar* Major S S Rane.

The new marble grave slab — original inscription above cross. Dedication of Bombay Sappers below.

Sounding the Last Post.

A unique Sapper remembrance (p65)

An Emergency

LIEUTENANT COLONEL B R WHITE MBE TD

Commissioned in August 1942 the author was posted to 808 Road Construction Company RE and, in January 1943, to Queen Victoria's Own Sappers and Miners where he joined 431 Indian Field Company. Demobbed in 1947 he joined the family firm, a Civil Engineering business engaged in road construction and quarrying. He joined the Territorial Army in 591 (Antrim) Field Squadron which he later commanded. He became Deputy Assistant Adjutant and Quartermaster General of 107 (Ulster) Independent Infantry Brigade Group TA, and finally changed cap badges to command the 5th (T) Battalion Royal Irish Fusiliers. On leaving the Territorial Army he was appointed County Cadet Commandant of Armagh and Down Army Cadet Force. Retiring from business in 1970 he joined the permanent cadre of the Ulster Defence Regiment as Adjutant of 10th (City of Belfast) Battalion UDR, a post he held until January 1980 when he became Regimental Secretary of the Regiment. He finally retired in 1984, and is currently studying for an Open University degree, which he hopes to achieve in 1992.

THE Corps of Royal Engineers must have been exceedingly short of officers in 1941, as my experiences would indicate when I attended a War Office Selection Board in that year.

As an acting unpaid Lance-Corporal in the 70th Young Soldiers Battalion of the Royal Ulster Rifles (RUR), I felt that my energies could be better used than in guarding Yelverton Airfield or in training exercises in the vicinity of Crown Hill Barracks, Plymouth. Spurred by the rumour that there was a tremendous demand for anti-tank gun officers, who, I understood, had a life expectancy shorter than that of a fighter pilot in the First World War, I allowed my name to go forward as an applicant for a commission. In due course I was summoned to appear before a Selection Board at Warwick. Finding my way there from Plymouth was, I thought an officer-like achievement in itself.

The Board before which I appeared consisted of three officers seated at a table. I was not impressed by them, and I have no doubt that they were not impressed by me. No spark of warmth existed until the President asked his bored colleagues if they had any further questions. One couldn't think of any, but the other asked:

"Have you any relatives in the Army?"

"Yes Sir" I replied, "I have a brother who is a Captain in the Royal Engineers."

The effect was electric. All three members of the Board became awake instantly and regarded me with a totally new and almost benevolent interest. "And wouldn't you like to be a Royal Engineer?"

"Oh yes sir" I said, "but my maths are lousy!" or words to that effect. My protests were brushed aside; I was assured that I was just the sort of fellow they wanted, and I was put back for interview by a Royal Engineer officer later in the day.

That afternoon I was interviewed by a Captain RE, who asked me three questions. Did I know what the sine of an angle was? Did I know what a logarithm was? The third equally simple question I forget, but as I had left school only a year previously the subjects on which I was questioned were still relatively clear in my mind, and I was able to satisfy my examiner. He murmured something about vacancies in Transportation, and I was dismissed to find my way back to continue guarding Yelverton Airfield.

Early in January, 1942, two of us, David Orr and I, were dispatched from the Battalion to join a pre-Officer Cadet Training Unit (OCTU) at Barton Stacey. The pre-OCTU was an excellent system wherein potential RE Officers from every regiment and of every rank were given a basic elementary Sapper training as Sapper Cadets. We learnt about knots and lashings, blocks and tackle, the use of spars, explosives and fieldworks. David and I found our major difficulty was in reducing our Light Infantry pace to the measured tread of a Sapper. On parade was easy, but whilst walking to the Naafi

Lt Col B R White MBE
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together we tended to work up to 140 paces a minute. January passed in the pursuit of this basic knowledge, and in mid-February we held the statutory celebration party, before leaving to entrain for Aldershot, to become 35 Class, 142 OCTU RE.

Life at OCTU was real and earnest but the discipline was no stronger than in the RUR. One factor, however, haunted every cadet, from the day he joined until the day he left: that was the spectre of returning to unit (RTU), or being returned to ones unit as unfit to become an officer. The course of eight three-week periods lasted from mid-February to mid-August. There were high points and moments of doom and gloom. My periods of gloom seemed to centre on improvised bridge design with its totally mysterious relationship to bending moments and shear force diagrams. (I had told the selection board that my maths were lousy!) My moment of doom came when, as bridge commander on a dry bridging exercise, I trundled a Bailey into the gap instead of across it: a question of 'too fine an adjustment of balance' to quote from a later and more famous Bailey-dropping event. It occurred to me that if I were to take firm command of the salvage and retrieve the bridge intact I might yet avoid RTU. I recovered the bridge and dismantled it whereupon the exercise was terminated. I may not have been popular with the instructors but I was with my fellow-cadets, for the exercise had been scheduled to go on all night.

There were, of course, lighter moments. Not having great faith in my academic achievements I tried to compensate by showing enthusiasm for sports; thus I played rugby for the OCTU and learnt to throw the discus. But I am one of that breed which only appreciates cricket as a backdrop for a pint quaffed at the edge of the village green. One of my colleagues, W C Lang, was also no cricket enthusiast, or W D P C Lang as he called himself, explaining that the D P stood for 'discreet pause'. Consequently when cricket was in season Bill and I could opt for the alternative: cross country runs. There was method in our choice, for a run finished earlier than cricket and we could wash and change and get into town ahead of the mob. For this reason we always put our best foot foremost and usually came home ahead of the field. On one occasion, coming home first as usual, we were met at the gate by a figure clad in red and blue striped jersey who noted our names. Shortly thereafter we found ourselves representing the OCTU in the Aldershot Command Cross Country Championships. I was gratified to finish well up in the 150 out of 300 plus.

Bill Lang was a man of many talents, one of which was composing scripts and lyrics for a satirical revue on OCTU Life which we planned to put on, but never managed to. Nevertheless a complete script was prepared, a brief extract of which is reproduced here. I should explain that at the end of the third course each cadet was interviewed and told how he was shaping, at which time the ever present spectre of RTU loomed closer. In the 'C Course Nightmare' scene, a cadet has been condemned to RTU for having failed to brush clean the area round his bed. The weeping cadet shrieks forth his defence:

"I've gone on route march, done PT and never swung the lead; Done TEWTs and CEWCs without my Bewks and every pamphlet I have read."

The Colonel, amazed:

"My God, you've what? You've read the lot? The pamphlets through and through?

"If that's the case I must erase the sentence RTU.

"For it seems to me, and you'll agree, it's severe for an unswept bed.

"But to read all our issues is far too ambitious, YOU'LL BE SHOT AT DAWN INSTEAD."

A course I greatly enjoyed was the motor transport (MT) course, during which those who could do so were taught to drive, and all were given experience in driving every type of vehicle held by the OCTU. In the early stages this was done in Long Valley, Aldershot, — a frightening landscape of heights and hollows, and, of course, mud and clay. I learnt to ride a motor cycle here, and have always enjoyed that machine's cross country capabilities ever since, rather than its performance on the road. The final part of the MT course consisted of a convoy through the Hampshire lanes and byways in which each cadet experienced every task from convoy leader and navigator, through Despatch Rider, to driving the bridging lorry and trailer. The convoy leader was allowed to make his mistake in navigation before the supervising officer pointed it out. He was then faced with turning the convoy round, including the bridging lorry and trailer, or finding another way round. Thrilling too, was watching a 15cwt truck trying to climb the roadside bank, whilst betting with a degree of certainty on the identity of the unfortunate cadet who was driving.

The end of the MT course was marked by two events; the first, having nothing to do with MT, was an endurance test. It began with heavy physical training of the log rolling type. We were then required to change into full battle order and

undertake a forced march of six miles in a time that required us to double most of the way. On return to within sight of the barracks we then had to pick up a companion in a fireman's lift and double 100 yards with him. He then did the same in the opposite direction. A brief respite was allowed before we tackled the assault course — twice! The rest of the day was ours to recover, pack our kit and prepare to move to the Wet Bridging Camp at Wouldham.

The second event did concern MT, being a night convoy from Aldershot to Wouldham on the Medway. We were detailed to specific vehicles and set off after dark, driving on the severely restricted war-time lighting. The only visible light on the vehicle in front was a pale illumination of the differential. After an hour or so concentrating on this it was difficult to tell whether it was 20 yards away or only 20 inches. Wouldham Bridging Camp remains vividly in my mind as a place where everything was done at the double. We doubled to the hard; doubled back for lunch; then we doubled down and back in the afternoon. Every class was told of the record time in which the previous class had built a certain number of bays of Folding Boat Equipment, and, of course, every class always beat that record. I well remember being one of two men carrying a road-bearer, normally a four man load, at the double through the loose shingle. I suspect that every class must have been told the same time, otherwise some class would by now have got the time down to zero minutes. We went out on exercises with Large Box Girder and Small Box Girder bridges, and one happy memory is of waking, on a summer morning in a Kentish orchard, having spent what was left of the night wrapped in a gas-cape, and of the appetite I had for the open-air breakfast. On the other side of the coin, however, was the half hour allowed for lunch from breaking off work on the hard to starting work again. During that half hour we doubled back to camp, ate a full meal in the dining hall, had time for a cup of tea and a smoke in the NAAFI and doubled back to the hard. My most pleasant memory of Wouldham is of a certain WREN (informal abbreviation of WRNS (Women's Royal Naval Service)) I met at a dance in Chatham, who, seven years later became my wife.

There was much that was humdrum and routine during those six months at OCTU: guard duties, pay parades and church parades for example. Pay was a subject about which I felt strongly, for in those days a cadet continued to draw the pay of his previous rank. In my case, as an acting unpaid lance-corporal, I drew one pound a week, whilst some of my fellow-cadets revelled in sergeant's pay, or even sergeant-major's. I understand that a standard pay for cadets was introduced later, but in 1942 we felt the difference badly, as we were not supposed to frequent the lower drinking places, but only those marked 'Officers and Cadets'. There, of course, beer cost more.

I also felt strongly about church parades, not, I hasten to add, that I was an atheist, or even opposed to church parades as such. On arrival at OCTU our religious affiliations were noted and I gave full details of my Presbyterian upbringing. Each Saturday lists were posted of those who were to attend church parade and I dutifully read the Presbyterian list, where my name did not appear. I observed, however, that my name was on the Church of England list, which fact I ignored. So every Sunday, whilst my colleagues polished, paraded and set off to church, I luxuriated in an extra hour or so in bed. On the very last weekend however, my name finally appeared on the Presbyterian list, and I obediently paraded. I suspect foul play by one of my fellows!

Much of the last few weeks of the course was spent in visiting authorised tailors, having Sam Brownes made and in attending fittings in the barracks at which the Adjutant criticized or approved the tailor's efforts. During the last of the eight courses the senior class was allowed to wear collars and ties with their battle dress. Eventually 16 August 1942 arrived and 35 Class, the latest intake of Royal Engineer Officers, left for a well earned leave, each in possession of a posting order.

At this stage of reminiscing I wonder what happened to the rest of that class of highly individual characters. I was posted to 808 Road Construction Company RE which was building roads in Sennybridge Artillery Range in Wales. In January 1943 I was posted to Queen Victoria's Own Madras Sappers and Miners where I joined 431 Indian Field Company and built airfields throughout Burma. (A story I have already told in an earlier issue of the *Journal*.) The only one of my fellow cadets I came across was Bill Lang who I met briefly whilst on a course at the Indian School of Military Engineering at Roorkee. What happened to the others I would dearly like to know.

Those days at 142 OCTU were very happy, in spite of some problems. I never did master bending moments and shear force diagrams, but I learned to look up the answer in my Royal Engineers Pocket Book. I didn't get that particular Bailey

On a visit to RAF Odiham: Author is at extreme left.

across the gap, but I built others and watched the balance most carefully. The only parts of a Recce Report that I felt capable of compiling were the cover sheet and the index, and I dodged every church parade, except one. To complete my erratic progress, on reporting to my first unit, I omitted to remove an old label from my kit, which was in the luggage van, with the result that when I alighted at Sennybridge it went on to Cardiff. I sometimes wonder how I managed to obtain even an Emergency Commission! But then, it was the hell of an emergency.

Operation *Granby*, Preparation and Development for War

COLONEL J D MOORE-BICK OBE MA(H)

Correction

Please note that in the December edition of the RE *Journal* reference was made to Lieutenant Colonel Nick Thompson (see pages 263 line 19 and 267 line 44). This should have read Lieutenant Colonel Nick Thomlinson.

An Emergency (p69)

El Alamein

COLONEL J H FRANKAU MC

THE photograph opposite shows R H Adams, the author of the second (rather laconic) personal account of the battle written at the time, which is included in this article. The author of the other personal account, R Moss, was killed in action in North West Europe.

Adams was a pre-war Territorial Army Sapper in 205 (Wessex) Field Company who, after commissioning, joined the Devon and Cornwall Royal Engineers on mobilisation for overseas in January 1941. He was, I believe, the only officer to serve with them in operations throughout until disbandment in 1945 (with a Mention-in-Despatches) and was in three out of the four Companies. He is now the second President of the 571 and Sister Companies' Association.

IT was feasible in 1972 to make a summary of a unit's *War Diary*. The following account is based on such a summary: passages in italics are verbatim from accounts written in 1942; sections in square brackets are from the summary and my own explanatory paragraphs are not specially marked.

IT is probable, I believe, that the first Sapper unit into the Desert was 2nd (Cheshire) Field Squadron, although 12 and 42 (Regular) Field Companies may have a case. However, the original commander of the Western Desert Force was that redoubtable Sapper Major General Sir P C S Hobart who held that there was no place for Sappers in the Desert! Consequently the Regular units may not have been allowed very far forward. There then followed piecemeal, 1, 3 and 4 (Cheshire) Field Squadrons and 141 and 143 (Cheshire) Field Park Troops. Some of these survived throughout the war as 7 (Armoured) Division RE and some, for a time, as 10 (Armoured) Division RE, as will appear later.

The following account is, however, of 571 Field Company of the first complete Lieutenant Colonel CRE's Command of UK Sappers, which joined the Western Desert Force in 1941: 570 Field Park and 571, 572 and 573 Field Companies, Devon and Cornwall RE. They subsequently qualified for 8th Army, Italy and North West Europe campaign stars; which the South Africans, Indians and New Zealanders, who preceded them in this respect, did not.

The West Country Sappers remained in the Desert fulfilling many roles until they found themselves involved in the disaster on the Gazala line in June 1942 while mine-laying for 50 (Northumbrian) Division. 573 suffered heavy casualties but was reformed later in the Delta. 571 and 572 retired in good order, laying mines, firing demolitions and marking routes.

It is an interesting sidelight — on the controversy as to whether Auchinleck's plans for retirement from "First Alamein" were mere paper staff-studies — that such experienced troops were not halted there to strengthen the position. Instead, they passed through to Itwah and Helwan on the Nile where they spent eight weeks building felucca bridges and ferries for a retreat. Rescued from this demoralizing task by the arrival of Alexander and Montgomery, they then underwent a period of intensive training in minefield breaching with 10 (Armoured) Division.

[The author of the *War Diary*, Captain Evans, starts this section with a full description of the now well-known 8th Army Mine Gapping Drill. For a 16 yard gap the following were necessary:

Col J H FRANKAU MC
El Alamein (p70)

- Confirming Recce Party
  1 Officer 1 Sergeant 6 Sappers
- Control Party
  1 Officer 1 Sergeant 4 Sappers
- Main Working Party
  1 Sergeant 4 Corporals 42 Sappers

The main working party contained its own local reserves and stores group, but the whole was backed up by stores vehicles, a pilot vehicle and further reserves.

The tactical situation on 10 Armoured Division front was that the line was held by South African troops. The Infantry Break-in was to be made by 2 New Zealand (NZ) Division. Simultaneously Sappers of 10 Armoured Division were to gap for the break-through of the Armoured Division—gaps to be completed by dawn. There were two known enemy minefields. New Zealand Sappers were to make gaps on either side of the four 10 Armoured Division gaps which were allotted as follows:

BOTTLE	track	573 less one section	RIGHT
I	Lane	Troop 3 Fd Sqn, section 573	
BOAT	track	3 Fd Sqn less one troop	
HAT	track	571 less one section	LEFT

In addition a reserve was formed from 141 Field Park Squadron and one Section 571 was allotted to this reserve (No 2 Section).

An account of the operation by 2 Lieutenant R Moss follows:]

Main body left bivvy area to rear of home minefield where Lieutenant G Hillyar-Russ was waiting with stores truck. Barrage opened just as the parties were coming up one by one to collect their respective stores. After getting their stores the parties went about 100 yards beyond the stores truck and lay down. All seemed a bit scared, though no reply came from Jerry to our barrage.

At appointed time we all set off. Just as we began to enter Gap in home minefield, Jerry began to reply. He laid down his barrage just in front of the home minefield, exactly where we had to go. It hardly looked possible to get through it. From that moment onwards we were under constant and heavy shell fire, but it had to be ignored.

After advancing about 500 yards we saw vehicles on our right, and the OC[1] sent me off to investigate. We thought our bearing was faulty. The party proved to be NZ engineers doing one of the auxiliary gaps for their Brigade. We advanced further and after about 800 yards began to run into SAF. At about this distance we saw a figure approaching us from the enemy lines[2]. Once more I was sent off to investigate while the main body lay still. The figure kept bearing further away from our party, and before I could reach him he encountered other troops who had been advancing on our left but some distance behind us. I saw him speak to them, and so returned after a short pause while a particularly close concentration lifted from my vicinity.

Again we advanced but had only gone about 200 yards when we were again forced to earth by shell and SA fire. There was a short rise in front of us, and to save time and risk of casualties I turned back and passed down the word for the men to double over it as soon as we set off again. From here on I lost count of distance. After further advance we were again held down by fire at close range (approximately 200 yards) from two LMGs[3]. We saw figures ahead and the OC and I crawled forward to find our recce party similarly held up. After about half an hour the OC decided to send back to CRE for assistance. Just then the CRE's runner arrived to enquire of our progress[4]. We sent back 'Held down by SAF. Please send support. Have located first minefield'. (We had done this whilst wriggling round in the scrub.)

The delay seemed to be seriously affecting our work, so the OC, Lieutenant H J Darvill and I decided to see if we could, ourselves, remove the LMG. We had just separated to do this when we heard voices and saw our own Infantry approaching. We remained still till they had passed. The LMGs seemed to have ceased fire at their approach and so we rose to our feet and began to clear the minefield we had encountered. It was approximately 200 yards deep, ending in dense wire entanglements which were booby-trapped. Fortunately, the traps (mainly Italian B4s and Jerry S mines) had been laid for some while but had not been maintained. The trip wires were weak and the mechanisms stiff, thus the former broke before they could operate the latter. The mines encountered were British GS Mk IV and V. There were five rows approximately five yards apart with between five yards and ten yards between mines. Having cleared this Gap, the recce party were again sent forward, and the main body reformed.

The OC stayed behind to wait for the first vehicle to arrive and to receive any runner from the CRE. I took the main body forward. After about 500 yards

[1] Major P M Yates
[2] Bright moonlight
[3] At this date "Spandaus" fired tracer
[4] Note: No radio

we came across the recce party who had halted to investigate voices heard nearby to their right. I took a party over to see what it was and found a wounded NZ laying helpless on the ground. We did what we could for him and then carried on. The recce party preceded us by about 100 yards. A further 200 yards advance brought us to a row of mine boxes. Here we were again held down by mortar, LMG and A/T fire. Lt Darvill went back to contact OC. I stayed forward of the recce party to observe. I saw figures about 300 yards to my right and was able to distinguish NZ voices. They seemed to be using a mortar to try to neutralise the LMGs in front of us.

After about half an hour Lt Darvill returned and, since the fire had eased slightly, we continued. The wheelbarrow[5] failed to detect mines beyond the mine boxes, but a row about 100 yards along of Italian B4 booby traps on short angle-iron pickets were encountered. While members of the main body were neutralising these, the recce party went on. Having dealt with all the B4s in the immediate vicinity (again they were in too poor a condition to be really dangerous), I again moved forward with the main body. 400 yards ahead we came to a row of stone cairns. Recce party was no-where in sight, but for safety's sake I ordered NCO i/c detector parties to sweep beyond the cairns while I took two men on to locate Lt Darvill. I heard voices to the left and advanced to find own Infantry digging in. They had not seen Lt Darvill. I returned to the main body to see if the OC had come up yet. He had not, so I again went forward with just L/Cpl Browne, this time to the right, to find Lt Darvill and party. We got only 200 yards when we were fired on from nearby LMG. We were on open ground and could not stop so advanced rapidly. The fire continued but now it was behind us.

We then saw the recce party's blue lights and continued up the slope to find them waiting behind an unclosed German gap in what looked like a well-defined minefield. It was marked by a single coil of dannert wire. Lt Darvill was away trying to contact CRE (reported by L/Sgt Cook). As I awaited his reply, I could see the 3rd Field Squadron clearing a gap about 200-300 yards away to the right. They were being fired on by a LMG at short range. Lt Darvill returned and I asked him if he had seen the cairns. He had not, so leaving his party to recce the minefield he had found, we returned to see if my party had located mines beyond the cairns. They had not, but reported that the pilot vehicle had been blown up by a mine some distance in the rear, and the OC had ordered the main body back to sweep the area. We reached the pilot vehicle to find the party clearing a minefield at the point where we had found the Italian B4s. We reported to the OC. On this field we located about eight EP Mk II mines.

When the gap had been cleared I could not find the OC to ask permission to light the marking lights but, since it was beginning to grow light and the tanks were waiting in a long column, I gave the order myself. Our work seemed to be over so I sent the main body back to take cover as, with the light, the enemy shelling became intense. I stayed behind with a small party mainly of NCOs to see if we could be of any assistance to the Tanks who seemed to have come to a standstill. Lt Col of the Tank Corps whom I approached asked me if I could clear the minefield laterally between us and the Boat track on our right. I explained how few men I had and how long it would take me to do this. Seeing that I could no longer be of any assistance, I returned with my party to the bivouac area at about 0930 hours on the 24th. Later on in the day the parties were again taken out and the two gaps widened to 32 yards. Near the gap in the second field a booby trap composed of two 250lb bombs, one tellermine and one French mine was located and destroyed.

Another sidelight on history: during the night of 23/24 October, on this front at least (The Miteira Ridge: 8 (Armd) Bde), the Infantry captured their objectives and the Sappers breached their gaps but the armour did not advance even though, apparently, they had had no casualties. It was on a later night that Montgomery had to get out his whip and spurs.

[No 2 Section was detached from the company for operation *Lightfoot* and came under the command of 141 Field Park Squadron who formed a reserve. An account by Lieutenant Adams follows:]

With a troop of the Squadron, Sec 2 formed a complete reserve gap-clearance party. At 2100 hours the party moved off along Boat track in the rear of 3rd Field Squadron, whose first duty was to clear a 16-yards gap in the first enemy minefield. The party stood-by during this operation at the end of which it widened the same gap to 48 yards. After this the party cleared a gap through an undetected second minefield about 400 yards forward of the first field. At first light the party cleared a mine marsh adjacent to the first enemy minefield. During all the operations about 16 AP mines were neutralised. The party suffered 12 casualties, all of which were men of 141 Squadron.

[5] A Wheeled mine-detector for reconnaissance

In the Company as a whole there were 20 casualties from all causes in the month of October: exactly ten per cent.

It is fitting to add to this account a note about the volunteer driver of the pilot vehicle which blew up. He was H W (Bunny) Greatrex, one of the few who did not need to wait for call-up in 1939, as a "Volunteer Trade Rating". After a trade-test and Regular recruit training, such men were posted to mobilizing units and they were pure gold. Greatrex returned to the Company from hospital after the end of hostilities in North Africa, but was severely wounded as a corporal in Italy whilst disarming a booby-trapped mine. He was totally blinded, lost a leg and suffered internal injuries. During his convalescence he married his nurse, who became his eyes. He built up his father's small building firm into a large one, became a County Councillor and was the founder and first president of 571 Field Company Association. He died in 1977, having added a civilian MBE to his MM: *O Si Sic Omnes*.

RE Museum — Some Recent Acquisitions

PHILLIP DUTTON MA, REGISTRAR RE MUSEUM

THROUGHOUT the persistent upheavals of redevelopment and the implementation of a programme of high quality exhibition refurbishment, the RE Museum has continued to acquire objects and records of an extraordinarily diverse nature which have relevance to the Corps. It is impossible to do justice to the richness of these acquisitions in one short article but in this instance I would like to focus on acquisitions to the Museum's archives and highlight three donations representing the markedly different service histories of a general, a young lieutenant and a conscripted sapper.

The extensive body of papers associated with the career of General Sidney H Powell CB RE, founder of the Indian Corps of Signals, contains an abundance of important historical data including: a perceptive and gently satirical account of his time at the RMA, Woolwich, in a series of felicitous pencil sketches, "Scenes in the life of a Gentleman Cadet" (one notably sacrilegious work being titled "How Jagger makes use of the Fortifac ruler"); accounts of his service, as Assistant Intelligence Officer, with the Miranzai (1891) and Tochi (1897) Field Forces; and a report of the activities of the Royal Engineers forming part of the Imperial Representative Corps which visited Australia and New Zealand, 1900-01. There is also a large file of papers and technical memoranda relating to the extension of the Hindustan-Tibet Road, 1906-07. Later insights into the stresses associated with wartime high command are provided by the correspondence with Lieutenant General Sir W Congreve, linked to Brigadier General Powell's retirement as CRE 13th Corps due to ill health, one week into the Somme Offensive.

Contrasting in scale and content are the diaries (June 1888 to December 1890) of Lieutenant Bertram A James RE. His two small notebooks provide a fascinating and meticulous picture of the trials and debilitating tedium of active service operations against Chin guerillas following the 3rd Burma War. Lieutenant James' last entry was made only days before his death in action at Thetta, where he was shot through the head on 2 January 1891. This action is described in detail in a letter written for the deceased's family by a Gurkha Officer who witnessed the event; the testimony is a model of directness and sensitivity.

Most modest in terms of historic or dramatic content are the documents relating to a conscripted sapper of the First World War, Charles Hodgson, who served in 97 Field Company. A prosaic and in some ways standard accession group is enlivened by the presence of a remarkable document: a petition compiled by the inhabitants of his home village of Moulin (near Pitlochry, Perthshire) seeking to retain his civilian services as skilled joiner and handyman. Their appeal to the military authorities was unsuccessful and Sapper Hodgson was posted to the Western Front, later to be made a Prisoner of War of the Germans in the wake of the March 1918 Offensive. Postcards sent from captivity form part of the gift. But this perhaps is the happiest story; Sapper Hodgson survived the war and his return was celebrated by a lively supper dance in August 1919 which allowed the local printer, commissioned to produce the invitation cards, to display both his patriotism and skill.

The Wadi-el-Kuf Bridges, Cyrenaica 1948-49

MAJOR R E WARD

Roland Ward entered The Shop from Marlborough in August 1939 but, after only one week, was sent to the RE Officer Cadet Training Unit at Shorncliffe to complete his training before joining the 42nd (East Lancashire) Divisional Engineers, later 42nd Assault Regiment, with whom he took part in the Rhine Crossing in March 1945.

After commanding Park units in BAOR he was sent to Palestine in 1947 to take over the 23rd Field Company, then supporting the First Guards Brigade. He was Mentioned in Despatches North West Europe and also Palestine 1947-48.

Following a course at the US Army Engineer School at Fort Belvoir, Virginia, he returned to Chatham in 1950 to write on bridging, play a lot of Rugby and start Ocean Racing, before going out to Hong Kong in 1952 to command 15 Field Park Squadron, returning, via Canada to the Staff College in 1953. He spent the rest of his service on the Staff and in Resources in the UK before leaving in 1965 to settle at Tewkesbury.

Introduction

An article about this project appeared in the *Sapper* in July 1949, under the title *Desert Aftermath*. It was written by a public relations officer in the Royal Artillery and gave a very graphic account of how Royal Engineers opened the road between Barce and Derna and the Jebel Achdar, or Green Hills of Cyrenaica, in the summer and autumn of 1948. Another article in the *Soldier* magazine about the same time described the formal opening of No 1 bridge by the Emir Idris el Senussion, on 28 April 1949; he ordered the bridge be named after him.

In July 1990 a reunion took place in Leamington Spa and the whole matter was talked over. It is now time to re-tell the story from a Sapper's point of view, with photographs and details of the work which included the building of three bridges and a length of cliff road.

Wadi -el-Kuf was a dry water course occasionally flooding in the rainy season. A beautifully engineered Italian road ran by the side of the cliffs which rose from West to East towards Derna at a fairly uniform gradient of 1 in 15, except at the first bridge which rose at approximately 1 in 34.

Four gaps had been blown in the road by the retreating enemy in 1942. The 8th Army had built a temporary road down a steep six part zigzag at the eastern end of the Wadi and then along the bottom through the gorge. This road was passable to three tonners but nothing larger, and was in continual use by traffic between Benghazi and the port of Tobruk.

We camped at the top in open country 1500 feet up near the village of Luigi Razza where there was a plentiful supply of beautiful pure water.

Work started on No 1 Bridge at the bottom of the Wadi. It was built by 1 Troop, 23 Field Squadron, assisted by a large detachment from 2041 Mauritian Pioneer Company, under Lieut W H G Hamilton and a Workshop Detachment 6 Field Park Squadron from Benghazi under Capt R W M Lister. It was a 280 foot class 30 Triple Single Continuous Bailey with three spans supported on two 40 foot Bailey crib piers on mass concrete foundations in the Wadi bed. Since a wadi is liable to flood in the rainy season we carried the mass concrete five feet up the bottom panels of the piers. I have heard since that there has been at least one massive flood but the bridge is still standing.

Since there were no Bailey special parts in North Africa at the time, the top hamper and footings for the piers had to be improvised. RSJs were used from the Engineer Dump at Benghazi, as well as some steel plates taken from the sides of wrecked ships along the coast. Some of the masonry for the cratered South abutment was taken from old Turkish forts, but use was made of pre-cast concrete blocks

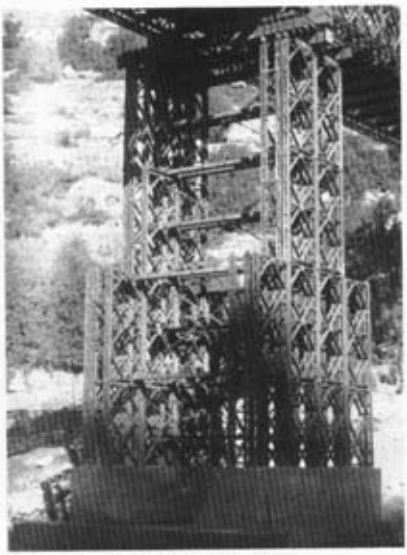
Maj K E Ward
The Wadi - el - Kuf bridges (p74)

No 1 bridge partly launched out to the first pier.

giving the appearance of masonry. Blocks in other Roman nearby forts were too heavy for us!)

The far or North abutment was eight feet above the near one therefore the bridge had to be launched up a slope of approximately 1 in 34.

The original bridge was apparently a masonry one with three arches on an S-bend, going from side to side of the gorge close under the cliff, but the Bailey was straight and had therefore to be built on a skew which meant that a great deal of the limestone cliff had to be blasted away to make a turning circle and



One of the massive piers.

room for the tail when under construction. In addition it was decided to launch it above the site of the first pier before erecting the pier, in order to use its nose as a cantilever to haul up pier panels; we had no cranes in those days. For these reasons the nose was kept light and the tail short by using plenty

The completed bridge with 23 Sqn vehicles driving over after it had been opened by the Emir in April 1949.

The Wadi - el - Kuf bridges (p75)

No 2 bridge completed.

of kentledge, including a D4 dozer which was moved back bay by bay as work progressed.

No 2 Bridge, further up the Wadi, was a 210 foot continuous Bailey with one central 20 foot Bailey crib pier and spanned a gap in a reinforced concrete viaduct high up on the cliff side and was built by 12 Field Squadron, Maj L Scott-Bowden (later Maj Gen L Scott Bowden CBE DSO MC*).

Since a narrow track had been found around the third gap higher up and along the cliff side, bridging vehicles were able to come down from above to build the bridge down the 1 in 15 slope while work on the bottom one was still in progress, and before any start was made on the top two gaps (there was also quite a good diversion around the fourth or top one).

The bridge, although theoretically stronger, was restricted to Class 30 on account of the slope. Both bridges were anchored at their bottom ends but allowed to slide on greased plates at the top ends and over the piers to allow for expansion and contraction between the great heat of the summer days and the cold of the nights and the shadow of the cliffs in the winter.

Lt Dusty Miller and 2Lt Don Cameron can be seen checking the levels at No 3 bridge site.

Further up at No 3 a two-way road was blasted through the limestone cliffs (enlarging the narrow track already mentioned) and an embankment and large culvert were built round the head of a wide deep, ravine, entering the main wadi from one side. I have no idea how the Italians had originally bridged the wadi as there was absolutely no trace of their bridge, not even the rubble.

The plant, stores for the whole project and some of the operators came from 6 Field Park Squadron at Benghazi. Some of the plant, notably compressors and a roller (very old), was driven by our own men. The shortage of reliable compressors was a great handicap on this job. A hold-up was caused by the withdrawal of 3 Troop to support 1st Guards Brigade (our affiliated Brigade in 1st Infantry Division) in an amphibious exercise at Tripoli, over 700 miles away. While 3 Troop was away 12 Field Squadron used the track to get at their bridge and the work on No 3 site did not start until much later. In the end, 3 Troop, 23 Field Squadron, Lieut N R "Dusty" Miller, a young regular, completed the road and culvert to sub-

The Wadi - el - Kuf bridges (p76)

grade. It was finally surfaced by the Public Works Department after we had left in January 1949.

At No 4 site near the top of the Wadi repairs had to be carried out to the abutments and span of a masonry bridge which was rebuilt as a Class 70 two-way bridge, with a reinforced concrete slab carried on large RSJs supported by rebuilt masonry abutments and wing walls.

The masonry for this was built by bricklayers and masons from all the squadrons, using Pioneer labour supervised by two skilled young regular corporals. The bridge was on a 1 in 17 slope, on a curve, the road also had a one foot super-elevation. Drawings and layout were done by a National Service Draughtsman, Sapper Kellaway a student architect.

No 3 bridge completed and culvert in use by my jeep 1949.

The masonry for this bridge also came from a Turkish fort and the abutment and wing walls were back-filled with rubble which probably came from a small cutting that had to be blasted between No 4 and 3 sites. Sand for all concrete had to be hauled up over 1000 feet from the beaches near Appollonia, 25 miles away along a twisting road past the

No 4 bridge completed.

The Wadi - el - Kuf bridges (p77)

spectacular ruins of the ancient Greek city of Cyrene. Stone for the aggregate was collected loose from the hillside by the Pioneers and crushed on site by a small and ancient crusher. No quarrying was necessary.

Design

I was originally responsible for all the design and at first was helped by a Sapper surveyor from the CRE(Works) and by Sapper Good, our own draughtsman, who was demobilised and replaced by Sapper Kellaway. The Works surveyor did not stay for long but left us a theodolite which I taught myself to use from the RE Pocket Book. Dusty Miller laid out all the road work.

When the Chief Engineer Middle East Land Forces visited at an early stage, our new Regimental 2IC, Major R E Young DSO DFC was called upon to design a reinforced concrete beam to strengthen the far abutment of the main No 1 Bridge because the Chief Engineer thought it was unsafe to bear the weight of a Bailey. He had experienced a serious accident in Italy when a similar masonry abutment had collapsed under the weight of a Bailey killing some of his men. Major Young also redesigned the improvised top hamper for the Bailey crib piers, and the reinforced concrete and RSJ beams for the No 4 Permanent Bridge.

The Bridge Builders

Most of the men who worked on this project were National Servicemen many of whom arrived after we had started in the Wadi. The ones I have met since seem to have enjoyed the period spent with us, and as one of them said to me: "we were little more than boys at the time". Some were skilled tradesmen and all did a very good job of which they are still justifiably proud. Sgt Bill Chalmers (now a Chelsea Pensioner) had tremendous experience in bridging, especially in Italy. He was on the main No 1 Bridge from beginning to end and his experience, organising ability and cheerfulness helped to hold the whole thing together. Most of the officers too were National Service, notably 2nd Lt David Gibbs, a Cambridge Graduate in Civil Engineering, who joined us just in time to take charge of the first launch of the Main Bridge.

Of course many more formidable tasks were tackled during World War Two, notably in Italy, but in the Post-War National Service Army this was a most worthwhile task of which we all remain very proud.

Memoirs

LIEUTENANT COLONEL R A BEVAN

Born 6 February 1918, died 7 April 1991, Aged 73

Dick Bevan was born at Hove, the eldest son of Lieutenant Colonel A E Bevan OBE and Edwina who died when he was five years old. He was brought up by his aunt and then cousins in Leicestershire. Educated at Brighton, where he captained the shooting VIII when it won the Ashburton Shield, and the Shop from which he passed out fifth, he was commissioned into the Royal Engineers on 27 January 1938. After his YO course he followed his father by going up to King's College, Cambridge where he read for the Mechanical Sciences Tripos.

On the outbreak of war in 1939 he was posted to 2nd Field Squadron in Egypt from where he was sent to Turkey and met his future wife, Margot, the daughter of the British Consul at Canakkale, and whom he married in Istanbul. Returning to Cairo he was a GSO3 at Headquarters Middle East Land Forces until posted to Kenya in March 1942 as SORE 3. He spent the remainder of the war with the East African Engineers. He was Adjutant to 12 East African (EA) Division RE in Mombasa, and served with 67 (EA) Field Company before going to Madagascar to command 60 (EA) Field Company which supported 22 (EA) Infantry Brigade in its 748 mile advance from Majunja, its beachhead, to Ihosy. Having brought his company back to Moshi he was promoted to Lieutenant Colonel at the age of 27, and took command of 51 (EA) Engineer Battalion in Burma, where it was engaged in the task of repairing the railway line between Paleik, 15 miles South of Mandalay, and Pynmana, 200 miles further South, so that the latter might be used as a railhead for projected operations towards Rangoon. Nine bridges were involved, including major ones at Sinthe and Pynmana itself. Once the Japanese had been cleared from the Central Plain, Indian Sappers were able to work on the southern part of the railway leading to Rangoon and by December 1945 the line was re-opened. He then brought the battalion back to Kenya for disbandment.

Returning to England he attended the Staff College in 1946, followed by a tour at the War Office. He then was posted to Malta to command the Fortress Squadron RE. Always a keen rifle shot, he was in the Army Hundred a number of times, and his squadron made a clean sweep of Malta's shooting trophies. He also played a lot of polo. He returned to East Africa Command in 1950 where he saw the final disbandment of the remaining elements of the East African Engineers in August 1951. Subsequent appointments included that of second in command of 9 Training Regiment and, following promotion again to Lieutenant Colonel, CRE Northern Malaya, and AA and QMG of 28 Commonwealth Brigade and North Malaya District, where he built a formidable reputation as a snipe shot. Returning to the United Kingdom he was AA and QMG of 53 (Welsh) Division TA for three years before returning to the Far East as GSO1 in the Military Planning Office at HQ South East Asia Treaty Organisation. His final posting was at HQ Western Command from where he retired in February 1970, to return to the family home in Southern Ireland.

For some years he was a modestly successful farmer and was able to indulge to the full his love of shooting and fly-fishing: he was never happier than when out with his gun and labrador or his rod. However he was dogged with ill-health and farming

Lt Col R A Bevan

increasingly became too much for him. Dick Bevan was a perfect example of a gentleman blessed in full measure with integrity, kindness and a transparent modesty, coupled with old fashioned courtesy and a dry sense of humour: it was said of him that "he was one of the last of his kind in Ireland". The crowded church at Dartrey was eloquent testimony to the affection and respect with which he was regarded. He died five months after celebrating Margot's and his golden wedding anniversary: she survives him together with their two sons who gave them five much loved grandchildren. *RDK-B*

COLONEL T H EGAN MBE

Born 13 November 1913, died 11 May 1991, aged 77

JW WRITES: I first met Tim Egan in 1938 at Kitchener Barracks, Chatham. He was a Corporal in the final year of his Military Mechanist's Course at the School of Military Engineering. I was attending the Engine Artificer's Course. He was a most popular NCO with everybody at the Depot Regiment and noted for his hockey playing and pole vaulting.

They were memorable days. He and a couple of his classmates had bought an ancient bull-nosed Morris Cowley in which they roamed the highways and byways of Kent at weekends.

In September 1939 a number of us were posted to Malta Barracks, Aldershot where No 142 OCTU was quickly formed. Amongst the first and second batches of officer cadets to arrive was Tim with a couple of his mechanist course friends. He proved to be an outstanding cadet and was commissioned in January 1940. I remember vividly the riotous farewell party in that dreadful freezing January. (We'd had to smash through two inches of ice on Hawley Lake in order to float the pontoons!)

I did not see Tim again until the Summer of 1959 —although I'd heard of him from mutual friends— he'd been OC of a field squadron in Italy in '43/44.

In June 1959 he was in Singapore in a "two hatted" appointment — as CO Engineer Base Installations (EBI) and SO1 (Resources) Far East Land Forces (FARELF) (Chief Engineer — the late Brigadier Nap Binnie).

At EBI Tim was a most popular CO, respected and well liked by everyone, British, Chinese and Malays alike. He was an excellent bridge player and organised matches between HQ FARELF Mess, Tanglin and our RE Mess at Alexandria.

He was an indefatigable worker, visiting RE Units in Malaya, Hong Kong and Borneo and ensuring that supplies of engineer stores, Bailey bridging, airfield construction equipment, generators, pumps, were despatched on time to the satisfaction of all units.

On return to UK in late 1960, he was posted to Southwark, where part of the Engineer Stores Group was located.

In 1961 he was promoted Colonel and took command of No 1 ESD Long Marston.

When he retired from the army in 1966 he joined Westinghouse. He had settled down in Clevedon with Win and had become a very active member of Beachley Old Boys Association and also a leading light in the St John's Ambulance Brigade.

Each year he would attend the Annual Veterans' Reunion held at Chatham and I particularly remember 1980 when he led the Veterans March Past at Rochester.

Tim thoroughly enjoyed his Corps Reunions and it was a sad and bitter blow when he was struck down by illness in the last two years. He has hundreds of old friends in the Corps who will remember him as a true and staunch friend.

COLONEL GEORGE MORE MC*

Born 3 November 1918, died 3 June 1991, aged 72

COLONEL George Robert Melville Harvey More, who died on 3 June 1991, at the age of 72, gave gallant service during a full career in the Army which included service with the 11th Scottish Commando and later, the Special Operations Executive (SOE).

Born on 3 November 1918, in Athens, Greece, where his father, Captain George I S More, RN was stationed, More was educated at Winchester and passed second into Woolwich in 1937. He was commissioned into the Royal Engineers on 26 January 1939.

When Germany invaded France and the Low Countries, More was stationed with the British Expeditionary Force (BEF) in France, on the Belgian frontier near Lille, commanding 2 Section 38 Field

Company with 5 Division. On 17 May 1940 he first heard of the possibility of withdrawal and large scale demolitions and was subsequently engaged in the destruction of a number of bridges during his withdrawal to the beaches of northern France. Under intense shelling and dive-bombing, his company moved onto the beaches at La Panne on 31 May and constructed piers of lorries with timber decking over the cabs to enable light boats and pontoons to be used to embark troops to warships waiting offshore. With his company reduced to ten men including his OC, who was seriously wounded, and with La Panne under constant bombardment and in flames, they were ordered to Dunkirk for their own evacuation. They found four men seriously wounded in an ambulance and More, with a fellow officer, managed to get them, and the remainder of the company, with his OC, into a folding boat at Bray Dunes and clear of the beach which was crowded with exhausted troops. He and his fellow officer then found a light craft and fetched up on a minesweeper offshore. More was Mentioned in Despatches for his action on the beaches.

Returning to England, he volunteered for the Commandos, and underwent training from September 1940 until January 1941 on the Isle of Arran. More then sailed with 11th Scottish Commando for the Middle East becoming part of *Layforce*. In early June 1941, the 11th Scottish Commando was prepared for an amphibious landing in Syria, at the mouth of the Litani River, against hostile Vichy French forces. These forces had given the Germans access to air bases in support of Rashid Ali's pro-Axis revolt in Iraq and there was a fear that these bases might be used against Allied forces in Egypt and for bombing the Suez Canal.

The Commando was divided into three groups for landing, the most northerly commanded by More with the CO Colonel Pedder and his HQ party in the centre and Geoffrey Keyes with the southern group. More's group quickly attained their objectives which included the capture of a bridge at Kafr Badda and a battery of 155mm howitzers. They also destroyed a number of vehicles including an armoured car with a German crew. The number of prisoners taken was embarrassingly large and they held their positions under heavy fire for most of the day. Meanwhile the centre group had taken their objective but the CO was killed and his HQ party became casualties. Keyes' southern group was mistakenly landed on the South bank of the Litani river and, with the help of Australian forces, crossed the river during the day. Meanwhile the northern group, under intense counter-attack and having released their prisoners without boots and trousers, pulled back inland but a small group under More came down by the landing beach in an attempt to join the centre and southern groups or reach the Australians. They were caught between machine guns and barbed wire and, following a fight where casualties were taken, the group surrendered and were taken inside the Aiteniye redoubt, the original target of the southern group. At dawn Keyes, with the southern group preparing to attack Aiteniye, saw the French in the redoubt surrender to More rather than fight. More and Keyes, who later led the Rommel Raid for which he was posthumously awarded the VC, were subsequently awarded the MC.

Layforce was shortly afterwards disbanded and More went as Adjutant to the CRE at HQ 7th Armoured Division in August 1941 until October 1942. He was then transferred to School of Military Engineering Middle East Forces as an Instructor.

Wishing to see more action he volunteered for SOE and joined the Yugoslav section. He was parachuted into German-occupied southern Serbia on the night of 20 April 1943 as a British Liaison Officer (BLO) to a Mihailovic Royalist commander in the Kraljevo-Krusevac-Pristina triangle. He was accompanied by a more senior officer, a Royal Signals wireless operator and a Yugoslav sergeant. Upon landing, the party were obliged to march on foot through the Kopaonik mountains for nearly a week being chased by German troops. At one point they were surprised by the Germans in a mountain village and barely escaped with their lives, coming under heavy fire. Much credit for their survival goes to an escaped Australian POW who had met them on landing, spoke fluent Serbo-Croatian and kept them one step ahead of the Germans.

Soon after their narrow escape, More travelled South with a Serb guide towards Kosovska Mitrovica to meet another Loyalist commander and to reconnoitre the Ibar valley near the Trepca mines. After approval from Cairo, More became attached permanently to this commander and his Korpus. The following month was spent by More training the Serbs in the use of British explosives and organising the blowing of a railway bridge between Kraljevo and Krusevac. The bridge was chosen for a demonstration of the effectiveness of British explosives, which the Serbs considered inferior, and, as it later transpired, for its proximity to a small local Partisan contingent. These Partisans would be blamed and their sympathisers subjected to reprisals by the Germans. In this way the 30

BLOs and their wireless operators were introduced to the Yugoslav civil war being waged between Tito's Communist Partisans and Mihailovic's Loyalist Yugoslav Army in the Homeland.

During the summer of 1943, More and other BLOs active in South Serbia arranged for the support and training of the local Loyalist forces, and reconnoitred targets on the German lines of communication. In July, More accompanied a more senior BLO on a reconnaissance of the Trepca mines near Mitrovica and planned an attack on the overhead railway that carried ore from the mine to the local railway station at Svecan in the Ibar valley. Following an aborted attack on a large bridge over the Morava river near Djunis with another Loyalist Korpus, More successfully demolished a bridge at Zvecan near the Trepca mine with his Loyalist commander's Korpus.

The period between September and December was one of considerable action for the Loyalist forces and their BLOs as they fought to take advantage of the Italian surrender and disrupt the Germans' supply lines. More and his group managed to perform a number of train demolitions on the railway lines in the Ibar valley and South of Pristina, and he blew a road bridge to the West of Mitrovica.

As it transpired, the Loyalists and the BLOs were to receive little additional supplies from SOE as Churchill transferred sole British support to Tito's Communists.

In mid December 1943, More and his colleagues were ordered by Cairo to abandon the Mihailovic forces to which they were attached and make their way to the Partisans if they felt they could make it with a reasonable degree of safety.

Several BLOs departed on Christmas Day, when things were slack, and succeeded in reaching the Partisans. More's departure was delayed by heavy snow when he, within reach of the Partisans, was ordered to return to his Loyalist commander. During the long and difficult trip back alone through the mountains, More developed pneumonia and was taken in by a Serbian family, who, at great risk to themselves, nursed him back to health using wet sheets to get his temperature down.

More and the remaining BLOs waited in winter quarters until the spring of 1944 when they were successfully evacuated from Mihailovic territory, together with a substantial number of downed US aircrew. They were flown to Bari in Italy by British and American aeroplanes from an airstrip that they built on a mountain in western Serbia near Cacak, being protected by the Loyalists from attacks by the Communists and the Germans.

More then left SOE and returned to regular soldiering serving with 225 Field Company, 4th Infantry Division in Italy and then in Greece during the Greek Civil War. In 1945 he was awarded a Bar to his MC.

After the War he remained in the Army moving to the School of Military Engineering Ripon in October 1945. He passed the Staff Course in 1948 and subsequently was posted to the RE Stores Establishment in Fayid, Egypt as a temporary major. He was made a substantive major in 1952 and moved to Osnabrück in Germany to 38 Corps Engineer Regiment.

Whilst there, he went to Holland in February 1953 to help organise assistance during the flood emergency. 61 Field Squadron together with a troop of the Royal Canadian Engineers rescued cattle and horses still alive in the area of the flooded island of Goeree-Overflakkee. They also collected carcasses which might have endangered the health of the population.

He went to the Royal Military Academy, Sandhurst in 1954 becoming Company Commander of Inkerman Company and in autumn 1956 was attached to the Joint Services School of Amphibious Warfare at Poole.

He became Commanding Officer 37 Field Engineer Regiment in March 1959 and in May that year went to Cyprus following the ceasefire during the Cyprus Emergency. He returned in November 1959 having brought most of the Regiment home after its disbandment.

In 1960 he went to the War Office until 1964 when he was promoted colonel and moved to Stanmore. From 1967 he ran the RE Records Office in Brighton until he retired in 1971.

Living in Milborne Port on the Somerset/Dorset border, he took an active part in local government being elected to his local and district councils as an independent. He participated in small businesses, in which he took great interest and enjoyment, including market gardening, and running a saddle-making business. He persuaded a master saddler to move himself and his family down to the local area from London and engaged several apprentices. More also worked for many years with the Soldiers', Sailors' and Airmen's Families Association helping ex-servicemen and women and their families and was President of the local Milborne Port Branch of the British Legion.

He is survived by his wife Mary, three sons, one daughter, two grandsons and two granddaughters.

RM

LIEUTENANT COLONEL SIR DESMOND FITZMAURICE CIE

Born 17 August 1893, died 10 October 1991, aged 98

LIEUTENANT COLONEL Sir Desmond Fitzmaurice, who has died aged 98, was a man of remarkable resilience and adaptability.

During the First World War — in the course of which he served in France, Belgium and Italy, and was Mentioned in Despatches — he developed an infection of the leg which left him with scarcely any knee joint. He went on half pay.

He worked for some years for the Callender Cable Co in England and India before being appointed Deputy Mint Master in Bombay in 1929.

Fitzmaurice stayed in Bombay until 1931, when he moved to Calcutta.

The next year he was appointed Deputy Master of Security Printing in India, and in 1933 became Master of Security Printing and Controller of Stamps.

The responsibilities of these posts extended well beyond the sub-continent, both to the East and the West.

Scion of a Co Kerry family, Desmond Fitzjohn Fitzmaurice was born on 17 August 1893. His father was a member of the crack Indian Civil Service. Young Desmond was educated at Bradfield and Woolwich. He was commissioned into the Royal Engineers in 1914.

In 1918 he returned to Woolwich as an instructor for two years and then went up to Clare College, Cambridge. Before his disability he was a versatile athlete, and in one meeting won the 100 yards, the quarter-mile, the half-mile and the mile.

After his return from India Fitzmaurice took up mixed farming in Ireland, demonstrating a particular penchant for pigs.

Desmond Fitzmaurice was invariably cheerful and made light of his ailments. He was an avid reader, a prolific correspondent, and a keen genealogist.

He was also a gifted linguist and mastered Japanese in his eighth decade. He was appointed a Commander of the Indian Empire in 1941 and knighted in 1946. He married, in 1926, Nancy (who died in 1975), daughter of the Reverend J S Leake. They had a son and three daughters.

BRIGADIER SIR MARK HENNIKER Bt CBE DSO MC DL

Born 23 January 1906, died 18 October 1991, aged 85

BRIGADIER Sir Mark Henniker Bt CBE DSO MC Royal Engineer and author, died on 18 October aged 85. He was born on 23 January, 1906.

Mark "Honker" Henniker was the epitome of the pre-war Sapper officer who gloried in the Royal Engineers' soubriquet "mad, married or methodist". Everything that he did had a touch of originality about it, and his lucid pen enabled him to pass on his enthusiasms to others both as a contributor to *Blackwood's Magazine* and through his four autobiographical books. With reddish hair, fair complexion and bright compelling eyes, there was something attractively heretical about him. As with many heretics, he could be intolerantly opinionated. Life was never dull when he was about.

His first book, *Memoirs of a Junior Officer*, is a minor classic bringing to life the almost care-free days of pre-war soldiering at the School of Military Engineering at Chatham, and then on the North West Frontier of India with the Bengal Sappers and Miners, where he won the MC in the Mohmand Campaign of 1933, using his ingenuity and unconventional methods in support of the leading brigade in the advance over the Karappa Pass.

He was no stranger to India where he spent his earliest days, his father, F C Henniker, being a member of the Indian Civil Service. He was educated

Lt Col Sir D Fitzmaurice CB
Brig Sir M Henniker CBE

at Marlborough College, the Royal Military Academy, Woolwich, and King's College, Cambridge, and was commissioned into the Royal Engineers in 1926.

He describes his exploits in the Second World War most perceptively and entertainingly in his book *An Image of War*. In 1939 he went with the British Expeditionary Force to France as Adjutant to the 2nd Divisional Engineers, and was given command of a field company in Montgomery's 3rd Division during the retreat to Dunkirk. After holding a sector of the final perimeter, he had, as he says, "a worm's eye view of the miracle of Dunkirk", rowing much of the way back to England with what was left of his company in two open boats. They managed to board an abandoned naval pinnace, got its engines working again and reached home safely.

Although not volunteering for parachute training, he was selected to command the Sappers of "Boy" Browning's embryo 1st Airborne Division, allowing full rein to his originality and tactical acumen. He provided many of the ideas and trained the Sappers for the successful Bruneval raid and for the first, but aborted, raid on the German heavy water plant in Norway in 1942. He landed by glider near Syracuse during the invasion of Sicily, and, though wounded, helped in the capture of the vital Ponte Grande and Primasole bridges. He took part later in 1st Airborne Division's capture of Taranto from warships in September 1943. He was appointed OBE (military) for his work in establishing Taranto as a base port.

He did not take part in the invasion of Normandy — that was the 6th Airborne Division's task — but he became increasingly out of sympathy with his airborne colleagues over what he saw as overcomplication of their plans, which led to delays and cancellation because they were overtaken by events on the Continent. He was transferred to the irascible G I Thomas's 43rd Welsh Division as its Commander Royal Engineers. Ironically, it was his task to rescue as many of 1st Airborne Division as he could from Arnhem by ferrying them back across the Lower Rhine in assault boats in the face of intense German opposition, for which he was awarded his DSO. He stayed with the Welsh Division — and was a friend of G I Thomas — for the rest of the war, taking part in the winter fighting in the Rhineland, the crossing of the Rhine and the capture of Bremen and Cuxhaven.

"Honker" was back in India in 1946-7, commanding an Anglo-Indian engineer regiment in the Punjab during the tempestuous upheavals of partition. He will, however, find his niche in British history for the part he played during the Malayan campaign as Commander 63rd Gurkha Infantry Brigade, which he graphically records in his book *Red Shadow over Malaya* — perhaps the best personal account of fighting in Malaya that has been written. Under his command, the brigade reflected his adaptability and resourcefulness in their unrelenting search for terrorist "needles" in the Malayan jungle "haystack". During his three years in command, they achieved an impressive number of eliminations in close co-operation with the police and civil administration, which was made all the easier by his flexibility of mind and method.

His last military appointment was as CCRE of 1st British Corps in 1955, which led to his close involvement in the Suez crisis. After he retired in 1958 he founded a private oil company which he managed until he retired again in 1977 to take up what he described as "quasi-scientific and harmless hobbies".

In 1945, he married Kathleen Denys Anderson. They had a son and a daughter. In 1958 he became the 8th Baronet on the death of his cousin, Lieutenant-Colonel Sir Robert Henniker, MC.

COLONEL K N WYLIE DSO MBE

Born 7 September 1911, died 23 October 1991, aged 80

KEN Wylie was commissioned into 26 YO Batch from Bedford and The Shop in August 1931, and went through the usual courses at the School of Military Engineering (SME) and Cambridge. At St John's College he quickly made his mark on the river, rowing at two in the *Lady Margaret* first boat in the May races and at Henley, subsequently being elected a member of *Leander*. His first posting after the Aldershot Riding Course in 1934 was to 56 Field Company at Bulford. Two years later he was selected for secondment to the Colonial Office to oversee the construction of a landing ground for Imperial Airways at Kano in Northern Nigeria. On returning from this assignment he served for a year with the Training Battalion at Chatham before re-posting to 56 Field Company for active service in Palestine. In June 1939 he returned to England as an instructor at The Shop, but the appointment was short lived as The Shop closed, never to re-open, on the outbreak of war. He then saw service with the British Expeditionary Force in France as Adjutant, 2 Corps Troops Engineers. After Dunkirk he joined the commandos and was posted to No 7 Commando, forming part of *Layforce* in the Middle East. In early 1941 he was promoted to Second in Command, and took part in a raid behind enemy lines near Bardia. 7 Commando was then moved to Crete, and during the German airborne assault on the island were given the task of covering the withdrawal and re-embarkation of the British force. In the course of the battle Ken was ordered to take over command of the Commando, and in the final stages of a gallant rearguard action many of them, including Ken, were taken prisoner. For his part in the operation he was later awarded the DSO. In his prison camp he was made "Escape Co-ordinator", but had no opportunity to escape himself until near the end of the war in Europe. At that stage the Germans were moving their prisoners eastwards away from the Allied advance. While in transit Ken and a Gunner officer managed to slip away unseen, and made their way West until reaching the American lines.

On returning to England after four years as a prisoner he did a fieldworks course at the SME before taking command of 553 Field Company in BAOR. In 1946 he went to the Staff College, and from there was appointed GSO II at the School of Combined Operations at Fremington. In 1949 he commanded 51 Port Squadron for six months before being selected for a course at the Joint Services Staff College, after which he was sent to Australia to join the staff of the Australian Staff College as a GSO I. In 1953 he moved to BAOR to take command of 27 Field Engineer Regiment at Minden. From there he returned to England in 1956 as CRE Salisbury Plain District, becoming Chief Engineer the following year. He retired at his own request in 1958. In 1945 Ken married Léonie Quarry. They had known each other for many years before the war, and this was the start of a long and happy family life, together with their three daughters. On leaving the Army they moved to Linton, near Cambridge, and he joined the Cambridge University Appointments Board, as assistant to W H van Grutten, who will be remembered by many pre-war YOs as our second year tutor at Cambridge. The following year van Grutten retired, and Ken took over as Head of the Engineering Department of the Board, a post he held until his final retirement.

All his life Ken Wylie's great love was for the sea and sailing. On arrival at Chatham from The Shop he soon won a place, against fierce competition, on the short list of crew members for *Hex* in her ocean races. He was elected to the Royal Ocean Racing

Col K N Wylie DSO MBE

Club (RORC) in 1936. In prison camp he and Teddy Parker, also captured in Crete commanding 42 Field Company, passed many hours discussing yachts and yachting, and sketching designs for their dream boats. In 1962 he and Léonie commissioned their first yacht, *Grenade*, a 35 footer built by Cardnell at Maylandsea to a Holman design. She was followed by *Goblet*, *Gale* and then *Barada*, which the Wylies bought in Malta and sailed home to Woolverstone. Over the years they sailed in many RORC and East Anglian races in these yachts, scoring valuable points for the Royal Engineers Yacht Club in the annual inter-club competitions. Ken was Rear Commodore of the RORC from 1967 to 1968, and Vice Commodore from 1969 to 1971. For many years he remained in the first rank of ocean racing sailors, and he took great pride and satisfaction in the sailing and racing successes of his three daughters.

A natural leader, Ken would surely have gone much further in the Army had it not been for the four lost years as a prisoner. When faced with a problem he would suck his pipe in quiet contemplation, then come up with a plan which he would carry through with single minded determination. He was always good company, and the crowded church for his memorial service at West Mersea is evidence enough of the affection and esteem felt for him by a very wide circle of friends.

GWD JMLG

MAJOR GENERAL HENRY HUTSON CB DSO OBE MC

Born 22 March 1893, died 23 December 1991, aged 98

MAJOR GENERAL Henry Porter Wolseley Hutson CB DSO OBE MC Deputy Engineer in Chief of the Army in 1946, and Chief Engineer of the Forestry Commission, 1947-58, died on 23 December aged 98. He was born on 22 March, 1893.

Henry Hutson was the oldest retired general officer of the Army and one of the last of the generation of Royal Engineers who fought throughout the two world wars and did so much to help develop our colonial empire in the inter-war years.

"Hutty", as he was affectionately known, was born in Colorado, the son of Henry Wolseley Hutson, and was educated at King's College School, Wimbledon, before passing into the Royal Military Academy, Woolwich, where he won both the King's gold medal, coming top of military subjects, and the Pollock memorial medal for academic studies. He was commissioned into the Royal Engineers in December 1913.

After war began the following year he went to France with the 59th Field Company RE in the 5th Divisional Engineers, being wounded in May 1915 during the second battle of Ypres and winning his MC for gallantry in action. He received the first of his three Mentions in Despatches that winter. By 1917 he was a captain in Mesopotamia, training as a proficient Arabist and taking part in General Maude's advance on Baghdad. During the turbulent aftermath of the city's fall in March, he headed a mission involving several days camel ride to Djebel Sinjar to carry to safety the young Princess Wanzas of the Yezidi tribe. His wartime work in the Arab world brought him his DSO and OBE.

Now fascinated with the Middle East, he accepted secondment in 1920 to the Egyptian Army in the Anglo-Egyptian Sudan. He worked on irrigation

Maj Gen H Hutson CB DSO OBE MC

projects around Khartoum and at Malakal on the Upper Nile where many of the older Sudanese had served with Gordon and Kitchener, and where he met the Mahdi's son. It was in the Sudan that he acquired his lifelong interest in ornithology which led to him becoming an ornithologist of international repute.

After a short spell back in England at the School of Military Engineering, Chatham, he was seconded to the Colonial Office to work as the roads engineer in Nigeria in 1928. He collected data for his book on Nigerian birds while he was developing the primitive road network. He was then posted to Hong Kong, where he became one of the founder members of the "Hong Kong naturalists" and in 1934 he was back at Chatham in the important engineer appoint-ment of Chief Instructor Field Works and Bridging.

In the run-up to the Second World War he was again in the Middle East, supervising engineer work needed to enable the Western Desert force to oppose the Italian invasion of Egypt in September 1940. Promoted brigadier, he became General Sir Richard O'Connor's Chief Engineer during the surprise British counter-offensive at Sidi Barrani, which bundled the Italians out of Egypt and Cyrenaica in the winter of 1940-41.

O'Connor's offensive was halted on the Cyrenaica frontier to enable Wavell to dispatch forces to Greece in the spring of 1941. Hutson went as Chief Engineer on the ill-conceived and disastrous campaign, and was responsible for the extensive engineer and demolition work needed for the withdrawal and evacuation. He himself got away with a party of Sappers from the Pelopónnisos in an unseaworthy caïque. They were picked up off Crete by a destroyer and landed at Port Said.

After a short spell as Chief Engineer of East Africa Command during the immediate aftermath of the Italian surrender in Ethiopia, Hutson was appointed Chief Engineer of the 9th Army in Syria, which was preparing to meet a probable German offensive through Turkey or the Caucasus Mountains. His masterpiece was the quarter-of-a-mile-long military bridge over the Euphrates River at Raqqa, built out of scrap steel collected from all over the Middle East. Sadly, from his point of view, it was only ever used by migrating tribesmen with their goats and camels. When the Persia and Iraq Command was formed in the autumn of 1942, he carried out much of the engineer reconnaissance work needed to establish the Anglo-American supply route to Russia.

Promoted major general in 1944, he was appointed Deputy Engineer in Chief, India. His last appointment in the Army was in 1946 as Deputy Engineer in Chief in the War Office. He retired in March 1947, and joined the Forestry Commission as its Chief Engineer later that year, serving in the appointment for 11 years. Meanwhile his second son, Brian, had taken up farming in Southern Rhodesia, and "Hutty" became deeply involved in the politics of Unilateral Declaration of Independence, publishing two books on the subject when he was already 85.

He married Rowena, daughter of Surgeon General P H Benson of the Indian Medical Service, in 1922. She died in 1989. His son, Brian, and daughter, Gillian, survive him.

LIEUTENANT COLONEL (QM) R J GROCOTT

Born 15 November 1924, died 3 December 1991, aged 67

Bob Grocott was born in Colchester on 15 November 1924 where his father was then serving in the West Yorkshire Regiment. At the aged of eleven he went to the Duke of York's Military School at Dover and five years later joined the Army as an apprentice at the Army Technical School in Chepstow, where he trained as a fitter. On completion of his training at Chepstow he joined the Corps and in 1943, after a short period of service in a field company, he was selected to join 16 Assault Squadron, with which he served throughout the Campaign in North West Europe, ending as a Corporal. After the war, he served in training, armoured and field units at home and in Germany.

Then, as a Squadron Sergeant Major, he had a challenging period during the trouble in Malaysia, for which he received a Mention in Despatches, and was promoted to Regimental Sergeant Major. He was commissioned in 1964 and served in several units before being appointed quartermaster of the Army Apprentices College at Chepstow, where he was promoted to Lieutenant Colonel, before retiring in 1979.

JCW writes: Bob Grocott was my Armoured Vehicle RE driver during the campaign in North West Europe, and we took part in many operations in Normandy, the Netherlands, the Rhineland, the Rhine Crossing and the advance to Bremen. We shared the dangers and the discomforts and also a number of lighter moments, and the high opinion I formed of him then has been borne out by his subsequent career. He was the complete Sapper, a tradesman, a fighting soldier, equally at home in a field or construction unit, as well as being a capable administrator and a good sportsman — able to go anywhere and tackle anything. FRB also writes: Bob Grocott was my quartermaster in Belfast during the difficult years of 1971-73. One could not have asked for a better colleague and friend. He was full of fun and common sense with a great sense of loyalty and an appreciation of the traditions of the Corps. He and his family made a great contribution to the life of 74 Engineer Regiment at a very testing time.

COLONEL STEPHEN HOLLWAY OBE MC TD DL

Born 25 May 1911, died 16 July 1991, aged 80

COLONEL Stephen Hollway, who has died aged 80, won an MC in 1943 as a Royal Engineer in the Sicilian campaign, where the terrain was an invaluable asset to the defending Germans and Italians.

His citation recorded:

"From 10th July to 15th August this officer has shown conspicuous gallantry and devotion to duty.

"From the day of landing on the beaches the demands made on Major Hollway's company have been conspicuous and unrelenting, not only in clearance of mines, road and water duties, but especially in bridging the many road demolitions and craters systematically carried out by the retreating enemy.

"Major Hollway was on one occasion injured by an explosion but after two days in hospital returned to his command, though still suffering from the effects of his injuries, and proceeded to carry out arduous bridging tasks and recces, extending over a succession of nights and days and frequently under accurate mortar fire."

The citation bore an impressive trio of signatures: General Alexander, Lieutenant General Dempsey and Major General Bucknall, the last being commander of the 5th Division with which Hollway served throughout the war.

The 5th Division then landed at Calabria, to the North of Reggio in Italy, at 4.30am on 3 September 1943. Coincidentally, this was exactly four years after the outbreak of the Second World War. The first major obstacle was encountered just North of Scilla, where a long stretch of cliff-side road had been blown into the sea.

This was ingeniously circumvented by using a two-mile long railway tunnel as a road. Fortunately this had not been mined, although it had been partly blocked at the North end where the enemy had exploded the roof. This and other debris in the tunnel was then cleared by the Sappers using a bulldozer.

The next day another major obstacle was encountered at Bagnara, where a viaduct had been blown, blocking the road at the top of a high escarpment, approachable only by steep gradients and hairpin bends. This was bridged by the first Bailey Bridge to be installed on mainland Europe. It was the forerunner, of many many more and was one of the most spectacular.

Stephen Hollway was born on 25 May 1911 and educated at Ellesmere College, Shropshire. He entered the family timber business and then in 1931 joined the 55th (West Lancashire Division), Royal Engineers, TA.

In October 1939 Hollway went to France with the British Expeditionary Force and was evacuated from Dunkirk in May 1940. Subsequently he served in India, Persia and the Middle East, before landing in Sicily. He fought in the Italian campaign and was in the battle of Monte Cassino. At the end of the war, in which he was also Mentioned in Despatches, he returned to the family business, of which he eventually became managing director. He also raised 107 Engineer Regiment.

Hollway was appointed Deputy Lieutenant, Lancashire, in 1967 and, with the alteration in county boundaries, became Deputy Lieutenant, Merseyside. He was appointed OBE.

Hollway was a tall, distinguished-looking man, who was a keen rugby player in his youth and became an equally enthusiastic yachtsman later. He was active in church and local affairs, and was also chairman of the governors of Ellesmere College.

His coolness in the face of danger was amply demonstrated one day in 1941, when he was informed by the local police at Ramsbottom in Lancashire that there had been an explosion in a

house in the town and one policeman had been killed and another seriously wounded. The house was reported to be booby-trapped. Inquiries revealed that a number of grenades and small arms ammunition had been stolen by a civilian working as a storeman in a nearby Infantry unit.

As Hollway had only recently taken over his Company he decided to investigate the matter and entered the house alone. Having "somewhat nervously", as he put it, negotiated the cellar steps, where the booby-traps were reported to be, he found an underground workshop and extensive damage but fortunately no more booby-traps.

Hollway is survived by his wife, two sons and three daughters.

Memoirs in Brief

Brief Memoirs are published below on distinguished men whose deaths have been notified recently in the national press and who served in the Royal Engineers during World War Two.

COLONEL M GRAFTON CBE TD DL, died on 21 December 1991, at the age of 72. He served with the Royal Engineers in Normandy and North West Europe in the 1939-45 War. After the war, as a TA officer, he commanded 101 Field Engineer Regiment (TA) from 1960-64 and became Deputy Chief Engineer of East Anglian District from 1964-66. He was appointed MBE in 1944, OBE 1964 and CBE 1976. Grafton was a managing director of the John Lewis Partnership from 1960-63 and director-general of the National Federation of Building Trades Employees from 1964-79. He was appointed a Deputy Lieutenant of Greater London in 1967. He is survived by his wife and two daughters.

SIR LESLIE JOSEPH. Sir Leslie Joseph a former vice-chairman of Trust House Forte, died on 7 January 1992. He was born on 4 January 1908 and educated at King's School Canterbury and Swansea Technical College. He served in the Royal Engineers in the 1939-45 war and rose to the rank of major. After the war Joseph became managing director of Battersea Park funfair but later took charge of the South Bank garden the centrepiece of the 1951 Festival of Britain. He was knighted in 1953. Subsequently, Joseph was High Sheriff and then Deputy Lieutenant of Mid-Glamorgan. He is survived by his second wife, with two daughters of his first marriage.

Correspondence

MOUNT PLEASANT COMPLEX SWIMMING POOL

From Lieutenant Colonel C E Zimmermann CEng MICE

Sir, — As the leader of the design and planning team for this project, I had the pleasure of being present at the Opening Ceremony on 28 August 1991. It was perhaps the greatest thrill of my service to see and use the finished article, and I felt very proud of what the Corps of Royal Engineers had achieved.

May I pay my own tribute to all the squadrons who were involved in the construction of the pool, to the support team back in the UK, and those who volunteered to go and join the permanent project team (particularly those on an unaccompanied basis). It is a great tribute to the determination and resourcefulness of their management and the skills of the tradesmen that it was completed on time and in budget, but most of all I believe it is a marvellous example of team-work. Yours sincerely — C E Zimmermann

(See concluding article in this *Journal* p62)

PRE WAR QUETTA BALUCHISTAN

From Major R J Francis BSc MICE MBIM

Sir, — Last August I saw Major N S Miller's letter concerning the steam engines in the GE's yard at Quetta. I wrote to you about my own work there,

which had gone on for eight months and which ended in 1991.

Quetta was an uncommonly interesting place to live in. It is however in a somewhat run-down state these days partly because it is much overborne by tens if not hundreds of thousands of Afghan refugees. These are mostly Hazarra and Pathan, with smaller numbers of Tadzikh and Kirghiz, and one gets the impression that they are very unlikely to go back home. Refugee camps apart, Quetta still presents some good points which the "old and bold" would be glad to see, the Staff College Museum in Monty House (three months wait to get approval to visit from the Army Headquarters in Rawalpindi); the Staff College Gymkhana ground; the Quetta Club; the turnout of the guards, particularly the Chagai Scouts on duty at the Frontier Force Headquarters; and good cricket being played to a large and knowledgeable crowd on the Garrison Sports Ground. It was sad to see the Christian cemetery, with private memorials dating back well over a century, and the memorial in the town to Christian victims of the 1935 earthquake. I was interested to see that the names of MacMunn, Lytton, Jacobs, Abbott and Campbell are still in use as place-names, but Sandeman seems to have gone out of favour. Yours sincerely — Dick Francis

Holes In The Skirting Board

From R M Stancombe, Institution of Civil Engineers (ICE) Training Manager

Sir, — It is good that the Institution of Civil Engineers is encouraging more Sappers to gain Chartered status. The excellent articles in the *Journal* by Major Macklin (August 1991) and Colonel Spaight (December 1991) should have drawn attention to recent ICE changes. Not long ago all engineers were military unless they were civil! Everyone will surely benefit from even closer links between the ICE and the Corps. The routes to ICE membership had been allowed to become too complicated. Thus, the recent ICE exercise was aimed at simplifying the process and concentrating on identifying the important qualities needed.

Sapper officers will have very many of the necessary qualities after only a few years of service. All Chartered civil engineers must be educated to honours degree standard. They must be good communicators, capable of original thought, independent judgement and able to develop new techniques. No problems here. As with all good army officers they must be clear thinking, observant, able to inspire confidence and good at forward planning. So why cannot all Sapper officers automatically become Chartered civil engineers?

The missing link is experience. A civil engineer, in order to satisfy his peers that he can apply the aforementioned characteristics in a construction environment, must have a minimum of experience "on the job". He/she must be able to identify reasonably complex problems in civil engineering, analyse them, prepare engineering solutions and participate in the implementation process. The time involved and the scale of work are of far less importance than the quality of the experience gained.

Thus Royal Engineer officers may be able to satisfy the membership requirements of the ICE at various stages of their careers. It is clearly going to be much easier for those who have worked on civil engineering projects. They will have the personal responsibility for concept, design, planning, costing, letting of contracts, supervision of work, quality control, measurement and safety as well as satisfying the numerous parties involved. Those without some of this experience will have to produce more evidence of their suitability.

The ICE with its demand for two reports (one covering all engineering work so far and the other amplifying experience gained from up to three (say) aspects), evidence of satisfaction of a list of objectives, a balanced programme of continuing education in civil engineering related topics, ability to demonstrate competence to two senior civil engineers at an interview and to write two essays (one on a technical topic, one on a general topic) is seeking confirmation of competence. It is not difficult as long as sufficient experience has been gained.

The question is — what are the limits and how much experience is necessary? Will a couple of typical Sapper construction projects plus some defence procurement and project management be sufficient? Will a full military career of construction, command and staff work convince the ICE Reviewers? Certainly the addition of at least 18 months of experience on construction work should, and normally does do the trick.

From this year on, British civil engineers are likely to be compared more rigorously with their other European counterparts than in the past. Hard experience and ability will surely be the essential ingredients for success. Sappers should observe carefully how their compatriots fair with their

applications for Chartered membership during the next few years; the limits should then become apparent. As always, it will often depend upon the quality of the products, particularly the documentary evidence presented by candidates at the Chartered Professional Review.

I hope therefore that even more suitably qualified Sapper officers will become members of the ICE during the next few years and make use of its excellent facilities. I shall always be delighted to provide what advice I can. Yours sincerely — Mike Stancombe

Reviews

THE MILITARY ON ENGLISH WATERWAYS 1798-1844

HUGH J COMPTON AND ANTONY CARR-GOMM

Published by the Railway and Canal Historical Society, Fron Fawnog, Hafod Road, Gwernymynydd, Mold, Clwyd, CH7 5JS — Price £9.90
ISBN 0 901461 14 8

THE somewhat prosaic title conceals a fascinating episode in Army life at the turn of the 18th Century. The development of the canal system in Britain provided the gentlemen at the Horse Guards with the means of moving soldiers within the country and to their ports of embarkation for overseas service at a considerable saving in both time and money over the only other means available, marching. With the help of that well-known firm of carriers, Pickfords, they took full advantage of the facility until the arrival of the railways offered an even better alternative.

Furthermore, the threat of invasion by Napoleon resulted in the building of the Royal Military Canal to provide for the rapid movement of troops across the southeast of England. This engineering task was undertaken by the Royal Staff Corps, not the Royal Engineers, since it was the affair of the Commander in Chief rather than the Board of Ordnance.

In the process of producing all the facts and figures relating to this use of the canals, the authors (one a former Sapper) have also managed to give a delightful glimpse into the real practicalities of moving soldiers in those days, something that we tend to take for granted. Officer In Charge (OIC) Barge clearly had as much to worry about as OIC Plane has today, probably more so as the vessels had neither catering nor toilet arrangements. The book's introduction also provides, incidentally, an admirably neat summary of the various agencies responsible for managing the Army and its finances in those days.

The book, 100 pages with 21 illustrations and ten maps, is attractively laid out and unusually free of misprints and inaccuracies — a thoroughly professional production reflecting great credit on the Society and its work.

GWAN

JOURNAL OF AN ARMY WIFE

AUDREY CREIGHTON WILLIAMSON

Published by Square One Publications, Saga House, Sansome Place, Worcester — Price £12.95
ISBN 1872017 48 7

THE writer has impeccable credentials for telling her story. She not only had 32 years as an Army wife, but she had previously been in uniform herself as a member of the Queen Alexandra's Imperial Nursing Service.

Her journal begins with her own service experience, sadly marred by ill health. The shipboard romance with a young Infantry officer, her marriage to him in India and is followed by details of their various postings around the world — in Africa, Germany, the Middle East and the UK. The description of these tours of duty, with the vicissitudes of Service life accurately and amusingly portrayed — the dreary substandard hirings and wearisome climates happily balanced by the friendly shelter of the Service "Umbrella" and the excitement of living in foreign countries — all this is familiar ground and would probably feature in many of our own as yet unpublished journals!

What makes this an unusual record is the personal commentary on political and social changes wrought by the Second World War. Mrs Creighton Williamson has a strong religious faith which permeates the journal and leads her to criticise fiercely the "New England" fall, as she sees it, of "fraudulent and corrupting notions that have come from Central Europe via the United States". I

personally would have preferred Mrs Creighton Williamson to have ended her journal on her husband's retirement from the Army as the last chapter is a rather confusing collection of thoughts and quotations. Nevertheless many "old hands" will find much to enjoy in this book.

PJW

THE MAGIC THAT WAS *TWILIGHT*

BERTIE BLOOMER

Published by Square One Publications, Saga House, Sansome Place, Worcester, WR1 1UA — Price £14.95
ISBN 1872017 44 4

THIS is a book, not just for sailors, armchair or otherwise, but also for those who aspire to adventure and travel of any sort. It is a book about a boat, a very special boat, of her skipper who sailed and loved her for 37 years, of the friends they made and of her tragic end.

Twilight was one of those very rare, Falmouth Quay Punts that had evolved for the humble but vital task of transferring messages to and from the last of the great sailing ships as they lay in Falmouth Roads. "Falmouth for Orders", was a frequent instruction to captains of the old ocean traders as they departed foreign ports bound for the UK and the little weatherly quay punts saw to it that those orders were delivered without delay when they arrived. Bertie acquired her in 1951 when she had already been in commission some 47 years and his book relates this second half of her long life with him as owner. Perhaps "owner" is not quite the correct term to describe their relationship. Classic boats of *Twilight's* ilk, like old houses, do not have owners. They have a succession of caretakers, privileged to cherish them and tend to their needs during their working span. And in return, all who have trod her decks have been blessed with a unique and unforgettable pleasure.

The story unfolds in the form of a journal charting the many cruises, mishaps and adventures that the pair experienced, first in Home Waters (subject to postings) and later, on Bertie's retirement, in the warmer idyllic Mediterranean. There are also short diversions into *Twilight's* earlier life from her launching in 1904 and a little of Bertie's own sailing background.

What shines from the pages is a man dedicated to sailing a lovely traditional boat in a truly traditional manner, both going about their business without fuss in a quite unassuming way, shunning the bright lights that now attract us "modern" sailors. We travel with them exploring quiet harbours and anchorages and making new friends in every one. There are delightful snippets evocative of an earlier era of yachting, when 10/6d was considered expensive for a night's berth, when a sharp lookout had to be kept for steamer traffic and when crew changes in foreign ports were effected via the packet boat service. Interesting facts emerge too. *Twilight* was one of the entries in the inaugural Old Gaffers Race and her skipper was probably the first Sapper CO to visit his detached troops via private yacht (and the first to claim an allowance for doing so!).

The reader however, will need to delve a little between the lines to extract some of the excitement this intrepid pair experienced. Like the time when bound single handed from the Medway to the Solent for a Royal Engineer Yacht Club regatta, the gaff yard broke off North Foreland causing an immediate about turn for home. After a round trip of some 74 nautical miles in difficult conditions, Bertie calmly reports that he made and fitted a new spar before the end of the weekend — the return trip under short rig would alone have been enough for most of us.

Despite the inevitable "log book" style, I found this book to be most readable. I would have liked to have seen some of the Mediterranean voyages superimposed on the rather crude (but effective) chartlets and I would have dearly loved to have learned more about *Twilight's* layout, construction, quirks and foibles. Her last moments are quite understandably, sparsely detailed and the full drama and tragedy of those fateful hours will remain the author's private domain. This is of course quite fitting because within the covers of *The Magic that was Twilight*, she lives on.

KRJ

LIFE BLOOD OF WAR

Logistics in Armed Conflict

MAJOR GENERAL JULIAN THOMPSON

Published by Brassey's (UK), 50 Fetter Lane, Headington Hill Hall, Oxford, OX3 0BW — Price £29.95 (hard), £14.95 (soft)
ISBN 008 0409776 (Hard)
ISBN 008 0417760 (Soft)

THE two aspects of this work which most commend it are its title and author. Throughout history, as Thompson illustrates, success in battle has depended

as much on logistics as on strategy, tactics, leadership and fighting spirit. The usual description of logistics as a 'tail' is wholly inappropriate; "lifeblood" hits the nail on the head. That the term should have been coined, and the book written, by a commander of Thompson's stature is even more appropriate. Throughout the work the inextricable link between operations and logistics is demonstrated, as are the consequences when the link is broken.

The book attempts to illustrate the importance of logistics by drawing on campaigns from those of the Assyrians and Alexander the Great, through the Crusades to Vietnam and the Falklands. It is in his analysis of two Second World War campaigns, North Africa and Burma, that the author best achieves his aim. He draws out vividly the influence of terrain and climate, the impact on operational capability of long and vulnerable lines of communication, the need to harness and maintain all possible means of distribution — sea, air, road, rail and animal transport — the importance of effective logistic command, control and communications, and above all, the validity of the principles of logistics, especially foresight.

Logistics cannot be discussed in isolation and the author, rightly, has painted the operational environment in each of his chosen campaigns. He has, however, given over too great a proportion of his work to this end. In analysing the French and American involvement in Indo-China, for example, which occupies about a quarter of the book, only 20 per cent or so is about logistics. It is fair to say that logistics is a pretty boring subject to write about compared to epic battles such as Dien Bien Phu, but that is to lose the point of the book!

Needless to say, the chapter on the Falklands War is written with detailed knowledge and considerable authority. It is unfortunate that the Gulf War, which had ended before the book went to press, is relegated to a three page tailpiece. The scale of logistic support required to mount that operation was of a different order of magnitude to the Falklands and merited serious analysis and a delay in publication.

Where the book goes seriously off the rails is in the final chapter entitled "Crystal Ball Gazing" — Future Wars and their Support. Not only is most of this section entirely irrelevant, it is also exceedingly superficial in its analysis. An example from a paragraph headed "Where Now With The Tank" may serve to illustrate this criticism:

"This is not to suggest that the tank has had its day; yet. But its future is probably limited. Sheer economics alone militate against wholesale scrapping of all British Armoured Fighting Vehicles in one fell swoop. But it is important to decide whether or not the present generation of tanks should be replaced with what amounts to just a "better tank" or by something absolutely different."

Quite what this has to do with a book on logistics in armed conflict is far from clear.

The Lifeblood of War is therefore something of a curate's egg. It is, nevertheless, worth a read by serious students of the military art, G snobs and logisticians alike.

GWF

... AND WE THOUGHT THE WAR WAS OVER

DAVID LEE
(Air Chief Marshal Sir David Lee)

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ISBN 0 948807 13X

IN early August 1945 when atomic bombs fell upon Hiroshima and Nagasaki the Japanese quickly capitulated. Lord Mountbatten, then Supreme Allied Commander, was given charge not only of Malaya, Siam and Sumatra but also Borneo, Celebes, Java and southern Indo-China. Within this area there were about 3/4 million Japanese (mostly military) and some 120,000 Allied prisoners of war and internees scattered in camps throughout the theatre. The long-planned British invasion of Malaya and Singapore, Operation *Zipper*, went ahead unopposed and a combined British and Indian Division was sent with the Americans to mainland Japan. But it was nearly seven weeks after the end of the war before British forces could arrive in Java and Sumatra. Meanwhile there had been no option but to put the Japanese Supreme Commander in charge of maintaining law and order. This gave the Indonesians their chance. They had effectively run their own country throughout the war. Like everyone else they had not expected it to end so quickly, but when it did they lost no time in declaring independence. They had a constitution ready and on August 29th nominated Dr Sockarno as President. They wanted to be rid of the Dutch at any cost and were able to take over all the weapons they required from the surrendered Japanese. The supposedly indolent easy-going Indonesians bred a particularly vicious and fanatical brand of 'extremists' as they

were then called. Their hatred turned first against their industrious and therefore more prosperous neighbours the Chinese; the burning and pillage of their kampongs became commonplace. Next it was the turn of the wretched Dutch colonials.

When the British forces arrived it was with no more sinister intention than to keep law and order and get the prisoners of war and internees out and home. The process of decolonisation was a Dutch affair. But this was not how the extremists saw it. In their eyes the British were simply stalking horses for a reintroduction of Dutch colonial rule and an equally fair target for guerilla warfare and terrorism. It was more than a year before all the prisoners of war and internees could be extricated (sadly not all alive), the Japanese ex-military sent home and an agreement struck between the Dutch and Indonesian governments for the return (at least for a time) of Dutch administration and armed forces. Holding the ring while this went on cost the British forces dear. 23 Indian Division, for example, having suffered heavily in the Burma campaign, were to take 1500 more casualties in Java. One brigade commander (Mallaby) was murdered. It was a bloody, disagreeable, and much under-reported campaign.

But there have been some good things written about it, mainly autobiographical. Dirk Bogarde, then in his mid-20s was posted to Java in November 1945 as an air photo interpreter (API) in 23 Division, and took on additional duties as editor of the divisional paper *The Fighting Cock*, English Announcer for Radio Batavia (now Djakarta), producer of a revue in Bandoeng and ADC to the divisional commander General Hawthorne. Also he fell in love. The story is vividly told in his best-selling autobiography *Backcloth* (Penguin 1987 £3.99). Dan Raschen's book *Wrong again Dan* (Buckland Publications 1983 £8.50) [reviewed in the RE *Journal* of March 1984] tells the story, as seen by a very young officer, of engineer exploits at the same time in Sumatra, where things were slightly less bloody. David Lee, author of the book under review, was Station Commander at Kemajoran (j is mute) airport just outside Batavia. Then a Group Captain in command of 904 Wing, he went on to become an Air Chief Marshal, Air Member for Personnel, UK Military Representative in Brussels and, in retirement, an official historian to the Ministry of Defence. He claims that many of the names in his book are fictitious, though it is not clear why they should be and the dialogue invented. But the detailed accuracy of all else can be assured. The story is told flatly without literary flourish, and if his account is less colourful than Dirk's and Dan's the result is no less telling.

Lee's command consisted of Thunderbolts, Dakotas, Mosquitos (wooden aeroplanes which eventually unglued themselves in the tropical damp and had to be incinerated) together with a few Dutch-manned Mitchells and a couple of tiny communication aircraft crewed by Japanese! The workload was astonishing. In ten months the Dakota squadron alone flew 11,000 sorties in 24,000 flying hours. They carried 129,000 passengers and 26,000 tons of freight. It was a triumphant administrative achievement carried out in miserable climatic conditions, at the end of a long Line of Communications, at a time when the rest of the world was preoccupied with demobilizing. The wing sustained casualties not only from accidents but aircraft were shot down and airmen shot on guard or in the city. Keeping on top of all this called for leadership of a high order. There had been highly unfortunate incidents in India, Ceylon and Singapore where airmen refused to work in angry protest at the slow rate of repatriation. Lee spoke to all his airmen in the dining hall, taking the precaution of going to the back of the hall and making the men turn round, thus putting any troublemakers in the front. He spotted one argumentative man and spoke to him privately next day. It then came out that this man, who worked in the accounts department and was very smart and efficient, had led a 'strike' in India which had led to an air station being shut down. Lee won the man over by sending him on a Dakota sortie where he could see for himself the frail, ill and emaciated people being brought out of the interior. No airman ever refused duties in 904 Wing. And Lee records one other remarkable fact. The airmen's quarters were a row of detached houses along one side of a street near the airport. The houses on the opposite side all contained brothels. There was, Lee says, little or no trade across the road; the ladies striking up "an extraordinary form of platonic friendship with the troops". It is a tribute to Lee's obvious genius for man management that one finds this believable.

And there were consolations. Lee commandeered an uninhabited island and built it up into an unofficial leave centre for the airmen. Japanese Guilders, which for much of the time were the most acceptable currency in Java, were issued to all ranks free of charge, though not in large quantities. Social life in the city began to revive.

For those who could afford it the "reistaffel" was a notable experience — a curry meal at which the innumerable accessories were served by a long queue of Javanese maidens bare-breasted. Lee got himself a trip to Bali, then totally undeveloped, and was entertained in 'South Pacific' style by a mysterious Belgian artist called Le Marie and his beautiful Polynesian dancer wife Polluk.

There were Royal Engineers in Java at that time (indeed the writer of this review first met Eddie Peel operating a rock crushing plant in Batavia) but you would not guess it from this book. The major task of rehabilitating the runway of Kemajoran with multiple layers of bituminized Hessian was done by Japanese, supervised by a handful of young airfield construction engineers from Singapore. The result was very comfortable — like landing on a mattress — although it puddled alarmingly in the rain, and loose ends had continually to be stuck down again by Japanese with tar brushes.

The book has only token illustrations (by Richard Lee) and one very inadequate map. It would have benefited greatly from a dozen photographs and an index. There are few misprints. It tells the history of a forgotten but highly creditable campaign, against a vicious insurgency, in a simple and readable way which brings the atmosphere vividly to life. Above all it paints a wholly unassuming self-portrait of a very remarkable leader.

WGHB

A BRIDGE TO VICTORY

BRIAN HARPUR

Published by Her Majesty's Stationary Office, PO Box 276, London SW8 5DT — Price £14.95
ISBN 011 772650 8

THIS book, written in layman's language, deserves a wider public than that available to a Ministry of Defence publication. The author has gone to great lengths to substantiate his thesis that the Bailey bridge was a major war winning invention. His account of Sir Donald Bailey's battle with his supervisors to be permitted to proceed with detailed design, other than in his own time, ranks with the struggle of Sir Frank Whittle and the jet engine. Brian Harpur couples his account with most fulsome tributes to the part played by the Corps of Royal Engineers at all stages from design through development to subsequent use on the field of battle. Field Marshal Lord Montgomery crystalised this latter phase when he recorded that he could never have maintained the speed and tempo of forward movement in Italy and North West Europe without large supplies of Bailey bridging.

I believe the book underestimates the extent to which the Bailey bridge, if not its design, is well known to substantial segments of the public worldwide. The chapter devoted to the crash development of a similar bridge to suit American production and equipment, and its subsequent popularity with the US forces, illustrates my point. In addition, for many decades since World War Two, the account given of uses of adaptations to the basic bridging equipment for civil engineering purposes worldwide adds further force to this argument.

The role of the Corps of Royal Engineers was indeed crucial to this success story.

Early design advice by Sir Ralph Freeman and Brigadiers Stewart and Jarrett Kerr are well recorded. I can bear personal witness to the role of the latter in getting the initial trial bridge made and then into mass production. The role of the School of Military Engineering (SME) at Ripon in thinking through and disseminating the drills needed to build the bridge in the field is not mentioned. Much of the procedures for reconnaissance, site layout, free loading of transport and construction were put over at Ripon in a series of crash courses from early 1942 onwards. Construction in the face of enemy fire is well covered in the book by personal testimonies and photographs.

The author does not dwell on the extremely rapid design and introduction into service of the Bailey Pontoon bridge as soon as the fixed bridge was accepted. By the spring of 1942 the prototype was delivered to Ripon from Christchurch. Proving and acceptance trials were staged across the lake in Studley Royal Park under the control of Major George Harby, then Senior Instructor Bridging at the SME. Success was achieved first time round and the bridge went into mass production just in time for the Italian campaign. This was a further feather in the cap for the great team assembled at the Experimental Bridging Establishment and its Chief Designer Sir Donald Bailey.

Brian Harpur handles with sympathy the difficulties faced by Sir Donald, both in the years up to 1941 in seeking permission officially to proceed with the design of his bridge, and in the post-war period to gain a grant for his invention. His epitaph is surely that his name will ever be associated with the military bridge which was his brainchild.

I recommend most strongly that consideration be given to trying to get this book made available to a

wider public. I believe that adequate numbers of readers still exist. Subject to re-editing, perhaps, for the needs of a wider audience, this book could enhance yet further the reputation both of the creator of the Bailey bridge and of the Corps of Royal Engineers.

DJW

FURNISHED WITH ABILITY: THE LIVES AND TIMES OF WILLS FAMILIES

S J Watson

Published for the Dulverton Trust by Michael Russell (Publishing) Ltd, The Chantry, Wilton, Salisbury — Price £16.00
ISBN 0 859 55 1768

It is appropriate for the RE *Journal* to welcome this unusual book from the pen of a regular Sapper Officer who, after a promising career, had to retire on medical grounds in 1964.

The author, Colonel Sidney John Watson MBE, has written a fascinating history of the Wills families (of tobacco fame), to which he is connected by marriage. Previously he had written four other books in aid of good causes, and profits from this book have been assigned to the Dulverton Trust.

It took the Wills family 100 years to progress from lodging over their tobacco shop in Bristol to residing in country mansions, while the capital of their business rose from £15,000 to £15,000,000. The industrial history of the family might be regarded as a subject for the specialist but, in parallel with it, is the development of their philanthropic activities, which have been on a major scale, and have brought lasting benefit to many aspects of the social life of the nation.

Sidney Watson decided that in this book, which is handsomely presented, the two themes of industry and philanthropy should be set against a historical background of social development from the eighteenth century to the present day, and in achieving this objective successfully he has produced a book which is full of interest to the general reader.

Members of the Wills family have served on land, at sea and in the air in wars of the last 200 years, and others have served in Parliament, while their philanthropic activities have brought them into contact with hospitals, churches, universities, youth training, industrial relations and environmental conservation.

Thus the scope of the book is wide, and in his historical review, the author's comments are sage, humorous and pungent. His upbringing in a long-established family in Ireland, his schooling at Eton, and his experience in the Corps, including a Staff Course at Fort Leavenworth, USA, have combined to equip him well for the role of an amateur historian.

Those who have lived through this troubled twentieth century will find much in this book to entertain and enlighten them.

CLR

STEAM SAPPER

Charles Meacher

Published by Square One Publications, Saga House, Sansome Place, Worcester, WR1 1UA — Price £7.50 (signed copies direct from C Meacher, 12 Scotstarvit Place, Finglassie, Glenrothes, Fife, KY7 4TN).
ISBN 187 201 7517

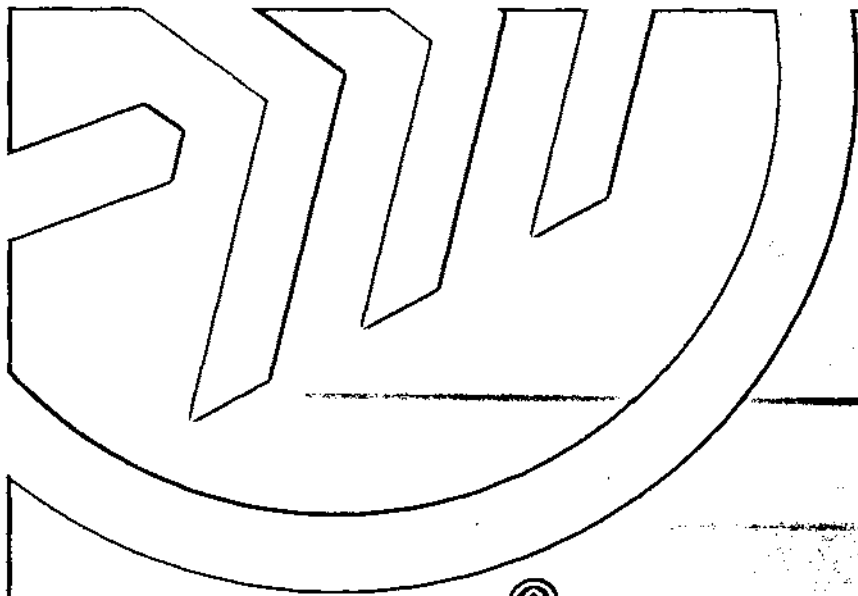
Nothing to do with traction engines, this is the personal story of a railwayman turned Sapper and his adventures during the war against Hitler. These took him from his native Scotland, where he worked on No 2 Military Port at Cairnryan (see article this *Journal*) through the alarms and excursions of the blitz on the South coast of England, to Longmoor (where he qualified as an engine driver) and to North Africa and Italy.

The tale is told in a natural and vivid style, rather as if the author was reminiscing in his favourite fireside chair or corner of the bar. The result is a wealth of insights into life as a sapper in the wartime Corps and particularly of that proud and close-knit family of Transportation. There are plenty of stories to entertain which will certainly bring back memories to any contemporaries, together with anecdotes of the author's personal life (he managed to squeeze in marriage during his other adventures). One of his sons, Major Graham Meacher, is currently serving in the Corps (PCS) and capbadge pride is another feature of the book.

But all this is background to the serious business of working as a rigger on the screw piles during the construction of Cairnryan, or the realities of life on the footplate of a steam locomotive in the Italian Campaign, to say nothing of his duties as a soldier.

No doubt there is some poetic licence and smoothing over of some of the harder experiences but we can be grateful to Charles Meacher for the trouble he has taken in producing an entertaining book at an affordable price and making a most valuable contribution to Corps records.

GWAN



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